CONCEPT: Development of an Atrocity Early Warning App (AEWA) is not just something of interest to the warfighter, but to the global community. An effective AEWA will help reduce the need for military interventions in mass atrocities, but will improve data to decision and enhance strategic partnerships in cases where there is risk of violence cascading into mass atrocity.[1] Should intervention of some form be needed, the AEWA will help operationalize mass atrocity prevention and response operations, which are now Joint Doctrine.[2] Detection is a very powerful deterrent. Early action is less risky, both politically and practically, and far less costly in terms of lives and resources. Thus, the AEWA ideally will allow the Department of Defense to consider low-cost, proactive operations to avert atrocities before they occur.

BACKGROUND: In 2008, the Genocide Prevention Task Force, chaired by Madeline Albright and William Cohen, issued a report titled "Preventing Genocide."[3] The great majority of the Task Force's recommendations concerned early, preventative actions by the US Government. In order to act preventatively, an effective early warning system must be developed. Until August of this year, no public mechanism for regular and systematic analysis and ranking of incipient mass atrocities existed. However, in August, the Center for the Prevention of Genocide (CPG) in Washington, DC, began beta-testing a web-based Atrocities Early Warning System (AEWS). The goal of the AEWS is to provide a reliable, public early warning data source. It will be updated in real time and exist outside of government, forming a "public meeting space" where expert opinion and high quality data drive discussions about at-risk countries and populations.

The Center for Genocide Prevention has agreed to share its data sets with West Point and the Center for Holocaust and Genocide Studies at West Point. These data sets are largely grouped into three categories:

1) *Statistical Risk Assessments*. The CPG has developed an "ensemble" approach of combining predictions of a variety of publicly existing models of political instability (such as the US Intelligence Community's Political Instability Task Force [PITF]), atrocity and human rights abuses, conflict risk, and NGO watch lists. These predictions tend to focus on the long-term (years out) and are updated at least once a year. The ensemble approach of mathematically combining forecasts has proven more accurate than single models.
2) *Crowd-based Live Forecasts*. The CPG will aggregate the informed opinion of over 400 experts on mass atrocity risk in the near (days/weeks), medium (weeks/months) and medium long term (year or more). These expert judgments from all around the world, which provides both a global and local reach, will be individually updated periodically, meaning that the data will be continually updated. This "wisdom of crowds" principle is already in use for a range of

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[1] The operational definition of mass atrocity, used by the Center for Genocide Prevention, is any episode in which the actions of state agents result in the intentional death of at least 1,000 noncombatants from a discrete group in a period of sustained violence.

[2] Appendix B, "Mass Atrocity Response Operations," in *Peace Operations,* Joint Publication 3-07.3 (01 August 2012), B1-B10, http://www.fas.org/irp/doddir/dod/jp3-07-3.pdf

[3] Albright, Cohen, et.al., "Preventing Genocide,"(Washington, DC: United States Holocaust Memorial Museum, The American Academy of Diplomacy, and the Endowment of the United States Institute of Peace, 2008), http://www.ushmm.org/m/pdfs/20081124-genocide-prevention-report.pdf

predictive models, such as election outcomes, international affairs events, and even local atrocities, and it seems ripe to apply to mass atrocity prediction on a large scale.

3) *Global Event Tracking.* This collection of data will focus on the near term. It will utilize streams of political event data (such as the Global Database of Events, Language and Tone [GDELT] and those using the Conflict and Mediation Event Observations [CAMEO] scheme), RSS feeds and other real time information to track mass atrocity information in real time. Processed through a Palantir-based data aggregation system, this data too will have predictive value, as it will be processed to create timelines and crisis maps which could shed light on likely directions for the spread of incipient mass violence.

PROPOSAL: The West Point cadet/faculty team is led by Dr. David Frey, Director of the Center for Holocaust and Genocide Studies, COL Thomas Cook, Head of the Army Cyber Center, and LTC Christa Chewar of Electrical Engineering and Computer Science. It incorporates cadets enrolled in XH 415, Genocide and "Ethnic Cleansing" and CS394 "Distributed Application Engineering." The team will develop an application designed provide real-time assessments of near, medium, and long-term mass atrocity risk. It will improve the web-based concept of the CPG by automatically pushing updates to those who use the app, rather than requiring that users check a website and seek out the information. Using publicly available data has the advantage of providing a degree of resilience. Using the CPG's dynamic, crowd-based and real-time data sources will improve data to decision by supplementing and updating, perhaps at a faster rate, information available in the classified community. Further, because the datasets include tactical intelligence, they will be of great value to attachés, foreign area officers, or deployed personnel and planners. Of course, the application will be a great tool for those in the NGO community, and Expansion of the app beyond military usage carries the promise of improving the deterrent effect by magnifying focus on particular areas of risk.