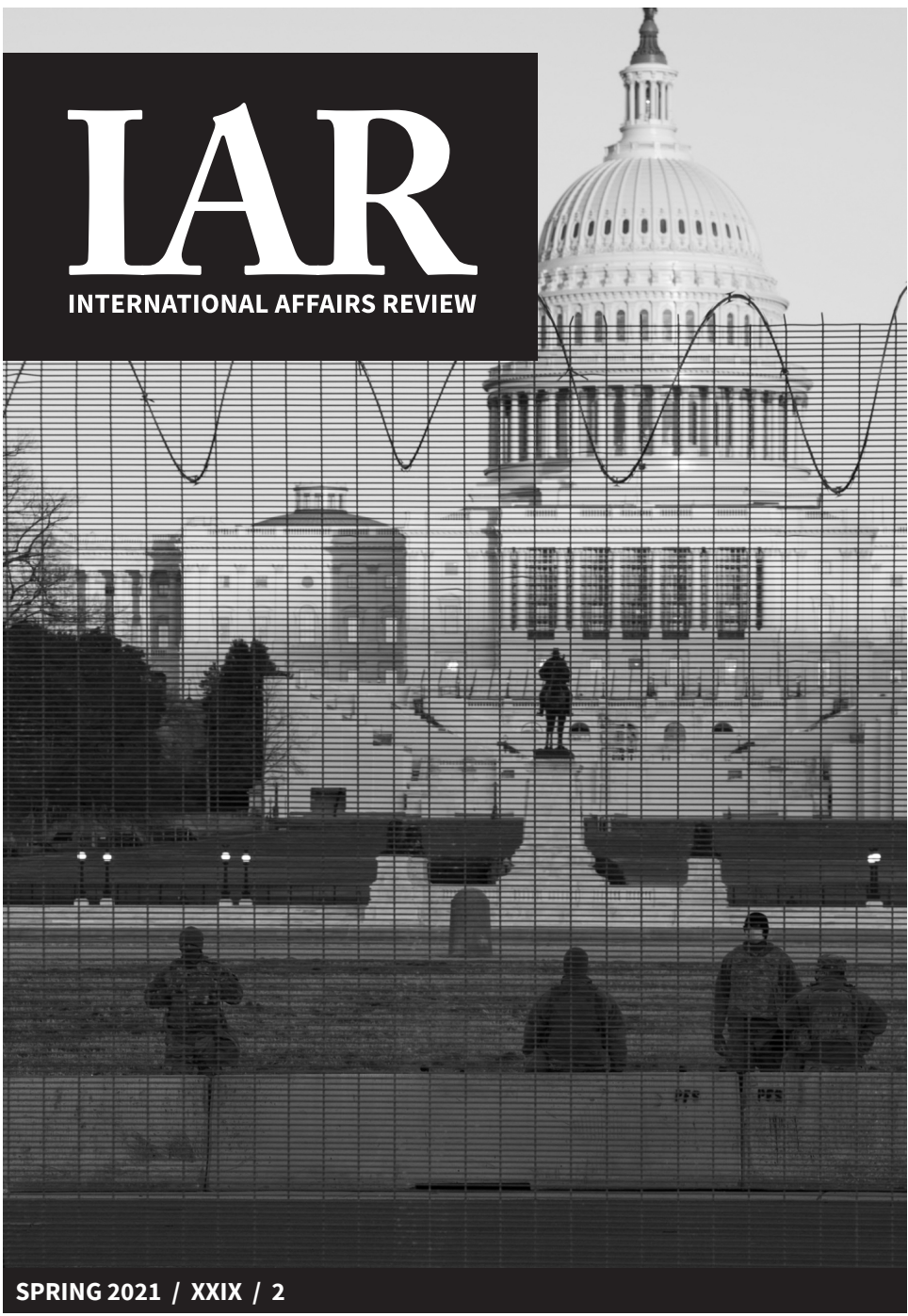


IAR

INTERNATIONAL AFFAIRS REVIEW



SPRING 2021 / XXIX / 2

- Rural Road Connectivity & Its Effects on Access to Health Care: Evidence from India's PMGSY Project
- Applying a Gender Lense to Security Studies
- Hydro-Hegemony and Great Power Competition on the Mekong River
- Along the Borderline: The Critical Links Between Human Trafficking and U.S.-Mexico Immigration
- Arms Trafficking: Fueling Conflict in the Sahel
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EDITORS' NOTE

Week after week, we are bombarded with fresh headlines about a new catastrophe or crisis. At one point or another, we have found ourselves “doom scrolling,” or binge-reading information about the current crisis at hand commands our attention. As students of international affairs, we are expected to stay up to date, to the day, on what the current developments in our fields of interest are. While it is important to stay informed on recent developments, it is just as (if not more) important to stay in tune with the long-view on our fields of interest.

At International Affairs Review, we seek out long-view articles on a variety of topics. Each edition offers unique insights from those in the Elliott School community. Each article is an in-depth exploration of an issue or challenge, along with some insights on how we might address it. We hope that you’ll unplug from the world if only for 30 minutes, to take the long-view with us on these topics.

We are grateful to the whole editorial team for the incredible work they’ve done this year and we are equally proud of the final product. With each summer edition comes a leadership transition at IAR. We’ve all had a spectacular year, despite the myriad COVID-19 challenges. After the many trials and tribulations we faced together this year, we know we are leaving IAR in good hands and we look forward to their success.

Best,
Dayne Feehan, *Editor-in-Chief*
Alexander Morales, *Managing Editor*

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Rural Road Connectivity & Its Effects on Access to Health Care:

Evidence from India's PMGSY Project

McKenna Burelle

McKenna Burelle is pursuing a Bachelor of Arts in Economics and International Affairs, and her specific academic interests lie in development economics. McKenna's research in the Dean's Scholars Program focuses on the social and economic implications of improved rural road connectivity, provided by the Pradhan Mantri Gram Sadak Yojana (PMGSY) project, in India. During her undergraduate experience, McKenna has most enjoyed serving as a Learning Assistant for Professor Foster's Principles of Mathematics for Economics class in the fall semester of her Junior year. Also, in her junior year, McKenna studied abroad in Rabat, Morocco and lived with a loving host family before being sent home due to the COVID-19 pandemic. Finally, McKenna has valued being a member of GW Women in Economics, serving as the Director of Finance for her sorority, and captain of the GW Women's Club Soccer team.

ABSTRACT

The Pradhan Mantri Gram Sadak Yojana (PMGSY) is a project designed by the Indian government in 2000 to bridge the large infrastructural inequalities that exist between rural and urban regions of India. The project's goals are to construct all-weather roads in rural habitations throughout the majority of India. In 2013, a phase two, PMGSY-II, was initiated to put more emphasis on intra-village road systems and improve access to important village institutions, such as health centers. This paper studies the impact of PMGSY on accessibility to health care facilities in rural India using a difference-in-differences framework. Using data from the Women's Questionnaire in the 2015-2016 Demographic and Health Surveys in India and district level information on roads from the PMGSY public database, I exploit the timing of PMGSY-II roads as a source of exogenous variation in access to health centers. To measure access to health facilities, I examine changes in health care utilization for births occurring from 2010 to 2016. I find that antenatal care and Tetanus vaccinations for mothers improved along with respondents' ability to access vehicle transportation to health facilities in districts treated with PMGSY-II roads. However, while there has been some research conducted on road connectivity and its impacts, more research is needed to continue bolstering the growing body of literature on the effects of rural road development.

INTRODUCTION

India is one of the fastest growing developing economies in the world. India's growth has led to a great accumulation of wealth, but rural regions across the country remain severely underdeveloped and impoverished. The Human Development Index (HDI), rated India at a .645 in 2020, which places it 131st out of the 189 countries ranked.¹ However, India's *inequality-adjusted* HDI is significantly lower at .475, indicating that health, education, and income are actually worse when accounting for extreme inequalities throughout Indian society.^{2,3} The unequal distribution of resources, especially funding for infrastructure between rural and urban areas, contributes greatly to socioeconomic disparities in India. The Pradhan Mantri Gram Sadak Yojana (PMGSY) is a prominent example of a project designed by the Indian government to simultaneously bridge the large infrastructural disparities that exist between rural and urban India and reduce severe poverty in rural regions.

Rural road development is critical because it is a type of economic infrastructure that improves and enables integration of different economic activities.⁴ All developing countries, including India, should provide basic infrastructure to everyone in order to stimulate and maintain inclusive economic growth.⁵ The alternative, a lack of adequate infrastructure throughout a country, makes economic operations less profitable, which in turn adversely affects the economy.⁶ In fact, "in some countries, inadequate and imbalanced infrastructure is the main factor preventing an acceleration of growth, and in such cases, policies focusing on providing infrastructure would boost investment and growth the most." From this evidence, it is clear that rural road development, through projects similar to the PMGSY, are essential to facilitate rural economic development, improve the well-being of rural people, and reduce poverty.

The PMGSY-I project, initially proposed in 2000, sought to provide new connectivity with climate-resistant roads to remote, rural villages, and to upgrade existing roads and localities to habitations of designated population size.. However, the PMGSY-I roads and other rural roads excluded from the PMGSY scheme were receiving poor maintenance and were not facilitating transportation of people, goods, and services. The project manual for the PMGSY-II project stated that PMGSY-I roads were not receiving adequate attention and care.⁷ Therefore, a PMGSY-II scheme was introduced in 2012 to consolidate the maintenance, upgradation, and development of existing rural networks to improve the overall efficiency of transportation to rural market centers in an effort to fulfill their primary goal of poverty reduction.⁸

The PMGSY-II scheme, sanctioned in 2013, focused on the upgradation of roads that directly lead to a large market center or connected habitations to other routes that lead directly to a market center.⁹ To identify which roads

were most important for upgradation, the project labeled essential routes as either Through Routes (TRs), which directly lead to a large market center, or Link Routes (LRs), that connect a single habitation or multiple habitations to a TR.¹⁰ These important routes were labeled this way because of their ability to provide better access to essential social and economic services.¹¹ Based on this evidence, it is clear that the PMGSY-II project put more emphasis on developing intra-village road systems and improving access to important village institutions, such as health centers.¹²

The constructed and upgraded roads in the PMGSY-II project were built to connect people to large market centers, providing them a more direct route to fundamental facilities including health centers and hospitals.¹³ However, despite project efforts, a severe lack of access to healthcare and health facilities persists in rural India today.¹⁴ Improving overall health within a country is critical for improving both education access and worker productivity, as well as ensuring the overall well-being of the population as a whole.¹⁵ Therefore, the provision of adequate healthcare is necessary to increase a country's growth and development. Consequently, my research contributes to the growing body of literature in development economics on the relationship between road connectivity in rural regions and the amelioration of extreme poverty. Specifically, this study explores the extent to which the PMGSY- II project fulfilled its commitment to improving access to healthcare in order to better understand what needs to be done in the future to address this lingering problem.

Although there have been a number of studies conducted on the socioeconomic impacts of large-scale roads projects, many have emphasized the need to continue to study these projects citing a lack of research on the impacts of increased road connectivity on *rural* societies. In this paper, I seek to fill this gap in the literature by researching how lower transportation costs and travel times, a result of better and more direct roads to necessary health facilities, affect rural habitations' access to different health services. My study seeks to answer the following question: How has improved road connectivity provided by the PMGSY-II project affected access to maternal and child health care throughout rural India?

DATA

To answer my research question, I analyze data accessed via the Demographic and Health Surveys (DHS) in India and the PMGSY public database. The DHS of India has administered four surveys, one in each of the following year spans: 1992-1993, 1998-1999, 2005-2006, and 2015-2016. These surveys included a women's questionnaire containing information on women and children's health. For my main analysis, I utilize the most recent DHS from

2015-16, where 699,686 women ages 15-49 completed the survey.¹⁶ The survey records all births between 2010-2016; critically, this data includes the interval during which the PMGSY-II roads were constructed.. Thus, the DHS from 2015-2016 contains a data set that is uniquely useful in identifying the effects of the PMGSY-II project.

To measure respondents' ability to access health services, I focus on variables included in the Women's Questionnaire from the 2015-2016 DHS that are related to births. From this survey, I am able to extract district-level information for each birth that was reported between 2010-2016, and specific data on births from before and after the treatment year, 2013, when roads were constructed in the PMGSY-II scheme.

Additionally, I use information from the PMGSY public database to establish when and where roads were constructed at the district level throughout India in 2013. This information is gathered through an Online Management, Monitoring & Accounting System (OMMAS) included on the PMGSY project website. This system records information on the construction and timing of each road built under the PMGSY program as well as information on the population size, connectivity status, and the year when roads were constructed for each habitation; the population of villages that received roads was exogenously determined by local project directors. Finally, the PMGSY database is utilized to determine which districts received roads, or were treated, in 2013.

EMPIRICAL STRATEGY

EMPIRICAL SPECIFICATION

I employ a Difference-in-Differences (DD) technique to measure the causal impact of the placement of the PMGSY roads on the performance of and accessibility to health centers in rural India. The specification is given as follows:

$$(1) Y_{it} = \alpha + \beta_1 PMGSY_i \times Post_t + \beta_2 PMGSY_i + \beta_3 Post_t + X'_{it} \theta + u_{it} \quad (1)$$

where Y_{it} is the outcome of variables for women and their children in household i , in district d , at time t . $PMGSY$ is the dummy variable for whether the district received a road from the PMGSY-II scheme. $Post$ is the dummy variable that indicates whether the time period is before or after the PMGSY-II roadwork in 2013. X'_{it} is the vector of individual characteristics that include: age of respondent, the wealth index of the respondent, if the respondent received some level of education, if the child lives with the respondent, if the respondent lives in a rural or urban area, and if the respondent is in a caste or tribe. Lastly,

u_{it} is the error term and I cluster standard errors at the district level.

Another essential aspect of this analysis is that I control for both District Fixed Effects (DFE) and Year Fixed Effects (YFE). DFE control for differences across districts that are constant over time. YFE control for time-trends, or effects that remain the same across districts but change over time.¹⁷ Additionally, I control for a small number of districts that ended up receiving roads in 2014 rather than in 2013.

To estimate any causal effect using the DD technique, some assumptions must be met. The most important assumption is the parallel trends assumption. This assumption states that the control group, or the untreated districts, provide the appropriate counterfactual of the trend that the treatment group, or the treated districts, should follow if they had not received the PMGSY-II roads. Therefore, in the absence of treatment, both control and treatment groups are assumed to trend similarly and to remain constant over time. Although the parallel trends assumption is untestable, the presence of pre-trends in the data across districts lends itself to the conclusion that the impact estimated in the study is a direct result of the treatment.

TREATMENT AND CONTROL SPECIFICATION

The Treatment and Control groups are formed using the criteria of whether or not certain districts received PMGSY-II roads in 2013. However, to identify which roads were most critical to construct and would deliver the highest returns, the National Rural Infrastructure Development Agency selected roads for construction based on the amount of growth centers that fell on each potential route. Growth centers were identified as having “a high population, high level of educational facilities, good health service facilities, good agricultural produce markets (mandis),” and were “well served by buses, railways, [were] already electrified, [had] retail shops selling agricultural inputs and items of daily consumption and postal facilities etc.”¹⁸ Due to the use of this specific system to determine what roads would produce the highest returns, there is exogenous variation in road construction of PMGSY-II roads.

The Indian states affected by PMGSY-II roads were Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Telangana and Uttar Pradesh.¹⁹ Therefore, the districts within these states that received PMGSY-II roads in 2013 comprise the Treatment group, while the districts that did not receive PMGSY-II roads in these states comprise the Control group. In total, 286,342 births, 190,898 women, and 640 districts were included in this analysis, and within that, 51 districts and 20,018 people were treated in 2013. My analysis focuses on the implementation of the PMGSY-II roads sanctioned in 2012 and constructed in 2013 in these 51 districts within these six states.

I concentrate my analysis on the PMGSY-II project for multiple reasons.

First, because PMGSY-II roads were approved in these six states, there is a strong source of variation in PMGSY-II road development, as these states had already completed the first phase of the PMGSY project. Additionally, the timing of roads constructed under PMGSY-II is critical because the birth data extracted from the 2015-2016 DHS is available before and after the intervention of PMGSY-II roads built in 2013. Finally, the PMGSY-II project identified a more specific objective of phase two project roads, which was to ensure better access to growth centers and “other rural places of importance (growth poles, rural markets, tourist places, education and health centres etc.).”²⁰

OUTCOMES

In this project, I study the effects of building connecting roads on rural Indians’ ability to access health care services. The main outcome of interest is whether improved road connectivity increases access to professional health care services. I hypothesize that households in districts that gained access to PMGSY-II roads will have better access to health care services in India than households in districts that did not.

To measure access to health care services, I surveyed and created a variety of outcome variables related to antenatal care, delivery, and postnatal care. I use these specific outcomes to measure access to healthcare because the 2015-2016 DHS only includes data from before and after 2013 related to *births*, whereas most other health information collected is correlated to the time the survey was administered, between 2015 and 2016. In this paper, I separate the different outcome variables as they relate to mothers’ care, children’s care, and delivery data.

First, there are outcomes to measure whether mothers received improved care surrounding the delivery of their child as a result of improved road connectivity. There are two outcomes related to antenatal care that are divided into two categories; the first antenatal outcome measures if the respondent received antenatal care at a health facility for each birth, labeled ANC, and the second, labeled ANC Visits, measures each respondent’s number of antenatal visits to a facility before each birth. The ANC Visits outcome is based off of the World Health Organization’s (WHO) recommendation that eight antenatal visits are necessary before the delivery of a child, and therefore women who received eight or more antenatal check-ups are considered to have received adequate antenatal health care.²¹ Additionally, there is an outcome for whether the respondent received two doses of the tetanus toxoid, as recommended by the WHO, and this outcome is labeled Tetanus.²² Finally, there is an outcome to determine whether the respondent received at least one check-up at any point after their delivery, and this indicator is labeled Check After. These outcomes relating to health care for mothers are located in Table 3.

Next, I investigate care surrounding the children born of these respondents from 2010 to 2016. The specific child vaccinations I use as outcomes include the Polio vaccine, BCG vaccine (used against tuberculosis), DPT vaccine (used against diphtheria, pertussis, and tetanus) and the Hepatitis B vaccine.²³ These vaccines are chosen as outcomes based on the information that was provided in the 2015-2016 DHS. Children of respondents are considered to have received the vaccination if their vaccination cards indicated this or if the mother reported they received the specified vaccination. The respective labels for these vaccinations are Polio, BCG, DPT and Hep. Finally, there is an outcome that determines whether a baby received a check-up within two months of delivery or not. This outcome is labeled Postnatal. All of these outcomes related to care for children are found in Table 4.

Finally, I look at two outcomes that examine the modes of transportation used to travel to a health facility for respondents' delivery, and the location of that delivery. For the outcome that indicates whether a respondent received more advanced vehicle transportation to a health facility for their child's delivery, I first determined what modes of transportation would require better, more developed road access. Respondents who acquired transportation to a health facility with a vehicle, specifically an ambulance, government ambulance, car, motorcycle, or bus/train, are considered to have taken transportation that required more developed roads. Respondents who were transported to a health facility for their baby's delivery by a tractor, cart, or on foot are considered to have used less sophisticated modes of transportation that would not have required developed roads. This outcome variable determines whether or not respondents were able to increase their use of advanced transportation which requires better road quality and connectivity to access. This indicator variable is labeled Transport. Additionally, I create an outcome labeled Delivery Location. This outcome determines whether the respondent delivered their child at any type of public or private health facility as opposed to at a home. This indicator variable helps determine whether PMGSY-II roads facilitated access to health facilities that provide more professional care during childbirth. These outcomes regarding the delivery of a child are found in Table 5.

The outcomes for antenatal and postnatal care, for tetanus injections, and for children's vaccinations suggest whether respondents were able to access health services more easily or more directly. First, looking at whether respondents received antenatal and postnatal care reveals the extent to which women had access to health services to ensure the protection of themselves and their children. Moreover, it is logical to assume that respondents' ability to access health services related to the birth of their child is reflected in the overall health of their child post-delivery. Lastly, looking at respondents' ability to access more sophisticated modes of transportation to health facilities for their delivery and respondents' ability to deliver at a health facility can explain how

PMGSY-II roads improved transportation for respondents to health facilities. These different groups of outcomes measure accessibility to health facilities in many ways and work to directly address the research question posed at the onset of this paper.

RESULT

For Tables 3 through 5, the outcome variables are divided into two columns to compare the DD coefficients when accounting for District Fixed Effects (DFE) and when not accounting for DFE. Values with DFE are more accurate, as they absorb differences in non-time varying characteristics across all districts. This is done to analyze the impact of controlling for the unobservable heterogeneity of districts.

In Table 3, the statistically significant outcomes are the ANC and Tetanus outcomes. The analysis shows that the ANC outcome improved by 2.8 percentage points and is significant at the 5% level. However, when accounting for DFE in the analysis, we see that the ANC outcome actually increases by 3.3 percentage points and is significant at the 1% level. This is important because it indicates that the antenatal outcome with DFE is a more accurate value (as it includes more controls) and also a more statistically significant value. Given this information, we can determine that women in treated districts were actually approximately 5.5% more likely to receive antenatal care at a health facility than in untreated districts. In addition to improvements in antenatal care, we also see improvements in tetanus injections for respondents in treated districts as well. Without DFE, we see the Tetanus outcome improves by 1.9 percentage points in treated districts and this value is significant at the 5% level. When employing DFE, the Tetanus outcome actually increases by about 1.5 percentage points and is significant at the 10% significance level. Given this data, we evaluate that PMGSY-II roads improved the treated respondents' ability to receive the appropriate dosage of tetanus toxoid before delivery by about 2.0%.

In Table 4, the statistically significant results are the DPT, Polio, and BCG outcomes. When not accounting for DFE, we see the DPT outcome increases by 2.4 percentage points, the Polio outcome increases by 2.3 percentage points, and the BCG outcome increases by 2.6 percentage points. All of these values are significant at the 1% level. When taking into account DFE, however, the positive effects of the PMGSY-II roads on all of these outcomes are diminished and no longer significant.

In Table 5, Transport and Delivery Location outcomes are both statistically significant. With no DFE, we see that the Transport outcome improves by 7.14 percentage points and the Delivery Location outcome improves by 2.1 percentage points. Both of these findings are significant at the 1% level.

When applying DFE, we see that the Transport outcome increases by only 3.3 percentage points and is statistically significant at the 5% level, but the Delivery Location results are diminished and no longer statistically significant. Given this information on the Transport outcome though, we deduce that PMGSY-II roads actually improved the treated respondents' access to vehicle transportation to health facilities by about 7.3%.

The data for DPT, Polio, BCG and Delivery Location outcomes were diminished and no longer significant when taking into account DFE. The lack of significance means that the estimators without DFE were biased. The estimators for these outcomes exhibited positive bias before DFE were applied, which means that the effects of the PMGSY-II roads were overestimated. Consequently, we see that when districts' heterogeneity is accounted for through the application of DFE, the DD coefficients for these outcomes are notably reduced and are no longer significant.

Despite the bias in a few of the outcome estimators, we can determine from the data that PMGSY-II roads had a statistically significant effect on improving respondents' ability to access antenatal care, tetanus injections, and more sophisticated transportation to health facilities.

The ability to access modes of vehicle transportation to a health facility for childbirth is important because it is a direct indicator of whether the roads actually improved transportation and connection to critical human services. Women were 7.3% more likely to access transportation by ambulance, government ambulance, car, motorcycle, or bus/train to a health facility if they resided in districts with PMGSY-II roads. This percentage increase reflects that treated respondents had better access to public transportation thereby improving the accessibility to vital health services. These improvements can be directly attributed to the PMGSY-II project. This finding is especially encouraging as it suggests that PMGSY-II roads had a positive effect on respondents' ability to easily access health care services, one of the main objectives of the PMGSY project.

ROBUSTNESS

PRE-TRENDS

To ensure the validity of my findings, it is necessary to determine whether Treatment and Control groups trend similarly before the treatment occurred in 2013 and before the PMGSY project started in 2000. Consequently, it is necessary to look at pre-trends in the DHS data from before 2013 and before the PMGSY project commenced in 2000. The presence of similar pre-trends in the Treatment and Control groups ensures that the parallel-trends assumption is met and is a sign of endogeneity.²⁴

A study titled “The Effect of Rural Road Development on Hospital Births: Evidence from India” that conducted an analysis on PMGSY-II roads and that formed the same Treatment and Control groups as used in my study, found that both groups exhibited parallel trends between 1996 and 1999. Moreover, when separating districts by their PMGSY-II treatment status, the study found that the two groups were “almost identical in magnitude” as well, based on survey data from the 1998-1999 DHS.²⁵

Additionally, I analyze pre-trends from 2010 to 2012 for the outcomes that yielded the most significant results in Figures 1 through 3. First, Figure 1 depicts the means for the Transport outcome, and it is evident from this graph that the Treatment and Control groups exhibit relatively parallel trends before PMGSY-II roads were constructed. This trend can also be noticed numerically in Tables 2, 6, and 7, and in Table 10 we see that the value of the Transport outcome in the Treatment group actually surpasses that of the Control group.

In Figure 2, the Antenatal outcome is trending similarly in both Treatment and Control groups between 2010 and 2012, before PMGSY-II construction. This trend can also be noticed numerically in Tables 2, 6, and 7. We can also observe in Table 11 that the mean for the Antenatal outcome in the Control group is only about .039 higher than the mean for the Treatment group in 2016, whereas in 2010 that difference was about .094, as shown in Table 2.

Finally, in Figure 3 we can see that the Tetanus outcome is also trending similarly for both Treatment and Control groups before treatment. This trend can also be observed numerically in Tables 2, 6, and 7. Additionally, we can see in Table 11 that by 2016 the mean for the Tetanus outcome for the Treatment group is essentially the same, whereas in 2010, shown in Table 2, the mean for the Control group was significantly higher.

From the Figures, we see that the means for the Transport, Antenatal, and Tetanus outcomes trend similarly for both Treatment and Control groups in the years leading up to the construction of PMGSY-II roads in 2013. In summary, these Figures convincingly depict parallel trends between Treatment and Control groups, and therefore further validate the findings.

LIMITATIONS

Although this study has statistical significance and includes rigorous robustness checks, there are some limitations to the research methods that warrant discussion.

First, there are some limitations in the study due to the way responses were recorded in the 2015-2016 DHS. For both the Postnatal outcome and outcomes related to Mother Care, responses were only recorded for the most recent birth, so there are fewer responses under these categories. Furthermore, the number of observations, N , is much smaller for births occurring in years

2010 and 2016. This is because in 2010 it was less likely that respondents had their most recent birth in that year, as they were questioned about five years later in 2015 to 2016. Additionally, because respondents were questioned in 2015 and part of 2016, women would be less likely to report having a baby in the year 2016 based on the time they were surveyed. Finally, responses are lower for the Transport outcome because responses could only be recorded if the respondent chose to deliver at a health facility as opposed to choosing to deliver at a home.

Additionally, there could be some limitations to the findings related to the Transport outcome. The limitations arise from the possible presence of additional and unobservable confounding factors that influenced respondents' decisions to take their different forms of transportation. For example, a respondents' lack of ability to access advanced transportation could have been related to insufficient funds for public transportation, unavailability of ambulances, or inability to own a car or motorcycle, and not due to the lack of developed roads to access these modes of transportation.

Finally, there are possible social and financial limitations to accessing health care in India that could not be accounted for in this study. Further research is needed to explore how India's caste system, cultural practices, financial barriers, and gender discrimination effect different individuals' ability to access health care.

CONCLUSION

Despite the possible limitations to the study, the findings from this research are significant and signal improvements in antenatal care, tetanus vaccinations, and transportation to health facilities. These improvements are important considering that antenatal care and tetanus injections are both essential in ensuring the health of the fetus *and* mother throughout pregnancy and delivery.²⁶ A majority of problems at birth can be avoided or identified ahead of time when a mother receives antenatal care.²⁷ Additionally, receiving the recommended two doses of tetanus injections is necessary to avoid tetanus infections in the pregnant mother, convulsions after birth, and neonatal tetanus infections in newborns. Tetanus infections in newborns are especially concerning since they can often occur due to "exposure of the unhealed umbilical cord stump to tetanus spores, which are universally present in soil."²⁸ Moreover, because tetanus spores will always be present in our environment, eradication of this infection is only possible through widespread immunization. Finally, the results of the study show that roads enhanced transportation capabilities to health facilities. This ultimately reveals that roads directly provided better and easier access to health services in rural India, a main objective of the PMGSY-II project. Overall, improvement of women's and household's ability to access

health care in general can only benefit the communities and societies of India and increases the likelihood of a healthy and growing population.²⁹

These findings are reassuring, but there is more that India can do to ensure that its citizens are getting the best health care possible. We can see from the means for the ANC Visits outcome in Tables 2 and 6 through 11 that there are still very low levels of mothers receiving the optimal level of antenatal care as recommended by the WHO. So, although the number of women receiving antenatal checks improved as a result of PMGSY-II roads, there is more that should be done to ensure that women obtain adequate health care before the delivery of their child. Additionally, we see from the means of the Postnatal outcome in Tables 2 and 6 through 11 that there are still very low numbers of babies receiving a postnatal check-up within two months after their birth. Receiving a check-up within two months after delivery is essential to the survival of the child, as “most infant deaths occur in the first six weeks after delivery.”³⁰ The lower means for the ANC Visits and Postnatal outcomes suggests to me that there are still barriers to accessing routine check-ups at health facilities. In summary, although PMGSY-II roads enriched the districts they were constructed in, there is still room for improvement in India’s healthcare provision .

Based on these findings, I recommend that policies be enacted to encourage families to obtain adequate antenatal care and necessary postnatal care for their children. According to a study by Esopo et al., behavioral interventions and policies that educate, organize, and monitor women’s antenatal care will be most effective in helping women attain the level of antenatal care that they need.³¹ Therefore, I urge India to implement policies to provide better education services to women concerning the importance and recommended elements of antenatal care.

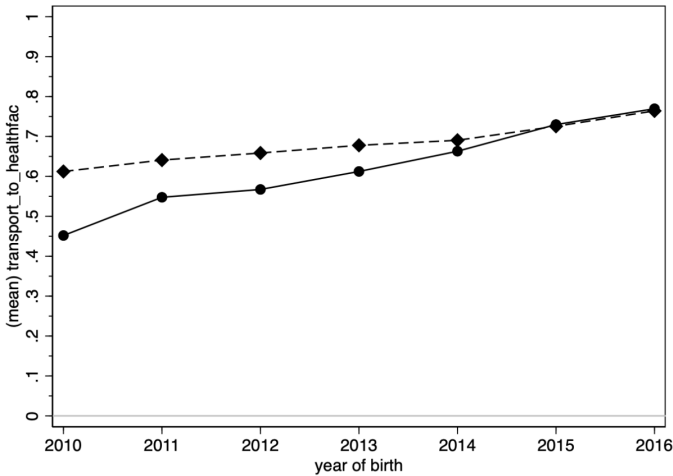
Secondly, India should focus on subsidizing the public healthcare system in-country. India’s yearly investment in public healthcare is extremely low at approximately 1.28% of GDP as of 2018.³² Recently, India has pledged to increase that amount to 3% by 2022; however, India’s healthcare investment rate should be increased to 6-9%, as India’s spending on infrastructure totaled to about 9% of its GDP in 2017. Specifically, funding should focus on government-sponsored health care, since India already boasts a robust private healthcare system that remains inaccessible to poorer, rural areas. Therefore, India must allocate greater funds towards ensuring that India’s public primary health centers and subcenters are well-equipped and meet the standards set by the Ministry of Health and Family Welfare. Together these policies will ensure that more Indians are gaining access to necessary healthcare services, helping to establish a healthier society and saving more Indians from extreme poverty.

Based on the above results and analysis , it is clear that more research is needed to contribute to the growing body of literature on the possible effects

of rural road development and the barriers to accessing health care in India. Therefore, it is important to continue research in this specific area to continue to identify efficient and cost-effective ways for developing countries to improve the well-being of their people, as the PMGSY-II project has done, so that they can continue to promote a healthy economy, society and population.

TABLES AND CHARTS

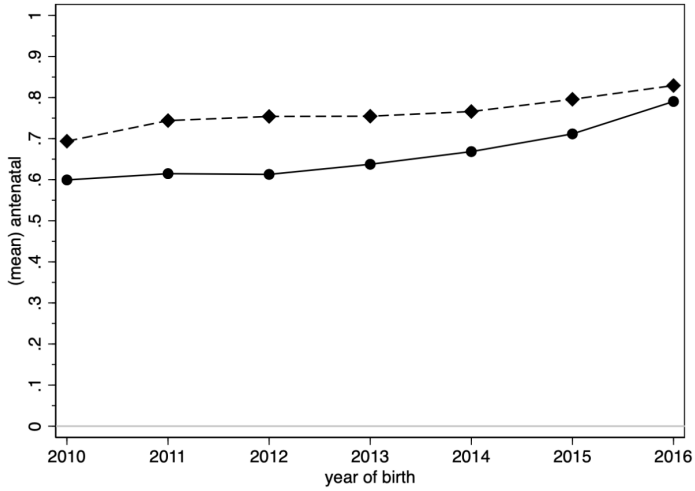
FIGURE 1: TRANSPORT MEANS (2010-2016)



Data Source: DHS Survey 2015-2016 India and PMGSY Road Data from OMMS

Note: The Figure shows pre-trends for the Transport outcome in the years 2010 to 2016. The solid line is the Treatment group, while the dotted line is the Control group.

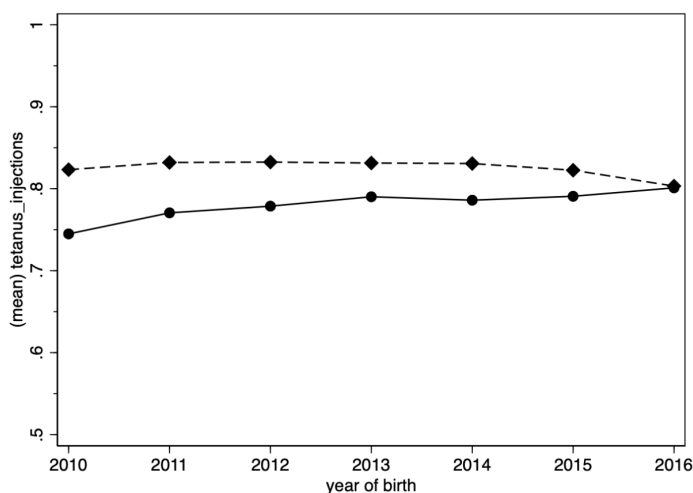
FIGURE 2: ANC MEANS (2010-2016)



Data Source: DHS Survey 2015-2016 India and PMGSY Road Data from OMMS

Note: The Figure shows pre-trends for the ANC outcome in the years 2010 to 2016. The solid line is the Treatment group, while the dotted line is the Control group.

FIGURE 3: TETANUS MEANS (2010–2016)



Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: The Figure shows pre-trends for the Tetanus outcome in the years 2010 to 2016. The solid line is the Treatment group, while the dotted line is the Control group.

TABLE 1: SUMMARY STATISTICS – CONTROLS

Variable	N	Mean	Standard Deviation	Min	Max	Treated	Not Treated
Education Level	190898	.7110237	0.4532881	0	1	0.6334877	0.7154767
Respondent Age	190898	27.32755	5.36459	15	49	27.49556	27.3179
Wealth Index	190898	2.891722	1.409717	1	5	2.595583	2.90873
Child with Respondent	183435	0.9919645	0.0892806	0	1	0.9931027	0.9918998
Rural/Urban	190898	.7494316	0.4333415	0	1	0.7963927	0.7467346
Caste/Tribe	189540	.9583676	.1997482	0	1	0.9885091	0.9566256

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: The Table shows summary statistics for the controls used in my empirical analysis. The Treated column shows the means for responses in the Treatment group, while the Not Treated column shows the means for responses in the Control group.

TABLE 2: SUMMARY STATISTICS – OUTCOMES 2010

Variable	N	Mean	Standard Deviation	Min	Max	Treated	Not Treated
Tetanus	7283	0.8190306	0.3850192	0	1	0.744898	0.8232477
ANC Visits	7196	0.1299333	0.3362534	0	1	0.1179487	0.13062
ANC	7291	0.6886572	0.4630744	0	1	0.5994898	0.6937237
Check After	7283	0.6388851	0.4803568	0	1	0.5663265	0.6430126
Hep	15030	0.732668	0.4425818	0	1	0.6260658	0.7388275
DPT	15030	0.8399202	0.3666923	0	1	0.7235079	0.8466465
Polio	15030	0.8768463	0.3286245	0	1	0.7697929	0.8830319
BCG	15030	0.8702595	0.3360289	0	1	0.7612667	0.8765571
Postnatal	7283	0.3130578	0.4637695	0	1	0.2933673	0.3141779
Transport	5479	0.6043074	0.4890436	0	1	0.4518519	0.6122096
Delivery Location	15750	0.7098413	0.4538499	0	1	0.6141367	0.7153893

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: The Table shows summary statistics for the all outcomes in the year 2010. The Treated column shows the means for responses in the Treatment group, while the Not Treated column shows the means for responses in the Control group.

TABLE 3: MOTHER CARE DATA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Tetanus	Tetanus	ANC Visits	ANC Visits	ANC	ANC	Check After	Check After
Treated	0.019**	0.015*	0.003	-0.003	0.028**	0.033***	0.016	0.009
Standard Error	(0.009)	(0.009)	(0.007)	(0.007)	(0.011)	(0.010)	(0.011)	(0.010)
District Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	183,771	183,771	181,970	181,970	183,771	183,771	183,771	183,771

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: This table displays the difference-in-differences coefficients from the regression of treatment of PMGSY-II roads on respondents tetanus injections before delivery, if the respondent received more than eight antenatal visits before delivery, if respondents received at least one antenatal visit before delivery, and if the respondent received a check-up any time after their delivery. Controls include data on age of respondent, education level, the wealth index of the respondent, if the child lives with the respondent, if the respondent is typically allowed to go to a health facility, and if the respondent is in a caste or tribe. The estimation compares the DD coefficients with District Fixed Effects and without District Fixed Effects. Standard errors are clustered at the district level.
P<.01 ***, P<.05 **, P<.1 *

TABLE 4: CHILD CARE DATA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Hep	Hep	DPT	DPT	Polio	Polio	BCG	BCG	Postnatal	Postnatal
Treated	0.002	-0.009	0.024**	0.011	0.023**	0.004	0.026**	0.006	0.004	0.008
Standard Error	(0.008)	(0.008)	(0.008)	(0.007)	(0.006)	(0.006)	(0.007)	(0.006)	(0.011)	(0.010)
District Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	246,043	246,043	246,043	246,043	246,043	246,043	246,043	246,043	183,771	183,771

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: This table displays the difference-in-differences coefficients from the regression of treatment of PMGSY-II roads on respondents tetanus injections before delivery, if the respondent received more than eight antenatal visits

before delivery, if respondents received at least one antenatal visit before delivery, and if the respondent received a check-up any time after their delivery. Controls include data on age of respondent, education level, the wealth index of the respondent, if the child lives with the respondent, if the respondent is typically allowed to go to a health facility, and if the respondent is in a caste or tribe. The estimation compares the DD coefficients with District Fixed Effects and without District Fixed Effects. Standard errors are clustered at the district level.

$P < .01$ ***; $P < .05$ **, $P < .1$ *

TABLE 5: DELIVERY DATA

	(1)	(2)	(3)	(4)
	Transport	Transport	Delivery Location	Delivery Location
Treated	0.071***	0.033**	0.021***	-0.001
Standard Error	(0.014)	(0.013)	(0.008)	(0.007)
District Fixed Effects	No	Yes	No	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	143,173	143,173	246,043	246,043

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: This table displays the difference-in-differences coefficients from the regression of treatment of PMGSY-II roads on respondents tetanus injections before delivery, if the respondent received more than eight antenatal visits before delivery, if respondents received at least one antenatal visit before delivery, and if the respondent received a check-up any time after their delivery. Controls include data on age of respondent, education level, the wealth index of the respondent, if the child lives with the respondent, if the respondent is typically allowed to go to a health facility, and if the respondent is in a caste or tribe. The estimation compares the DD coefficients with District Fixed Effects and without District Fixed Effects. Standard errors are clustered at the district level.

$P < .01$ ***; $P < .05$ **, $P < .1$ *

ENDNOTES

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- 30 The World Health Organization, “Raising the importance of postnatal care,” 2021, <https://www.who.int/activities/raising-the-importance-of-postnatal-care>
- 31 Kristina Esopo, Lilly Derby and Johannes Haushofer, “Interventions to improve adherence to antenatal and postnatal care regimens among pregnant women in sub-Saharan Africa: a systematic review,” *BMC Pregnancy and Childbirth* 20[316] (My 2020): <https://doi.org/10.1186/s12884-020-02992-y>
- 32 Anjela Taneja, Shamaila Khalil and Agrima Raina, “Watch: Strengthening India’s Public Health System Is the Need of the Hour,” *The Wire (India)*, September 12 2020, <https://thewire.in/health/watch-strengthening-indias-public-health-system-is-the-need-of-the-hour>

TABLE 6: SUMMARY STATISTICS - OUTCOMES 2011

Variable	N	Mean	SD	Min	Max	Treated	Not Treated
Tetanus	21131	0.8286877	0.3767905	0	1	0.7705779	0.8320076
ANC Visits	20909	0.1185136	0.323223	0	1	0.1057269	0.1192475
ANC	21144	0.7369467	0.4403015	0	1	0.614711	0.7439256
Check After	21131	0.6736075	0.4689039	0	1	0.6252189	0.676372
Hep	40213	0.7630866	0.425194	0	1	0.6857654	0.7676347
DPT	40213	0.8472633	0.359738	0	1	0.7627574	0.8522341
Polio	40213	0.8851615	0.3188309	0	1	0.8285586	0.888491
BCG	40213	0.8732997	0.3326411	0	1	0.8097583	0.8770373
Postnatal	21131	0.3383181	0.4731486	0	1	0.3073555	0.340087
Transport Delivery	16050	0.6361371	0.4811248	0	1	0.5475896	0.6408372
Location	42070	0.7223437	0.4478482	0	1	0.6799154	0.7248709

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: The Table shows summary statistics for the all outcomes in the year 2011. The Treated column shows the means for responses in the Treatment group, while the Not Treated column shows the means for responses in the Control group.

TABLE 7: SUMMARY STATISTICS - OUTCOMES 2012

Variable	N	Mean	SD	Min	Max	Treated	Not Treated
Tetanus	31220	0.8296925	0.3759087	0	1	0.7787286	0.8325108
ANC Visits	31245	0.12572	0.4349562	0	1	0.1167793	0.1262169
ANC	31245	0.7466155	0.4349562	0	1	0.6129426	0.7540109
Check After	31220	0.6714926	0.4696779	0	1	0.6033007	0.6752637
Hep	50909	0.8036104	0.3972705	0	1	0.7037957	0.8094614
DPT	50909	0.8539944	0.3531153	0	1	0.7829017	0.8581618
Polio	50909	0.8920034	0.3103792	0	1	0.8435615	0.894843
BCG	50909	0.876623	0.3288727	0	1	0.820149	0.8799335
Postnatal	31220	0.3430493	0.4747354	0	1	0.2933985	0.345795
Transport Delivery	23962	0.6540773	0.4756781	0	1	0.5672414	0.6584949
Location	53444	0.7327109	0.4425487	0	1	0.6891801	0.7352778

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: The Table shows summary statistics for the all outcomes in the year 2012. The Treated column shows the means for responses in the Treatment group, while the Not Treated column shows the means for responses in the Control group.

TABLE 8: SUMMARY STATISTICS - OUTCOMES (2013)

Variable	N	Mean	SD	Min	Max	Treated	Not Treated
Tetanus	31220	0.8296925	0.3759087	0	1	0.7787286	0.8325108
ANC Visits	31245	0.12572	0.4349562	0	1	0.1167793	0.1262169
ANC Check After	31245	0.7466155	0.4349562	0	1	0.6129426	0.7540109
Hep	31220	0.6714926	0.4696779	0	1	0.6033007	0.6752637
DPT	50909	0.8036104	0.3972705	0	1	0.7037957	0.8094614
Polio	50909	0.8539944	0.3531153	0	1	0.7829017	0.8581618
BCG	50909	0.8920034	0.3103792	0	1	0.8435615	0.894843
Postnatal	50909	0.876623	0.3288727	0	1	0.820149	0.8799335
Transport Delivery Location	31220	0.3430493	0.4747354	0	1	0.2933985	0.345795
	23962	0.6540773	0.4756781	0	1	0.5672414	0.6584949
	53444	0.7327109	0.4425487	0	1	0.6891801	0.7352778

Data Source: DHS Survey 2015-2016 India and PMGSY Road Data from OMMS

Data Source: DHS Survey 2015-2016 India and PMGSY Road Data from OMMS

Note: The Table shows summary statistics for the all outcomes in the year 2013. The Treated column shows the means for responses in the Treatment group, while the Not Treated column shows the means for responses in the Control group.

TABLE 9: SUMMARY STATISTICS - OUTCOMES (2014)

Variable	N	Mean	SD	Min	Max	Treated	Not Treated
Tetanus	48946	0.8282597	0.3771584	0	1	0.7860052	0.8307276
ANC Visits	48536	0.1150898	0.3191336	0	1	0.1047938	0.1156942
ANC Check After	48964	0.7606609	0.4266844	0	1	0.6683938	0.7660499
Hep	48946	0.6751113	0.468338	0	1	0.6308775	0.6776949
DPT	50492	0.8259724	0.3791369	0	1	0.7424023	0.8308121
Polio	50492	0.8681969	0.3382799	0	1	0.8031838	0.871962
BCG	50492	0.9154718	0.2781811	0	1	0.8701158	0.9180984
Postnatal	50492	0.900103	0.2998656	0	1	0.8422576	0.9034529
Transport Delivery Location	48946	0.3528378	0.4778577	0	1	0.3198815	0.3547627
	38409	0.6890573	0.4628854	0	1	0.6629945	0.6904867
	52791	0.7794889	0.4145952	0	1	0.7403485	0.7817865

Data Source: DHS Survey 2015-2016 India and PMGSY Road Data from OMMS

Note: The Table shows summary statistics for the all outcomes in the year 2013. The Treated column shows the means for responses in the Treatment group, while the Not Treated column shows the means for responses in the Control group.

TABLE 10: SUMMARY STATISTICS - OUTCOMES (2014)

Variable	N	Mean	SD	Min	Max	Treated	Not Treated
Tetanus	34134	0.8207066	0.3836034	0	1	0.7907801	0.8225435
ANC Visits	33855	0.1128046	0.3163585	0	1	0.1091837	0.1130271
ANC	34150	0.7908931	0.4066768	0	1	0.7115385	0.7957668
Check After	34134	0.6913049	0.4619618	0	1	0.6560284	0.6934701
Hep	33133	0.7191923	0.4494005	0	1	0.6530069	0.7231714
DPT	33133	0.7570096	0.4288958	0	1	0.7360298	0.7582709
Polio	33133	0.8774032	0.3279788	0	1	0.8610963	0.8783836
BCG	33133	0.8674132	0.3391328	0	1	0.8488558	0.8685288
Postnatal	34134	0.3670534	0.4820083	0	1	0.3186424	0.3700249
Transport Delivery	26809	0.725801	0.4461181	0	1	0.7298177	0.7255569
Location	34658	0.7851001	0.4107588	0	1	0.7788318	0.7854846

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: The Table shows summary statistics for the all outcomes in the year 2015. The Treated column shows the means for responses in the Treatment group, while the Not Treated column shows the means for responses in the Control group.

TABLE 11: SUMMARY STATISTICS - OUTCOMES (2014)

Variable	N	Mean	SD	Min	Max	Treated	Not Treated
Tetanus	8609	0.803113	0.3976693	0	1	0.801061	0.803207
ANC Visits	8544	0.0980805	0.2974409	0	1	0.0909091	0.0984088
ANC	8610	0.8275261	0.3778137	0	1	0.7904509	0.8292239
Check After	8609	0.6824254	0.4655601	0	1	0.6923077	0.6819728
Hep	8394	0.5712414	0.4949281	0	1	0.4258242	0.5778331
DPT	8394	0.4780796	0.499549	0	1	0.3406593	0.4843088
Polio	8394	0.7861568	0.4100419	0	1	0.7115385	0.7895392
BCG	8394	0.801644	0.3987854	0	1	0.7554945	0.803736
Postnatal	8609	0.3970264	0.48931	0	1	0.403183	0.3967444
Transport Delivery	6588	0.7642684	0.4244874	0	1	0.7694915	0.7640235
Location	8694	0.7659305	0.4234402	0	1	0.7810026	0.7652435

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: The Table shows summary statistics for the all outcomes in the year 2016. The Treated column shows the means for responses in the Treatment group, while the Not Treated column shows the means for responses in the Control group.

**This table was included in original regression analysis but was not included in the analysis in this study:*

TABLE 12: WEIGHT-FOR-HEIGHT AND HEIGHT-FOR-AGE DATA

	Weight-Height Standard Deviation		Weight-Height Percentile		Height-Age Percentile		Height-Age Standard Deviation	
Treated	-0.156***	-0.113**	-3.359***	-2.429**	0.723	0.988	0.051	0.063
Standard Error	(0.046)	(0.047)	(1.025)	(1.036)	(1.065)	(1.100)	(0.064)	(0.065)
District Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Data Source: DHS Survey 2015–2016 India and PMGSY Road Data from OMMS

Note: This table displays the difference-in-differences coefficients from the regression of treatment of PMGSY-II roads on children's weight-for-height percentile and standard deviation and children's height-for-age percentile and standard deviation. Controls include data on age of respondent, education level, the wealth index of the respondent, if the child lives with the respondent, if the respondent is typically allowed to go to a health facility, and if the respondent is in a caste or tribe. The estimation compares the DD coefficients with District Fixed Effects and without District Fixed Effects. Standard errors are clustered at the district level.

$P < .01$ ***; $P < .05$ **; $P < .1$ *

Applying a Gender Lense to Security Studies

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ABSTRACT

The United Nations passed Security Council Resolution 1325 on women, peace, and security (WPS), which acknowledged that gender pervades all facets of international peace and security, two decades ago. Nevertheless, there has been minimal effort to rectify the existing institutions and environments that render women insecure and manifest vulnerabilities within international, national, and human security agendas. This paper argues that applying a gender lens is vital to security studies because it provides an enhanced understanding of the complexities of conflict prevention, management, and resolution, which in turn strengthens international and national security. A gender lens is also applied to two human security issues – climate change and economics – to examine the unique vulnerabilities women face as well as the solutions they offer. The paper ends with a review of obstacles in implementing the WPS agenda and recommendations for members of nongovernmental organizations, international organizations, and academia to overcome identified obstacles.

INTRODUCTION

The United Nations (UN) acknowledged that gender pervades all facets of international peace and security with the passing of Security Council Resolution 1325 on women, peace, and security (WPS) two decades ago, yet there has been minimal effort globally to rectify the norms and institutions that exclude and oppress women.^{1,2} Existing norms and institutions not only render women insecure but also manifest vulnerabilities within international

and national security agendas. A gender lens assesses “the institutionalization of gender differences as a major underpinning of structural inequalities in much of the world.”³ This lens sheds light on the different lived experiences of women and men and how masculinity and femininity are embedded within society. Applying a gender lens is vital to security studies because it enhances the understanding of the complexities of conflict prevention, management, and resolution, which in turn strengthens international and national security. Obstacles to implementing the WPS agenda include the misconception that existing norms and institutions are gender-neutral; the assumption that traditional state-centered security must be prioritized over human security; and the lack of enforcement mechanisms to implement the WPS agenda. The transformation of institutions and norms to strengthen security requires collective action from governments, international organizations, non-governmental organizations (NGOs), and academia to dismantle the barriers that impede women's inclusion in all decisions regarding peace and security.

BACKGROUND

Identities and power relations are informed by gender from the individual-level to the international-level.⁴ Gender refers to, “the socially learned behaviors, repeated performances, and idealized expectations that are associated with... masculinity and femininity.”⁵ In many cultures, associations with masculinity are valued while associations with femininity are devalued.⁶ This has created a gender hierarchy. As a result, men tend to hold the power within political, economic, religious, and societal spheres while women are viewed as subordinate.⁷ World leadership depicts this dichotomy. While many countries do not have legal barriers to women obtaining leadership roles, societal norms, such as the belief that men are strong leaders while women are irrational leaders, hinder women's ability to become heads of state. Of the 193 UN member states, 119 countries have never had a woman leader.⁸ In 2020, women were heads of state or government in 21 countries.⁹ The United Nations Entity for Gender Equality and the Empowerment of Women, known as UN Women, projects that it will take 130 years to reach gender parity in heads of state at the current rate of progress.¹⁰ In some instances, societal gender norms are incorporated into legal structures. Despite the Quran endowing women with identity and property rights, predominant interpretations of Islamic law dictate that women can only inherit half as much as men.¹¹ This interpretation restricts women's ability to cultivate wealth and power relative to men. The global power structure that subjugates women is often overlooked in security studies and needs to be included to aptly understand all dimensions of conflict and create sustainable solutions that lead to longer-lasting peace.

The WPS Agenda was established with the passage of the UN Security

Council Resolution 1325 in 2000. Between 2009 and 2019, the Security Council passed eight additional resolutions to expand and strengthen the WPS Agenda framework. The UN and member states acknowledged and committed to rectifying the exclusion of women from international approaches to peace and security through the passage of the WPS resolutions. Four critical issues are addressed in the resolutions: prevention of violence against women; participation of women at all levels of decision-making related to peace and security; protection of women's security and rights; and access to relief and recovery support to women in need of assistance.¹² Collectively, these tenets seek to transform the peace and security fields by acknowledging the unique realities women face during a conflict cycle, as well as the importance of applying a gender lens.¹³

THE NECESSITY OF A GENDER LENS FOR NATIONAL AND INTERNATIONAL SECURITY

International and national security agendas traditionally prioritize state and military power while overlooking the individual.¹⁴ Supplementing this view with a feminist security studies approach expands the scope of security studies by examining how gendered assumptions, labels, and hierarchies affect an array of stakeholders and in turn are responded to in global politics.¹⁵ This approach is more flexible as it can be applied to both traditional security issues and non-traditional human security issues,¹⁶ thus facilitating a holistic examination of security threats and solutions.

CONFLICT PREVENTION

Women hold unique positions within conflict prevention that are underutilized due to the stereotypes placed on them. Women play a crucial role in identifying signs and changing dynamics at the familial and grassroots levels that could signal the onset of violence. For example, women often notice the building of arms caches in homes and changes in how men and boys spend their time, which can indicate if they are being radicalized or covertly training. Retrospective studies in Kosovo and Sierra Leone found that women often had valuable knowledge about planned attacks and the amassing of weapons, but lacked the means to report this information.¹⁷ There is growing recognition that it is critical to include women in early warning systems to accurately capture changes in social, economic, and political indicators.¹⁸ Dr. Aisling Swaine, professor of gender studies at George Washington University, cautions, "Without gender analysis conflict prevention and early warning systems fail to recognize that changes in gender norms and behaviors are critical indicators of erupting violent conflict."¹⁹ For instance, an increase in violence against

women is used as an indicator of the potential for conflict in Timor-Leste, Southeast Asia.²⁰ Early warning systems are vital to international security to ensure conflict does not erupt in a country or destabilize a region. The former United Nations Special Representative for Children and Armed Conflict, Radhika Coomaraswamy, advocates that “conflict prevention methods are improved through directly engaging with women and providing avenues to capitalize on their knowledge.” The United Nations peacekeeping mission in South Sudan engaged women to identify early warning signs of conflict, which include increased pregnancy terminations, more expensive bride prices, and unusual movement of all-male groups.²¹ The mission also established a 24/7 hotline and distributed communication equipment to enable women to report conflict indicators. Women must be actively included in early warning systems to increase the success rate of conflict prevention.

CONFLICT OCCURENCE

A liberal feminist lens should be applied to security studies to examine the differential impacts of war on men and women,²² as enumerated in the WSP Agenda. Liberal feminism seeks to bolster female representation within existing legal and social structures to increase diverse viewpoints which strengthen security institutions.²³ The rise of intrastate conflicts in the post-Cold War era has resulted in more civilian deaths (often women and youth) and an increase in sexual and gender-based violence due to battlefields enmeshing with civilian populations.²⁴ Combatants deploy sexual violence as a weapon of war systematically and strategically in many armed conflicts.²⁵ Feminist scholar Carol Cohn demonstrates how mass rape is used as a tactic of genocide and ethnic cleansing.²⁶ Nationalist ideology often invokes terms such as “motherland” to portray the nation as a woman. Male soldiers are then called upon to protect the motherland from conquest, invasion, and violation. Under this ideology, women are viewed as vessels that reproduce the national, ethnic, or religious identity and repopulate the group. Women are severely afflicted by the symbolic coding of women as the nation. Through a nationalist ideology lens, the use of mass rape is “perceived as having the power to attack and destroy a national, ethnic or tribal group.”²⁷ Males used rape in Bosnia, Rwanda, Darfur, and Bangladesh to destroy national bloodlines and identities.²⁸ Conflict-related sexual violence can occur in several forms, including rape, sexual torture, enforced prostitution, sexual slavery, mutilations, and sexual trafficking.²⁹ Victims' needs vary and require unique approaches to relief and recovery efforts in conflict or post-conflict settings.

Gender norms also impact perception of female combatants. The presence of women combatants is frequently unaccounted for, which can create vulnerabilities in defenses and undermine peace processes. Women can be

active agents in war, taking up arms to commit acts of violence.³⁰ Portraying women as victims of war can permit them greater mobility without being identified as a threat. Women have used this stereotype to their advantage, serving in diverse roles such as spies, weapons smugglers, messengers, and suicide bombers.³¹ Despite being effective active agents, when conflict ends, women are frequently omitted from disarmament, demobilization, and reintegration (DDR) programs that provide former combatants with access to training, educational, and employment opportunities to transition into civilian life.³² Feminist scholar Laura Sjoberg warns “DDR programs that failed to take account either of the existence of female soldiers or the complexity of their lived gender roles were ineffective in demobilizing combatants.”³³ DDR campaigns that are not formed using a gender lens have the potential to alienate women combatants or prove ineffective in stopping the violence.

CONFLICT MANAGEMENT

Organizations that deploy peacekeeping operations, such as the United Nations or African Union, should implement a critical feminist approach. This would account for prevailing institutional gender norms which foster militarized masculinity and transform peacekeeping operations to better meet the needs of women in conflict settings. Militarized masculinity, also referred to as hypermasculinity, is “an aggressive form of masculinity needed for warrior culture to flourish.”³⁴ This form of masculinity values aggressiveness, courage, loyalty, and obedience over feminine behavior. Feminist scholars also suggest that “a ‘hyper-masculine’ culture that encourages tolerance for extreme sexual behaviors has evolved within peacekeeping missions.”³⁵ Hypermasculine behavior is often attributed to how male-dominated institutions operate, without addressing the harm it inflicts on women.

In 2000, the UN applied a liberal feminist approach to reform peacekeeping operations following reports of sexual exploitation and abuse (SEA) in Sierra Leone, Guinea, and Liberia.³⁶ Under this approach, the UN sought to improve peacekeeping operations by increasing the number of women peacekeepers. The underlying assumption was that “the pacifying presence of women in [peacekeeping operations] reduces aggressiveness and hypermasculinity.”³⁷ This assumption perpetuates gender stereotypes and places a burden on women to change their male counterparts’ behavior, rather than addressing the root causes of high SEA rates in peacekeeping operations. In 2015, the UN reported that “SEA allegations are still a major problem for peacekeeping operations.”³⁸ The continuation of SEA indicates that the inclusion of women in peacekeeping operations does not change the institutionalized culture that permits widespread abuse. Research demonstrates that women tended to assimilate to militarized masculine environments rather than change them, which sheds light on the

continued reports of peacekeepers committing sexual assault despite efforts to increase the presence of women.³⁹

To truly transform peacekeeping operations, institutions should adopt a critical feminist approach. This approach seeks to examine and alter the prevailing norms that perpetuate militarized masculinity.⁴⁰ Peacekeeping institutions should couple efforts to increase the number of women with measures to dismantle the gender norms that perpetuate militarized masculinity. These measures could include conducting gender sensitivity training, encouraging troop-contributing countries (TCC) to increase accountability for SEA by prosecuting perpetrators, and improving communication between the peacekeeping institutions and TCC to investigate sexual abuse cases.⁴¹ Peacekeeping institutions can improve their effectiveness and capability to protect women by acknowledging the hypermasculine behaviors valued within the organization and creating training programs and accountability mechanisms to establish inclusive gender norms and meaningfully empower women peacekeepers.

CONFLICT RESOLUTION

The rise in civil wars across the globe highlights the need for sustainable peace agreements.⁴² Resolution 1325, of the Women, Peace & Security Agenda, “seeks to enable gender-equitable restructuring of post-conflict societies” through inclusive peace processes.⁴³ To achieve this goal, women must be included in the peace talks that shape the post-conflict society. A study conducted in 2018, found that “women’s participation in peace negotiations with voice and influence leads to better accord content, higher agreement implementation rates, and longer lasting peace.”⁴⁴ The 1994-1996 Guatemalan Peace Process is cited as one of the most “inclusive, participatory, and human-rights oriented negotiation processes, in which women contributed to both the official and civil society-led parallel negotiations.”⁴⁵ Despite these findings, women continue to be excluded from formal peace processes. Formal peace processes often prioritize facilitating negotiations between the warring parties to end the conflict, without including members of civil society who are deeply affected by the conflict.

Males are primarily the leaders or representatives of the warring parties and often do not value the presence of women in peace negotiations. Political and societal gender norms frequently impede women’s entry to the negotiation table. Women are often used as a form of tokenism to signal inclusivity and democracy during the peace process but are not permitted to have an independent voice by the government.⁴⁶ At the societal level, women tend to be in compliant roles and sequestered to the private sphere, while males dominate the public, political sphere. During the 2002 peace talks to resolve the war

in the Democratic Republic of Congo, Congolese government officials stated, “war and peace are exclusively the business of men...Women did not have a right to participate...because they were not fighters.”⁴⁷ Policymakers have also justified excluding women from peace processes because “gender equality or “women’s issues” are “irrelevant” or “not suitable” topics for discussion at the peace tables.”⁴⁸ International institutions and member states should strive to support women in removing the institutional and social barriers that impede their meaningful participation in peace negotiations to increase the potential for longer-lasting peace through inclusive agreements.

OBSTACLES TO THE IMPLEMENTATION OF THE WOMEN, PEACE, AND SECURITY AGENDA

Many nations and institutions deprioritize the implementation of the WPS Agenda due to a lack of recognition that security studies and society are gendered. Feminists have illuminated that the notions of security and its institutions have been presented as gender-neutral, when in reality, “international security is infused with gendered assumptions and representations”⁴⁹ as aforementioned. Constructivist theorists purport that society is socially constructed and is categorized by social capacities that are equated with power.⁵⁰ Traditional societal capacities placed men in the public sphere with political and economic power and women in the private sphere without political or economic power. These roles fostered historical and cultural connotations linked to masculinities and femininities to empower males and disempower females.⁵¹ This system of subordination can appear natural and unbiased because male and female social capacities are enshrined in society and its institutions. Sjoberg notes, “ignoring gender hierarchy gives inaccurate and incomplete explanations of how global politics works.”⁵² It needs to be recognized within the male-dominated security field that a gender lens is vital and that advancing the WPS Agenda will enhance global peace and security.

The WPS Agenda is often situated under human security because it focuses on the individual-level as opposed to the state-level. National security is traditionally prioritized over human security rather than recognizing that the two complement each other. For example, the United States and allies demonstrated strong support for the WPS Agenda initially, but their efforts pivoted to counterterrorism following the September 11, 2001 attacks and remained dampened.⁵³ Feminist scholars recognize that “Looking at the multifaceted and multidirectional influences of gender socialization and gendered expectations is key to understanding not only what is going on in any given security environment, but also how to improve security.”⁵⁴ Implementing the WPS Agenda is vital to international, national, and human security because it provides the mechanisms to expand the scope of analysis and creates the

possibility for new solutions to both traditional and emerging threats.

The UN Security Council cannot enforce compliance with the WPS resolutions, which has contributed to the lack of progress in implementing the WPS Agenda. Eight additional resolutions have passed to strengthen the WPS Agenda since 2000, but they have not catalyzed change or action.⁵⁵ Women continue to be underrepresented in national and international security deliberations.⁵⁶ Violence against women occurs at horrifying levels, particularly in conflict settings.⁵⁷ The WPS resolutions evoke weak language such as ‘request’ or ‘recommend’ that characterize them as voluntary rather than compelling action.⁵⁸ These resolutions are seen as ‘soft law’ and nonbinding because they were adopted under Chapter VI of the Security Council’s charter, rather than Chapter VII, which includes enforcement provisions.⁵⁹ Future resolutions should include enforcement mechanisms to ensure implementation of the WPS Agenda.

POLICY RECOMMENDATIONS

Implementing the WPS Agenda requires collective action by international organizations, NGOs, and civil society actors in the security field to enhance international and national security. International organizations, such as the UN, the African Union, and the Association of Southeast Asian Nations, must strive to meet a gender parity within leadership to serve as models for implementing the WPS Agenda. Resolution 1325 calls to “increase representation of women at all decision-making levels in national, regional, and international institutions.”⁶⁰ Radical feminism espouses that the inclusion of women will bring diverse perspectives,⁶¹ which will improve decision-making and in turn enhance security. International institutions are highly visible within the security realm and have the opportunity to propel change at the national and regional levels by leading the implementation of key components of the WPS Agenda.

Members of the UN can pressure the Security Council to enhance the viability of the WPS Agenda by creating enforcement mechanisms. Member states are legally bound to implement the Convention of the Elimination of Discrimination Against Women, which focuses on upholding human rights components of the WPS Agenda.⁶² It provides a framework to create a binding resolution to implement the four pillars of the WPS Agenda: prevention, participation, protection, and relief and recovery.⁶³ A WPS resolution adopted under Chapter VII or one that contains stronger enforcement language would induce member states to prioritize it. Nations should submit and encourage each other to adopt national action plans (NAPs) that detail reform measures to meet the commitments under the WPS Agenda.⁶⁴ Nations that adopt NAPs will be required to report on their progress formulating and implementing

them, which will create accountability mechanisms and serve as examples for other nations working to implement the WPS Agenda.

Non-governmental organizations can create leadership networks to bring together heads of organizations who are committed to removing gender barriers and promoting the WPS Agenda. The Gender Champions in Nuclear Policy leadership network serves as a successful model. Each member pledges to remove the gender barriers within their organization and to work together to increase gender equality globally. These networks will work at a sub-national level to build skills, visibility, community, and leadership among women and allies in the security field. A commitment to augment women in the field by supporting the implementation of the WPS Agenda will change the non-governmental sector and have a multi-generational effect to enhance security.

Members of academia can commit to gender mainstreaming within their courses and institutions to promote the WPS Agenda. Security studies and international relations courses often cover a gender perspective in one-week, isolating it from the rest of the content. Professors are teaching the next generation of decision-makers and practitioners. These students will have the ability to champion gender equality in security studies if they are equipped with the proper tools. Sjoberg advises that for the full range of women's security concerns to be examined "would rely on the changed subject matter of security studies to change the conceptual and epistemological contours of current thinking."⁶⁵ Professors must integrate a gender lens into existing security studies courses to examine how power, policies, and institutions are informed by femininities and masculinities. In time, courses that implement gender mainstreaming will change the nature in which students interact with societal gender norms and create an awareness of the necessity of gender equality to improve policies, institutions, and society in the future.

CONCLUSION

A gender lens enhances security studies because it deepens the understanding of the complexities associated with conflict prevention, management, and resolution. A global reduction in violent conflict is vital to national and international peace and security. Women have unique positions within the conflict spectrum that contribute to longer-lasting peace. They play a crucial role in conflict prevention by identifying early warning signs of conflict, especially at the familial and grassroots levels. Combatants frequently employ sexual and gender-based violence as a weapon of war. Women's health, humanitarian, and security needs greatly vary, and are frequently not accounted for in conflict response planning. Post-conflict disarmament, demobilization, and reintegration campaigns that do not integrate women combatants in post-conflict programs risk alienating women or ineffectively ending the

violence. Prevailing institutional gender norms in peacekeeping operations foster militarized masculinity, which can render women vulnerable to sexual exploitation and abuse by peacekeepers. International organizations, non-governmental organizations, and civil society should work to dismantle the gender norms and barriers that impede women's meaningful participation in all discussions and decisions on women, peace, and security issues.

The implementation of the Women, Peace, and Security Agenda faces obstacles, including the lack of recognition that existing institutions are gendered, the lack of support to prioritize national security over human security, and the lack of enforcement mechanisms to implement the WPS Agenda. Advancing the WPS agenda requires commitment from international organizations, non-governmental organizations, and academia. The UN and multilateral organizations can achieve gender equality at leadership levels to serve as models for governments and civil society. Member states can pressure the Security Council to create a resolution with enforcement mechanisms to ensure the WPS is implemented. NGOs can build leadership networks to gather leaders who commit to working together to achieve gender parity in the security field. Academia can prepare the next generation of leaders to dismantle gender norms and strengthen international and national security by gender mainstreaming all security and international relations courses. These recommendations can help dismantle institutionalized gender norms in the security field to increase individual, national, and international peace and security.

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Hydro-Hegemony

and Great Power Competition on the Mekong River

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ABSTRACT

In the four countries of the Lower Mekong River Basin, 60 million people rely on the river for food and livelihoods. Reduced water flow on the river now threatens the people's wellbeing and the resilience of governments in Laos, Cambodia, Thailand, and Vietnam. Recent droughts, climate change, and hydroelectric dam construction have starved the river and fed regional discord over shared management of the Mekong. Amid this tension, great power competition has landed on the banks of the Mekong. Dwindling water flow and rising water stress have attracted the attention of Chinese and American policymakers seeking to gain influence in the region. The introduction of competing hegemons to a regional water issue presents challenges and opportunities for all countries along the Mekong—especially Vietnam. The Vietnamese face significant environmental and economic insecurity. Dams and drought reduce the quantity and quality of river flow reaching Vietnamese territory. Located at the terminus of the Mekong, Vietnam is the last in line to drink from the river. Vietnam faces critical strategic decisions in the years ahead about how to engage its neighbors in ASEAN as well as China and the United States. To ameliorate the situation, Vietnamese policy makers must incorporate hydrodiplomacy into the agenda for their bilateral relations with regional partners and multilateral institutions. The first step will be securing and sharing better data about the state of the Mekong's water quality and quantity. Next, Vietnam must push for a more effective multilateral approach to managing the Mekong River Basin.

INTRODUCTION

The name Mekong is derived from the combination of the Vietnamese words for water and mother. It is a fitting name for a river which nurtures Southeast Asia with a bounty of wealth, health, and biodiversity. In the Lower Mekong

River Basin, 60 million people rely on the river for food and their livelihoods.¹ Reduced water flow on the river now threatens the people's wellbeing and the resilience of governments in Laos, Myanmar, Cambodia, Thailand, and Vietnam. Recent droughts, climate change, and hydroelectric dam construction have starved the river and fed regional discord over shared management of the Mekong.

Amid this tension, great power competition has landed on the banks of the Mekong. Dwindling water flow and rising water stress have attracted the attention of Chinese and American policymakers seeking to gain influence in the region. China has built massive hydroelectric dams within its borders and is financing dam construction in other Mekong countries. America and China now sponsor competing multilateral forums that are intended to negotiate water use on the transboundary river. The introduction of competing hegemonies to a regional water issue presents challenges and opportunities for all countries along the Mekong—especially Vietnam.

Located at the terminus of the Mekong, Vietnam is the last in line to drink from the river. The Vietnamese face significant environmental and economic insecurity on the Mekong as their upstream neighbors use more water than nature can replenish. Dams and drought reduce the quantity and quality of river flow reaching Vietnamese territory. In the years ahead, climate change will compound this water stress. In addition to the constraints of its geographic location at the end of the river, Vietnam faces outsized economic and military power differentials with the state that holds the most control over water levels on the river—China. Vietnam cannot secure sufficient water resources in the future through force or unilateral action. Protecting the ecology, economy, and human health of the Mekong requires Vietnamese policymakers to look beyond their own borders and blind spots.

“Gender is an invisible yet organizing structure in society” and therefore a gender lens must be incorporated into any comprehensive analysis of Mekong water competition and possible solutions.² It is well documented that climate change and natural disasters cause a higher mortality rate for women.³ This paper will demonstrate that this distribution of harm is replicated on the Mekong. Water stress disproportionately affects women in Vietnam and endangers the economic progress that they have made in recent years. The consequences of water stress on Vietnamese women should be treated as an early warning indicator for policymakers to accelerate recognition of growing problems resulting from water stress and spur greater action. Accounting for the structures and identities of gender will enable policymakers to understand the true severity of Mekong water stress and design durable solutions. From a realpolitik perspective, adopting a gender lens will also help Vietnam accrue more support from America to counter Chinese hegemony on the Mekong. A greater emphasis on gender issues will align Vietnamese policymakers with

American civil society and Washington's NGO community, where calls for a Feminist Foreign Policy are growing.⁴

Vietnam faces critical decisions on its Mekong diplomatic strategy in the years ahead and there is no panacea. The geographic and economic power of China puts Vietnam at a major disadvantage but growing great power competition between the U.S. and China could become a fulcrum that will shift the power dynamics on the river. To ameliorate the situation, Vietnamese policy makers must incorporate hydro-diplomacy into the agenda for their bilateral relations and within multilateral institutions like the Association of Southeast Asian Nations (ASEAN) and the Mekong River Commission (MRC). A crucial step will be securing and sharing better data about the state of the Mekong's water quality and quantity. Next, Vietnam should embrace a gender sensitive analysis of the Mekong water scarcity in order to fully understand the costs of the problem and align its normative framing to attract support from policymakers in Washington. Greater regional trade will strengthen relationships and make it easier for Lower Mekong countries to reach a compromise on Mekong water management. Finally, Vietnam must push for a multilateral strategy for water, food, and energy in the Mekong River Basin.

CONTEXTUALIZING ENVIRONMENTAL SECURITY

In 2007, the Center for Naval Analysis coined the term "threat multiplier" to describe the myriad of challenges presented by climate change.⁵ Environmental security gained prominence in the following years as a useful lens for analyzing transboundary environmental problems. Some people lament this securitization of environmental issues. They highlight the innate value of environmental preservation and they reject the powerful discourse, tools, and funding that come with framing environmental problems as threats. After just one month in office, the Biden administration had addressed environmental security and began weaving it across their economic, diplomatic, and defense agendas.⁶ This climate-centric approach will likely influence the administration's engagement in Southeast Asia—Vietnam should welcome this development.

Vietnam serves as a perfect microcosm for the elements of environmental security. The shameful legacy of Agent Orange—an American chemical defoliant that destroyed Vietnamese forests and caused major health problems for the Vietnamese who were exposed—offers warnings about weaponizing environmental degradation. The people of Vietnam still deal with the pollution and environmental destruction unleashed during conflict with France, the United States, and Cambodia during the second half of the 20th century. Unexploded ordinance has killed 40,000 people since 1975 and the death toll continues to rise as munitions litter the countryside.⁷ The country's natural wonders and incredible biodiversity certainly warrant preservation on both

moral and pragmatic grounds. As this paper will demonstrate, Vietnam's water challenges on the Mekong present one of the most important case studies in environmental security. And the stakes are high, as lower water quantity and quality threaten millions of lives and livelihoods.

Reliable access to freshwater is often taken for granted in the developed world. Though it often goes unnoticed, the abundance of freshwater resources is a reflection of power and the result of competition. Competition for water predates Thucydides and the study of international relations. Even the world rivalry comes from the Latin *rivalis* — which means he who shares the same river as another.⁸ Elizabeth Chalecki, a key scholar on environmental security and Woodrow Wilson Fellow, noted that “water resources are critical not only for human life and health, but also for ecological diversity, economic development, energy, and national security.”⁹ Simply put: water is a foundational resource for both prosperity and security.

Three decades ago, then-United Nations (UN) Secretary General Boutros Boutros-Ghali warned about a dire future where water scarcity would lead to war.¹⁰ So far that prediction has not proven true—at least in terms of interstate conflict. However, the past is not necessarily prologue. And even if future conflict is avoided, the costs of water scarcity on the Mekong are significant: human health and nutrition, economic development, manageable levels of migration, social mobility for women and girls, and the biodiversity of the region to name a few.

Finally, the hydro-diplomacy of Vietnam and its neighbors also offers important challenges to some of the ossified thinking in international relations. Many of the grand theories and strategies in international relations presuppose that a healthy and stable environment are given variables. Vietnam's challenges warn us that such assumptions are obsolete and dangerous.

HYDROLOGY OF THE MEKONG: UNDERSTANDING THE VALUE AND ECOSYSTEM SERVICES

Like every river basin from the Mississippi to the Nile, the Mekong provides important ecosystem services for humans in the region. Ecosystem services are the processes of the natural world that benefit human beings like the pollination of crops, the flood protection of coastal wetlands, and even recreation. The Mekong River Basin is the world's most productive freshwater fishery, providing over 15% of the global freshwater catch each year.¹¹ 18 million people reside in Vietnam's Mekong Delta, whose rich tributaries and wetlands foster thriving agriculture, aquaculture, and biodiversity. This natural treasure propelled Vietnamese farmers to provide 14% of global rice trade in 2018 and much of Vietnam's food supply.¹² In addition to the economic benefits of the Mekong, the river also improves elements of human security like sanitation

and nutrition. In Cambodia, the country's 16 million people harvest 75% of the protein in their diets through fishing on the Tonle Sap lake which is fed by the Mekong.¹³ A researcher at Arizona's Future H2O center stated, "in the Mekong, water is food."¹⁴ Biodiversity is another strength for the Mekong River Basin. Second only to the Amazon rainforest, the Mekong teems with fish biodiversity.¹⁵

The seasonal floodwaters that normally pulse from May through October are the heartbeat of this system. Though flooding generally has a negative connotation, it is an important process for the ecosystem. The wet season's monsoons bring torrential downpours which flood the banks of the Mekong and rush sediment downstream. These nutritious deposits of sediment drive an explosion of life in the river basin by supporting plant growth and fish populations. One estimate by the Mekong River Commission found that seasonal flooding caused less than \$70 million dollars in damages while producing as much as \$10 billion in annual economic benefits.¹⁶ The commission also found that if all proposed dam construction on Mekong is completed, then 97% of the nutritious sediment would be blocked from reaching Vietnam's Mekong Delta region.¹⁷

The valuable hydrology of this ecosystem defies the political boundaries of modern states. Wet season flooding surges Cambodia's Tonle Sap—expanding the lake by as much as five times its dry season surface area and 60 times its dry season volume.¹⁸ This expansion of water in Tonle Sap supports fish spawning. The lake is known as the beating heart of the entire basin's ecology and "produces an annual 500,000-tonne fish catch in the lake and dispatches migratory fish throughout the entire Mekong Basin."¹⁹ Societies from the Khmer Empire 1000 years ago to modern nation-states have all thrived on the annual flooding and the bounty of food that it produces.²⁰ The Mekong also provides opportunities for domestic energy production—enabling Mekong countries to economically develop while also maintaining international commitments like the Paris Agreement. The region's reliance on the Mekong nexus of water, food, and energy is becoming increasingly tenuous.

THE CURRENT SITUATION: SHALLOW WATER ON THE WANING MEKONG

The cause of the dwindling Mekong in recent years is two-fold. First, China has spent decades constructing a series of hydroelectric dams on the upper Mekong—referred to as the Lancang River in China. To date, China has built 11 massive dams and has plans for 12 more. The Nuozhadu—the largest of these dams—has the capacity to fill its reservoir with a volume that is equivalent to half of the water in the Chesapeake Bay.²¹ These dams regulate and constrict the natural flow of water downstream. This unilateral control of the Mekong-

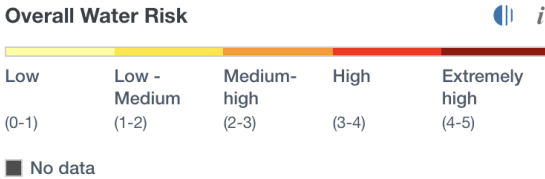
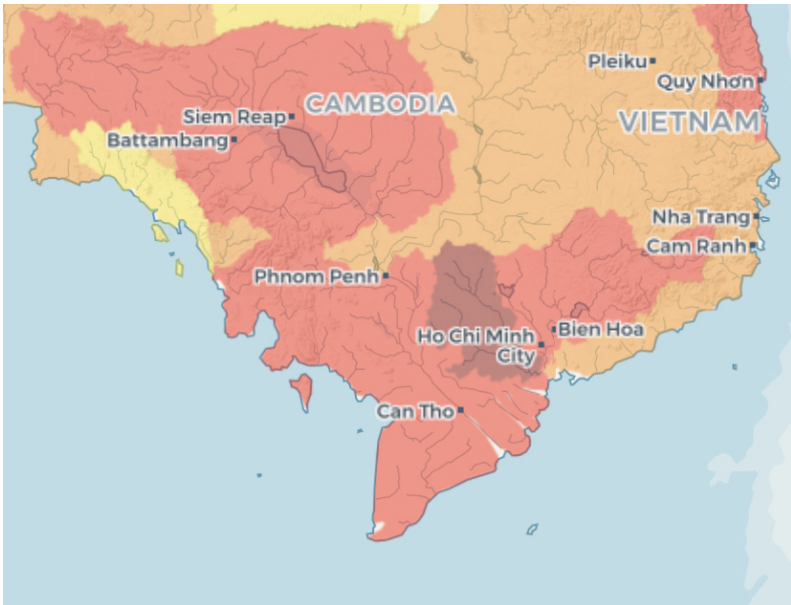
Lancang water levels amounts to a hydro-hegemony—in which China may use the water for its own economic development or as a potent tool of leverage in its diplomatic engagement with nations in the Lower Mekong Basin.

It must be noted that China is not the only nation damming the river—though Chinese dams dwarf the others. Lower Mekong nations see hydropower as an enticing way to easily power their growing economies. Laos hopes to become “the battery of Asia”—building 140 hydroelectric projects which are projected to become the largest contributor to Laotian coffers by 2025.²² These Laotian dams are often built by Chinese companies and are paid for with Chinese loans. Increasing access to other renewable energy sources and decreasing the cost of financing those projects will help Vietnamese policymakers slow the rate of hydropower construction throughout the Mekong.

The second reason for a depleted Mekong is climate-based factors. The Mekong river originates on China’s Tibetan plateau where glaciers store water as deposits of snow and ice. These deposits are withdrawn in spring and summer as ice melt fills the riverbanks. Warmer average global temperatures will reduce the glacial deposits that feed the Mekong over time. The river water levels are also supplemented with rainwater along its 4300 kilometer journey to Vietnam’s Mekong Delta and the South China Sea. A growing pattern of shorter and drier rainy seasons in the Lower Mekong have dramatically reduced the Mekong’s water levels. This pattern of paltry rainfall reached a nadir in 2019 when a historic drought starved the river of supplemental rain and brought the water level to its lowest levels in over 100 years.²³ After the consequences of 2019’s dramatic decrease in water levels, it is clear that the combination of dam construction and climate change threaten a vibrant region. David Michel, a senior researcher at the Stockholm Environment Institute, identified migration, famine, state fragility, and civil war as just some of the consequences of stressed water supplies on transboundary rivers.²⁴

A victim of bad geographic luck, Vietnam faces a compounded version of the Mekong’s water problem. As the last in line to drink from the Mekong, Vietnam will suffer the worst from decreased water quality and water volume on the river. This means less water for sanitation, agriculture, fishing, energy, and a healthy ecosystem. Figure 2 demonstrates that water stress is already an issue for Vietnam’s Mekong Delta region and its largest urban center Ho Chi Minh City. The low-lying area is also at a high risk of saltwater intrusion when river flow diminishes or when sea level rises. This intrusion of saltwater blights agricultural fields—threatening higher food prices and food shortages. In short, Vietnam faces what world renowned hydrologist Malin Falkenmark referred to as a water barrier on its economic development and public health.²⁵

FIGURE 2: OVERALL WATER RISK IN MEKONG DELTA
 (WORLD RESOURCES INSTITUTE – AQUEDUCT WATER RISK ATLAS)



Elizabeth L Chalecki, Environmental Security: A Guide to the Issues (Praeger, 2013), 28.

The costs of both the human and natural degradation of the Mekong are becoming clearer with each passing year. One symptom of the problem is diminished biodiversity. The Mekong Giant Catfish may soon become extinct and the survival rate of young birds is dropping rapidly, to less than 50% in 2016.²⁶ Rice farmers planted a fraction of their usual crop due to little irrigation in 2019.²⁷ This led to increased poverty in the region as well as higher food prices due to the constrained supply. Southern Vietnam is increasingly facing challenges with sanitation and potable tap water as Mekong water quality decreases.²⁸ As the Mekong’s dwindling water supports fewer livelihoods for fishermen and farmers there will be serious consequences for Vietnam. Workers

will abandon pastoral livelihoods and migrate to urban centers in search of work. According to one study, environmental effects and climate change were a primary motivator for 14% of recent rural immigrants in Ho Chi Minh City.²⁹ Between 2008 and 2018 the Mekong Delta region in Vietnam faced a net migration of 1.7 million people from rural areas into cities.³⁰ More study is needed to expose the linkages between climate change, water stress, and rural-urban migration in Vietnam.

If one examines the plight of women in Vietnam's Mekong Delta, the danger of water stress for wider society becomes clear. When water stress induces migration, food insecurity, and economic dislocation, these costs disproportionately fall on women. Higher food prices and water shortages squeeze family finances and place a high burden on the homemakers who manage household food and chores related to water. That work of sustaining families still falls disproportionately on women due to social norms and reduced opportunities in the workforce. Only 66.4% of Vietnamese women have some amount of secondary education in comparison to 78.2% of men.³¹ 72.7% of Vietnamese women participate in the labor force in comparison to 82.4% of men.³² In 2019, Vietnam 65th out 162 countries on the 2019 Gender Inequality Index.³³ Existing inequalities may be exacerbated if current trends continue. Some girls may drop out of school to support their families and women will be taxed by the ballooning time and effort required to secure water and food. Those trends of gender inequality water stress threaten the long-term economic vitality and stability of Vietnam and its neighbors in the Lower Mekong. Vietnamese policymakers should view the effects on women as an early warning system for the consequences of water stress and act accordingly.

As the effects of climate change escalate, Vietnam and its neighbors on the Mekong must push for better multilateral consensus on solutions for the Mekong. Since climate is largely out of the control of Vietnamese policy makers, their diplomatic agenda should focus on the issue of hydroelectric dams. To ensure future prosperity and environmental security, Vietnamese policy must convince regional partners that shared management of the Mekong will promote regional stability and economic growth for all. This hydro-diplomacy will be a complicated and arduous endeavor.

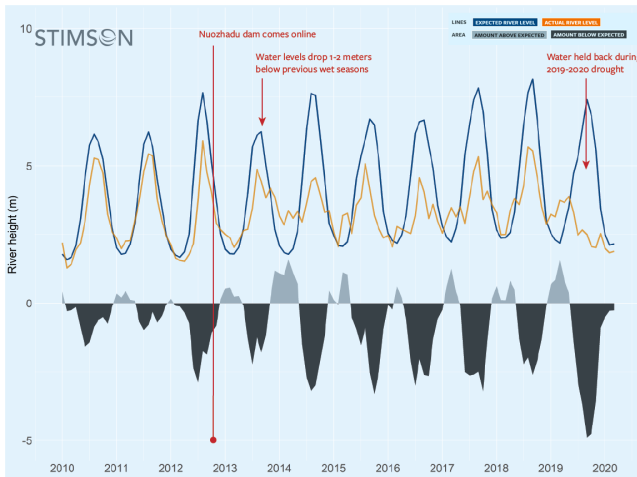
THE DEVIL IS IN THE RIVER DATA

The Mekong's flow is being weakened by hydropower dams. While all nations on the Mekong have built dams, the Chinese dams are significantly larger, more numerous, and more consequential. Collectively, these dams degrade the river basin by removing water, blocking sediment flow, and stopping fish migration. Assessing how much water is being held back by Chinese dams is an important foundation for building a comprehensive management plan

for the river. Unfortunately, China has historically been tight-lipped with data about dams, precipitation, and water flow on its portion of the Mekong. China considers water management data to be “a state secret” and has been reticent to share any data about the upper Mekong since it built its first dam thirty years ago.³⁴

Due to China’s reticence on river data, analysts are piecing together satellite images of Chinese territory and river gauge data from the Lower Mekong. A recent model from Eyes on Earth estimated how much water China is holding back (see Figure 1 below). The model predicts the natural, historical flow of water on the Mekong and then compares that to data from a river gauge at the Thai-Chinese border. The study found that over 126 meters of river height were missing in a 28-year period.³⁵ This report was striking because it suggested that during the catastrophic 2019 drought on the lower Mekong, China continued to restrict water from reaching downstream countries. One of the authors of the report bluntly depicted China as selfish, stating “glaciers are bank accounts of water but with climate change they’re melting fast... The Chinese are building safe deposit boxes on the upper Mekong because they know the bank account is going to be depleted eventually and they want to keep it in reserve.”³⁶ Since the Eyes on Earth study received US funding, China’s Ministry of Foreign Affairs derided the report as a US driven conspiracy.³⁷ China argued that it also suffered from drought, but meteorological and satellite data suggest the opposite. The upper Mekong may have actually received above average rainfall.³⁸ As the existential threat on the Mekong is quantified with better data, it is important to examine whether the region will find room for cooperation and the likelihood of conflict.

FIGURE 1: MEKONG RIVER HEIGHT OVER TIME (EYLER, STIMSON CENTER, TURNING OF THE TAPS)



THE ROAD AHEAD: PROSPECT FOR CONFLICT AND COOPERATION

The chances for violent conflict are low and the need for cooperation is high. It is doubtful that there will be interstate conflict among the lower Mekong riparians because military conquest or coercion would do little to solve the large issue of Chinese water withdrawal. Similarly, it is unlikely that Vietnam or a coalition of lower riparian states would pursue war against China to coerce them to release more water or deter the construction of more dams. Demographics tell a different story about the chances of intrastate conflict. Research has shown that countries with a large percentage of their population under the age of 30—an ideal age for soldiers—are twice as likely to experience civil war.³⁹ Since several of the Lower Mekong riparians are lower income countries with youth bulges, subnational conflict seems plausible but not imminent.

The urgency for regional cooperation is growing as 12 more dams are under construction on the Mekong and several more are proposed.⁴⁰ Competing multilateral institutions are operating in parallel and attempting to mediate the growing problem of dwindling river flow. China is attempting to drive the conversation through the Lancang-Mekong Cooperation Mechanism (LMC). After creating the LMC in 2016, China financed a lavish building for the group in Cambodia which raised eyebrows for critics who view the LMC as a mouthpiece for China.⁴¹ Recently, China offered a softer position on Mekong data. Chinese Premier Li Keqiang pledged to share water management data for the entire 2020 year with its neighbors in the Lower Mekong.⁴² This one-time release of river data may have been induced by pressure from a competing river management institution with US backing.

Vietnam, Cambodia, Thailand, and Laos formed the Mekong River Commission (MRC) in 1995 to adjudicate how to best manage the river flow. Since China is not a member of the MRC, some observers have derided the organization as “effectively powerless.”⁴³ The US seeks to change that by bolstering the MRC and its members.

As the US pivots to avert Chinese hydro-hegemony on the Mekong, America has joined the regional dialogue through the Lower Mekong Initiative in 2009 and now the Mekong-US Partnership in September of 2020 — both of which seek to empower the MRC to supplant the LMC. Through funding these efforts, the US is pursuing the path championed by Peter Engelke and David Michel in *Towards Global Water Security*. With increased engagement on water issues and funding for Mekong initiatives, the US is seeking to demonstrate “responsiveness to tackling challenges that other nations view as vital to their own interests.”⁴⁴ The US is well positioned to provide technical and policy expertise through dialogues between American and Vietnamese civil society. A striking example of this partnership is the Mekong Dam Monitor.

Launched in December of 2020, this digital dashboard publishes river data every week.

Some observers are calling for ASEAN to take on a more holistic approach to their strategy in balancing China — a path which would elevate Mekong River issues on the ASEAN agenda. Critics of ASEAN argue that the forum is overly focused on the neutrality of the South China Sea. Meanwhile it treats the Mekong as a peripheral issue despite the fact that “China holds the throats of half of ASEAN in its hands” in the Mekong Basin.⁴⁵ Vietnam had an opportunity to elevate Mekong issues within the institution as the 2020 ASEAN chair. Unfortunately, the COVID-19 pandemic drained focus towards public health and economic opportunity.⁴⁶ Vietnam and its fellow Mekong riparians will continue to push for greater regional attention to the river basin but the chances of success are unclear. Since ASEAN is a consensus-based institution, it can be weakened when individual members move closer to China’s orbit.

A continual theme in the struggle for multilateral management is the influence of China in its bilateral relationship with each country. Cambodia’s largest trading partner is China and Beijing has supported the autocratic ruler Hun Sen — thus it should be no surprise that Cambodia treads lightly in its rhetoric towards China. Laos started the construction of dams on its portion of the Mekong with Chinese financing.⁴⁷ However, if the US continues to insert itself into the regional dialogue, then it is possible that Vietnam and its neighbors will assume a more confrontational approach towards Beijing.

ADDING A GENDER LENS TO ANALYSIS OF THE MEKONG’S WATER INSECURITY

The role of gender is often overlooked when analyzing water scarcity in the Mekong and its geopolitical dimensions. Women are often responsible for securing a family’s well-being through water related tasks like food production, water collection, cleaning and washing, and water-dependent livelihoods.⁴⁸ This dependence on water for livelihoods and familial responsibilities means that women face unique vulnerabilities to water stress and water induced migration. An incomplete understanding of these distinct gender roles around water leads to a lack of recognition of women’s needs and interests.⁴⁹ As a recent Oxfam report stated, women are “often disproportionately disadvantaged when water regimes change and their voices are the least heard in decision-making on water issues.”⁵⁰ When climate change or dam construction induce migration or economic hardship, it often reduces the individual agency of women in Mekong communities.

One study found that Vietnam’s own dam construction hampered women’s empowerment and health in numerous ways. An estimated 240,000

Vietnamese were displaced by two major hydroelectric dams in recent years.⁵¹ Women then faced fewer employment opportunities after migration as social norms often restrict certain jobs to men. When women see income from traditional livelihood activities decline, they become more dependent on male income—and this dependency weakens their power within their marriages and families.⁵² In addition to reduced agency over their finances, Vietnamese women displaced by a local dam reported increased domestic violence in interviews with researchers.⁵³ Future research on the externalities of dam construction should attempt to quantify the increased risk of gender-based violence in communities disrupted by water stress. These costs demand greater attention from the institutions and regimes that govern shared water resources.

At the regional level, gender and water issues do appear on the agenda, but they are rarely linked. ASEAN promotes gender equality but the organization has not connected those goals to water stress in the Mekong. The competing multilateral river committees discussed earlier have explicitly linked gender and water governance—but with varying degrees of articulation. The China-backed LMC and the US-backed MRC both ostensibly include references to gender equality in their development goals for the Mekong River Basin. The LMC's Five-Year Plan of Action on Lancang-Mekong Cooperation (2018-2022) only makes a solitary and vague reference to gender equality—though it is not enumerated until number 87 on the list of development goals.⁵⁴ In contrast, the US-backed MRC has a long history of recognizing how water stress on the Mekong exacerbates existing gender inequalities.

The MRC adopted its first Gender Strategy and Policy in 2000 and the MRC website spotlights references to gender inequality in reports and gender toolkits for commission members.⁵⁵ Perhaps most importantly, MRC encourages national and local partners to include sex and age disaggregated data for the monitoring and evaluation of projects in the Lower Mekong River Basin.⁵⁶ This data provides a much clearer picture of the current state of gender inequality and how climate change and dam construction might impact that disparity. Greater regional attention is a start, but these multilateral institutions must find more success at inserting a gender lens on the national and local levels.

This starts with political leadership. Women held 27% of the seats in parliament in 2019, a figure which matches the current 117th United State Congress.⁵⁷ The percentage of female leadership decreases at the provincial and local level. One study of five provinces in Vietnam demonstrated a stark disparity in female representation on district and community boards that influence water governance.⁵⁸ The same study found that the percentage of women working on executive boards peaked at 22% in An Giang province and was as low as 7% in Bac Lieu.⁵⁹ Legal frameworks should also be updated. While Vietnam's constitution explicitly bars gender discrimination, its laws on

water governance make no reference to the disproportionate harm that water stress poses for women.⁶⁰

This siloed approach to gender and water governance is replicated in government bureaucracies and universities. Men make up the majority of leadership and technical positions within water governance institutions and “the training of Water professionals often brackets out social and gender concerns.”⁶¹ To alleviate the gender blind spot in water governance, Vietnamese policymakers should implement several reforms. First would be to require experts trained in gender analysis to contribute to environmental impact assessments for future damming projects. Supporting and encouraging more women to pursue the technical training in water management would also help. Policymakers and civil society should also seek to encourage the use of an assessment tool like the CARE Gender Marker, which helps organizations assess whether their work is harmful, neutral, sensitive, responsive, or transformative in regards to gender roles, relationships, and structures.

CONCLUSION AND RECOMMENDATIONS:

While Vietnam’s dilemma on the Mekong river is serious, there are reasons to be optimistic. After the historic drought of 2019, all parties have realized that the issue cannot be ignored any longer. The fact that Beijing shared data from the upper Mekong is a significant milestone which should not be overlooked. But there is the possibility that the Chinese data is not accurate. Increasing the size of the dataset and comparing it with American furnished tools like the Mekong Dam Monitor will provide important insights. If the Chinese data and American models match up, then that verification will build trust between China and Lower Mekong nations. If the Chinese and American data diverge, then Vietnamese and American diplomats can coordinate regional partners to pressure China on the issue.

As data paints a clearer picture, Vietnam should continue to invest in efforts at systemic planning for the entire basin with regional partners. There is no panacea or quick fix. A thorny issue for Lower Mekong nations will be the construction of their own dams on the river. Vietnam and its partners must shift their mindset to prioritize investment in wind and solar over hydropower. Further economic integration will create new linkages and strengthen relationships which can accommodate and withstand compromise on water issues.

Most importantly, Vietnam should seize the geopolitical opportunity created by the renewal of great power competition. American policymakers in both major political parties have reached a consensus that America’s prosperity and security in the 21st century will, in large part, depend on America’s success or failure to compete for influence and power in the Indo-Pacific region. Both

parties are also aligned in their belief that a strong stance on China will be necessary for success in the region—and that anything less would amount to appeasement. The rising competition and tension over water resources in the Mekong offer an opportunity for American diplomats to earn goodwill with nations on the doorstep of mainland China. If Vietnamese policymakers walk a delicate line, then they can profit from both sides of this great power competition. Entreating American support for Lower Mekong nations will directly strengthen Vietnam's position. Increased American funding, technical support, and diplomatic efforts on the Mekong could also raise alarm in Beijing about growing American influence—and induce a more conciliatory approach to the Lower Mekong. The following recommendations represent a starting point for Vietnam as it charts a path to water security and prosperity.

RECOMMENDATIONS FOR VIETNAMESE POLICYMAKERS:

1. Push for Greater Attention from ASEAN

ASEAN has been successful in presenting a united front to deter Chinese expansion in the South China Sea. Now the organization should recognize that insecurity for members along the Mekong will weaken the organization as a whole. Brunei holds the ASEAN chairmanship for 2021 and Vietnam should push Brunei to include Mekong water issues on the agenda.

2. Increase Regional Trade and US Economic Investment

Increasing cross-border trade in the river basin will aid efforts to counter China's hydro-hegemony on the Mekong. Vietnam should encourage the United States and ASEAN partners to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. Further economic integration of the region will strengthen relationships and make it easier to coordinate over water issues on the Mekong. This economic integration will also give American companies the opportunity to move segments of their value chain from China to other Mekong nations like Vietnam.

3. Develop a Regional Strategy Towards Water, Food, and Energy

According to the International Energy Agency, Southeast Asia has considerable potential for renewable energy and could power meet 70% of its electricity consumption with renewables by 2040.⁶² It will be important to minimize the proportion of hydropower in that renewable mix. Vietnam and its neighbors should source things like offshore wind and solar to reduce the region's reliance on hydroelectric power. US foreign direct investment and technical expertise

could accelerate this transition away from hydropower. Vietnam and its MRC partners should bolster the organization by seeking technical and policy expertise from the United States. This expertise will socialize the effects of excessive river damming by China, Laos, and other nations on the Mekong.

4. Embrace Gender Sensitive Analysis to Mekong Water Governance

Gender analysis in Vietnam is often siloed within gender-focused organizations that are tasked with broad initiatives like political participation and raising awareness on gender equality. And professionals in water management are typically not trained to include gender, ethnic, or other social analyses in water projects. An obvious step is increasing female leadership in all levels of government and water management intuitions like the MRC. Vietnamese policymakers should mandate greater dialogue between water and gender experts so that blind spots on gender can be identified and eliminated. Tools like the *CARE Gender Marker* offer an easy framework for policymakers to understand how to improve gender sensitivity Mekong water governance. Placing greater emphasis on the norm of gender equality will help consolidate support in Washington for greater involvement in the Mekong river dialogue.

5. Leverage US Funding and Data to Strengthen Negotiating Stance Towards China

Vietnam should welcome US support and engagement on Mekong issues. China dwarfs Vietnam in terms of economic and military power so the inclusion of a second great power to the dynamic. US support and greater engagement will make it easier for states like Laos and Cambodia to adopt stronger stances on Chinese water management. China in turn may also feel greater pressure to make concessions on water withdrawal in an attempt to counter US influence. China's pledge to release water data for 2020 is indicative that it will serve Vietnamese interests to pull a competing great power into its Mekong initiatives.

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Along the Borderline:

The Critical Links Between Human Trafficking and U.S.-Mexico Immigration

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ABSTRACT

Immigration and human trafficking in the United States are fundamentally interconnected. Trump-era U.S. immigration policies exacerbated human trafficking in America over the course of the past four years. The Biden administration has a powerful opportunity to implement meaningful immigration policies, which will bring significant improvement to the situation of trafficking on the U.S.-Mexico border. It is imperative for the Biden administration to reverse these policies, in order to begin to address the immense challenges at the U.S.-Mexico border. The root causes of trafficking have been largely overlooked in past U.S. anti-trafficking policy, including the significant and unique vulnerabilities faced by immigrants in America. According to the American Civil Liberties Union (ACLU), immigrants in the United States make up the majority of the population at-risk for both sex and labor trafficking. In order to better prevent human trafficking and address these root causes, and the Biden Administration must make significant changes to its immigration policies, including protecting undocumented workers, ending the deportation of migrant and unaccompanied children, and significantly expanding the T-visa program. These policy actions together would provide stronger wrap-around services to protect some of the most vulnerable in America from falling prey to traffickers.

INTRODUCTION

The Biden administration has a important opportunity to make a significant impact on human trafficking in America and it starts along the U.S.-Mexico border. The former Trump administration's immigration policies fueled trafficking across the border, intensifying the problem of human trafficking among immigrant men, women, and children. Despite the United States government's self-assessed "Tier 1" ranking in the U.S. Trafficking in Persons (TIP) Report, signifying full compliance with the Victims of Trafficking and Violence Protection Act (TVPA) minimum standards; in reality, Trump era U.S. immigration policies exacerbated human trafficking over the last four years. It is imperative for the new Biden administration to reverse these policies to begin to address the immense challenges at the U.S.-Mexico border, as well as provide further protections to curb the immense vulnerability to trafficking immigrants experience in the United States.

The United States' anti-trafficking movement was formed 20 years ago, including the establishment of the Office to Monitor and Combat Human Trafficking (J/TIP) within the U.S. State Department and the first U.S. legislation on trafficking, the Victims of Trafficking and Violence Protection Act (TVPA). The anti-trafficking movement grew rapidly after those early days, yet it is critical to analyze why, after twenty years and billions of dollars invested, the United States government has failed to address the root causes of trafficking. Additionally, it is important to uncover how they have in fact compounded the problem through immigration policies that put men, women, and children at higher risk of being exploited.

Immigrants are among the most vulnerable to trafficking in the United States, yet Trump's immigration policies made immigrants even more vulnerable to trafficking during the four years of his presidency.¹ For example, such policies benefited traffickers, impeded prevention efforts, minimized survivor's visibility, and impaired service providers' trust in federal agencies.² In order to ensure those most vulnerable to human trafficking are protected, the Biden Administration must make significant changes to its immigration policies, including expanding special visas for victims of trafficking, ending the deportation of migrant children, and strengthening labor protections for undocumented workers.

BACKGROUND: MIGRATION AND HUMAN TRAFFICKING IN AMERICA

Under the Palermo Protocol, a protocol the United Nations adopted to supplement the 2000 Convention against Transnational Organized Crime, "trafficking in persons" is defined as: "The recruitment, transportation, transfer,

harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Exploitation shall include, at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation, forced labor or services, slavery or practices similar to slavery, servitude or the removal of organs.”³ In contrast, human smuggling is the “procurement, for financial or other material benefit, of illegal entry of a person into a state of which that person is not a national or resident.”⁴ Human smuggling, while often undertaken in dangerous or degrading conditions, involves migrants who consented to the smuggling. On the contrary, trafficking victims have either never consented or, if they initially consented, that consent is rendered meaningless by the coercive, deceptive or abusive actions of the traffickers.⁵

With estimated profits of \$150 billion USD annually, 40.3 million people globally are trapped in modern slavery, including 24.9 million in forced labor.⁶ Profit and capital ultimately propel human trafficking, as traffickers prey on the most vulnerable for financial gain. It is important to acknowledge that forms of slavery and human trafficking are not merely outcomes of, but rather part of the globalization process itself involving the integration of dispersed economic activities. Globalization’s rapidly increasing effects pose significant challenges and opportunities in the global movement to combat trafficking. Growing vulnerabilities such as poverty, inequality, corruption and migration all play a part as fundamental root causes of human trafficking. In an increasingly globalized world, trafficking is one outcome of these vulnerabilities.

In the United States, 72% of trafficking victims are immigrants, and mostly immigrant women.⁷ In a study from Harvard Law examining the intersection of migration and human trafficking in America, sex and labor trafficking victims were from the United States, Mexico, Central and South America, and the Caribbean.⁸ Now more than ever, victims of such a horrific crime are at significant risk, not just from their traffickers, but also because of other vulnerabilities. According to the ACLU, the average age of trafficking victims in the U.S. is 20 years old. Immigrant women and children are especially vulnerable to trafficking due to their lack of education, inability to speak English, immigration status, and limited understanding of U.S. employment protections. Furthermore, they are vulnerable because they often work in jobs behind closed doors and without government labor protections. We can see these vulnerabilities take shape as economic push and pull factors which exponentially increase migration flows, creating “push/pull” factors, where people are “pushed” out of countries with less economic opportunities and “pulled” into countries where there is greater economic prosperity and demand for cheap labor. Neoliberal laissez-faire market policies create economic competition that

in turn fuels vulnerability to trafficking by increasing migration flows. As a result, open markets, competition, and free trade significantly affected low-skilled laborers as industrial and agricultural wages dropped.

Another challenge inflaming human trafficking in the U.S. is the recruitment of unskilled workers into labor trafficking, driven by globalization and increased economic competition. As such, demand for cheap products and services is fueling activity in factories and service industries, and as companies increase production for less cost, the demand for forced labor is at an all-time high. Most workers made the choice to migrate to the U.S. in the context of increasingly globalized economies in an effort to improve their lives and those of their families. Some are lucky enough to find work at a living wage and eventually obtain immigration status in the U.S.. Others end up in highly exploitative situations that meet the definition of trafficking in persons. Many wind up somewhere in between, in low-wage, backbreaking jobs that offer few labor protections. A criminal justice assumption that people can be easily divided into “victims” and “criminals” underpins immigration raids, however the majority of immigrants to the U.S. are neither intentional criminals nor entirely powerless victims.

Human trafficking is deeply connected to issues of immigration and labor migration in the United States. The United Nations Office of Drugs and Crime explains this connection to immigration and labor migration, stating: “Migrant workers are particularly likely to rely on recruitment agencies to handle the recruitment, owing, for example, to very complex visa procedures, or a general lack of familiarity and connection of the worker with the destination country. Unscrupulous recruiters and recruitment agencies often take advantage of migrant workers’ lack of education, language skills, and information to deceive them and prevent them from leaving their employment.”⁹ Trafficking is a symptom of a multitude of systemic vulnerability factors. Safe and informed migration must be at the core of U.S. anti-trafficking policies. In order to effectively begin to address the root causes of this issue, it is imperative that the U.S. government critically analyze how U.S. immigration policies are perpetuating and exacerbating human trafficking in America.

U.S. ANTI-TRAFFICKING POLICY AND LEGAL FRAMEWORKS

The primary policy and legal mechanisms for combating trafficking in the United States are the TVPA and the Department of State’s TIP Report. The passage of the TVPA in 2000 created a legal framework for the prosecution of the crime of “trafficking in persons,” and provided for assistance to trafficked persons identified or “certified” as such by law enforcement or another government agency. Victims of trafficking can receive compensation, or

restitution, and their traffickers can be subject to fines and/or imprisonment as a result of criminal prosecution under the TVPA. The TVPA criminalizes trafficking, including forced labor, involuntary servitude, peonage, and slavery. The TVPA also makes it a criminal offense to confiscate a victim's documents in furtherance of a trafficking crime.¹⁰

The J/TIP office publishes the annual TIP Report, which attempts to measure and rate governments across the world based on their efforts to combat trafficking. The first report was produced in 2001, and it continues to be developed each year as a means for the U.S. government to lead efforts and collaborate with other governments on human trafficking issues, specifically with regards to human rights and law enforcement.¹¹

POLICY RECOMMENDATIONS

To protect immigrant men, women, and children from human trafficking in the United States, it is imperative that the Biden administration implement the following changes to rectify previous U.S. and especially Trump era immigration policies. While the U.S. has pre-Trump era legislation that punishes traffickers and provides assistance and services to victims, human trafficking continues to exist in the United States at especially high rates in migrant populations.¹² The Biden administration must enact legal reform and enforce current labor and employment protections in order to bolster existing efforts to address trafficking.

A. PROTECT UNDOCUMENTED IMMIGRANTS FROM TRAFFICKING

As an initial action step, the Biden administration must protect the rights of undocumented immigrants in America. Migrants seeking job opportunities are far more vulnerable to trafficking due to legal immigration barriers created by restrictive immigration policies. According to the ACLU, “undocumented immigrants are extremely vulnerable to trafficking because of fear of law enforcement and deportation. Current laws extend most labor and employment protections to undocumented immigrants. Unfortunately, unaware of their rights and often fearful of the consequences of attempting to seek assistance, these workers remain extremely vulnerable and isolated. Increased outreach to vulnerable communities, enforcement of current protections and reform extending all labor and employment protections to this group will greatly reduce their vulnerability to trafficking and other forms of exploitation.”¹³ Once in the U.S., migrants’ undocumented immigration status is often exploited by traffickers and used as instrument for further coercion. Anti-immigrant sentiment and policies further deter victims of trafficking from asking for help from law enforcement.

Human rights organizations have called for immigration policies which better protect undocumented immigrants, as aggressive immigration enforcement further harms trafficking victims by instilling a fear that leaving their traffickers would guarantee their deportation. Particularly in the case of undocumented victims, traffickers often coerce their victims, who may have been promised legal status when they accepted the job, and threaten victims with deportation if they escape. Even among victims who do have legal status, this can be, for example if they have had their legal paperwork confiscated by their traffickers. Instead, relevant U.S. government agencies, such as U.S. Customs and Border Patrol and U.S. Citizenship and Immigration Services, should protect undocumented migrants and grant protections to those most at risk.

At the beginning of his presidency, Biden took swift action and signed several executive orders related to immigration, such as family reunification, end to Trump-era travel bans, protections for refugees, and improved migrant integration and inclusion efforts.¹⁴ However, in the longer term, the Biden administration should focus on increasing pathways for legal migration. Restricted opportunities for legal migration create situations where there is an increase in vulnerability to trafficking and abusive migrant labor conditions. Intensified, stringent, and often abusive immigration enforcement only bolsters the power of traffickers.

Additionally, labor laws must be vigorously enforced, in order to protect those most at-risk. Trafficking occurs in industries with high rates of labor violations and or limited labor protections such as domestic work and agricultural labor. The Urban Justice Center explains this further, stating: “trafficking often implicates violations of labor laws through wage and hour violations, withholding wages, non-payment of minimum wage, and debt bondage. Expanded coverage and heightened and widespread enforcement of labor laws is one promising alternative approach to trafficking in persons which would have the added benefit of increased workplace protections for all workers.”¹⁵ Such enforcement can address one key vulnerability to trafficking.

B. PUT AN END TO THE PRACTICE OF DEPORTING MIGRANT CHILDREN

At the beginning of 2020, the coronavirus pandemic resulted in the Trump administration’s most stringent border restrictions. The administration rapidly expelled thousands of migrant children back to their home countries after crossing the U.S. border, a deeply troubling policy decision.¹⁶ This was a significant shift away from years of established practice. Previously, children traveling without parental guardians entered the U.S. government shelter system, where assigned caseworkers connected them with sponsors while the

child's case for asylum was considered.

In the past, child migrants who arrived at the border without adult guardians received shelter, education, medical care and a lengthy administrative process that granted them the ability to make a case for staying in the United States.¹⁷ Deported children returned home only after the government established that they had a safe home to which they could return.¹⁸ However, the Trump administration began implementing a policy where the government deported some child migrants within hours of setting foot in the United States without guaranteeing safe return.¹⁹ The U.S. government deported others residing in shelters without any notification to their families, and forcibly placed them on planes out of the U.S..

This practice made these children highly susceptible to human traffickers upon arrival back in their home countries and should immediately be put to an end, especially given that many human rights organizations have spoken out against it. Lawyers for the ACLU are challenging the practice of expelling migrant children in federal court, arguing that it violates child welfare laws, such as the TVPA Trafficking Victims Protection Act, as well as national immigration laws, which require special protections for migrant children traveling alone.²⁰ While the Biden administration has already pledged to reunify families, it must also repeal this policy and associated practices as soon as possible.²¹

C. EXPAND T-VISAS AND END DEPORTATION OF VICTIMS OF TRAFFICKING

Currently, only 5,000 T-visas are available to victims every year, and yet far fewer T-visas are actually granted. A report by Harvard Law analyzed the gaps and pitfalls of the T-visa, stating, “[5,000] would seem promising, but it is a significantly under-utilized process. According to the United States Citizenship and Immigration statistics, only around 500 – 600 of these visas are granted each year. In addition, the burden of proof can be on the trafficked victim and there are a number of requirements to qualify. This often includes testifying against their trafficker, something that can be terrifying for these individuals. [T-visas] are also temporary, only lasting for four years. Although individuals can apply for a green card after the third year, that process is also under-utilized and slow.”²² The report goes on to explain that the fear of deportation is one of the significant barriers to victims of trafficking self-identifying as victims and using the T-visa process.²³

In 2019, the U.S. government significantly decreased protection efforts for victims of trafficking, including granting the fewest number of victims T-visa status. The government also granted less Certification Letters, which provide benefits and services to foreign national adult victims of trafficking.

This must be immediately reversed, and it is imperative that not only more T-visas be granted, but that the T-visa becomes a vehicle for more victims to apply for long-term asylum in the United States through the Green Card process. Victims should also be granted T-visas without strings attached, including without needing to testify against their traffickers in court, which can be emotionally and mentally traumatizing.²⁴ The Biden administration must strengthen the legal protections for victims, starting with granting the full number of 5,000 T-visas granted per year.

CONCLUSION

In order to significantly improve the situation of trafficking in the United States, the Biden administration must address the vulnerabilities immigrants face. Since the beginning of the anti-trafficking movement, a criminal justice approach has been at the forefront of U.S. government strategy in mitigating this horrendous crime. However, the root causes of the issue are largely overlooked, including the significant and unique vulnerabilities immigrants in America face. Immigrants in the United States make up the majority of the population at-risk for both sex and labor trafficking. In order to better prevent human trafficking and address these root causes, the Biden administration must protect undocumented workers, end the deportation of migrant and unaccompanied children, and significantly expand the T-visa program. These policy actions together would provide stronger wrap-around services to protect some of the most vulnerable in America from falling prey to traffickers.

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Arms Trafficking: Fueling Conflict in the Sahel

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ABSTRACT

Conflict in West Africa and the Sahel regions has escalated in recent years, due to an alarming rise of violent extremist organizations (VEOs) and the proliferation of weapons – some having been pilfered from the Libyan conflict in 2011. In this current conflict zone, legal sales and illegal trafficking of small arms and light weapons (SALW) become jumbled together in black and gray markets where violent actors are poised to take advantage. Recent anti-trafficking initiatives have become futile in areas where the national and international stakeholders have a limited ability to document, confiscate, or re-purpose illicit arms. Niger, Mali, and Nigeria face the particular challenge of addressing arms trafficking while simultaneously trying to prevent hostile attacks and high-stake kidnappings by Boko Haram. Socio-economic factors in rural regions also pose an obstacle to implementing effective and sustainable anti-trafficking measures that do not leave communities vulnerable and unprotected. A coordinated effort by local, national, and international stakeholders, including policy change, increased training of local implementers, and financial support from the international community, will be essential to curbing SALW trafficking the Sahel and West Africa regions and impacting the trajectory of violence.

Arms trafficking in West Africa and the Sahel continues to fuel armed conflict, crime, instability and violent extremism.¹ Across the Sahel, states face increasing intercommunal conflict and attacks by violent extremist organizations (VEOs), such as Jama'at al-Nasr al-Islam wal Muslimin² (JNIM), the Islamic State³ (IS), and the IS affiliate, Boko Haram.⁴ These groups continuously undermine the ongoing military operations in the region. Increasing conflict along Niger and Mali's borders threatens regional stability and the efficiency of current military

operations against VEOs. The persistent threat from Boko Haram in the Lake Chad Basin and, more recently, trending south into northern Nigeria has created doubt in the international community that current military options will suffice to prevent further attacks, and fostered fear among local communities that now seek to arm and protect themselves. Consistent attacks by VEOs on communities and ongoing military operations contribute to a proliferation of arms in the region. Although a number of attacks are caused by improvised explosive devices (IED) or melee weapons, this article will demonstrate that the proliferation of arms is a driving factor of conflict in the Sahel. Reducing arms trafficking in the Sahel is thus critical to thwarting VEOs in the region and to stabilizing these fragile states.

Small arms and light weapons (SALW), referring to “any human-portable lethal weapon that expels or launches, is designed to expel or launch, or may be readily converted to expel or launch a shot, bullet or projectile by the action of an explosive”,⁵ make their way to the Sahel through legal weapons transfers, black markets, gray markets, as well as through theft of national stockpiles or individuals’ weapons caches. A gray market refers to arms diversions that occur through state actors who participate in the illicit economy by authorizing the sale or purchase of covert arms, by ignoring illicit arms sales, or by neglecting to uphold procedures and standards that enforce legal arms transfers.⁶ In order to understand the impact of SALWs on the Sahel’s conflict zones, this article will attempt to define the volume and impact of weapons circulating throughout the Sahel by analyzing their destinations, or end uses. An analysis of SALWs’ documented end uses will enable a clearer illustration of how arms trafficking destabilizes the Sahel and prevents long-term peace. Regional governments, invested stakeholders, and state leaders have a responsibility to wholly adopt anti-arms trafficking operations in their efforts to re-secure the Sahel and protect communities. Moreover, state and international anti-corruption measures are essential to implementing long-term solutions. Moreover, state and international anti-corruption measures are essential to implementing long-term solutions. Nine policy recommendations and accompanying actions for local, national, and international stakeholders will be provided to this end.

TRACKING GUNS IN THE SAHEL

According to research by the Belgian firm *Groupe de recherche et d’information sur la paix et la sécurité*, almost 12 million SALWs currently circulate the Sahel.⁷ Some of these SALWs have entered the region through legal defense agreements between African states and arms-supplying states, which are often a result of contracts that date back to African states’ independence in the 1960s. However, the United Nations has passed several mandates⁸ between 2006 and 2015 specifically prohibiting the sale or supply of weapons to countries

in conflict or those with poor human rights records.⁹ In cases where these mandates are ignored, national governments and international arms control agencies often have limited resources to identify and prosecute buyers and sellers. In other instances, after arms legally enter a country, they are simply diverted from the licit market to the black and gray markets; an action that is made significantly easier in already-unstable regions. Instability also allows VEOs, organized crime actors, and local armed groups to steal from national stockpiles with impunity. Ghana, Mali, and Nigeria are also regional producers of SALWs.¹⁰ Though the Economic Community of West African States announced the Declaration of Moratorium on Importation, Exportation, and Manufacture of Light Weapons in West Africa in 2008, intra-continental and intra-regional trade upholds the illicit arms market in the Sahel.¹¹

One way that officials begin to measure the volume of SALWs transiting a region is by tracking SALWs that have been seized by authorities. With numerous fighters returning home from the Libyan conflict between 2011 and 2014, Nigerien authorities targeted the northern Agadez region, bordering Libya, Algeria, and eastern Mali, in attempts to stop arms proliferation in the Sahel.¹² Nigerien seizures of weapons remain low, counting less than 1,000 SALWs, IEDs, rockets, and hand grenades between 2011 and 2014, acknowledging that significantly more SALWs were carried out of Libya after the fall of Muammar Ghaddafi.¹³ The French army, participating in the counterterrorism-focused Operation Barkhane, reported seizing at least two tons of SALWs each trimester from 2015 to 2019.¹⁴ As of June 2018, an estimated 117,000 civilian-owned firearms existed in Niger, with just 2,000 being legally registered.¹⁵ The Nigerien military and law enforcement only recorded approximately 20,000 firearms. Mali and Burkina Faso reported similar figures of civilian-owned firearms in 2018, with Mali civilians possessing 206,000 firearms and Burkinabe civilians possessing 175,000 firearms.¹⁶ Meanwhile, Nigeria recorded more than 6,154,000 firearms in civilian possession as of June 2018, with 224,200 total firearms among the Nigerian military and 362,400 firearms with law enforcement.¹⁷ Nigeria clearly had the highest number of privately-owned firearms circulating within its borders according to these figures, recognizing that these figures do not represent the total volume of SALWs owned or available within these states.

Assuming that these firearms figures have fluctuated slightly since 2018, the Sahel has still not seen a significant disruption in the number of civilian or criminally-possessed SALWs. However, efforts have been made to examine the markings, make, and model of the small number of confiscated weapons to identify their source countries and potential patterns. For example, arms seized in 2016, were labeled as weapons from Sudan, the former USSR, China, Bulgaria, Egypt, Poland, and Romania.¹⁸ Some of these weapons were left over from the Cold War era, although newer models of automatic weapons

or Chinese-style Kalashnikovs have been confiscated in recent years.¹⁹ Recent insight into weapons' origins reveals that most imports of SALWs currently occur through West African port cities such as Dakar, Senegal; Conakry, Guinea; Abidjan, Côte d'Ivoire; and Lagos, Nigeria.²⁰ While the import of SALWs to the African continent, particularly in the Sahel, does cause concern, researchers believe ongoing transcontinental arms trafficking is driven by other illicit activities, such as drug or human trafficking and organized crime, not so much by the direct facilitation of VEOs or armed militias.²¹

Other avenues of arms trafficking in the Sahel that are more difficult to quantify are local and regional production and confiscation or looting of national stockpiles. Evidenced by seizures throughout both Niger and Mali, Algerian ammunition from its Seriana plant has found a steady foothold in the illicit arms market in the Sahel.²² Ammunition manufactured in a Bamako factory has also been found throughout West Africa suggesting cross-border trade and smuggling supports distribution of ammunition produced in the region.²³ Individuals also contribute to the market with homemade weapons that are created from scratch or adapted from training weapons. Only Niger does not permit any production of small arms, ammunition, or weapons' components, while Mali, Nigeria, and Burkina Faso allow production among licensed manufacturers.²⁴ These systems of production control are not always effective, thus obfuscating the actual volume of weapons being illicitly produced in-country. Still, researchers believe that the primary method of arms trafficking in the Sahel occurs through looting of military or law enforcement stockpiles. Some open-source media reports have documented attacks on military garrisons and armed forces positions throughout the Sahel and researchers conclude that these attacks often prelude larger attacks in which the assailants can use the looted SALWs.²⁵ The loss or illicit sale of SALWs to criminals and extremists readily fuels arms proliferation in the Sahel, contributing to ongoing conflict and undermining efforts to stem cross-border trafficking and ultimately end extremists' campaigns and intercommunal conflict in the Sahel.

TRACKING THE HUMAN IMPACT

The human toll of arms trafficking and proliferation in the Sahel is important to grasp the urgency with which arms trafficking needs to be addressed. According to the Armed Conflict Location and Event Database, between February 2018 and February 2021, more than 67,400 individuals were killed as a result of armed clashes, attacks, mob violence, or the acquisition of territory by non-state or government actors in Mali, Niger, Nigeria, and Burkina Faso.²⁶ Burkina Faso saw the steepest increase in deaths compared to Mali and Niger, whose total annual deaths rose from approximately 300 in 2018 to nearly 1,900 in 2019.²⁷ Other victims of arms trafficking are those who have been displaced

as a result of increased violence. At the time of writing in early March 2021, refugees and asylum seekers from the region totaled 871,765.²⁸ Burkina Faso recorded 1,097,462 internally-displaced persons (IDP), Chad recorded 336,124 IDPs, Mali recorded 322,957 IDPs, and Niger recorded 298,458 IDPs.²⁹ These figures demonstrate the impact of SALWs in the hands of a variety of actors in the Sahel who contribute to ongoing violence. For example, the specific threat from Boko Haram to Nigeriens near the border with Nigeria has led many in small villages to create security forces, or *comités de vigilance* ("vigilance committees"), to protect themselves.³⁰ Arms circulating in the region have also led to an escalation of tensions between communities, such as herders and farmers in Nigeria, such that disputes are more often resolved with SALWs and more individuals now arm themselves against potential attacks.³¹ Thus, a reduction in arms trafficking also holds substantial implications for those who would not normally participate in the illicit arms market but must do so to defend themselves from the groups causing instability and violence.

Niger's border regions face a significant threat of violence related to arms trafficking due to the relatively-informal structure of the communities in these areas. In these small communities, which are often outside of the national government's purview of resources, arms trafficking can increase the violence suffered and the likelihood of radicalization. As citizens arm themselves against each other and against security forces that invade their farming and herding lands, violent extremist groups that move into the area find individuals already armed, suffering from economic hardship, and (sometimes) easily convinced to join their ranks. Even those who do not join the VEOs are still potential participants in the illicit arms trade to ensure their own survival and to acquire necessary income. The livelihoods of local populations are partially driven by the wealthy and powerful people throughout Niger who control various trafficking networks and routes in and out of the country.³²

Other underlying factors of arms trafficking and proliferation in the Sahel include a lack of security infrastructure dedicated to combating illicit arms, poor policing along borders and in less-populated regions, limited funding for security personnel, and international actors who actively subvert arms embargoes to arm violent actors. These factors create an environment where international actors, such as the United States³³ and France,³⁴ have been compelled to intervene on the basis of international cooperation and national security motives. Notwithstanding arms seizures by the French armed forces, the presence of international troops has done little to prevent arms proliferation in the Sahel and created minimal incentives for local and regional governments to focus funding or reform on an ongoing conflict. These compounding effects on regional stability require a discussion of who has been affected and their responses to illicit arms trafficking, in order to form a comprehensive strategy to combat future proliferation.

CHALLENGES AND IMPLICATIONS

The legal introduction of weapons to the Sahel and West Africa has not automatically led to an expansion of the illicit arms market. Though, with greater numbers of SALWs and rounds of ammunition, nefarious actors have expanded opportunities to participate in arms trafficking and other related criminal operations. For example, private arms smugglers in Bulgaria, Ukraine, and Russia often exchange their arms for diamonds mined in states such as Liberia, Togo, and Burkina Faso.³⁵ The demand for cheap diamonds in Europe coupled with the demand for weapons in West Africa have enabled these direct exchanges to continue under the radar of European customs officials and African authorities. Other illicit activities aided by the use or sale of SALWs include human smuggling, drug trafficking, and wildlife trafficking.³⁶ Arms trafficking thus reinforces illicit systems in which criminal actors use acquired weapons to conduct illicit activities. Moreover, the income from arms trafficking funds extremist and criminal organizations throughout the Sahel.

Established traffickers with longstanding smuggling networks often circumvent the officials tasked with monitoring the imports and exports of goods. On the other hand, many arms traffickers operate with the support of corrupt customs officials or individuals along the transfer route who seek a share in the profit. One specific group responsible for the proliferation of illicit weapons includes Nigerien officials, who have been accused of selling arms and ammunition from national stockpiles to extremist actors such as Boko Haram.³⁷ Nigeria faces a similar corruption issue whereby security officials “donate” or sell weapons to local groups mired in ethnic conflict with whom they sympathize.³⁸ Security officials’ low wages incentivize their participation in illegal arms trafficking for supplemental income. In instances where officials allow weapons to be diverted or stolen from national stockpile management areas to armed groups of their choice, such as in Nigeria, individuals effectively take on the responsibility of the state by deciding who receives protection and how disputes should be resolved. Religious and ethnic motivations among security staff can sometimes be difficult to parse out as groups in conflict intermix and buy and sell weapons for various, sometimes contradictory, reasons. More importantly, the active participation of state officials in the illicit arms trade is contingent on the continued absence of state authority in areas prone to violence; the resultant power vacuum allows corrupt actors to operate with impunity.³⁹ The Sahel states host many different groups who continue to capitalize on limited state capacity, corruption, and illicit arms markets in the region.

Even if there were strict monitoring and enforcement at every border in the region, arms looted from national stockpiles and military garrisons would continue to fall into the hands of extremist groups and criminals due to a general dearth of resources. Some national stockpiles have never had the

infrastructure, funding, or personnel to manage any significant volume of weapons. In some cases, seized weapons are neither immediately destroyed or deactivated, nor are they traced and marked for use by state forces according to international best practices on handling illicit weapons.⁴⁰ National stockpiles are also typically overrun by the number of recovered weapons from ongoing conflicts and criminal actors. Consequently, officials have sometimes had to establish makeshift storage areas in officers' offices or toilets.⁴¹ These procedures for managing seized weapons are undoubtedly ineffective and reflect limited state capacity among the Sahel countries to currently manage their stockpiles. Further, the current situation reflects the limited political bandwidth at the state, regional, and international levels to negotiate and implement training or funding opportunities to address these issues while violence persists. Compounding these issues are porous borders and low levels of policing, which facilitate the smuggling of SALWs across borders. With limited funding for military garrisons or border checkpoints, especially in Nigeria where there are over 1,500 irregular, or otherwise illegal, identified entry points into the country, continued arms trafficking highlights the necessity for a full-scale approach that includes state building, anti-corruption practices, and increased training for security forces.⁴²

States that have robust tracking, reporting, and seizure systems are still challenged to determine which groups or individuals are most responsible for trafficking SALWs in the Sahel. The volume of SALWs that different extremist organizations obtain has significant implications for current stability and operations to prevent continued attacks. Officials, such as Special Representative of the UN Secretary-General Mohamed ibn Chambas,⁴³ grew alarmed at the growing amounts of explosives coming out of Ghana and into the unstable states of Mali, Niger, and Nigeria in 2018.⁴⁴ Boko Haram has used women, children, and said explosives to carry out attacks on civilians and security personnel throughout Nigeria and Niger. In 2016, a Nigerien military base in Bosso suffered an attack from approximately one hundred Boko Haram extremists using homemade rockets, assault rifles, light machine guns, and RPG-7 pattern rocket launchers to pilfer logistical and military material.⁴⁵ Extremist groups have also proven that they are capable of carrying deadly, catastrophic, and increasingly coordinated attacks with common SALWs. In August 2019, armed men attacked a military base in northern Burkina Faso and killed 24 Burkinabe soldiers, which was the worst attack ever suffered by the Burkinabe army.⁴⁶ Arms trafficking thus precipitates conflict and remains the medium through which conflict is sustained.

EFFORTS AND LIMITATIONS

Amidst the rapid proliferation of illicit arms in the past decade, the governments

of the Sahel and West Africa have made several attempts to address the issue and resulting insecurity. In 2017, Burkina Faso, Mali, and Niger pooled their resources and established a joint security force to fight terrorism and transnational organized crime in the Liptako-Gourma region, which covers southwestern Niger, eastern Mali, and northern Burkina Faso. Likewise, the G5 Sahel Joint Force - a partnership between Burkina Faso, Mali, Mauritania, Niger, and Nigeria that was launched in 2017 - continues to lead operations against extremist groups and criminal organizations. The G5 Sahel Joint Force has an ongoing operation, titled Sama, which seeks to control the border regions between Mali, Niger, and Nigeria, and neutralize armed extremist groups that operate there⁴⁷ However, as demonstrated previously, these joint security forces have failed to prevent attacks on civilians and security forces in the region.

The Malian state, which suffered a coup in August 2020, particularly struggles to address ongoing violence.⁴⁸ Within Mali, ongoing community disputes over land and water have escalated in recent years, such as in March 2019 when 160 ethnic Fulani civilians were killed by armed men dressed as ethnic Dogon hunters in central Mali.⁴⁹ These and other deadly disputes among the many armed groups that inhabit Mali allow extremists to capitalize on ethnic tensions and weak state capacity to respond to instances of grave violence. Nigerien and French military forces have since expanded the scope of their operations to work with non-state armed groups in counterterrorism and stability measures.⁵⁰ However, working with these armed groups such as the Self-Defense Group of Imrad Tuareg and Allies and the Movement for the Salvation of Azawad, which are simultaneously embroiled in other conflicts, has only fueled intercommunal rivalries, conflicts over territory, and the presence of arms in the Sahel.⁵¹ These efforts to negotiate with non-state armed groups and other efforts to counter extremists' movements throughout the Sahel states have had little to no impact on the proliferation of SALWs in the region. In general, the concentration on resolving political disputes through negotiations and repelling extremist groups from border regions has not resolved the underlying issues of corruption, weak state capacity, and shortsightedness within the security sector.

THE ISSUE OF MANPADS

The United States has a vested interest in the security of the Sahel and the disruption of the arms trafficking trade throughout West Africa. For the U.S. government, shoulder-fired surface-to-air missiles or Man-Portable Air Defense Systems (MANPADS) are the most concerning SALWs transiting these countries. While the U.S. military continues to contribute air support and security training to African military forces and the UN Multidimensional Integrated Stabilization Mission in Mali (MINUSMA), these MANPADS

have the potential to disrupt U.S. efforts in the region and inflict acute violence on civilians. The proliferation of these weapons to terrorist groups and non-state actors in the Sahel presents a risk to regional and international forces that are assisting with counterterrorism and routine security operations by limiting the potential for increased air support and threatening operations' continuity. The G5 Sahel Joint Force and the international troops deployed to the region all must address the specific threat from SALWs, including MANPADS, to their current operations and seek to prevent their further proliferation in this still unstable region.

ADDRESSING CORRUPTION IN THE SAHEL

Anti-corruption practices are critical to stopping arms trafficking and proliferation in the Sahel. Indeed, first, the governments of Burkina Faso, Mali, Niger, and Nigeria must make a concerted effort to combat corruption and strengthen the institutions necessary to allocate funding and resources for security and economic reasons. A recognition of the pervasive corruption within the security, political, and economic sectors of these states must be followed by a top-down approach to identify, adjudicate, and thereby discourage corrupt practices by any individual affiliated with the state. Sahel states should charge and prosecute corrupt authorities, in a transparent manner, who continue to participate in the illicit arms economy, in order to deter others from selling, donating, or turning a blind eye to illegal weapons. Civil society actors also have an important role in combating arms trafficking as individuals can help hold authorities publicly accountable to the people and to the state.

Second, anti-corruption measures can also be paired with efforts to improve the visibility and effectiveness of local and national police forces, while simultaneously incentivising good behavior. Police forces should work in cooperation with the military forces deployed throughout the region to engender successful transitions of military-secured areas further to nationally-controlled and managed areas. This level of coordination will discourage arms traffickers from operating where military forces are not present and leave police forces with sufficient training to protect civilians from harm. Governments should also re-negotiate the salaries of security personnel to ensure that there are more incentives for these officials to prioritize their commitment to the force, to their colleagues, and to their communities over potential income from arms trafficking. An independent government oversight committee, or civil society organization with some form of public power, should be created to investigate and prosecute the individuals who participate in illicit arms deals. Anti-corruption measures are essential to rebuilding legitimacy and authority between security forces and citizens in the Sahel.

Third, anti-corruption measures and police building must be jointly

implemented with better dispute resolution mechanisms at the civil society and judicial level. The Sahel states' governments should increase their funding and support of courts, including promoting these courts' legitimacy through advocacy and marketing campaigns, until these courts become citizens' preferred method for resolving territorial disputes, corruption charges, and other accusations. This policy is an integral aspect of anti-arms trafficking measures in the Sahel because more efficient, effective courts can replace the need for communities to resolve disputes using SALWs. Building up the judicial system, which will also ensure corrupt officials are held to account, will only increase the legitimacy of government institutions and build state capacity to provide for civilians. This process of creating trust in the state is critical to ensuring the participation of civil society in anti-trafficking measures and peace initiatives, contributing to greater overall stability. A stronger security apparatus throughout the Sahel will also deter arms traffickers from operating in the region.

Fourth, along with anti-corruption measures, governments in the Sahel must make greater effort to directly curb the flow of weapons that pass through their borders. These states must collect, mark, and destroy all excess supplies of small arms and light weapons. This policy can have significant implications for preventing arms that have already been trafficked from re-entering the illicit arms trade, while also decreasing the number of weapons that must be managed by Sahel security forces. Implementing this policy will likely require an overhaul of the training and maintenance programs within these countries' militaries, in order to ensure that all personnel are capable of carrying out the necessary functions to mark, track, and destroy weapons.

Fifth, the Sahel states' governments should also seek greater support from international partners, such as France and the United States, and regional organizations, such as ECOWAS, for financial, logistical, and operational means of combatting terrorism and arms trafficking. An arrangement tied to reform, such as the anti-corruption practices mentioned previously or efforts to prosecute and prevent human rights abuses by security forces, would be mutually beneficial to international stakeholders and regional governments. These partnerships can be built on shared intelligence that enables these governments to apprehend arms traffickers on well-known routes as they enter the region. Many of the seizures that Nigerien authorities have made in the past decade have occurred while weapons and ammunition were in transit, indicating that the Nigerien government is capable of carrying out such operations, though not at the scale necessary to be individually successful. These strengthened partnerships must expand from current counterterrorism goals to recognize the impact of arms trafficking in prolonging conflict. This long-term vision of peace and stability should also be built by greater interagency cooperation at the regional and national levels. Due to the interconnected nature of arms

trafficking with drug trafficking, illicit financial activity, and other crimes, an interagency and intergovernmental approach would increase the capabilities of anti-trafficking authorities without requiring an extensive increase in funding or other resources.

Sixth, while regional governments and organizations implement these policy initiatives, the United States and other Western governments, such as France and Britain, should augment their anti-arms trafficking efforts. Of specific interest to these governments is an emphasis on marking, tracking, and collecting high-powered ground-to-air weapons that directly threaten troops stationed in the region. Specifically, stricter enforcement of MANPADS transfers into this region and the collection of illicit IEDs already in the area will have the two-fold effect of combating the illicit arms trade and allowing these troops to operate without threat of attack from these specific weapons.

Seventh, Western governments also have the responsibility to strictly enforce arms embargoes to countries with poor human rights records or documented instability, as Burkina Faso, Mali, Niger, and Nigeria currently face, using unilateral or multilateral sanctions and political leverage within international organizations. The U.S. and other Western governments must implement policies to better monitor and track end-user certificates of SALWs that are exported from their countries. These governments should develop interagency monitoring groups that follow all weapons exported or transferred out of their countries, in order to ensure these weapons are only used by legitimate, legal actors. This policy will address arms trafficking at its source, while also making it easier to identify the source countries of weapons that continue to fall into the hands of disreputable actors. Western governments will also have more leverage at the international level, through the United Nations or other international organizations, to then pressure countries to stop selling, transferring, or allowing their weapons to reach rebellious groups, violent extremist groups, and other disruptive actors. These governments have the responsibility to enhance international laws and norms against arms trafficking, as well as enforcing punishments against countries and individuals who subvert international law.

Eighth, the U.S. State Department can act as a bridge for national government ministries to access the international community's resources on arms trafficking, such as through the UN Office on Drugs and Crime and international nongovernmental organizations like the Small Arms Survey. The State Department may also facilitate the funding of central governments' security and development infrastructures (checkpoints, official roads, etc.), so as to simultaneously combat immediate threats and build resiliency in border regions facing entrenched violence. This policy has the additional benefit of furthering partnerships with governments in the Sahel, which will create better relationships in the future and greater trust among U.S. allies.

Finally, as a long-term policy for combating arms trafficking in Burkina Faso, Mali, Niger, and Nigeria, Western governments must encourage dialogue among border communities and government institutions. The African Union or ECOWAS can act as a mediator in these dialogues, which will address the specific issues of infrastructure and development support from the central government to these regions, stronger security presences, and separating informal economic activities like agriculture and herding from illicit arms and drug trades. This policy also centers the solutions to state fragility in the central governments, thereby encouraging good governance and democratic accountability in these states.

Arms trafficking has been a catalyst for violence and extremism in the Sahel. Extremist groups, like JNIM and the Islamic State, as well as desperate communities have used illicit arms for varying purposes. However, any and all uses of illicit arms contribute to the instability and fear facing this region. Regional organizations, like ECOWAS, and the national governments of these countries must take the lead in combating arms trafficking because of its interconnected nature to other illicit activity and the growth of insecurity within these countries' borders. Western governments, including the United States and France that currently have military personnel and advisors in the region, must adapt their approaches to address this significant driver of conflict in the region, beginning with policies to combat arms trafficking in source countries. A whole-of-government approach to addressing corruption, building state capacity, and protecting citizens from horrific instances of violence can become a cornerstone for stemming arms trafficking and proliferation and engendering long-standing peace in the Sahel.

ENDNOTES

- 1 West Africa commonly refers to the ECOWAS member states of Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo, as well as Mauritania. The Sahel comprises the geographic area south of the Sahara desert and stretching east-west across the entire continent. The author will use the term "Sahel" to refer primarily to the conflict-affected states of Burkina Faso, Mali, Niger, and Nigeria.
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- 3 The Islamic State's two main Sahel-affiliated groups, the Islamic State in the Greater Sahara and the Islamic State West Africa Province are both considered to have ongoing ties to the Islamic State organization of Iraq and Syria. This article considers both organizations, though distinct, under the one name of "Islamic State" to convey the breadth of IS' reach across the Sahel. Mapping Militant Organizations, "The Islamic State in the Greater Sahara" and "The Islamic State West Africa Province", Stanford University, July 2018.
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Defending Against Deep Fakes

Through Technological Detection, Media Literacy, and Laws and Regulations

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ABSTRACT

Deep fakes, synthesized media created by computer networks, have become a prominent part of the national security conversation over the past few years. They are a prime example of a dual-use technology that can be used for both civil and military purposes. Deep fakes can be used to spread disinformation and propaganda, confuse the population, commit crimes, and even undermine democracy. However, deep fake technology can also be used for non-malicious purposes such as film making, therapy, and education. This paper explores deep fakes and how the US can defend against their malicious manifestations. The best way to defend against deep fakes is through a holistic approach based on technological detection, media literacy to protect against disinformation, and comprehensive laws and regulations. Because deep fakes affect all levels of society, partnerships and multi stakeholder engagement will be at the center of effective policy. The US defense community will have to adopt a novel approach that goes outside the traditional confines of security. This paper presents three interconnected recommendations: creating partnerships with technology companies capable of developing software that can track deep fakes; increasing focus on media literacy programs; and addressing legal and regulatory challenges posed by deep fakes. The goal should be to create a population that is resilient to both foreign and domestic deep fakes. Overall, this is a complex and multifaceted issue that requires collaboration from a variety of stakeholders.

BACKGROUND

A deep fake is an artificial intelligence (AI)-based technology used to produce synthetic content. Creating a deep fake requires two neural networks, which are computational learning systems that are programmed to translate data from one form into another.¹ The two neural networks work together in a feedback loop to create a deep fake. First, one neural network generates fake content based on a database of real content. Then, the second neural network compares the synthetic content to existing real content.² This ultimately creates a feedback loop that continuously improves synthetic content, including text, audio, video and images.

Deep fakes are increasingly important within the national security sphere in recent years. While AI is not a new phenomenon, Tim Hwang asserts that deep fakes are becoming a concern because the “results are increasingly realistic, rapidly created, and cheaply made with freely available software and the ability to rent processing power through cloud computing.”³ With the growing dissemination of deep fakes, fake content will become increasingly prominent in cyberspace. Additionally, Hwang argues that deep fakes created by more sophisticated actors are going to become a greater threat over time.⁴ While contemporary deep fakes can be identified fairly easily, the increasingly realistic content is likely to pose a greater threat to national security, including to elections, markets, and the military. Policymakers believe that large-scale information operations will integrate machine learning and AI, such as those launched during the 2016 U.S. presidential election.⁵ This poses a threat to national security since it affects the population, erodes democracy, and decreases trust in government on a larger scale than traditional disinformation campaigns.

In terms of impact on society, deep fakes can undermine democracy, exacerbate fissures in societies, and erode trust in governments and institutions. Long-term effects could result in truth decay, long-term apathy, and a general erosion of truth or any interest in identifying it.⁶ Conversely, individuals could successfully deny the authenticity of genuine content and claim that real footage is in fact a deep fake, in what experts call the “liar’s dividend.”⁷ This denial can lead to individuals being exonerated of crimes they did commit, and the liar’s dividend could become more powerful as technology proliferates and public awareness of deep fakes grows.⁸

There have already been instances of adversarial governments using deep fakes for political gain. In May 2018, Belgian political party Socialistische Partij Anders created a deep fake of U.S. President Trump commenting on his withdrawal from the Paris Climate agreement and urging other countries to do so as well.⁹ In May 2019 a confession of a Malaysian political aid admitting to an affair with the Economics Affairs Minister was widely thought to be a

deep fake.¹⁰ The EU-funded East StratCom Task Force has also taken note of Russian trolls experimenting with the use of deep fakes for disinformation.¹¹ These incidents demonstrate that even current deep fake technology is exploited for political or personal gain.

Due to the increasing risks to both civil society and national security, the U.S. defense community must adopt a set of holistic policies to defend against deep fakes. The U.S. Department of Defense's (DOD) Joint Artificial Intelligence Center (JAIC) would be responsible for research and policy implementation since deep fakes fall under their jurisdiction.¹² Additionally, the defense community has sufficient resources to trace a deep fake both through technology and accessibility to other resources, namely communication with other sectors and through public-private partnerships. The remainder of this paper explores three approaches to defending against deep fakes, specifically technological detection, media literacy programs to counter disinformation, and laws and regulations. Finally, the paper outlines recommendations for policymakers and the JAIC, primarily focused on cultivating partnerships to defend against deep fakes.

TECHNOLOGICAL DETECTION

Developing technological capabilities to quickly identify deep fakes is essential for a successful defense because it will allow governments to respond in a timely manner. The DOD is currently developing two programs devoted to the detection of deep fakes: Media Forensics (MediFor) and Semantic Forensics (SemaFor). The development of both programs is under the supervision of the JAIC.

MediFor develops algorithms to “automatically assess the integrity of photos and videos and to provide analysts with information about how counterfeit content was generated.”¹³ The program relies on a three-tiered framework of information including digital integrity, physical integrity, and semantic integrity.^[14] MediFor is expected to be operational and in use by the intelligence community by 2021. SemaFor is developing algorithms that will automatically detect deep fakes based on semantic inconsistencies—such as mismatched earrings or unusual facial features.¹⁵ SemaFor relies on the semantic level of the internet, meaning relying on the human use of the internet. Both MediFor and SemaFor are intended to improve defenses against adversarial information operations.

AI scientists developed another technology that focuses on using a convolutional neural network (CNN) in conjunction with a recurrent neural network (RNN), which allows the program to determine whether a video has been manipulated or not. A CNN is a deep learning algorithm that analyzes images.¹⁶ An RNN is a type of neural network which uses sequential data

or time series data and is commonly used in applications such as speech recognition, and natural language translation and processing.¹⁷ In a 2018 study, Guera and Delp demonstrated that a CNN and an RNN feedback loop is an effective way to repeatedly recognize deep fakes.¹⁸ Essentially, this method relies on teaching AI to recognize deep fakes the way a human would, through small inconsistencies and errors in visual and linguistic content. This method is another promising avenue for technological detection of deep fakes.

Private companies also have in place several content monitoring systems. For example, YouTube has a program called SystemID, which identifies copyright issues from a database of content submitted by users; Adobe has the Content Authenticity Initiative which creates content attribution; and Microsoft has the AETHER Media Provenance (AMP) system that ensures the authentication of media.¹⁹ These initiatives demonstrate a willingness by private companies to ensure the quality and authenticity of content on their platforms. This, in turn, provides a good base for future collaboration with government programs and public-private partnerships.

However, there are several challenges with technological detection. First, deep fake technology is continuously developing, making it difficult for detection technology to keep up. Additionally, attribution in cyberspace is often difficult and time consuming; therefore, tracing a deep fake to a particular actor may be difficult, even with the DoD programs under development. Furthermore, the current media landscape favors the manipulators, since technology is becoming more readily available and the public calls into question even official sources' claims. In other words, even with current disinformation campaigns, the claims by official news sources and experts are not trusted and the population continues to believe the false information that malicious actors spread. This issue is only likely to become more prominent as the technology and utilization of deep fakes commodifies. For these reasons, it is essential for the U.S. government to take action to counter deep fakes.

MEDIA LITERACY PROGRAMS

Deep fakes are closely related to traditional disinformation campaigns, therefore protection against them should be rooted in defending against disinformation. The best way to protect against disinformation is to create a resilient population through education and media literacy programs. According to a 2018 Disinformation Resilience Index (DRI) report by Prism UA, countries that scored highest on resilience, namely Estonia and Lithuania, were also the most resilient to Russian disinformation.²⁰ While the DRI only focused on Eastern and Central European countries, they were still able to demonstrate that systemic responses and education about disinformation created a more resilient civil society. Media literacy programs should focus on creating a society that is

aware of the threat of deep fakes and able to recognize them.

The United States and many Western European countries, however, were woefully unprepared to defend against disinformation campaigns in 2016 and are still unprepared today. In 2017, the U.S. intelligence community released a report that showed significant state-sponsored disinformation during the 2016 U.S. presidential elections.²¹ Further, in 2020, the COVID-19 crisis demonstrated that the U.S. public is still highly susceptible to disinformation, both domestic and international. For example, many people doubted the effectiveness of masks, social distancing, and even the reality of the pandemic, leading to an increased spread of the virus.²² The U.S. population has been overwhelmed with news containing fake reports and misinformation, which is difficult to digest. This inundation led to confusion, eroding trust in government and resulting in more deaths.²³ Therefore, countering the spread of disinformation is essential for national security.

With the proliferation of deep fakes, all of these issues are likely to be exacerbated. Matt Chessen argues that MADCOMs—the integration of machine learning into computational propaganda—will lead to highly personalized propaganda based on an individual’s internet history, browsing habits, and behavior.²⁴ This will give propagandists radically enhanced capabilities to manipulate human minds, resulting in even more chaos than in current disinformation campaigns. While deep fakes can currently be recognized fairly easily,²⁵ as technology improves and learns from itself, the need for a resilient population is only going to grow.

Media literacy programs should focus on educating citizens to identify deep fakes as well as separating them from the truth, and there are several programs already in place. For example, MediaWise is a partnership between Google, Poynter, Stanford University, and the Local Media Association which teaches youth to differentiate fact from fiction. Facebook and Reuters have partnered to publish a media literacy course for manipulated media.²⁶ The Washington Post, CNN, and University of Cambridge have each published their own guides to recognizing deep fakes.²⁷ These are promising steps forward for the future development of media literacy programs.

LEGISLATION AND REGULATION

Legislation concerning deep fakes focuses on two main routes: civil and criminal litigation. Both, however, are notoriously difficult given the novel nature of deep fakes and inherent challenges of video evidence in courts. The following discussion provides a broad overview of the current civil and criminal litigation featuring deep fakes, the challenges associated with them, and efforts to improve legislation surrounding deep fakes.

First, civil litigation primarily focuses on prosecuting the creation of deep

fakes as the crime. When prosecuting the creation of deep fakes itself, lawyers have argued cases based on defamation and copyright laws.²⁸ Additionally, in June 2019, Virginia became the first state to officially ban deep fakes; Texas followed in September 2019, and California in October 2019. However, since deep fakes can be used for non-malicious purposes, legislation must be crafted in a way that does not infringe on fundamental freedoms. For example, in Italy, the creators of a deep fake of the Prime Minister making vulgar comments and gestures claimed that their video was satire when challenged.²⁹ This demonstrates that civil courts will likely have to consider the creation of deep fakes on a case-by-case basis.

Criminal litigation focuses on prosecuting the individuals using deep fakes to commit another crime, such as fraud. In other words, the deep fake in criminal cases is not the crime, but rather the tool used to commit a crime.³⁰ However, because evidentiary standards in criminal cases are stricter than in civil cases, there are still many challenges with using deep fakes in criminal proceedings. The prosecution in criminal cases involving deep fakes will have to prove the authenticity of the deep fake and the fact that it was created by the defendant.³¹

However, current commercially available technology has difficulty proving the origin and authenticity of audiovisual content. In 2018, Rössler et al. tested over half a million edited images with machine learning algorithm XceptionNet and found that it was effective at identifying manipulated images, but that the same algorithm could be used to create manipulated images as well.³² Additionally, it is even more difficult to prove the authenticity of lower-quality videos, whether they are deep fake or not. This means that eyewitness testimony and other corroborating information is needed for a solid evidentiary base in future legal proceedings.³³

On the other hand, there is the issue of the “liar’s dividend,” where an individual can claim that a real video is a deep fake or manipulation. Citron and Chessney claim that as education and awareness of deep fakes improve, the public may be more inclined to believe a lie about a genuine video being a fake. In other words, “a skeptical public will be primed to doubt the authenticity of real audio and video evidence.”³⁴ This will be a challenge for U.S. legislators, because it can lead to higher burdens of proof and may even result in a criminal being found not guilty because of the “liar’s dividend.” All of these aspects of criminal proceedings show that the U.S. courts will need to adapt to prosecuting crimes that are committed in the future, as deep fake technology becomes more commercially available.

Regulation of information in the cyber domain is notoriously difficult and faces a multitude of challenges. Still, effectively curbing the spread of deep fakes on social media is essential in defending against them. Experts fear that algorithm-based detection tools could lead to a “cat and mouse” game between

two rapidly evolving technologies.³⁵ Therefore, it will be essential for social media companies to step in and regulate manipulated and synthetic content on their platforms. Some steps have already been taken towards that goal. In January 2020, Facebook updated its policy on synthetic media, committing to removing synthetic content from its website.³⁶ In February 2020, Twitter followed suit and shared its guidelines on synthetic media, which primarily focus on labeling and removing harmful fake content.³⁷ However, these policies exclude parody, satire, or content manipulated for cosmetic reasons.

Congress has also taken action to regulate deep fakes. In October 2019, the House and Senate passed the Deep Fake Report Act of 2019. This act aims to regulate deep fakes at the federal level and “requires the Science and Technology Directorate in the Department of Homeland Security to report at specified intervals on the state of digital content forgery technology.”³⁸ While this is a very general and sweeping piece of legislation, it establishes a base for future regulatory legislation.

However, legislating and regulating deep fakes presents its own challenges. Primarily, policymakers will have to grapple with the issue of free speech. Since deep fakes can be used for art, filmmaking, therapy, and education, a blanket ban on all deep fakes will likely face criticism from congress and civil liberties organizations.³⁹ Additionally, courts will likely have to adjust evidentiary standards for media and introduce technological detection tools in courtrooms. This is likely to be costly, require a multitude of resources and will be challenging for local and regional courts. Social media companies will have to become more vigilant to synthetic content on their platforms and ensure higher regulatory standards for harmful deep fakes on their systems.

POLICY IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSION

The policy implications of deep fakes are multifold. First, without an effective defense policy against deep fakes, the U.S. risks undermining its democracy and succumbing to disinformation to an even greater extent. Deep fakes can potentially lead to unintended escalation; for example, a deep fake of a politician could provoke an adversary and cause a political conflict. In a worst-case scenario, politicians and military decision-makers could take action based on false information spread by deep fakes. Deep fakes and computational propaganda risk undermining U.S. democracy, exploiting divisions in society, and undermining public trust in government. It is essential for U.S. policymakers to re-establish trust domestically. Otherwise, the country will face significant challenges, as demonstrated by the COVID-19 crisis. Additionally, regulatory and legal systems have not fully caught up to the technology, making prosecuting crimes more difficult. These issues pose a significant risk to U.S. national security.

As outlined above, these are complex issues that will require cooperation from multiple stakeholders for effective redressal. The solution to these issues requires a set of holistic policies spearheaded by the national defense community, but implemented by partnerships with other stakeholders. Since this national security issue is closely tied to the public sector, public-private partnerships will play a crucial role in enhancing the defense against deep fakes. Since the JAIC is the entity responsible for overseeing the development of technologies to detect deep fakes, this agency should focus on countering deep fakes through technological detection. Additionally, the JAIC should establish relationships with critical stakeholders in the private sector, academia, non-governmental organizations, and grassroots movements to create effective media literacy programs against deep fakes. Finally, the JAIC should facilitate the formation of partnerships between representatives of legislative and regulatory communities to create effective laws and regulations to prosecute civil and criminal issues related to deep fakes.

First, the JAIC should create partnerships with technology companies capable of developing software that can track deep fakes. However, one of the biggest challenges with technological detection is that deep fake creation tools are rapidly developing, which means that detection software must evolve continuously as well. One recommendation to address challenges posed by the rapid technological development of deep fakes is to commodify detection, as Hwang argued.⁴⁰ The JAIC should make detection technologies more readily available for commercial use, such as in social media companies, news and media organizations, and companies that control critical infrastructure. This could include giving private companies subsidies to make their software public or cooperating with private firms to create publicly available software. Taking these steps would ease detection and allow for faster action against deep fakes.

Second, the JAIC should increase focus on fostering media literacy programs. Since technology alone may not be enough to detect and remove deep fakes, an educated society is the best defense against deep fakes' potential for disinformation threats. If the society is resilient to international and domestic propaganda and disinformation posed by deep fakes, their effectiveness will significantly decrease. For this reason, partnerships that focus on deep fake education detection are crucial. The JAIC should rely on programs previously established by academia and news organizations. The JAIC should establish partnerships with grassroots organizations as well as trusted local newspapers and journalists to enhance their media literacy programs' effectiveness. Ultimately, the goal should be to create a population that is resilient to both foreign and domestic deep fakes.

Finally, U.S. policymakers must address the legal and regulatory challenges deep fakes present. The U.S. government will need to work closely with the legal system to establish a fair and balanced legal process to prosecute crimes

related to deep fakes. However, the JAIC and any other government agencies should only act in an advisory and expert capacity to ensure that there is no government influence on the legal process. Furthermore, the U.S. legal system will have to grapple not only with the novelty of deep fake technology but also the difficulties of legislating a technology that could potentially face opposition by civil rights and first amendment protection groups. The JAIC should also offer partnerships to provide courts with cheaper and more accessible technological detection capabilities. These steps are just the beginning to effectively legislating and prosecuting deep fakes.

In terms of regulatory partnerships, the JAIC can work with social media companies to enhance their detection and regulatory capabilities. Facebook, which demonstrated a willingness to take steps towards removing deep fakes from its platform, is likely to be open to partnerships that enhance its capabilities. Other major social media companies should use similar approaches. Congress should build on the Deepfake Report Act of 2019 to create a federal basis for regulating and detecting deep fakes.

Importantly, none of these recommendations exist in a vacuum. In order to effectively protect against deep fakes, policymakers must undertake a holistic approach. Such an approach will involve a multitude of partners and stakeholders, and is likely to require significant initial resources from the government. If the United States can effectively protect against the threat posed by deep fakes, the initial investment in partnerships will pay for itself in the future. Overall, this is a complex and multifaceted issue that requires collaboration from a variety of stakeholders.

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