



Salma Shaheen. *Nuclear Command and Control Norms: A Comparative Study.* Routledge Global Security Studies Series. London: Routledge, 2019. 196 pp. \$140.00, cloth, ISBN 978-1-138-34929-2.

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In *Nuclear Command and Control Norms*, Salma Shaheen studies the nuclear weapons programs of Britain, China, India, and Pakistan in search of safeguards and procedures that can be normalized to promote safety and security of these devastating weapons. The author develops a broad framework to examine nuclear weapons programs, and then applies it to each of these four countries, offering a wide aperture through which to understand the evolution of each country's nuclear development. The underlying commonalities that have an impact on nuclear command and control stability are then brought to light.

Shaheen's framework takes numerous internal and external factors into account. These include the geostrategic environment, nuclear weapons norms, the role of leadership, and control of nuclear operations. Understanding the geography of a country, proximity to perceived threats, and the history of conflict all contribute to a country's perception of its surroundings. This perception plays a role in shaping how nuclear weapons employment authority is controlled. Nuclear weapons norms shape how countries like China, India, and Pakistan developed their nuclear command and control, using safeguards and best practices adopted by more mature nuclear weapons states. Leadership plays a significant role in nuclear command and control. Shaheen explores how differ-

ent leadership styles at various points of a country's nuclear weapons program affect the command and control posture. In addition, Shaheen examines the factor of civilian versus military control of nuclear operations in order to understand where the central authority resides and how information passes through key organizations and stakeholders who play a role in the nuclear command and control chain.

The stages of nuclear command and control are another important facet of Shaheen's framework. As each of the four countries moved from the inception of their nuclear programs into the growth stage, and (for some) into the maturity stage, the nuclear command and control posture evolved in important ways. At each stage, the geostrategic environment, nuclear weapons norms, role of leadership, and control of nuclear operations all play a role in shaping command and control.

Shaheen offers a thorough analysis of the four countries' weapons programs as they moved from their inception through their first fifteen years. To glean an understanding of each country's nuclear weapons program the author examines regional and global threats, technological improvements to weapon systems, advancements in safety features and policies, and the roles of national leadership and organizations. She goes on to point out short-

falls that have destabilizing effects on the predictability and deterrence of certain weapons programs as well as the ways to address those issues and improve stability.

Following the analysis of the four nuclear weapons states, Shaheen identifies significant commonalities that emerge. She notes that the presence of a menacing threat regionally or strategically during the early stages of a country's nuclear weapons program will foster close partnering between stakeholders in order to develop their nuclear capabilities. This close collaboration among what might otherwise be competing individuals or organizations within the country results in a more stable nuclear command and control posture. In the case of a nuclear weapons state at a mature stage, a changing threat or adversary will force it to reevaluate its weapons, delivery system, and control mechanisms. This reduces the reliance on aging or obsolete ways of managing weapons and improves stability. On international norms, Shaheen observes that newer nuclear weapons states are motivated to be perceived as legitimate, responsible powers and therefore embrace the proven safety mechanisms, human reliability programs, and other established best practices. The outcome of embracing these norms is more stable nuclear programs earlier in the development timeline for newer states. Additionally, leadership makes the biggest impression on a country's nuclear command and control posture at its earliest stages. However, highly influential leaders can still play a critical role in later stages of development. Shaheen's research reinforces the consensus that nuclear command and control postures that are more centrally controlled and governed by standard rules and procedures prove to be more stable during times of low threat. Conversely, central control and standardization can also have a destabilizing effect when hostilities suddenly break out. Finally, Shaheen notes that central control and standardization improve nuclear command and control stability by generating more discussion and collabor-

ation among stakeholders, leading to continuous evaluation and incremental improvements.

This work approaches the subject of nuclear command and control in a methodical and pragmatic manner. The countries studied are existing nuclear weapons states, and Shaheen makes no comments, good or bad, to render judgement on that fact. She instead uses her multifaceted framework to analyze these countries with the goal of drawing conclusions for what steps countries can take to maximize stability of nuclear weapons on the global stage. Remarkably, the author has accomplished this thorough analysis in spite of the veil of secrecy and close hold on specific information on how countries conduct nuclear command and control. Shaheen's framework provides a valuable tool to evaluate the relative stability of other nuclear powers, such as North Korea, or potential future emerging nuclear states.

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