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RESULTS

Opening the Closed Cities of the Soviet Union: After the collapse of the USSR, The Russian-American Nuclear Security Advisory Council explored how to advance international security by helping to transform Cold War nuclear scientists into allies for peace.

When Russian nuclear scientist Yuri Yudin was fresh out of a Soviet university, he didn't have the opportunity to think about where he wanted to work. Yudin was shuttled off to a secret nuclear city kept hidden from most of the Russian populace.

"They just sent you to your work when you graduated," Yudin recalls. "Everybody was assigned." Even in the late 1980s, the Soviet Union main-

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tained a system of closed cities to service a nuclear arsenal aimed chiefly at the other superpower, the United States. "It was still like the Cold War," he explains. "It was still a nuclear showdown. And it was still the Soviet Union, and nobody knew that it would die in two or three years and everything would change so dramatically."

In 1991, the Soviet Union collapsed, which was a victory for opponents of Communism. But it also was a crippling blow to many thousands of workers with nuclear weapons knowledge. Years of financial turmoil followed, leaving scientists and workers at once-isolated bastions of privilege facing economic ruin. Even paltry salaries of \$50 or \$100 a month were halted or went unpaid. That resulted in a potentially chilling formula: financially desperate scientists with knowledge of weapons of mass destruction eagerly sought by rogue states and enemies of the United States could possibly be tempted or coerced into revealing their deadly secrets.

Some analysts question whether that possibility was overdramatized, with the specter of nuclear disaster via loose nukes serving as a potent fundraiser for financially strapped Russia. They contend Russian nuclear scientists had the same pride and professionalism in their jobs as Americans. "I can hardly imagine any of the weapons designers and scientists selling to some rogue nations," says Elena Sokova, a Russian native and nonproliferation expert at the Monterey Institute. "The fact that they were still working in their facilities, they were still in these cities, that really eliminated the possibilities of these extreme scenarios."

"It's a very slim chance they would do this even if they were desperate, but there was still a chance," she acknowledges. "But when that desperation wasn't hanging over them, the risk was reduced and every possible incentive for them to end up in a desperate situation was eliminated."

Whether the thought of scores of Russian scientists working for enemies of America was overblown or not, the potentially horrific equation led to a number of U.S. programs in the 1990s to try and safeguard against nuclear weapons leaks, including one wherein Carnegie Corporation of New York would play a supportive funding role. Late in the decade, perhaps too late to some involved in those efforts, an ambitious program called the Nuclear Cities Initiative (NCI) was launched by the Department of Energy.

The idea was to help blunt the potentially catastrophic threat of material and knowledge leaking out from the former Soviet Union by working with Russia to downsize the weapons complex and redirecting scientists and workers toward business enterprises. The U.S. government ran the program through the Department of Energy's congressional appropriations.

But on the private track, a major nongovernmental effort to aid the Nuclear Cities Initiative was launched through the Russian-American Nuclear Security Advisory Council (RANSAC), which received critical Carnegie Corporation funding and support.

Carnegie Corporation's support began with a \$25,000 grant to help planning even before RANSAC acquired IRS tax-exempt status. It continued with several larger Corporation grants totaling more than \$743,000 through 2006. But the last grant was given with the knowledge that while RANSAC's efforts reaped other benefits, the actual Nuclear Cities Initiative was ending in failure for its stated aims.

The story of Nuclear Cities clearly demonstrates that people and organizations with good intentions and even seemingly good ideas don't always reach their goals. On the surface, there is little doubt even among its RANSAC supporters that the Nuclear Cities Initiative did not achieve what it set out to do. Despite great effort, there was little commercial activity generated in either secret or open Soviet nuclear cities. Highly educated nuclear scientists who grew up in a communist system naturally resisted efforts to turn toward private enterprise. The huge Russian nuclear complex was not significantly downsized.

Already suffering from a lack of enthusiasm on the U.S. and Russian sides, NCI essentially ended with a bureaucratic whimper in 2003 after both sides were unable to resolve a dispute over liability for U.S. efforts in Russia. Funding in the pipeline continued for a few more years, but the Nuclear Cities Initiative was over.

Patricia Nicholas, Carnegie Corporation International Program Project Manager, notes that the NCI program suffered from consequences that could not be foreseen in the pre-September 11th era. "That doesn't make it a bad initiative or a failure in that you never should have attempted it in the first place," she explains. "It just means that the funding stream didn't do what you might have

intended it to accomplish because larger circumstances prevailed.”

To also put things in perspective, RANSAC’s Corporation-funded efforts were only a small part of both U.S. and Russian nonproliferation efforts and overall relations between both nations. “This grant and our efforts were in a much bigger ocean,” observes the organization’s Project Manager Raphael Della Ratta.

Governmental interest in NCI waned on both sides for a variety of reasons. Rising oil prices eliminated Russia’s desperate need for U.S. cash. “You can say this didn’t work out as planned because Russia recovered,” says Della Ratta. “[The situation] was much less acute.” Buoyed by economic and political circumstances, Russia eventually found itself reasserting nationalism under then-President Vladimir Putin.

The Nuclear Cities Initiative even became a spy tale when Russia’s reinvigorated intelligence organization began to clamp down on American visitors to the nuclear cities.

Meanwhile, Russian and U.S. relations were strained by the differences over the Iraq war and Putin’s attempt to revive Moscow’s global reach. “It was not the fault of Carnegie Corporation or RANSAC,” observes Russian scientist Yudin. “This Nuclear Cities Initiative just fell victim to some of the bigger arguments between our governments.”

“It wasn’t just about proliferation,” declares Sharon Weiner, who worked on the program with a Princeton University team in conjunction with RANSAC. “It was about politics,” she says. “Our own internal politics. Their own internal politics. Plus politics between each other.”

Congress had rallied once to save the program under RANSAC’s urging, but in 2003 with a lack of jobs to show for Nuclear Cities Initiative funding and the issue of liability, the program could not be saved. For the Corporation, it meant that with a final grant to look at lessons learned, RANSAC’s funding would end after a total of about \$768,000. “There was a bit of a brick wall that the issue encountered in Congress,” Nicholas recalls. With NCI “becoming less and less a priority for Russia, it was logical that we didn’t want to invest a lot of money at the time when there was this logjam.”

Susan Eisenhower, who served on a high-profile commission evaluating U.S. nonproliferation programs with

Russia, believes “the program really had a useful role to play at the time.”

But, she adds, “Russia has progressed significantly since the inception of the program, so it would probably have to be under review at some point. These types of programs were becoming increasingly difficult in Russia because of internal opposition to extended U.S.-Russian cooperation. As that was happening in Russia, it was also happening in the United States. We were becoming more unilateral in many ways and had apparently increasing irritation with the roadblocks that seemed to occur on a number of these projects.”

Elizabeth Turpen, former aide to then-influential Senate Energy Committee chairman Pete Domenici (R-New Mexico), says proponents of the program always knew it would be extremely difficult. “It was not an abysmal failure,” declares Turpen. “It was a long shot from the get-go because some of the tricks of the trade of the nuclear weapons profession are difficult to commercialize,” she says. “The trigger specialists... these are the guys who you really were concerned about selling their expertise to a rogue state or a terrorist group. How do you commercialize that expertise?”

Still, Turpen, like numerous other analysts, notes “positive spillover benefits” from NCI.

“There were significant successes,” adds the Corporation’s Nicholas, “some of them unsung.” The Corporation grant fostered RANSAC involvement that not only brought some positive outcomes in dealing with nuclear dangers, but a knowledge base to help deal with these deadly issues today and in the long-term future.

There was a small reduction in the Russian nuclear weapons complex. RANSAC spurred the production of quarterly closed city bulletins and published them in the United States, providing an informative glimpse into what was once a highly secretive world. The organization worked to help ensure the extension of a Cooperative Threat Reduction agreement to continue other U.S. programs to safeguard deadly materials. And RANSAC has held workshops to prepare for the possibility of one day extending nuclear scientist reduction efforts to today’s nuclear pariah nations Iran and North Korea.

Renamed the Partnership for Global Security in an attempt to broaden its outreach, the fact that RANSAC exists today

and follows these issues is a major benefit of the Corporation grant. In fact, with Carnegie Corporation support, it was instrumental in creating two Nonproliferation Centers where members of the former Russian nuclear weapons brain trust can work toward curbing nuclear dangers around the world.

Though the glass nameplate on its Connecticut Avenue offices in Washington has changed, the successor RANSAC organization is still helping these centers function. Russian nuclear scientist Yudin, director of the Nonproliferation Center in Sarov, recalls that the end of the Nuclear Cities Initiative “was a blow for us at that time. We survived and RANSAC was of great help in assisting us to get in touch with foundations. If we didn’t have this help from RANSAC, I’m not sure we would have been able to establish this center and to survive for nine or ten years as an independent Russian NGO (non-governmental organization) in a closed city.”

Siegfried Hecker, former director of the famous Los Alamos Laboratories, says programs like nuclear cities “helped to provide better communication, better understanding and provided a lifeline to Russian scientists during their time of great despair. To me, they were worth every penny,” Hecker declares.

“The benefits may not have been those originally anticipated. But the benefits to the security of our country and the world’s nuclear security were substantial. From everything we know, not much escaped from those facilities in Russia, in terms of secrets, material and know-how,” says Hecker. “From my perspective, that’s a successful program.”

That security was the ultimate aim of the program. In looking at NCI, “there’s no question about the value of the idea,” notes Kenneth Luongo, founder of RANSAC. “The problem was in implementation—and there’s plenty of responsibility to go around.”

The Crown Jewels Are Tarnished As Economic Hardship Hits

As the Soviet Union sought to compete with America’s nuclear arsenal after World War II, it established clandestine atomic cities around the Soviet Union. There were dozens of secret or closed cities, though not all were nuclear.

A closed cities report carried on GlobalSecurity.org states

that many “were built by slave labor from the Soviet GULAG. During the Cold War, many of Russia’s towns and cities, including some of its largest, were ‘closed cities.’ Anyone with a foreign passport was forbidden to enter, and many were even out of bounds to Russian citizens. These closed cities provided the technical foundation for Soviet military technology including chemical, biological and nuclear weapons research and manufacturing, enrichment of plutonium, space research, and military intelligence work.”

Secret cities are defined in the report as “self-contained, and protected by fences and guard forces. The secret cities require a special permit for entrance, and are usually surrounded by a concrete wall. Personnel working in the Soviet nuclear complex were under heavy surveillance by the KGB, and underwent an intensive screening process, and their activities were closely monitored” with the government “severely punishing control violations.”

The secret cities and ones that were later opened up were considered the crown jewels in the Soviet defense establishment. Nuclear scientists were treated like the precious assets they were to the Soviet state.

“When they were operating as the heart and soul of the Russian nuclear weapons industries, they had the best houses, the best transportation—everything,” explains Nicholas. “It was a plum job for a weapons scientist to be in a nuclear city.”

“At that time it was prestigious to work there,” Yuri Yudin explains. “You helped defend your country. It was a good salary and they gave you an apartment. It was better than the average situation in the Soviet Union at that time, that’s for sure.”

Yudin describes Arzamas-16, the secret city later known as Sarov, “as a nice small town in the middle of a big forest. Few people even knew about this. It was not on the maps. It was out of the public domain.”

“Back in the Soviet time, you couldn’t even buy a ticket to go there,” recalls Pavel Podvig, a native of Russia who is now a researcher at Stanford University. “You couldn’t find out how to get there. I’d be surprised if you got the train timetable and there was an Arzamas-16.”

Arzamas-16 was considered the Soviet equivalent of America’s famous Los Alamos. “At Los Alamos, the fence came

down in 1957,” ex-director Hecker notes. But at Arzamas-16 decades later, “They were still like the pre-1957 Los Alamos. Not even Russian citizens could get inside that fence.” Within the enclosure, “They were an oasis...locked in an intellectual desert. Still, they had superb people. They had superb facilities. They had great scientific capability,” Hecker points out, “and lived a life of privilege while much of the Soviet Union lived a life of poverty.” That great privilege turned into deprivation after the break-up of the Soviet Union. In the 1990s, nuclear scientists and workers faced economic desperation and confusion.

Gennady Pshakin, a nuclear scientist with long experience in the Soviet nuclear cities, had been temporarily detailed to the International Atomic Energy Agency in Vienna and came back to a different country. “I left the Soviet Union—and returned to Russia,” he remembers, along with uncertainty as to how he would support his family.

“Salaries were very, very low,” as little as \$100 a month, Yudin recalls. They were paid irregularly. “You never knew when you would get your money,” with checks missing for months. “The management of the laboratory did everything they could to help, but their capabilities were restricted because of the general economic situation in Russia.”

The situation was so desperate, a director of a Russian nuclear weapons design center in the nuclear city of Snezhinsk committed suicide in 1996 because he had been unable to pay scientists and workers.

Carnegie Corporation Steps Up After RANSAC's Founding

Kenneth Luongo had worked on attempts to safeguard the financially disintegrating Russian nuclear weapons complex as a Department of Energy official. After he and some like-minded colleagues left the government, he formed the fledgling RANSAC.

“There was a small group of people inside the government that helped create this U.S.-Russian nuclear security agenda,” Luongo says. “The organization was designed to make sure the momentum for these sets of activities did not falter. And to push the initiative from the outside.”

RANSAC was created in 1997 and claims credit for the

idea of the Nuclear Cities Initiative. “It was our concept,” Luongo says. “Ultimately, it was picked up” by Luongo’s former employer, the Department of Energy.

At the same time, the Corporation was involved in efforts to curb potential nuclear disasters resulting from hard-pressed Russian scientists.

In early 1999, Carnegie Corporation President Vartan Gregorian noted “an interlocking series of crises—economic, political, military, and social—that have set back Russia’s national development by decades and undermined its grip on its nuclear arsenal and weapons-grade materials. In view of these looming problems,” he said, “it is both logical and imperative that the Corporation continue its decade-long policy of making nonproliferation of nuclear weapons and other weapons of mass destruction, as well as developments in Russia and other former Soviet states, central features of the International Peace and Security program.” Observing that, “The United States has agreed to help ten Russian atomic cities start commercial, nonmilitary ventures and train Russian nuclear specialists in business planning,” Gregorian added presciently, “The \$30 million allocated for this purpose, however, is hardly sufficient to cope with the problems of these cities, which were artificially created to serve the Soviet nuclear buildup.”

Under Corporation President Gregorian and his predecessor, David Hamburg, “Carnegie Corporation really was absolutely the leader in taking advantage of the opportunities for strengthening ties and actually coming up with conceptual ideas that created the environment for a number of breakthroughs, especially in Russia,” Eisenhower states. “They stayed with it. There was a time when it was popular to come to an end,” she says, “but anybody who knew anything about the situation knew it was far from over.”

Carnegie Corporation was “very instrumental in” cooperative threat reduction work in Russia, Project Manager Nicholas recalls. “So it was logical we’d be keyed into the importance of [atomic] cities at the time. And because of that, people entered onto our radar screens and Ken Luongo was one of those individuals... We knew he had this project and we wanted to fund it.”

The Corporation provided a \$25,000 initial grant for RANSAC in 1999. The organization was new enough that the grant actually had to be funneled through a tax-exempt

organization, the Tides Foundation. Nicholas describes it as “a small grant that Luongo could use to get up and running.”

While the amount of money was comparatively small, it had a big impact on RANSAC’s launch efforts. The Corporation grant went toward a conference on how nongovernmental organizations could bolster the government’s NCI program. “It was very important,” Luongo remembers about the initial Corporation grant. “It gave us the wherewithal to do this meeting to bring people together to see what the road map was going to be.”

For Carnegie Corporation, the RANSAC funding was partially a bet on Luongo’s contacts and credentials. A large part of the decision, Nicholas says, was due to “Ken Luongo and what we felt he was capable of doing, the reputation he had with others inside the Department of Energy.”

But the RANSAC efforts were not conducted alone. RANSAC partnered with Princeton University’s Center for Science and Global Security, where Luongo had served as a senior fellow. Sharon Weiner worked with the Princeton center and also served as a Carnegie Fellow working on the Russian nuclear initiatives. She says the politically experienced Luongo offered “a double-barreled punch” with Princeton scientist Frank Von Hippel who “had scientific standing” in the U.S. and Russia.

Substantial Carnegie Corporation funding followed the small initial grant. RANSAC received Corporation grants in 2000 and 2004, totaling more than \$563,000. “This organization was custom made to tend to this issue and try and chip away at this challenge,” explains Nicholas. “If it couldn’t be done by RANSAC with the expertise and the contacts they had, then we didn’t know [who could]. They were pretty much the only organization doing this. It was a no-brainer.”

Troubled Timing: Signs of Difficulty From The Start

But in the history of the Nuclear Cities Initiative, the first signs of trouble emerged even as NCI barely got underway.

A 1999 General Accounting Office (GAO) report forecast difficulties for the U.S. government program. That was followed up with a second GAO report in 2001 noting that a majority of program money was spent in the United States

for administration rather than assistance in Russia. It also suggested NCI somewhat duplicated another Energy Department program and raised questions about the feasibility of converting Russian weapons labs.

“We continue to believe that DOE faces a daunting challenge in meeting the ambitious goals of the NCI program,” the report stated. Later in 2001, the events of 9/11 brought a focus on Middle East terrorism, leaving the potential diversion of Russian nuclear material or expertise as only one part of the greater issue. “It was a victim in many ways of the 2001 attacks here,” Nicholas observes.

September 11th underscored the notion that the NCI program was not the most critical issue faced in the nuclear proliferation arena. And a near-fatal combination of issues and circumstances left the NCI program’s existence threatened in 2001.

“The Bush administration came to power and wanted to kill the program,” Luongo recalls. “It was saved by Congress. There was pushback on Capitol Hill and it was funded.”

While problems were beginning to emerge in Washington, in Moscow, the Putin regime was beginning to assert greater control over access to nuclear facilities. “He brought in very enhanced concerns about security,” explains Princeton’s Von Hippel. “It was much looser under [former President Boris] Yeltsin than it was under Putin.”

Even Los Alamos head Hecker was not allowed into a closed city after journeying from the United States. When U.S. embassy officials were hastily added to his party, Hecker was denied entrance. “The security service began to lock down the cities much more starting around 2000, 2001, and it was much more difficult to get in,” he recalls. “The whole atmosphere changed in such a way whereas closed cities was crucial in the 1990s, it became much less crucial and much less doable in 2000.”

Russian KGB and FSB intelligence organizations felt empowered under Putin’s presidency. It sparked “this whole KGB/FSB mentality and resurgence,” Russia native Podvig comments. “People in Sarov were saying before you do anything, you have to get approval, go to the FSB—and they were getting less and less cooperative.”

“Unfortunately, I have some experience with them,” he adds. Podvig was a weapons researcher in Moscow when a

colleague was arrested for treason. “For them, it was about power.” Foreign contacts were “suspect...It wasn’t a very subtle message.” Critics in Russia were also questioning American motives. “Literally, people would say things like ‘they want to take control of our nuclear arsenal,’” Podvig states. “You can imagine that creates a difficult environment to work with.”

Completing the perfect storm of elements against NCI in Russia, an improving economy removed the desperate incentive to accept American help in a sensitive arena. The rationale initially was “we have to accept it for a certain moment,” notes Pshakin, but “it was kind of an uncomfortable feeling for our government.”

Rising oil prices brought the cash to fund a renewal of Russia’s defense industry. Russian nuclear policy expert Sokova says as NCI “began to take root, there were other opportunities for these scientists” back in defense work. Instead of \$50 or \$100 a month, “now a junior scientist at some of these facilities gets \$1,000 a month. So they’re not really suffering anymore.”

Sokova, who wrote a book chapter on nuclear cities, says lab officials began discouraging alternative employment. “For example, high management in Snezhinsk was saying we can’t have more than... 15 percent of our work force engaged in civilian activities, otherwise they are losing their skills. Weapons designers need to stay in their fields. They need to keep their edge.”

One employee in Snezhinsk told Sokova the attitude from the director was “Let Sarov be the first one switching to civilian activities. If they are successful, so be it. And we’ll keep our defense mission.”

Highly trained Russian nuclear scientists were far more inclined to continue their nuclear laboratory work than try to succeed in strange and unfamiliar capitalist ventures. “All of us were in this lab, which was a Russian nuclear weapons design lab, like a Russian Los Alamos,” explains Yudin. “They were experts on the technical stuff, interested in doing this and not anything else. They were not very good in marketing and business development...People tried to do things like spare parts for cars. It was very difficult and often ended without success.”

Pshakin had the same Soviet lack of business experience.

“We never learned such activity,” he says. You have a task, which is given you by a specific supervisor. You never think about the commercial part of this. It’s a completely different area.”

Successful start-ups for weapons scientists “you can count on the fingers of your two hands. Some of the scientists decided to go and sell Coca Cola and some other stuff, but it was a big disappointment. Some of them came back. We were not well trained for that.”

Even an attempt to sell scientific measurement devices “easily became bankrupt and shut down.”

The lack of inclination and business savvy of Russian nuclear experts was summed up by a Russian lab director in a conversation with Susan Eisenhower. “He said, ‘We are scientists,’” she recalls. “‘If we had any talent for business, we would’ve gone into business.’”

But Congress wanted to see the creation of new private-sector jobs in Russia. Former congressional aide Turpen says the jobs component was a “suicide pill” for the Nuclear Cities program.

To Luongo, interested in downsizing the Russian weapons complex, the job creation issue became an albatross around RANSAC’s neck. “Commercial results were part of our concept. It was never a dominant part,” he states. But “it became a central part of the program and it never delivered on that goal.”

One effort seemed like a good fit for the Russian nuclear experts. But an attempt to use Russian expertise to gain a share of lucrative American nuclear waste site clean-up work received little interest from the U.S. government, according to Luongo.

In Russia, the lack of access to the still locked-down cities scared away investors. “Any place where you need a 45-day prior approval to visit your investment was not an investment that was going to work,” Luongo comments.

The 2001 GAO report described this as a “daunting challenge...The nuclear cities are geographically and economically isolated, access is restricted for security reasons, and weapons scientists are not accustomed to working for commercial businesses. Thus, Western businesses are reluctant to invest in the nuclear cities.”

RANSAC's Della Rata had a colleague explain it to him in these words: "Creating jobs anywhere is hard. Creating jobs in Russia is even harder. Creating jobs in closed cities that were intentionally hidden and placed at the end of the supply chain for years, is even harder still."

Liability Dispute Brings an End to the Nuclear Cities Initiative

The Nuclear Cities program had been waning, but in 2003, the issue of liability brought about its demise.

When several agreements including NCI came up for renewal, U.S. officials wanted to include the same provisions in an earlier U.S.-Russia agreement that absolved the United States of liability for actions taken to help reduce nuclear risks. Russia rejected that stance. The impasse ended the Nuclear Cities program

With NCI operating for years without the liability waiver, Luongo believes the program-ending issue was artificially contrived by opponents of the program within the government. "It was a red herring," he declares. "A non-issue on which people who didn't like this program, rammed it into the rocks and killed it."

But some experts note that NCI was caught up in the bureaucratic crossfire over other programs in Russia. "The target was not NCI," analyst Turpen says. "NCI was collateral damage for the liability that was tagged to the plutonium program. For the plutonium disposition program we needed that coverage because we were going in there on some major manufacturing facilities."

"The bottom line is that there just wasn't enough push on the Russian side" to solve the issue, Hecker declares. "Nuclear Cities actually died for bureaucratic reasons."

The downfall came at a time when the United States and Russia were increasingly estranged politically, especially over the hot-button issue of the war in Iraq. That left little good will to resolve lesser issues, such as liability. "If people were really interested in getting this done, they would have found a way to solve the liability problem," remarks Podvig, who is familiar with both the Russian and U.S. government systems. "The liability became an issue and basically there was just no energy on both sides in finding a way to solve it."

RANSAC had managed to avoid crippling NCI budget cuts a few years earlier, but in 2003, the lack of progress in creating jobs cost it support in Congress, Luongo concedes.

On the surface, NCI seemed to some members of Congress like a bailout program with few tangible results in terms of job creation for the U.S. millions invested. "The political coin of the realm was, in essence, if we are going to do it for another country and not do it here in the United States," Luongo says, "shouldn't we get something which is useful at the end of the day?" While that was "a perfectly legitimate political question to ask," the problem encountered was "these cities are set up so they are totally dependent on these nuclear enterprises for their survival."

With a seemingly amorphous result, NCI became a hard sell. "Congress has always hated these programs anyway," states former congressional aide Turpen. "Because it's really hard to make the case of the human dimension of the non-proliferation program. The metrics get really fuzzy."

Some members, Turpen notes, were even worried that efforts to connect former Soviet scientists to the Internet could allow them to "moonlight" and supply nuclear expertise to U.S. foes like Iran.

Carnegie Corporation's Nicholas summed up the dilemma that NCI faced. "It never regained its emphasis, its popularity as an issue," she says. "Then Congressional interest was hijacked in 2003 by the Iraq war." Without enough enthusiasm to save it, the NCI program lapsed. While funding in the pipeline allowed some activities to limp along for a few years, NCI's expiration was inevitable.

When the final Corporation grant of \$180,000 was given in 2004, the emphasis was now on exploring other arenas and looking back on lessons learned. "To RANSAC in 2004," Nicholas says, "already the death knell for the Nuclear Cities Initiative had been struck. At that point, our monies were going to things that were quite different from our initial grant to RANSAC...The opportunities had dwindled some...It hadn't died, but it was waning."

Success Amid Failure

Although NCI ended without achieving its goals, its proponents still point to its value years later. "NCI gets kind of a

bum rap in my opinion,” according to Sharon Weiner. “Yeah, it didn’t do exactly what it was supposed to. But it never got a lot of money and it really did do some important things.”

A major focus of RANSAC’s efforts was starting the Analytical Centers in Russia to pay scientists to work on non-threatening research projects. Describing it as a “Track II” creation, Luongo says, “we served as an unofficial channel but dealt with officials on both sides.”

With Corporation backing, RANSAC was able to create and follow through on a concept that might have languished on an official level. Luongo could “use the foundations and the private [arena] to do what was not possible from inside the government,” says former Los Alamos head Hecker.

Gennady Pshakin is now director of the Obninsk Analytical Center. He points out the uniqueness of the effort in the post-Soviet environment. The Analytical Centers were “completely new,” he says. “In the Soviet Union, we had no non-governmental organizations.”

With Pshakin’s center as one living model, Carnegie Corporation funding helped, at least in part, to transform a Communist mindset and endorse private initiatives. Two surviving Nonproliferation Analytical Centers spurred by RANSAC and the Corporation grant are seen as showcases of achievement in a program that failed to achieve its aims.

Yudin’s more prominent Sarov Center is seen as the prime example. He credits RANSAC for its existence. “When the Department of Energy decided to start the Nuclear Cities Initiative, their main idea was to create self-sustaining business jobs in Russian nuclear cities,” he recalls.

“RANSAC intervened at some point and said not only business is important. Another objective of this initiative was to facilitate nonproliferation and security studies in these closed cities using the expertise and knowledge of Russian nuclear experts. As I understand it, the Department of Energy was reluctant, but later they agreed.”

After the NCI program collapsed, RANSAC helped the Sarov Center stand on its own. “RANSAC helped us to establish relations with private U.S. foundations,” Yudin notes. One example of the work produced was a history of the Russian nuclear weapons program for the MacArthur Foundation.

When the day came that Yudin didn’t need his help for the Sarov Center, RANSAC’s Della Ratta felt his work was complete. In the past, “he’d contact us and I would help with the applications process. There was a time when he had gotten a grant from a Western foundation without us getting involved and sort of holding hands. I feel like I had turned around and the bird wasn’t in the nest anymore,” Della Ratta says. “He was producing on his own.”

The Obninsk Center is seen as a more modest success in a formerly open city.

Director Pshakin is still relying on RANSAC. “DOE money has practically disappeared,” he says. But “I applied to the Ploughshares Foundation with RANSAC’s support. They helped me to apply and communicate with them and finally get the grant. It’s a great help... When this grant is over, I’ll again be asking them for help.”

Without RANSAC’s support, including a small grant in the formative years, “I’d have to close,” Pshakin says.

While the program didn’t greatly reduce Russia’s nuclear weapons complex as hoped, it had some effect. Princeton scientist Von Hippel says the complex was cut down by a small amount.

The open publication of bulletins revealing information about a once totally clandestine facility is another accomplishment cited by RANSAC in their Nuclear Cities work. “Under this program, we got quarterly reports on the demographic information related to Arzamas-16, which was the most secret nuclear facility in Russia for which they recruited the top physics talent in the late 20th century,” Luongo says.

“We got information on their monthly statistics that the CIA would have paid a fortune for and probably never been able to get from the inside,” adds Luongo. “We got it from the inside. And all of that was thrown away when the agreement ended over a completely idiotic non-issue,” he declares, referring to the liability impasse.

While the NCI program was torpedoed, RANSAC successfully lobbied for an extension of an umbrella agreement for remaining Cooperative Threat Reduction efforts. “That was a hard sell. If it had not been renewed, everything would have just come to a screeching stop,” comments Nicho-

las. "All of the nonproliferation work that organizations had been doing in Russia to that point would have been frozen...a terrible loss of time, energy and expertise... The seven years they got in 2006 to pull them through was really a lot of RANSAC working behind the scenes."

On the critical issue of nuclear terrorism, Hecker was able to obtain additional Corporation funding to conduct workshops in Russia. "It was really worthwhile to have that parallel path," he says, because government efforts "have limitations that the private foundations don't have."

Carnegie Corporation funding enabled Hecker to conduct four workshops on nuclear terrorism. "Having done the Nuclear Cities Initiative put me in a much better position to actually do these counterterrorism workshops because I was able to invite my [Russian] colleagues. That's one of the side benefits that you get. It set up networks of people inside the closed cities particularly," he says. "They were able to talk more in the open."

Former Los Alamos director Hecker also notes that for those in the Russian nuclear defense industry, "it gave them some contacts with the outside world. All of that has had some positive effects."

Yet there were clear limitations to the program's impact. "What it didn't do was turn some of those closed cities into commercial meccas," he remarks about NCI. "It was never going to do that. We never turned Los Alamos into a commercial mecca in this country. But I think the positive influence it had may have been mis-measured."

Results Not Easily Measured

Some of the benefits from NCI, RANSAC's involvement and the Corporation's funding are not easily measured. Even in a detailed review, such as this one, it can be difficult to quantify the long-term benefits that may accrue from funding aimed at aiding an ambitious program such as the Nuclear Cities Initiative. For example, Russian nuclear expert Podvig notes that seemingly intangible benefits still accrue from NCI. "The paradox is that the process is more important than the results in many ways [but] it's impossible to make these arguments to politicians who actually ask you 'where is the beef?' And that just screws up the whole thing."

"Even just the exposure of the Russian scientists and bureaucrats to the Western way of doing business, as painful as it might be, it's a very interesting and very valuable experience. And vice-versa," Podvig notes. As a result, American officials "understand the system better" because of NCI. "They would see the best way to talk to the Russians." Now, "you have some kind of permanent contacts to be able to keep the conversation going."

You can argue that the Nuclear Cities Initiative may not have been the perfect way of building these other things," Podvig adds, "but then again, it's not like there is a perfect way... People who were involved in these things, they understand the value and they still keep the good contacts."

Others share that view. "We cannot underestimate the importance of building relationships of trust with the people who live and work there," Eisenhower insists of the program in Russia. "We've built long and deep personal relationships with people who are right at the heart of this activity with the world's other great nuclear power. I wouldn't even call that an intangible—that is something you can really point to. This has been a great enhancement for security."

Susan Eisenhower is the granddaughter of former President Dwight Eisenhower, who she noted, was worried about the "paranoid uncertainty" of nuclear tension in the Cold War era. "I keep saying to people if Harry Truman and Dwight Eisenhower and John Kennedy, if any of them imagined that we would be given the type of access we were given at the end of the Soviet Union, they could not imagine it," she says. Her grandfather, Eisenhower believes, "would say, 'My God, what an opportunity!'"

A former director of the Russian laboratory at Snezhinsk accepted an invitation to appear at an Eisenhower Institute event in Gettysburg in September 2009. "This is now seen as rather commonplace," Eisenhower notes. "Who could have imagined during the Cold War that any of this would be possible?"

RANSAC's Luongo points to the legacy of the NCI program as both blunting the possibility of nuclear-weapons-related leakage and giving the United States access once thought impossible. "When it comes to scientists and dangerous scientific knowledge, engagement can sometimes be as important" as measurable results, he contends. "And some of that is groundbreaking."

“You know, [American spyplane pilot] Gary Powers was shot down over the Urals for trying to look at Chelyabinsk-70 [now Snezhinsk] from a U-2. We now look at Chelyabinsk-70 from the ground level. As far as I’m concerned, that is a dramatic increase in transparency and in access and in knowledge,” Luongo adds.

To Carnegie Corporation’s Nicholas, these immeasurable benefits are “very nice unanticipated dividends” of program funding. “Sometimes the by-products are not part of the initial vision, but they should not be overlooked,” she says, “because they can be true successes in their own right.”

In fact, RANSAC’s existence may be due to the Corporation grants. While not the only foundation to provide support for RANSAC, Carnegie Corporation “was one of the main funders. Had they not gotten Corporation support,” Nicholas notes, it is possible they “would have languished and dried up in 2000... The organization might not have come into existence if it wasn’t for us.”

Carnegie Corporation support brought critical private organization involvement in spurring Nuclear Cities efforts, according to Luongo. “Without Carnegie Corporation funding in these areas, we would have never been able to develop the idea and the multiple ideas” that followed. “There’s just no question about that.”

“We all benefited hugely from Carnegie Corporation’s commitment to this area,” Eisenhower notes. She served as a Corporation academic fellow earlier in the decade, when interest in Russian nonproliferation efforts began to wane. “The Corporation continued to support programs in this area long after other foundations had moved on elsewhere,” Eisenhower says. “Issues of this importance to American national security are just not going to go away because political circumstances have changed.”

An intriguing question is would the funding pattern for RANSAC’s unpredictable results happen today? Nicholas says Carnegie Corporation takes a more predictive approach due to today’s tough economic times and strategic grant-making style. “You plot out what you want as an end result at the beginning of the [Corporation-grantee] relationship,” Nicholas says. “Ten years ago, we really weren’t working that strategically.”

Back then, they might “determine at the end of a first round of funding if there was going to be a second. In contrast,

“now, we try to design the funding scenario from start to finish before we even consider sharing a project with the board of trustees.”

A Critical Role May Still Lie Ahead

Well after the Nuclear Cities program has ended, its cooperative efforts and lessons in dealing with nuclear weapons programs may still have an impact on future global security.

American and Russian scientists “have to move ahead” and work together to face future dangers, according to Pshakin. With nations increasingly gravitating toward nuclear power, “it’s a very serious question for future cooperation.”

In fact, Pshakin would like to launch a global initiative combining “the efforts of U.S. and Russian scientists” to focus on nuclear safeguards. “I’m ready to share my experience with anybody,” he offers.

With today’s headlines full of nuclear threats from unstable regimes, RANSAC believes it is positioned to use its knowledge in nuclear weapons hotspots around the world. The organization started to prepare for the possibility of working on reducing nuclear weapons threats worldwide with its final Corporation grant. “The last event that we did with the Corporation money was a summation of what worked and didn’t work and why,” Luongo says. “Understanding the lessons learned is of enormous importance. It could come in handy” one day with the volatile regimes in Pakistan, North Korea and Iran.

“Ken has been trying to take that experience and apply it in South Asia,” adds Princeton’s Von Hippel. In 2009, Von Hippel had Luongo review a talk he was planning to give on Cooperative Threat Reduction in South Korea. “They’re designing a project for international cooperation if either North Korea collapses or they are willing to finally get rid of the nuclear weapons infrastructure,” Von Hippel explains.

Whether that could happen is entirely unpredictable. Still, the ultimate goal in the Nonproliferation Treaty is for all nations to eventually give up nuclear weapons, a long-term vision that President Obama pointedly endorsed, adding impetus to the RANSAC efforts funded by Carnegie Corporation.

In the nuclear scientist reduction and weapons complex

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downsizing that marked the Nuclear Cities and RANSAC work, "We had some successes and partial successes and some failures," Von Hippel sums up. "And that's an experience base that is there to be used in the future.

"It's not over," Von Hippel observes. "Ultimately... we hope to get everybody out of the nuclear weapons business."

Written by: Lee Michael Katz. Katz is a Washington, D.C., area freelance writer. He won a Stanley Foundation Reporting Project Journalism Award in 2007. Katz's work has appeared in *Carnegie Results* and numerous magazines and web sites, as well as *The Washington Post* and through The New York Times Syndicate. Previously, Katz was national reporter and Senior Diplomatic Correspondent at *USA Today* and Managing Editor/International of UPI.



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