

## **SECURING NUCLEAR ARSENALS IN TIMES OF POLITICAL TURMOIL:**

### **LESSONS LEARNED**

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Each of the four case studies examined in this project, the erstwhile “nuclear coup” in French Algeria in 1961, the uprising in China’s Qinghai Province in 1967, the turbulence in Pakistan since the 1977 military coup, and the slide to dissolution of the Soviet Union 1990-1991 provides a fascinating account of how centralized control over nuclear weapons was more or less imperiled by political upheaval and the lengths to which political and military institutions had to go to keep the weapons out of unauthorized hands, be it by hasty detonation of a nuclear test device, the use of deadly force to quell a rebellion by nuclear engineers, urgent redeployment of nuclear weapon components to secret locations, or the improvised use of bombers and cannon fire to exfiltrate weapons to more secure regions. The authors are careful not to exaggerate the risk of nuclear weapon seizure in these incidents; there is no public evidence that nuclear devices fell into the wrong hands. Nonetheless, there is ample cause for concern that the margin of security was uncomfortably thin.

Each episode carried its own complexities. The A.Q. Khan proliferation network that operated from Pakistan for decades underscores that the customary focus on the security of weapons and delivery systems can leave a gaping hole in terms of access to nuclear weapons-related design information and production components. This control failure has help fuel proliferation in Iran and North Korea. The Soviet case highlights that disputes over nuclear weapons control can be a leading indicator of imminent collapse of a nation-state, as well as its federated political

successor. The Algerian episode points to the pivotal role individual military commanders can play in determining whether rebels succeed or fail in bolstering their cause with a nuclear capability.

This chapter surveys the four case studies, highlighting key facets, major cross-cutting themes, lingering uncertainties, and potential “what ifs.” Building on the studious efforts of the case study authors, it offers a list of lessons to be learned, as the global community seeks to come to grips with how to insulate nuclear weapons from what is likely to be recurring political turmoil over the next half-century.

[Note to the editors: each chapter heading begins with a page-by-page list of suggested clarifications that I believe would help improve the readers’ understanding of the subject, as well as refine the analysis in this chapter.]

### **The French “Nuclear Coup” in Algeria, 1961**

#### ***Clarifications:***

p. 7: Add an org chart showing C2 arrangements over the test/site, by named individual.

pp.8-9: In light of rumors of rebel military action vs. metropolitan France and prior French media report of 4th nuclear test to “probably take place in April,” did any French media connect these dots at the time, perhaps weighing on de Gaulle?

pp.9-10: he = de Gaulle in all cases?

p. 10: CEA order to test on OR AFTER 24 Apr., per pg. 11?

p. 10: What time was the order sent on 23 Apr?

p. 10: Thiry authorized to decide on exact date in this case or not (fn 25 vs. 30)?

p. 12: What was the "2nd" intervention by Elysee to hasten the test?

p. 13-14: Celerier prolongs stationing of armored forces under guise of an exercise - why? If their loyalty was suspect, why hold them at Reggan where they could have posed a threat to the test/device?

p.14: Perhaps less like Mel Brooks because it underscores concerns about possible seizure of device, and so the heavily guarded convoy is used as a deception.

p. 15: Which comms with Algiers cut off by whom (to ensure that Paris, not the rebels, would announce test)?

p. 15: "base" in 2nd para = Reggan?

p. 15: n. 56, for benefit of reader, summarize Mentre's claimed role in ensuring the test was conducted. What was outcome of his trial? Similarly, was there any official inquiry brought against Thiry (e.g., for wavering loyalty to Paris)?

***Observations:***

Bruno Tertrais' original research has expanded our understanding of the so-called nuclear coup in French Algeria in 1961. The episode may come into sharper focus still as further details are unearthed. In any event, it is clear that the status of the nuclear device at the Reggan test site was a top priority for President de Gaulle as the Algerian coup came to light, discussing it with the Prime Minister on 22 April. Yet the apparent urgency to test the device on 24 April was not explicitly linked to the coup in Elysee's communiques to the CEA or Reggan. Nor do we have any mention by the central authorities in Paris of taking all steps necessary to prevent the device from falling into rebels' hands. The apparent absence of contingency planning in event the

nuclear device fell into rebel control in notable. Unexplored options in this regard include reinforcing Reggan with loyalists, e.g., paratroops (depending on French ORBAT at time), conducting an air strike against the test facilities, or issuing instructions to CEA staff to destroy key components (e.g., neutron initiator, explosive lenses, etc.). Normal bureaucratic procedures were not superseded. The 23 April directive merely reverted to the original "on or about 24 April" test date which had been set on 30 March, before more time was requested for technical preparation of the device. The "bland" communique from Paris on 25 April announcing the test also was indicative of a desire to downplay the risk of device seizure. But, practically speaking [and contrary to the characterization on p. 18], de Gaulle *did* order the test to take place as soon as possible. Again, further official disclosures may clarify how much the risk of device capture weighed in the decision to speed up the test. Until then, we can reasonably conclude that the test date was hastily advanced though the situation was not desperate. Here, it is interesting to speculate to what extent de Gaulle's behavior reflected a political imperative, as well as cultural predilection, to convey self-confidence in a crisis.

By contrast, the nuclear device and impending test event was not a premeditated priority for the coup generals (e.g., Salan, Jouhand), who were anti-nuclear, but rather a target of opportunity. There was some, but generally poor, rebel awareness of the device (including the Radio-Alger account of whether the device components had already been sent to Reggan; Challe's seemingly accidental discovery of the test via the NOTAM; and, Billaud's interrogation by rebel forces in Algiers and subsequent clearance to proceed to Reggan). Nonetheless, Challe sensed an opportunity for exploitation when he issued his 23 April directive to Thiry not to explode his "little bomb," directing him to "...keep it for 'us,' it will always be useful." Challe's reference to

“always” suggests an intent to retain the device indefinitely. It is thus evident that the rebels were improvising and were ignorant of technicalities that could render the device inoperative after a certain “expiration date” (e.g., the reliability of the neutron initiator over an extended period), particularly if they were cut off from CEA expertise.

In hindsight, Challe was overconfident that he had Thiry's loyalty. There is no evidence that Challe had a contingency plan to prevent a test he had not authorized. He apparently made no effort to cut Reggan's communication links with Paris, nor to cast doubt on who was responsible for the test, Paris or the rebels. Presumably the coup was already unraveling at that point, but such a counter-claim might have provided a last-ditch effort to rally forces to the rebels' cause or at least cast doubt on de Gaulle's span of control.

The Algerian episode underscores that the leading rebel generals were not enamored with nuclear weapons, nor did they see any dignity to be had in “nuclear blackmail.” [This point in n. 96, p. 25 is worth elevating to the main body of the Tertrais chapter.] This nuclear disdain was likely a pivotal factor in preventing a compromise of nuclear control in 1961. Now that nuclear weapons have been more widely “socialized” in the intervening half-century, it remains an open question as to whether future rebels in a nuclear-armed state would be similarly disinclined to exploit any nuclear devices within their reach.

A key facet of the Algerian episode is the extent to which Thiry really delayed the test. Was it even 24 hours? After all, the order from Paris to test had been received on 23 Apr, and accounts suggest that probably in morning of 24 April, Thiry decided to test the following day; he ordered

troops to the field the afternoon of 24th. Since the neutron initiator had yet to be completed on the 23rd, was a test on the 24th even technically possible [p. 19]? If not, the case for Thiry's prevarication becomes slim.

Nor did Thiry seem to perceive [consistent w/ pp. 21-22] an urgent need to scuttle the device. There was evidently no such indication in the Elysee directive on 23 April, nor was there any indication from Challe the same day that he was sending forces to, or ordering the armored forces at, Reggan to ensure compliance with his test suspension order (assuming such links to the armored units existed at the time). This contrasts with Viard and other CEA staff at Reggan "urging" Thiry—as if he was procrastinating—to proceed with the test to prevent rebels from acquiring a bargaining chip. It is not unreasonable to postulate that in times of political turmoil, bureaucratic figures and entities will "default" to standard operating procedures, in this case proceeding with the usual test preparations albeit on a compressed schedule.

But how are we to explain why the test was not postponed as weather conditions at Reggan deteriorated on 25 April? Under such circumstances the test normally would have been delayed; Thiry had the authority to do so but opted not to exercise it. Thiry's decision to proceed perhaps reflects his recognition that the coup was destined to fail. After all, he had contradictory test orders from Paris and Algiers yet appeared more concerned with the consequences of disappointing the former.

***Alternative Outcomes:***

We are left to ponder how the outcome of the coup might have differed if Thiry had immediately

(i.e., 21/22 April) and unequivocally sided with the rebels. Tertrais expresses his skepticism in this regard. But since France did not test its next nuclear device until November 1961, might there have been a window when the Algerian rebels had a nuclear “advantage” over the French mainland, which might have been exploited to rally more support to their cause?

What if Reggan’s communications had been cut with Paris (i.e., Elysee, MoD, and CEA)? How might that have changed crisis decisionmaking? Would de Gaulle’s dramatic television speech on 23 April have been as effective if the rebels were believed to have control of the nuclear device? If the links had been cut, would de Gaulle have known of CEA loyalists (Viard, *et al*) at Reggan and been able to count on them to sabotage the device, so that he could call a rebel nuclear bluff? Would the French President have continued to keep Washington in the dark [as implied per n.99, p.26], or been forced to bring it into confidence and request assistance in recovering the device?

Here, we might assert that French nuclear command and control “failed safe” by good fortune, not design. Such a characterization is not unreasonable given the relative immaturity of the France’s nuclear weapons program at the time. Still, while not necessarily feeding alarmist interpretations (which no doubt are further attenuated by the passage of time), the Algerian nuclear situation was perhaps more tenuous, more susceptible to transformation, than appreciated. Indeed, the chapter could support such an interpretation since, as pointed out [p. 21], in reforming French presidential authority the following year, de Gaulle perceived the need to ensure he would have sole authority over the employment of French nuclear weapons.

***Broader Implications:***

Building on the Tertrais' thoughtful "lessons learned," it is essential to bear in mind the impact of bureaucratic behavior on nuclear control during political crises. Namely, because no special concern was voiced, or emergency measures directed, by Paris (that we are aware of currently), the Reggan test site followed standard but accelerated operating procedures. The lesson here for future crisis management? Better for a National Command Authority to err on the side of explicit and extraordinary instructions versus implicit directives.

**The Legacy of China's Cultural Revolution on Nuclear Warhead Security**

[Awaiting revised chapter from Stokes]

**Political Transitions and Nuclear Management in Pakistan**

***Clarifications:***

p. 22: What is meant by "there was no mechanism to assess (nuclear restraint) implementation"?

No agreed mechanism with the US? Within Pakistan - implying lack of apex oversight?

pp. 29-30: The assertion that the nuclear program has always been tightly controlled by the apex seems overstated and inconsistent with the observation (p. 29) that "the absence of one authority created conditions where AQ Khan was able to bypass all three powers..." This theme of "considerable autonomy" is restated on pg. 30, describing a military, scientific, and civil bureaucratic "nexus" that "developed a synergy of thoughts and action over nuclear policy..."

p. 39: What is the significance of Musharraf's April '99 National Command Authority proposal? Why was it tabled at that time? How did it compare with what Gen. Beg claimed (in an op-ed article) was already in place?

What is the significance of Gen. Kidwai's continuing role as head of the SPD? Does his retention help or inhibit institutionalization of the Directorate and nuclear C2? What arrangements are in place to ensure a smooth, seamless transfer of responsibility?

p. 43: Please specify the date of “military take over” in this context

p. 47: If constitutional reform reassigned executive power to the Prime Minister, is it correct to say that President Zadari “voluntarily” gave his powers as head of the nuclear NCA to the PM, i.e., was he not “required” to do so by law? Was there a gap between when executive power was transferred to the PM but the President was still head of the nuclear NCA?

p. 48, n.30: For benefit of readers, what is an “Ahmedi”? Is there a more objective term?

***Observations:***

Feroz Khan’s chapter traces the impact of national leadership turnover on Pakistan’s nuclear weapons program. It observes that there were “Two political transitions in which there could have been a [nuclear] control problem [President Zia's death in 1988 and the joint resignation of the Prime Minister and President in 1993], but in each occasion the military had an organizational system to prevent any such danger.” [p. 42] Upon closer inspection and not unlike the Algerian case, this seems to be a default mechanism rather than a plan. Moreover, this assertion seems to be contradicted the observation that “It took a decade to develop [a] robust command system, which transited to the civilian [leadership]...in 2008.” [p.43]

There are, unfortunately, critical gaps in the account to support the chapter’s conclusion.

Specifically, what who were the key figures and the decision-making processes by which

Pakistan violated its secret agreement with the US not to produce HEU, conduct the ‘98 nuclear

tests (also, technically a breach of the US accord), and re-deploy nuclear weapon components following the September 11, 2001 attacks by al Qaeda against the United States (see

<http://www.washingtonpost.com/ac2/wp-dyn/A9038-2001Nov10?language=printer>)?

Additionally, elaboration is needed on how Pakistan's nuclear "command and control has been tested under regional crises and domestic violence." [p. 44] Were there incidents that challenged nuclear C2 in some fashion?

Notably, the chapter does not delve deeply into the AQ Khan debacle, asserting that the nuclear weapons program "remained firewalled" from political turmoil [p. 42]. It contends that the Khan network operated "[b]efore the military take over and formulation of SPD," [p. 43], yet Iran has documented with the IAEA that its first dealings with the network took place in 1987, a decade after Gen. Zia's coup and while he was still in power, and continued through at least 1995, two years after then-President Ghulam Ishaq Khan transferred the nuclear dossier to Army GHQ.

Also, the chapter makes no reference to Sultan Bashiruddin Mahmood, a former high-ranking PAEC official who engaged in nuclear weapons consultations with Osama bin Laden (see <http://www.hvk.org/articles/1201/89.html>).

In this regard, there is a tendency to understate the role of "informal" knowledge on part of the Pakistan military, while claiming its ignorance of the Khan network. Historically, it is noted that the military was "well aware" of the nature of the nuclear program in the 1970s, even if it lacked details [p. 16], and VCOAS Gen. KM Arif "was in the loop of nuclear knowledge and responsibility," even if this was not an institutional arrangement. [p.23]. "From [1988] on, the

COAS started managing...nuclear development on behalf of the president.” [p.24] AQ Khan has asserted that the Pakistan Army leadership was well aware of the nuclear assistance his laboratory was providing to Iran and North Korea, and provided material support (see his controversial 13-page “confession” at: <http://www.foxnews.com/world/2011/09/15/aq-khans-thirteen-page-confession/>). Given the influence of the Pakistan Army, and that GHQ was the agreed “locus and coordination” of resources for the nuclear weapons program, how is it that “the military did not have the legal authority to intervene in the autonomy of the scientists” until after Musharraf’s coup in ‘98?

Further, Bashiruddin's Islamic “charity,” Ummah Tameer-e-Nau, included retired Pakistani generals. If the Pakistan military was also unaware of Bashiruddin’s nuclear freelancing, the claims that nuclear command and control was under firm control ring hollow.

In spite of the Bashiruddin “surprise,” there are hints that religious radicalization was considered a threat to Pakistan’s nuclear C2 as early as 1977 and became a de facto selection criterion for personnel [n. 30, p. 48]. But the subject is not adequately addressed and so we can form no opinion as to how robust the nuclear C2 system is against radicalized insiders. [The author has written more on Pakistan's Personnel Reliability Program and presumably could incorporate that material readily.]

The issue of Benazir Bhutto’s access to the nuclear weapons program is contentious [having interviewed Gen. Beg myself in Rawalpindi in ‘93] and the chapter could benefit from greater balance. Namely, the assertion that Bhutto was excluded from the program only after receiving

the CIA briefing in June 1989 does not explain why she was not granted access to Kahuta, e.g., beforehand (see, for example, Pervez Hoodbhoy's account at: <http://tribune.com.pk/story/325571/the-bomb-iran-saudi-arabia-and-pakistan/>). Since President Ghulam Ishaq Khan retained the secret nuclear files throughout Nawaz Sharif's first term as Prime Minister, '90-'93 (turning them over to GHQ in '93 only as a result of being forced to retire), a pattern of prime ministerial mistrust and, at best, selective access to the nuclear dossier is evident.

Notably, Pakistan's Western-trained, civilian scientists became convinced that in an environment of competing demands on scarce resources, nuclear energy development would only take place if they could interest the national leadership in developing nuclear weapons. [pp. 9-12]. This was a sad and misguided rationale. As Khan's chapter notes, during the military rule of 1958-1971, Pakistan's Army leaders expressed no such desire. Rather, the leading driver of nuclear weapons development was a civilian, Zulfikar Ali Bhutto, who came to power in '71. Bhutto enlisted the material support of the Army in the nuclear weapons program following the loss of East Pakistan but kept decisionmaking in civilian hands until he was deposed in a military coup led by Gen. Zia in 1977.

The chapter cites bureaucratic competition as a driver of Pakistan's nuclearization, but the theme is not sufficiently developed. For instance, how much did competition between Munir Khan and AQ Khan influence the pace and scope of fissile material production and delivery system development?

***Broader Implications:***

Regarding the influence of bureaucratic competition/momentum in expanding nuclear weapons and delivery system production, including appealing to the military's presumed desire for the bomb as way to stimulate national nuclear investment and research, how can IAEA technical assistance and Western professional military education (PME) be re-tooled to better constrain horizontal and vertical proliferation?

How can military standards of centralized control and accounting of nuclear weapons be extended to scientific establishments to limit the potential for “freelancing?”

What are the risks to control and accountability generally as critical nuclear files are traded among power centers as a hedge against political turmoil (i.e., from PM's Office to President's Office in '71 to GHQ in '93)?

**The Dissolution of the Soviet Union**

***Clarifications:***

It would be helpful to list the Soviet nuclear forces that were stationed in Belarus, Kazakhstan, and Ukraine when the USSR collapsed, as well as the role played by the 12<sup>th</sup> GUMO.

p. 4: Was it standard Soviet procedure to transport SAM nuclear warheads by bomber aircraft?

p. 6: Awaiting section on failed coup in Moscow, Aug. '91

***Observations:***

Nikolai Sokov's chapter identifies at least three cases of potential loss of nuclear weapons control as the Soviet Union collapsed. It took nearly five years ('91-'96) until control of all

Soviet nuclear weapons was fully restored by Moscow. [p. 1] Nearly a third of Soviet successor states had nuclear weapons on their territory when the USSR collapsed, posing complex challenges for centralized control. [p. 2] Sokov underscores the importance of nuclear custodians' loyalty to their mission, even if not to the political leadership, to weather this political storm. [p. 1]

### Azerbaijan Seizure Attempt

The hurried withdrawal in January '90 of nuclear SAM warheads stationed in Azerbaijan (possibly in response to a fire at Baku nuclear weapon depot) seemingly required technical and procedural improvisation. Cannon fire was needed to ensure the bombers carrying the warheads could escape intruders who had penetrated the airbase perimeter and blocked the runway. [p. 4] Given the hasty nature of this operation, it is not likely that any plans existed to exfiltrate stolen nuclear weapons.

Sokov notes that this episode triggers a “massive” withdrawal of tactical nuclear weapons to just the territory of Russia, Belarus, Kazakhstan, and Ukraine by the spring of '91 – in almost complete secrecy. [p. 5]

He further observes that the downside of this improvisation was inadequate record keeping; weapons were transferred to almost random facilities, resulting in safety problems as the maximum number of warheads per bunker were exceeded and personnel had trouble maintaining controlled environments inside – a problem not resolved for another 15 years. [pp. 5-6] So how

dedicated were the custodians and political authorities beyond physical consolidation of nuclear weapons; how high a priority was nuclear weapons safety?

### Collapse of USSR

The ensuing collapse of the Soviet Union by late-December 1991 underscores that nuclear weapons control is a function of time: the longer political uncertainty exists, the greater the chance political authorities will lose control over nuclear weapons. [p. 6] Moreover, Sokov keenly explains how loss of control over nuclear weapons can precede national dissolution. It was clear that Moscow perceived it had lost control of nuclear weapons – in terms of physical withdrawal to the territory of Russia – some months before the USSR was dissolved. [pp. 6-7]

Notably, the risks of nuclear dissolution of the Russian Federation were anticipated by Russian academics in October '91. [pp.7-8] It seems likely that given the prevailing political turbulence, academic thinking outpaced the Russian government in this regard. This, in turn, begs the question of whether it is possible for governments to plan for nuclear control arrangements in the event the state itself dissolves. To their further credit, Russian academics also foresaw the military-technical, intelligence, and economic risks of dependency in the event the Soviet nuclear enterprise was divided up among successor states. [p. 8]

Adding a more complex twist in October '91, that is, prior to dissolution of the Soviet Union, Ukraine sought to ensure that nuclear weapons stationed on its territory could not be launched by Moscow. [p. 8] In November-December, Ukraine's leader then requested a study of whether such weapons could be used for the purposes of *detering* Russia. Divided loyalties among the

technical experts conducting the assessment seem to have biased the results against the feasibility of such a move. [pp. 8-9] Also prior to Soviet dissolution, Ukraine allegedly was able to obtain nuclear weapons maintenance and refurbishment manuals from a Russian nuclear weapons lab. This reflects the risks of political ambiguity and “bureaucratic autopilot.”

Further compounding matters, in February '92, Ukraine halted the withdrawal of tactical nuclear weapons from its territory. [p. 9] Sokov points out that technically, Ukraine was believed to be capable of assuming operational control over nuclear weapons in just 9 months [p. 10]

Kiev then engaged in a concerted propaganda effort to persuade Soviet forces on Ukrainian soil to switch allegiances, luring all strategic rocket and air force delivery units by April '92. Two nuclear weapon custodial units at Ukrainian air bases followed suit in '93. [p. 16] Sokov observes that, in effect, it was left to the discretion of individual military units and even individual officers as to whom they would grant control over nuclear weapons. [p.17] Ukraine lacked access to the weapons arming codes, however, and targeting information had been removed from ALCMs by the 12<sup>th</sup> GUMO prior to the shift in allegiance. [p. 16] Underscoring the risks of national dissolution, permissive action links were the only element of C2 not controlled at the unit level. [p. 17]

Political maneuvering was pervasive as Moscow struggled to retain full control over Soviet nuclear forces. In April '92, Belarus demanded from the West compensation and security guarantees to relinquish nuclear weapons on its soil. [p. 10] Russia, for its part, overstated its degree of control over the former-Soviet nuclear stockpile to discourage US interference in its

discussions with former Soviet republics. [p. 11] The temptation for central authorities to exaggerate their control over nuclear events is not limited to the Russian leadership (witness the assurances by Tokyo that the situation at Fukushima was under control). We can expect to see this kind of behavior in future nuclear control crises and should be prepared to challenge it head on, through private and official channels, backed by sustained media scrutiny.

Sokov observes that the disintegration of central authority creates a legal and psychological vacuum for the military. It also creates a political void that the military may seek to fill. [pp. 13-15] For 2-3 months, two of the three “suitcases” containing nuclear launch codes, including one allocated to the civilian leadership, that is, the Minister of Defense, were controlled by Gen. Shaposhnikov, who then tried to assert himself as equal to a head of state and dictate nuclear weapons policy to the political leadership. [pp. 14-15] Retaining military unity was a core concern for the Shaposhnikov and his military cohorts vis-à-vis the political leadership. [p. 15] Preserving military unity would likely be a top priority in future nuclear states dissolutions, and political authorities will need to quickly address this concern to dissipate any momentum toward military dictatorships. Keeping a close watch on potential Shaposhnikov’s is a prudent task in this regard.

### The Suitcase Nuke Saga

Disturbingly, Sokov points out that a thorough inventory of Soviet tactical nuclear weapons withdrawn to Russia in '92 was not undertaken by Moscow until '96, and even then only in response to allegations that Chechnyan rebels had acquired portable so-called “suitcase” nuclear weapons. It took another five years for the 12<sup>th</sup> GUMO to reveal that all such portable nuclear

devices had been eliminated, with confirmation by the head of the State Security Council, Denisov, not coming until 2004. [pp. 17-18] This provides further evidence that the less “sexy” aspects of nuclear weapons control, storage and accountability, are a weak link in Russian nuclear control and likely elsewhere. Indeed, the United States is not immune in this regard, as evidence by the unauthorized and unwitting relocation of nuclear weapons aboard a B-52 bomber in 2007.

***Broader Implications:***

How practical for is it for central authorities to plan for nuclear weapons control in the event of their own collapse? [p. 3] Is it possible to design in advance a nuclear fail-safe mode for political dissolution without being unduly fatalistic or even unpatriotic?

Sokov notes that state mechanisms are too slow to react to political turmoil whereas separatists organize very quickly and are usually more decisive in their actions. [p. 19] Is this phenomenon borne out by Algeria episode of '61? How much priority would future separatists give to seizing nuclear weapons? Non-state actors? Again, given the widespread dissemination of information about nuclear weapons, not to mention sustained media attention to the dangers of loose nukes, there is a high likelihood that separatists and non-state actors will pay greater attention to, and devote more resources towards, seizing nuclear weapons than, for example, the Algerian coup leaders in 1961.

Sokov further observes that rival political authorities will enter a competition to win the loyalty of personnel in direct control of nuclear weapons. [p. 6] To what extent might this have been the case in Algeria '61? How can the international community influence this contest to ensure responsible and reliable nuclear weapons control in the event of future state collapse?

Notably, approaches to nuclear weapon design and maintenance impact the feasibility of nuclear successor states preserving, in an operational sense, their nuclear inheritance. [pp. 9, 12] As noted above, this reality could have limited the value to Algerian rebels of the nuclear test device at Reggan had it come into their possession. The economic viability of nuclear successor states is another factor in this regard. [p. 12] Can we anticipate how these constraints may affect future nuclear inheritances in regions of concern, such as the Korean Peninsula?

Sokov further observes that there were no quick routes to “final” agreements regarding disposition of inherited nuclear weapons by Soviet successor states. [p. 12]. If there had been more time, what specific obligations should have been sought? Can we develop such a playbook for the future?

International nonproliferation norms and US influence played a considerable role in constraining the behavior of the Soviet nuclear successor states. Sokov rightly worries how to sustain this restraining influence in a more multi-polar world. [pp. 12-13, 20] This subject matter lends itself to alternative futures analysis and gaming.

As noted above, Sokov concludes that the military is the natural safe keeper of nuclear weapons during political upheaval. [p. 19] As Feroz Khan points out in his chapter, this has been the traditional role of the Pakistani military [and likely is the case to be made in Stokes' chapter on China]. But not all states are as far along in institutionalizing this role. We are reminded that India is transitioning from a nuclear weapons program that was highly compartmentalized and kept largely out of the hands of the uniformed military to one in which the armed forces out of necessity are becoming more "hands on."