How Sophisticated are Terrorist Attacks on Passenger Rail Transportation

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Results of one of 13 bombs used in the March 11, 2004 Madrid attack killing 193; sophisticated in timing and devices. Photo source: Reuters

Terrorist attacks on passenger rail in more economically advanced countries over the past 50 years are statistically rare events - an average of seven a year. However, uncovered plots and attempts indicate there is continuing terrorist interest in attacking public surface transportation targets. The important questions for those running transport systems or protecting them, and for the public, are who are the terrorists and how sophisticated are they? Are they like characters from a Tom Clancy novel, obtaining inside information, penetrating security, creating complicated bombs or instruments of sabotage and executing simultaneous attacks with near precision? Or, are they more likely to be amateurs, sometimes mentally disturbed, who volunteered, have limited resources, know little, plan less, yet manage mostly spontaneous and single attacks that normally kill a few?

Study Methods

The Mineta Transportation Institute used its database to examine 346 attacks against passenger rail and bus targets in 27 developed countries since 1970. Our experts defined "sophistication" as needing to exhibit at least one of the following four attributes:
• Use of inside information

- Sophisticated explosive or sabotage devices
- Penetration of active security measures
- Simultaneous attacks by a team against multiple targets on the same day and at the same time.

The deadliest terror attacks on passenger train transportation are seldom sophisticated – but they are also rare.

Findings

Very few of the attacks are sophisticated. Only 11 (3.2%) of the 346 attacks met any of the criteria, and only 4 (1.2%) met two. The ability of terrorist groups like ISIS or Al Qaeda to organize and carry out complex operations such as the 9/11 attacks has been severely hindered by our collective intelligence and security efforts. The findings show we are far more likely to face not particularly capable attackers who "self-select" to act, rather than recruited to be part of a professional operation. While some of these attacks can be lethal even when they are primitive, the death rate is still low. The vast majority of attacks on passenger rail targets are aimed at disrupting travel or causing casualties. On average each attack kills only two people, and if only three attacks are excluded (the 1980 bombing in Bologna by right wing fanatics killing 85, the 1993 attempt at suicide by arson in South Korea that killed 198, and the 2004 Madrid bombings which killed 193), the average death toll drops to 1.3.

The only bad news is that while the number of attacks is low, uncovered plots suggest this remains an important target, though not as important as commercial aviation, still a terrorist obsession. And, one reason why terrorists attacking these targets aren't sophisticated, is because they don't have to be. None have involved penetrating any formidable security measures. Train and bus transport systems are by their nature more open than aviation, and there is only so much that can be done to protect them without shutting them down.

Policy Recommendations

No recommendations were made in this particular study. MTI has previously proven that security awareness programs such as "see something, say something" ("See It. Say It. Sorted"- UK) do work, and has endorsed selective screening, Vapor-wake Detection K9 teams and advancing technology that allows for passive detection of explosives in crowds.

About the Authors

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To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/SP0520

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