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MISSILE NONPROLIFERATION AND MISSILE DEFENSE

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Since the terror attacks on September 11, 2001, almost every aspect of U.S. and international security has undergone some level of public review, except—as best as I can tell—missile nonproliferation. There are two explanations for this. First, among hawkish missile defense supporters there has been a natural tendency to be skeptical about the value of export or arms control efforts in a world that seems increasingly hostile to moderation and self-restraint. For them, banking much on such efforts is a mistake. Dovish security critics, on the other hand, have used 9/11 to underscore the importance of multilateral cooperation in preventing the spread or theft of strategic weapons and related materials and know-how. They call for more nonproliferation of the sort already in place. In either case, there's not much demand to reevaluate our missile nonproliferation efforts.

That is unfortunate for two reasons. On the one hand, the United States and its friends do not have much yet to deploy in the way of missile defense. Whatever systems we have or will soon acquire, moreover, are unlikely to be effective against anything but relatively small attacks by slower, less advanced missiles. This makes it imperative to limit the spread of more advanced missile capabilities.

On the other hand, given the success of the Missile Technology Control Regime (MTCR) in

restraining the aerospace exports of Western missile technology—supplying nations, simply improving the enforcement of existing MTCR restraints will tend only to further increase profits for entities operating outside of the MTCR (e.g., in Russia, North Korea, and China). Nor is improved MTCR enforcement likely to have much effect on missile technology demand, since Iran, Pakistan, India, Iraq, Syria, Egypt, Libya, and Algeria are not yet members of the MTCR. This makes it imperative to do much more to isolate and leverage the behavior of specific, known proliferators and their customers.

This paper briefly analyzes what is driving missile proliferation and the risks of limiting oneself to existing missile nonproliferation efforts. It concludes with three recommendations to revitalize

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our missile nonproliferation efforts: (1) Make sure we and our friends don't fuel more proliferation ourselves; (2) control intangible missile know-how much more vigorously; and (3) be willing to act against the worst proliferators in a discriminatory manner.

MISSILE PROLIFERATION WITHOUT MORE EFFECTIVE RESTRAINTS: MORE, BETTER, SOONER, AND NOT JUST FROM OTHER COUNTRIES

North Korea is the current proliferation leader. It is selling SCUD and SCUD derivatives not just to Pakistan and Iran, but to Syria, Egypt, and other Middle Eastern nations. It is improving its product line with help from Egypt, Russia, and China. It is also highly likely that flight test data flow back to the North Korean missile design bureaus from missile testing customers in Syria, Pakistan, and Iran. Russia, meanwhile, is selling know-how rather than hardware, exporting missile technicians to Iran and other locales. As for China, it is exporting all manner of things to Pakistan and selected missile items to other states, such as Iran. Finally, the U.S. is likely to resume exporting satellite launch integration technology to China, and is contemplating exporting long-range unmanned air vehicle technology (UAV) and long-range unmanned combat air vehicle (UCAV) technology to a number of allies and friendly nations. The U.S. is also planning to share missile defense technology with a number of nations.

Assuming that this commerce proceeds under existing MTCR restraints, what might the world look like in 10 or 15 years? First, assuming that the U.S. and its allies continue their current policies toward North Korea, Pyongyang is likely to remain in the missile business, selling whatever it can. If China continues to assist North Korea's "peaceful" satellite efforts and Pyongyang continues to receive missile technology indirectly from other states, the accuracy and lethality of North Korea's long-range missiles will improve. Pyongyang may even develop missiles with multiple and terminally guided warheads.

Second, with renewed transfers of U.S. satellite and satellite launch integration technology to China, U.S. missile guidance-related technology might well make its way to North Korea through

China. Certainly, the Chinese missile effort will continue to benefit from both direct Russian, Israeli, and European Union technical help and from indirect American missile technology transfers (e.g., from the U.S. through Israel and Europe to China). In another decade, Chinese theater solid rocket systems may have terminal guidance while longer-range Chinese rockets are likely to have multiple independently targeted reentry warheads (MIRVs). A robust UAV and an emerging UCAV Chinese export product line is also likely. Without new nonproliferation restraints, China, in short, could become a major clearinghouse for Western missile technology.

Third, the Russians are likely to continue to let their missile experts help Iran, India, China, and other Middle Eastern nations. If criticized about these missile technology exports, Moscow might well argue that their exports are no worse than unrestrained U.S. transfers of missile defense and UAV and UCAV technologies with cash-paying (non-security treaty) customers such as the UAE, Saudi Arabia, Kuwait, India, Pakistan, Taiwan, Israel, and Egypt. Moscow could also claim that such advanced U.S. missile-related transfers (which will likely include ballistic missile penetration aids know-how, and stealth cruise missile and precision missile guidance technologies) are indirectly being made from the U.S. through Israel, Egypt, and Pakistan to China and North Korea and, in turn, from these states to Iran, Iraq, Syria, Algeria, and Libya. Other members of the MTCR in Europe may plead the same defense for their "peaceful" UAV and satellite-related exports to states such as India, Pakistan, Egypt, and, perhaps, Iran.

GIVE MISSILE DEFENSES A CHANCE

Will planned missile defenses be able to cope with this threat environment? Perhaps, but it won't be easy. U.S. missile defense efforts, after all, have focused primarily on defending against small-scale missile strikes by single-warheaded rockets. Cruise missiles that could be used to overwhelm tactical and theater systems (e.g., PAC III), on the other hand, have not gotten nearly enough attention. Then there are stealthy cruise missiles, flight control systems (to convert manned aircraft into missiles and UAVs), terminally guided warheads for theater ballistic missiles, multiple independently targeted warheaded intercontinental ballistic missile sys-

tems, and missile penetration aids. Certainly, the spread of these technologies, if unrestrained by new nonproliferation controls, will test existing missile defense capabilities beyond their limits.

Of course, it is unreasonable to expect missile defenses to solve all problems or neutralize all possible attacks. Instead, they are likely to remain a percentages proposition: Initial missile defenses will only be able to defend against a percentage of some types of missiles at a price. As such, their value is likely to remain in their ability to force missile-armed opponents (particularly those with relatively small missile forces) to limit what they would otherwise target. Instead of simply aiming at as many targets as they have missiles, emerging missile states will have to concentrate their limited forces on a lesser number of objectives to assure penetration of the missile defenses deployed. In this regard, offensive missile numbers and qualities clearly matter. Whether you are a large, dispersed, and well-armed nation like the U.S. or a relatively small, poorly defended country like South Korea, you will always do better defending against a small, crude missile force. Also, spending less over more time to develop one's defenses will always be preferable to having to spend more over less time. In the latter case, one is more likely to have to crash deploy less effective systems or to give in to the temptation to develop nuclear-armed missile defenses (against which the political obstacles are much, much more severe than they are to deploying non-nuclear defenses).

All of this places a premium on reducing future missile threats and deploying affordable, effective missile defenses. It also makes it imperative that the U.S. and its friends do nothing themselves to needlessly increase the pace of missile or nuclear proliferation. It is imperative that we strengthen current nonproliferation efforts. In specific, we and our allies need to consider the reforms detailed below.

REVITALIZED MISSILE NONPROLIFERATION: THREE RECOMMENDATIONS

1. **The U.S. and its friends need to do more to develop and deploy missile defenses, UAVs (and UCAVs), and space technologies in a manner that avoids increasing missile proliferation.** Currently, UAVs, satellite technologies,

and missile defenses are among America's key military comparative advantages. Not surprisingly, the U.S. is actively seeking foreign customers to help pay for their development and deployment. Properly done, such cooperation and sales will help reduce the missile threat. Improperly executed, though, such commerce could easily compound the missile threats we face. In fact, the advanced missile threats our planned missile defenses will have the greatest difficulty neutralizing are precisely the threats the U.S. and its allies risk increasing by selling and cooperating in the development of missile defenses, UAVs, and satellite technologies.

Large missile defense interceptors, such as the Arrow, for example, are just over the MTCR's range-payload limits for Category 1 missiles. Under the MTCR there is a strong presumption of denial of any transfer of such missiles and related technology unless such transfers are required by treaty commitments reached prior to the date when the exporter joined the MTCR. One reason the MTCR proscribes such transfers is that Category 1 missiles (which include defense missiles of the Arrow class or larger) are capable of carrying a crude nuclear warhead a significant distance. This raises the question of whether or not the U.S. should support transferring the Arrow and related technology (as the Pentagon is now considering) to missile-developing nations like India only to have them be deployed against another friendly missile-developing nation, Pakistan. Would it not make more sense for the U.S., if at all possible, to hold off such transfers to states with whom it has no pre-MTCR treaty missile technology transfer commitments? This would allow the U.S. to abide by the MTCR Category 1 proscriptions. Would it make more sense for the U.S. to sell turn-key missile defense systems that are below the MTCR Category 1 range-payload limits (e.g., Patriot PAC II or III) to both Pakistan and India? Clearly, if the U.S. and its allies are serious about reducing missile proliferation, these questions, and their answers, need to be weighed.

Missile defense cooperation (vice sales) also needs policing. Certainly, in trying to cooperate with foreign nations in developing missile defenses, U.S. defense contractors will need to share detailed information regarding ballistic missile defense countermeasures (e.g., missile defense penetration aids, radar jamming, maneuvering and terminally guided warhead technology). In the right hands—America’s closest military security alliance treaty allies (NATO, Japan, Taiwan, and South Korea)—such information could help the U.S. develop and deploy effective missile defenses while strengthening existing military alliances. Yet, in the wrong hands—i.e., nations that have shared U.S. technology with other missile proliferators (e.g., Israeli firms with Russia and China; Pakistan and Egypt with North Korea)—this technology could end up targeting the U.S. or its friends before effective missile defenses are available. Again, to avoid this, it would make sense to restrict the most sensitive types of missile cooperation to states with whom the MTCR allows such transfers—i.e., to nations the U.S. had security or missile technology transfer treaty obligations with before it became a MTCR member (i.e., before 1987). Taking this approach also should make it easier for U.S. officials to encourage (rather than resist) expansion of the MTCR to cover advanced missile technologies such as penetration aids and other missile defense counter measures.

These same points apply to U.S. and allied transfers of UAV and UCAV technologies. Here, again, America enjoys a comparative advantage. Israel, Germany, France, Canada, Italy, the U.K., Russia, South Africa, and China also have active UAV efforts underway. But the U.S. currently enjoys a major lead that serves its ability to project power. Sharing or selling the best of this technology freely risks compromising it. Nations intent on defeating our UAVs and UCAVs would gain the means to do so; nations

that want to develop UAVs and UCAVs to defeat U.S. or allied forces could more readily get what they need. An additional worry is that so-called peaceful UAVs intended for civilian applications can quickly be converted into offensive UCAVs. If these systems, civilian or military, have long ranges, they can be used to attack the U.S. and its allies, who currently have only the crudest of defensive capabilities against such missiles. Moreover, even “civilian” UAVs can supply critical intelligence that hostile military commanders could use to defeat U.S. and allied forces. As such, restraining trade in such missile technologies to nations with whom MTCR members had security or space cooperation treaties prior to joining the regime would clearly be in the interest of the U.S. and its allies. Transferring turn-key systems (under appropriate safeguards) might make sense in some cases, but the general rule should be to restrict such trade as much as the MTCR allows. And, again, it would make sense to expand the MTCR listings to include more specific controls on advanced UAV and UCAV technologies (e.g., uniform standards for determining UAV ranges and payloads, cruise missile defense countermeasures, stealth technologies, flight control systems for converting manned aircraft into UAVs, and other critical dual-use items that are not specifically designed for cruise missiles but could nonetheless help make one).¹

Finally, the U.S. and its allies—Japan and members of the European Space Agency—need to take care that their civilian space cooperation does not end up advancing the offensive missile capabilities of key proliferators. Both House and Senate investigations in 1999 determined that the launching of U.S. commercial satellites in the 1990s helped improve Chinese offensive missiles. China also has admitted to having assisted Pyongyang in the development of North Korea’s first “peaceful” satellite, launched

1. For more on ways to improve current MTCR language, see Dennis M. Gormley, *Dealing with the Threat of Cruise Missiles*, Adelphi Paper 339 (Oxford: Oxford University Press for IISS, 2001), Chapter 5. It should be noted that at least in the case of flight control systems, all that would be required is reverting back to the original 1987 language from the MTCR’s annex covering technology and equipment.

in 1998 on a TD-1. How much else Chinese space cooperation helped North Korea's missile effort is unclear. Some experts have speculated that Beijing may have given North Korea stage separation and upper stage technology that it originally gained from U.S. satellite contractors.

Such a possibility raises the stakes of having the Chinese launch new, more advanced U.S.-designed satellites. It also suggests a simple rule: Unless and until the U.S. and its allies are sure that Russia and China are not proliferating missile technology or threatening our friends with their own improved missiles (e.g., China versus Taiwan), the U.S. and its allies should restrict the satellites they transfer for launching by Russia and China to those types that Russia and China have previously launched successfully. Such restrictions in the near and mid-term would allow the vast majority of planned satellite launchings to proceed since most are of U.S. types that China and Russia have already successfully launched. Exporting these satellites runs no risk of giving China or Russia any new missile know-how. Applying this restriction should also give the U.S. and its allies an additional benefit—leverage over China's and Russia's missile nonproliferation behavior. Indeed, until such a ban on new satellite types was lifted, neither China nor Russia could hope to maintain or enlarge its needed market share of Western satellite launches. This, then, brings us to the second key recommendation, which is to try to leverage the behavior of the worst proliferators of missile know-how by enforcing stricter nonproliferation rules that would apply to all nations (including Russia *and* the U.S.).

2. **The U.S. and its friends need to do much more to restrain the transfers of intangible missile technology.** When the MTCR was first launched back in 1987, its key objective was to restrain the transfer of missile hardware. The control regime does proscribe the transfer of all but the most advanced missile technology but, to date, the MTCR has rarely, if ever, been used to restrain intangible technology transfers. The most prominent instance in which the MTCR was used for this purpose was the Clinton

Administration's sanctioning of several Russian entities for training Iranian rocket technicians. The Russians, who are MTCR members, in fact, have a history of allowing their rocket scientists to travel to Iran, India, and China to help these nations develop long-range missiles. In addition, Russian aerospace institutes have hosted hundreds of foreign "students" from these and other proliferating states. The U.S., meanwhile, controls the export of missile technology by requiring U.S. contractors to secure a technical assistance agreement before discussing sensitive missile technology topics in meetings overseas. The U.S., however, does a poor job of tracking and controlling the missile-relevant studies of foreign students in the U.S. As for sanctioning others' illicit transfers of MTCR-controlled technology, the U.S. tends to rely on criminal standards of proof that are difficult to meet. Finally, only a few other MTCR nations, those who are members of the British Commonwealth, currently follow America's example and are willing to control the travel of citizens who are missile experts.

If we are serious about promoting missile nonproliferation, the control gaps noted above need to be closed. Prior to 9/11, this was considered to be too difficult. Now, with the public worried about foreign nationals taking flying and truck driving classes, what's possible and desirable has changed. Certainly, public hostility to the government's using its authority to monitor the academic activities of foreign nationals from hostile states, (including foreign students taking classes directly relevant to the design of long-range missiles) has declined. Similarly, the U.S. could do more to get nations outside of the British Commonwealth to control the technical visits abroad of their own missile experts. In this regard, the U.S. and its friends might consider the merits of sanctioning foreign entities and states that host the instruction of missile experts from non-MTCR states in their schools and technical institutes. The U.S. also should be willing to sanction other nations if their missile experts visit non-MTCR states (e.g., Russia to Iran). Here, less than a criminal

standard of proof needs to be used: As with adulterous liaisons, if a nation's missile experts are found in the wrong places (e.g., at missile institutes in proliferating nations), guilt should be assumed unless otherwise disproved. These measures would be tough but nondiscriminatory—i.e., they would reach the activities not just of foreign states, but of the U.S. and its friends.

This brings us to the last recommendation, which is the most challenging.

- 3. The U.S. and its allies must be willing to use discriminatory measures to leverage the behavior of key missile proliferators and, in the toughest cases, to support regime change.** Many have argued that the only way to leverage the behavior of confirmed missile proliferators is to bribe them. Using such tactics may buy time in the short run, but is risky against regimes whose legitimacy depends on continued hostility to the U.S. or its friends. A case in point is North Korea, a nation that has made a practice of violating its treaty pledges to the West (e.g., the 1953 Armistice, the NPT, the IAEA safeguards agreement of 1990, the Joint Denuclearization Agreement of 1991, and numerous international human rights agreements). Unless the U.S. and its allies are willing to test Pyongyang by demanding that it open up to the West and reform, little lasting progress is likely on nonproliferation. Also, the U.S. and its friends (especially those that have diplomatic relations with Pyongyang) need to be clear now that any steps Pyongyang takes to arm its missiles with nuclear warheads will only (a) jeopardize Pyongyang's chances of receiving international financial institutional support, (b) risk reversing or freezing diplomatic relations with the West, and (c) drive South Korea, the U.S., and Japan to much closer forms of military cooperation against North Korea.

China is a somewhat different case: It may be possible to curb China's offensive missile activities (including proliferation) by explicitly linking U.S. support of Taiwan and the threat of developing security coalitions against China with Beijing's missile actions. If, after the U.S. and its allies make such linkages clear, Beijing continues to deploy missiles against Taiwan, then the U.S. could simply increase its defense supplies to Taiwan and organize neighboring states who might feel threatened if Taiwan were attacked. If China continued to support its offensive missile activities by exporting selected missile technologies to Pakistan and the Middle East, the U.S. response, again, could be the same. This would clearly upset China; it also would give Beijing a clear incentive to reconsider its offensive missile activities.

In Iran's case, the U.S. should work closely with the European Union to make it clear to Tehran just how high the trade and foreign investment costs of its continued work on nuclear and long-range missiles are likely to be. The EU has already begun a vigorous debate and is now divided (because of Tehran's nuclear missile ambitions) on the merits of the EU widening trade relations with Tehran. Clearly, the MTCR needs to side with those in the EU who have already voiced reservations.

Among the remaining tough cases, the U.S. and its friends need to focus on those nations that either are proliferating or might proliferate missile technology. This list includes Russia, South Africa, Egypt, and Israel—nations friendly with the U.S. and its allies. The challenge in each of these cases is to link something each wants to avoid with ending some specific missile proliferation behavior.

None of this, of course, will be easy. It may, however, be necessary. Indeed, if we are serious about moving toward a defense-dominated

world—a world in which U.S. and allied security will rely less on threatening massive offensive retaliation and more on having defenses and the ability to launch limited, discriminate projections of force—revitalizing missile non-proliferation is likely to be the least and easiest thing we need to do.

—Henry Sokolski is executive director of the Non-proliferation Policy Education Center in Washington, D.C. He delivered this lecture at a McCormick Tribune Foundation Conference on “Defending the Homeland Against Ballistic and Cruise Missiles” held in Naperville, Illinois, on July 10–12, 2002.