COUNTRIES AT RISK FOR MASS KILLING 2018–19
STATISTICAL RISK ASSESSMENT RESULTS
OCTOBER 2018
Genocide and mass atrocities are devastating crimes in their scale and scope, in their enduring scars for survivors, and in the long-term trauma they cause in societies where they occur.

Such crimes also pose serious threats to US interests, particularly for national security and the economy. Murders on a mass scale can destabilize entire regions because of the resulting mass displacement of people and the propensity of violence to spill across borders. Responding to the resulting humanitarian catastrophe—with food, medical, and refugee aid—becomes an international obligation that often continues decades after the violence ends.

Despite past efforts to address systematic killing, and a body of law formed after the Holocaust to prevent and punish perpetrators, such crimes persist.

In studying these tragedies, we have learned that genocides are never spontaneous. They are always preceded by a range of early warning signs. If these signs are detected, their causes can be addressed, preventing the potential for catastrophic progression.

The United States Holocaust Memorial Museum’s founding charter, written by Holocaust survivor Elie Wiesel, mandates that our institution strive to make preventive action a routine response when the signs of genocide appear. Wiesel wrote that “only a conscious, concerted attempt to learn from past errors can prevent recurrence to any racial, religious, ethnic or national group. A memorial unresponsive to the future would also violate the memory of the past.”

The Museum’s Early Warning Project is part of the Simon-Skjodt Center’s efforts to fulfill this aspect of the Museum’s mandate: to prevent genocide by doing for today’s victims what was not done for the Jews of Europe.

In partnership with Dartmouth College, we studied past situations where governments and non-state groups systematically targeted and killed thousands of civilians. In doing so, we identified a range of patterns and circumstances that often precede such violence. On the basis of this research, we developed a “Statistical Risk Assessment”—published since 2014—which uses a range of publicly available data to identify countries where similar conditions exist and, as a consequence, the risk of mass atrocities is elevated.

The assessment identifies the risk—the possibility—that a mass killing may take place. On average, one or two countries experience a new episode of mass killing each year. But relative infrequency does not make the brutality less devastating for victims: a mass killing, by our definition, is 1,000 or

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more civilians deliberately killed by armed forces (whether government or non-state), over the period of a year or less, because of their membership in a particular group. Virtually all cases of genocide include mass killings that meet this definition.

In many places, such violence is ongoing—in countries such as Burma, Syria, and South Sudan. These cases are well known and we address them in this report. But our risk assessment’s primary focus—and the gap we seek to fill—is to highlight those cases where systematic mass atrocities have not yet begun: the places where people live under the shadow of violent persecution.

Preventing genocide is of course difficult. In deciding how to respond, policy makers face an array of constraints and competing concerns. The choice to prevent one potential tragedy often takes a back seat when policy makers are confronted by multiple ongoing conflicts. We aim for this risk assessment to serve as a tool and a resource for policy makers and others interested in prevention. We hope this helps them better establish priorities and undertake the discussion and deeper analysis that can help reveal where preventive action can make the greatest impact in saving lives.

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Introduction

The Early Warning Project’s Statistical Risk Assessment uses publicly available data and statistical modeling to produce a list of countries ranked by their likelihood of experiencing an onset, or new episode, of mass killing.

By our definition, a mass killing occurs when the deliberate actions of armed groups in a particular country (including but not limited to state security forces, rebel armies, and other militias) result in the deaths of at least 1,000 noncombatant civilians in that country over a period of one year or less. The civilians must also have been targeted for being part of a specific group. Mass killing is a subset of “mass atrocities,” which we define more generally as “large-scale, systematic violence against civilian populations.”

This report highlights findings from our Statistical Risk Assessment for 2018–19, focusing on:

- Countries that exhibit the greatest risk of a new mass killing in 2018 or 2019
- Countries where risk has been consistently high over multiple years
- Countries where risk has increased or decreased significantly
- Countries with unexpected results

We recognize that this assessment is just one tool. It is meant to be a starting point for discussion and further research, not a definitive conclusion. We hope it will help governments, international organizations, and nongovernmental organizations determine where to devote resources for additional analysis, policy attention, and, ultimately, preventive action.

New data and statistical methods

Our 2018–19 assessment is the result of new and refined data and statistical methods that have been incorporated to maximize the accuracy and practical utility of the results. The changes reflect our commitment to continually learn from developments in statistical forecasting practice and our experience working to translate early warning analysis into effective preventive action. As a result of these changes, risk estimates and rankings from 2014 through 2016 should not be compared directly with results from 2017 onward.

The three most important changes from our past assessments are:

1. The new results incorporate the risk of both state-led and non-state-led mass killings, addressing a significant gap in our past approach, which focused exclusively on state-led mass killings. In the last few years, numerous non-state armed groups—including the Islamic State (IS), Boko Haram, and militias in South Sudan and Central African Republic—have perpetrated widespread atrocities. As data on such events have become available, we have incorporated those risks into our annual assessment. Note: Our model estimates risk at the country level and does not identify the potential perpetrators of the violence. Additional analysis would be required to assess whether potential perpetrators in a specific country are state or non-state actors, and if the latter, which specific groups.

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1 To distinguish mass killings from large numbers of unrelated civilian fatalities, the definition states that victims of a mass killing must appear to be perceived by the perpetrators as belonging to a discrete group. That group may be defined communally (e.g., by ethnicity or religion); politically (e.g., by partisan affiliation or ideology); socioeconomically (e.g., by class or profession); or geographically (e.g., by residence in specific villages or regions). Unrelated executions by police or other state agents would not qualify as a mass killing, but capital punishment directed against members of a specific political or communal group would.

2. The new results are estimates of risk over a two-year period (January 2018–December 2019); past results were estimates of risk over one year. Two-year forecasts allow more time for results to be addressed—for the necessary analysis and planning and to implement preventive actions. In addition, considering that the exact timing of a mass killing onset is difficult to forecast, the two-year horizon allows the model to perform with higher accuracy.

Both of these changes in our methodology have an impact on the risk calculation for each country. Followers of our project will note that the percentage risk estimated for most high-risk countries in the 2018–19 assessment is significantly higher than in previous published assessments. This is the case due to the two changes cited above: 1) Our estimates now reflect the likelihood of state-led and non-state-led mass killing and 2) our new model now assesses risk for two years—2018 and 2019. As stated above, because of these changes, risk estimates and rankings from 2014 through 2016 should not be compared to results from 2017 onward.

3. Our risk assessment uses newly-available data, most notably several measures from the Varieties of Democracy (V-Dem) dataset on governance and human rights characteristics, which could improve the accuracy of our assessment. Even with these additions, however, the availability and quality of cross-national quantitative data are significant constraints: We lack systematic data on some hypothesized warning signs, such as hate speech. And in situations where governments deliberately restrict access to international observers, such as in Burma’s Rakhine state or China’s Xinjiang region, existing data might not fully reflect conditions on the ground.

Understanding these results

Before discussing the results, we underscore four points about interpreting this Statistical Risk Assessment:

*First, as a statistical matter, mass killings are rare.* On average, just over one percent of countries see a new mass killing in any given year—that means one or two countries. Our risk model predicts a similar
number of onsets, so the average two-year risk score produced by our model is between two and three percent. Just eight out of 162 countries have a two-year risk score greater than 10 percent, and the highest-risk country we assessed has about a one in four chance of experiencing a new mass killing in 2018 or 2019.

Second, our model is designed to assess the risk of an onset of new mass killing, not of the continuation or escalation of ongoing episodes. This feature is especially important to bear in mind when interpreting results for countries that are currently experiencing mass killing events, such as Burma/Myanmar and Syria (see Figure 1 and our website for a full list of these countries). For these countries, our assessment should be understood as an estimate of the likelihood that a mass killing event would be launched by a different perpetrator or targeting a different civilian group in 2018 or 2019. Our model estimates that having a mass killing currently in progress is associated with lower risk of another such conflict beginning, as it is rare
for a country to have two distinct mass killing episodes concurrently.

Third, for practical reasons, we only forecast mass killings within countries (i.e., in which the perpetrator group and the targeted civilian group reside in the same country. This risk assessment does not forecast interstate conflict). Situations in which large numbers of civilians are killed deliberately by an armed group from another country are not captured in our historical data or current forecasts. This decision does not involve a value judgment about the moral or practical significance of such atrocities, only a pragmatic judgment about what we are able to forecast reliably.

Fourth, readers should keep in mind that our model is not causal: The variables identified as predicting higher or lower risk of mass killings in a country are not necessarily the factors that drive or trigger atrocities. For example, large population size does not directly cause mass atrocities; however, countries with large populations have been more likely to experience mass killing episodes in the past, so this factor helps us identify countries at greater risk going forward. We make no effort to explain these kinds of relationships in the data; we only use them for their predictive value. An important consequence of the non-causal nature of these forecasts is that actions aimed at addressing risk factors are not necessarily effective ways of mitigating the risk of mass atrocities. For example, although countries that have banned opposition parties are at greater risk of experiencing mass killings than are other countries, our analysis does not imply that action to encourage or pressure governments to allow participation by opposition parties would necessarily reduce the risk of mass killings.

### Highlights from the 2018–19 Statistical Risk Assessment

#### Highest-risk countries

Figure 2 displays the estimated likelihood of a new onset of mass killing (state-led or non-state-led) in 2018 or 2019 for the 30 highest-ranked countries. For every country in the top 30, we recommend that policy makers consider whether they are devoting sufficient attention to addressing the risks of mass atrocities occurring within that country. As noted earlier, our model generates a single risk estimate for each country; additional analysis is required to assess whether potential perpetrators in a specific country are state or non-state actors, and if the latter, which specific groups. Here we highlight the three countries that topped our risk list in both the 2017–18 and 2018–19 assessments and the top factors accounting for their risk estimates (see “About the modeling process” below for more detail on the risk factors in the model):

- **Democratic Republic of the Congo (Rank: 1)** Given the country’s continuing national political crisis around the tenure of the president, numerous violent conflicts on the country’s periphery, and the presence of scores of non-state armed groups within its borders, it is unsurprising that the DRC tops our rankings for the risk of experiencing a mass killing in 2018 or 2019. Several factors in our model push the DRC to the top of the list, including a lack of freedom of movement for men; a mix of democratic

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4 *Freedom of Movement*, disaggregated by sex, is a variable coded by the V-Dem dataset. Note that both *Freedom of
and autocratic governance characteristics (i.e., an anocratic regime); a large population; political killings that have been approved by top leaders (according to V-Dem); a history of mass killings; a high infant mortality rate; high ethnic fractionalization; and the fact that a coup has been attempted within the past five years. We consider an episode of non-state-led mass killing in the country’s east to be ongoing; the current assessment suggests that the DRC is at risk of an additional state-led or non-state-led mass killing episode. 

Apart from the statistical assessment, we note that violence in the Kasai region, which has reportedly included serious abuses by the government and by non-state forces, could be a potential locus of a new mass killing.

- **Afghanistan (Rank: 2)** As civil war and terrorist attacks continue in Afghanistan, our assessment places the country among those at greatest risk of an onset of mass killing. The factors in our model that contribute most to Afghanistan’s assessed risk include the lack of freedom of movement for men and governance characteristics (anocracy). Several other factors also contribute to Afghanistan’s relatively high risk score: the geographic location of the country, a history of mass killings, a large population, ongoing armed conflict within the country’s borders, the high infant mortality rate, and ethnic fractionalization. Afghanistan also has an ongoing non-state-led mass killing episode, perpetrated by the Taliban. This risk assessment relates to the possibility of a new and distinct non-state-led or state-led episode beginning, not to the likelihood of Taliban attacks continuing or increasing.

- **Egypt (Rank: 3)** According to our model, the factors that explain Egypt’s risk score include a lack of freedom of movement for men, the country’s regime type (anocracy), a large population (the largest of any country in the Middle East), its geographic region, the presence of political killings, a history of mass killing (2013–14), and a recent coup d’etat. Beyond the factors evaluated in the model, we note that Egypt faces multiple security and human rights challenges. There have been reports of large-scale attacks by extremist groups, including IS, on Christians and Sufi Muslims, and violence against civilians perpetrated by both insurgents and government forces in the Sinai Peninsula.

The remaining seven countries in the top ten are South Sudan, Pakistan, Yemen, Angola, Turkey, Sudan, and Somalia. Analysis of Angola, Yemen, and Turkey is included later in this report. To learn more about what accounts for the high risk score of any of these countries, visit our website.

**Unexpected Results**

One way in which global statistical risk assessments are helpful is in identifying countries whose
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Relatively high (or low) risk scores may surprise regional experts. In cases where our statistical results differ substantially from expectations, we recommend conducting deeper analysis and revisiting assumptions. We highlight three countries that, in our informal judgment, fall into this category.

- **Angola (Rank: 7)**: This southern African country ranks in the top dozen in the 2017–18 and 2018–19 assessments, with two-year risk estimates of above 10 percent. Angola went through a major peaceful political transition in 2017, in which President José Eduardo dos Santos handed over power after 38 years in office. Nevertheless, our model suggests that Angola’s risk of experiencing a mass killing is relatively high, largely because of a lack of freedom of movement for men, the country’s regime type (anocracy), a very high infant mortality rate, and a history of mass killing. Additionally, as of 2017, there have been a series of violent attacks by rebels against government forces in the Cabinda region.

- **Côte d’Ivoire (Rank: 11)**: This West African country has experienced several years of political stability and economic growth since its post-election crisis in 2010–11, which resulted in the killing of roughly 3,000 people. However, Côte d’Ivoire ranked among the top 30 countries in our 2017–18 assessment and rose to 11th in the 2018–19 assessment, with a 9 percent risk of experiencing a mass killing. Key factors underlying this assessment include Côte d’Ivoire’s lack of freedom of movement for men (as of 2017), regime type (anocracy), history of mass killing, high ethnic fractionalization, and high infant mortality rate. An additional factor not reflected in the model but frequently mentioned by country experts is Côte d’Ivoire’s upcoming 2020 presidential elections, with intense competition to succeed President Alassane Ouattara. In the coming months, the Simon-Skjodt Center will undertake a deeper assessment, including field work, on the specific risks present in Côte d’Ivoire, modeled on our reports on Mali, Bangladesh, and Zimbabwe.

- **Haiti (Rank: 26)**: The only country in the Western hemisphere to rank in the top 50, Haiti ranks 26th in our 2018–19 assessment, with a two-year risk of experiencing a mass killing of nearly 5 percent. Like many high-risk countries, Haiti lacks freedom of movement for men, is governed through a mix of democratic and autocratic institutions (anocracy), has a high degree of ethnic fractionalization, and a history of mass killing. As of the end of 2017, Haiti exhibited additional risk factors according to our data sources: lack of freedom of movement for men and unevenness of civil liberties across the country.

- **Venezuela (Rank: 55)**: The ongoing political and humanitarian crisis in Venezuela, which has included deliberate attacks on anti-government protesters and alleged crimes against humanity, raises serious concerns about the risk of mass killing within the country. However, our model does not place Venezuela among the high-risk countries, estimating its two-year risk between one and two percent. The coding of some underlying data could be subject to dispute (e.g., V-Dem’s judgment that political killings did not occur systematically in 2016 or 2017). If the data had been coded to reflect systematic political killings, Venezuela’s risk would be estimated higher. On other measures, however, Venezuela does not resemble the countries that have been most likely to experience mass killings: It has no history of mass killing and has a relatively low infant mortality rate. More analysis is needed to understand the magnitude and specific nature of mass atrocity risks in Venezuela.

**Consistently high-risk countries**

Several countries have appeared near the top of our rankings for several years but have yet to experience a mass killing onset.
Yemen (Rank: 6): The civilian population of Yemen has suffered tremendously during the country’s ongoing war, including from indiscriminate aerial bombardment and from a war-triggered humanitarian crisis. Yemen has been ranked sixth or higher in each of our past three annual assessments. Significant risk factors that contributed to the current assessment include a lack of freedom of movement for men, the country’s anocratic regime type, its geographic region, the presence of political killings, and ongoing armed conflict. It should be noted, as we explained in a November 2015 blog post, that our project’s definition of mass killing excludes situations in which one country’s armed forces attack civilians in another country’s territory. Thus, killings perpetrated by foreign militaries are reflected neither in this forecast nor in its underlying data.

Turkey (Rank: 8): Ranked eighth for risk in 2018–19, Turkey has been in the top 15 in each of our past three annual assessments. The failed coup attempt in 2016 caused Turkey to rise in our rankings. Other risk factors include a lack of freedom of movement for men, the country’s anocratic regime type, a large population, a history of mass killing, and the ongoing armed conflict between the government and Kurdish rebels. Turkey’s infant mortality rate and ethnic fractionalization are substantially lower than average; Turkey’s risk estimate would be even higher if those variables were at the global mean.

Burundi (Rank: 16): This small central African country has been in a protracted political crisis since President Pierre Nkurunziza engineered the extension of his term in office in 2015. Burundi’s ranking of 16th for 2018–19 is its lowest in the past three years. As of 2017, V-Dem data reflect that the government of Burundi’s respect for civil liberties no longer varies across different areas of the country, lowering its risk score from our prior assessment. Nevertheless, Burundi continues to exhibit many factors associated with a high risk of mass killing, including a lack of freedom of movement for men, an anocratic regime type, political killings, a history of mass killing, a recent coup attempt, and high infant mortality.

Significant shifts in ranking

In addition to Côte d’Ivoire and Haiti, discussed previously, two countries moved up in our rankings substantially between the 2017–18 and 2018–19 assessments, and one declined significantly.

Zimbabwe (Rank: 24): Among the top 30 countries in our ranking, Zimbabwe exhibited the largest increase in relative risk over the past year, moving up from 48th in the list (1.5 percent risk) in 2017–18 to 24th (5 percent risk) in 2018–19. This increase is mainly the result of the coup d’etat in late 2017 that forced Robert Mugabe from office after three decades and ushered Emmerson Mnangagwa into the presidency. Additionally, V-Dem judged that freedom of movement for Zimbabwean men has declined. In July 2018, Mnangagwa won a full term in office in Zimbabwe’s first elections since the coup. A post-election crackdown resulted in the deaths of at least six anti-government protesters and widespread intimidation of opposition activists.

Cameroon (Rank: 17): Cameroon moved up 20 spots in our ranking, from 36th (3.1 percent risk) in 2017–18 to 17th (7.2 percent risk) in 2018–19. The shift in our risk estimate is mainly caused by V-Dem’s judgment that freedom of movement for men in the country has declined. Concerns appear to be growing among regional experts as well, owing to continuing threats from Boko Haram, tensions within the Anglophone parts of the country, and uncertainty surrounding presidential elections in October 2018.

Ethiopia (Rank: 32): Ethiopia, which we consider to have been experiencing a state-
led mass killing episode since 2015, moved from 12th in our ranking (11.3 percent risk) in 2017–18 to 32nd (3.8 percent risk) in 2018–19. The absence of battle-related deaths in 2017 and the improvement in freedom of movement for men are responsible for the decline of Ethiopia’s risk score.

About the modeling process

Data

On the basis of prior empirical work and theory, we selected more than 30 variables, or risk factors, as input for our statistical model (see the discussion of our modeling approach, below). All data used in our model are publicly available, regularly updated, and available without excessive delay. They also have, in our estimation, minimal risk of being retrospectively coded in ways that could depend on observed mass killings or their absence. We include variables reflecting countries’ basic characteristics (e.g., the number of years a country has existed, geographic region, population); socioeconomic measures (e.g., changes in gross domestic product per capita); measures of governance (e.g., regime type); levels of human rights (e.g., freedom of movement); and records of violent conflict (e.g., battle-related deaths, ongoing mass killings).

Modeling approach

Our modeling approach is described in detail on our website. In summary, based on the variables detailed above and data on mass killing going back to 1945, the algorithm identifies predictive relationships in the data, resulting in an estimated model. We then apply this model to recent data (from 2016 for the 2017–18 assessment and from 2017 for the 2018–19 assessment) to generate forecasts. Although expert knowledge is inherently involved in our choice of which variables to collect, the model determines the contribution of each variable to the risk score without input from us. The particular modeling approach we use is also able to “drop” factors from the model if they are not informative regarding risk.

According to our forecasting model, the factors determined to be informative of the risk of mass killing include large population size; lack of freedom of movement for men; anocratic regime type (i.e., neither full democracy nor full autocracy); uneven respect for civil liberties; high ethnic fractionalization; high infant mortality; geographic region; history of mass killings; existence of politically motivated killings; duration of current regime; high numbers of battle-related deaths; banning of opposition parties; not being a state signatory of Optional Protocol to the International Covenant on Civil and Political Rights; coup attempts within the past five years; country age; lack of ongoing mass killing, repression of civil society; and recent significant alteration of judicial powers.7 We emphasize again that these risk factors should not be interpreted as causes or “drivers” of risk but simply as correlates of risk that have proven useful in forecasting. For a complete description of the variables used in our model, see our data sources.

How accurate is the model?

We assessed the accuracy of this model in ways that mimicked how we use its results: We built our model on data from a period of years and then tested its accuracy on data for later years (i.e., we conducted out-of-sample testing). Our results indicate that eight out of every ten countries that later experienced a new onset of mass killing had risk estimates of greater than 4 percent (which usually meant they were among the 30 top-ranked countries in a given year). We are preparing a technical paper in which we assess our model and others according to multiple performance measures.

7 Note that two of the listed factors—duration of current regime and country age—are associated with lower risk of mass killing.
The Simon-Skjodt Center for the Prevention of Genocide of the United States Holocaust Memorial Museum works to prevent genocide and related crimes against humanity. The Simon-Skjodt Center is dedicated to stimulating timely global action to prevent genocide and to catalyze an international response when it occurs. Our goal is to make the prevention of genocide a core foreign policy priority for leaders around the world through a multi-pronged program of research, education, and public outreach. We work to equip decision makers, starting with officials in the United States but also extending to other governments, with the knowledge, tools, and institutional support required to prevent—or, if necessary, halt—genocide and related crimes against humanity.

The Dickey Center for International Understanding unites the diverse strengths of Dartmouth College—its students, faculty, and undergraduate and graduate schools—in addressing the world’s challenges. The Center is defined not only by the scope of the issues it addresses, but the way in which it does it: through collaboration, innovation, interdisciplinary study, and respect for the diversity of viewpoints. Working with Dartmouth’s stellar faculty, the Dickey Center aims to produce the best understanding and analysis of international issues with collaborative, multidisciplinary research on such complex problems as global climate change, world health crises, war and conflict resolution, and poverty alleviation. In bringing together the talents and resources of Dartmouth’s professional schools with those of the College of Arts and Sciences, it seeks to be the force that unites the university in the development of new understanding, knowledge and solutions to world problems.