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## The Changing Global Nuclear Landscape

Siegfried S. Hecker

Professor of Practice, Department of Nuclear Engineering,  
Texas A&M University and the Middlebury Institute of International Studies at Monterey

[sshecker@tamu.edu](mailto:sshecker@tamu.edu)

### Abstract:

The nuclear landscape has evolved continuously since Oppenheimer and the Manhattan Project. The dramatic destruction of Hiroshima and Nagasaki was followed by a U.S. – Soviet nuclear arms race during the Cold War culminating in combined nuclear arsenals of some 70,000 weapons. That, in turn, ended unexpectedly with the demise of the Soviet Union. Nuclear cooperation replaced nuclear confrontation that led to the downsizing of nuclear arsenals for nearly twenty years before a slow drift back to confrontation. Russia's unjustified invasion of Ukraine in February 2022 has fractured whatever global nuclear order remained. We now face the challenge of how to return to global nuclear cooperation, which is essential so that the benefits of nuclear energy outweigh the risks.

### Bio:

Siegfried Hecker is the former director of the Los Alamos National Laboratory and Professor Emeritus of Stanford University. He is currently professor of practice at the Middlebury Institute of International Studies at Monterey and professor of practice in the Department of Nuclear Engineering at Texas A&M University. He spent 34 years at the Los Alamos National Laboratory beginning as a summer graduate student in 1965, returning as a postdoctoral fellow from 1968 to 1970, and as a technical staff member in 1973 after three years at the General Motors Research Center. He led the Materials Science and Technology Division and the Center for Materials Science before becoming the fifth director of the Los Alamos National Laboratory from 1986 to 1997. He was senior fellow until 2005 when he joined Stanford University.



He was at Stanford University for 17 years in the Department of Management Science and Engineering and in the Center for International Security and Cooperation (CISAC), including serving as co-director from 2007 to 2012. Hecker has worked on nuclear matters for most of his career, including having visited all countries with declared nuclear weapons programs, including North Korea. Hecker is the editor of *Doomed to Cooperate* (2016), two volumes documenting the history of Russian-U.S. laboratory-to-laboratory cooperation and *Hinge Points: An Inside Look at North Korea's Nuclear Program* (2023) written with Elliot Serbin. Hecker is a member of the National Academy of Engineering and a fellow of numerous professional societies. Among other awards, he has received the Presidential Enrico Fermi Award (2009).

Colorado School of Mines  
Green Center, Friedhoff  
1500 Illinois St., Golden, Colorado 80401