Past the Point of Failure

Retiring SWEAT-MSO for a Risk-based Civil Systems Resilience Framework in a Dynamic Environment

Captain Nathan T. Higgins

The Army's current civil reconnaissance assessment framework of SWEAT-MSO (sewage, water, electricity, academics, trash, medical, and other) no longer applies well to the unfamiliar, complex, and interdependent civil environments CA teams encounter under compressed timelines. Three distinct and compounding deficiencies include: a miscalibrated taxonomy, a passive analytic posture, and insufficient granularity. Assessments based on SWEAT-MSO are insufficient for determining which civil systems are closest to failure, what it will cost, and what decisions must be made before the opportunity to act is lost.

NATO's resilience baselines are a stronger functional taxonomy, particularly through the inclusion of food, communications, governance continuity, population movement, and civil support to military operations. However, it is a strategic self-assessment instrument rather than a field method. A Civil Systems Resilience Framework (CSRF) would group civil functions by priority tier and evaluate them through three cross-cutting lenses: force, population, and adversary. This structure would instead consider mission dependencies, civilian consequences, and adversary intentions across the continuum of conflict.

The framework's technical method would come from adaptations to a defensive civil-risk application aligned with Army tactical risk management. Before scoring it, a measurable system outcome would be defined for a specified population, with production, delivery, and input dependencies mapped to identify individual nodes whose loss would matter. Input-starvation failures are considered alongside physical damage. Four impact factors—criticality, recoverability, vulnerability, and effect—are summary in nature, while three likelihood factors—adversary threat template, accessibility, and recognizability—are averaging. The resulting impact and likelihood scores are multiplied to produce a Composite Risk Score, through which node importance is distinguished from the probability of loss.

Because scoring alone is insufficient, proposed controls would evaluate effects on specific scoring factors. Compared initial and residual risk scores would support course-of-action selection, with every significant finding tied to a named commander's decision point and delivered within the associated decision window. Application of the same node registry and dependency analysis to protection and targeting would factor in second- and third-order civilian effects explicit from the consideration of dual-use infrastructure.

The paper then recommends a tiered execution model in which triage-depth assessments are conducted by generalist CA teams and high-risk or uncertain findings are escalated for specialist validation. This enables civil-military expertise to be amplified rather than replaced, enabling scarce specialist time to be directed toward the nodes where detailed technical judgment is most consequential.

The paper also recommends doctrinal revisions to integrate CSRF into standing running estimates, foundational infrastructure-analysis training, standardized forms and digital tools, and realistic training scenarios. Such a structured, trainable method is feasible and desired, as assessments are held to the standard of a named operational decision point vice a status update.