

The nuclear, biological and climate threat - 2011 reviewed

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In this special issue of the *Bulletin of the Atomic Scientists*, published by SAGE, experts reflect on 2011 and highlight what to look out for in 2012 in the areas of nuclear energy, nuclear weapons, biosecurity, and climate change. Topics that have made the headlines during the previous 12 months, including the increased tension surrounding Iran's nuclear programme, the aftermath of the Fukushima incident, and the state of US policy on climate change, are analyzed in detail in this special issue.

At the Doomsday Clock Symposium on January 9-10 in Washington, DC, the Bulletin's Science and Security Board will evaluate the minute hand of the Doomsday Clock. In 1947, the Bulletin first displayed the [Doomsday Clock](#) on its magazine cover to convey, through a simple design, the perils posed by [nuclear weapons](#). The Clock evokes both the imagery of apocalypse (midnight) and the contemporary idiom of [nuclear explosion](#) (countdown to zero). In 1949, the Clock hand first moved to signal the assessment of world events and trends. The essays within this special issue are a glimpse into the topics the Bulletin's board will consider when evaluating the minute hand.

Gerald Epstein, director of the Center for Science, Technology, and Security Policy (CSIS) of the [American Association for the Advancement of Science](#), says that 2011 saw progress on approaches to address biological threats posed by non-state groups at both the Seventh Biological Weapons Convention (BWC) Review Conference and the G8 Global Partnership Against the Spread of [Weapons of Mass Destruction](#).

In his paper, *Biosecurity 2011: Not a year to change minds*, Epstein writes that the BWC is evolving to adapt to the nature of the [biological threat](#). Going forward, [biosecurity](#) will hinge upon the international community's ability to cooperate, whether it can think creatively and strategically, and whether it enters partnerships with scientists from all world regions.

Steven E. Miller, director of the International Security Program at Harvard University, writes in his paper, *Nuclear Weapons 2011: Momentum slows, reality returns* that 2011 was short on breakthroughs in the arms control arena, following something of a landmark year in 2010. Miller highlights five events that unfolded during 2011 that he suggests "seem certain to cast a powerful shadow in months and years to come." The current tension with Iran over weapons, the spread of nuclear technology in the Middle East and Southeast Asia, and difficulties in the US relationship with Russia are among them.

The Fukushima incident was a sudden and dramatic shock in 2011, writes Mark Hibbs, a senior associate in Carnegie's Nuclear Policy Program, but what continued to be a concern throughout the year was the incremental escalation of continuing crises in Iran, North Korea, and South Asia. In his paper, *Nuclear Energy 2011: A watershed year*, Hibbs reviews reassessments undertaken around the world after Fukushima, and underlines Europe's critical role in nuclear energy's global future.

In [Climate change](#) 2011: A status report on US policy, Steven Cohen and Alison Miller highlight a growing partisan divide in US Congress. This divide has stalled the country's federal climate policy, frustrated efforts to pass a cap-and-trade carbon permitting system, and spawned a battle between the US Environmental Protection Agency and Congress. Climate change policy has been pushed down to the municipal level, and the divide has also hindered US ability to effectively negotiate an international climate agreement. Meanwhile, US cities have enacted far-

sighted climate policy initiatives, and growing fossil fuels costs have stimulated renewable energy investment, bringing commercially viable fossil fuel alternatives closer.

"The inevitable shift from fossil fuels to renewable energy sources would be greatly hastened by federal action to tax carbon dioxide emissions and use the revenue generated to support alternative energy technologies," writes Cohen, executive director of Columbia University's Earth Institute. "That action is extremely unlikely to occur unless climate change comes to be seen in the United States as a practical, rather than ideological, issue."

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