

# Plutonium and Picasso – A Typology of Nuclear and Fine Art Smuggling

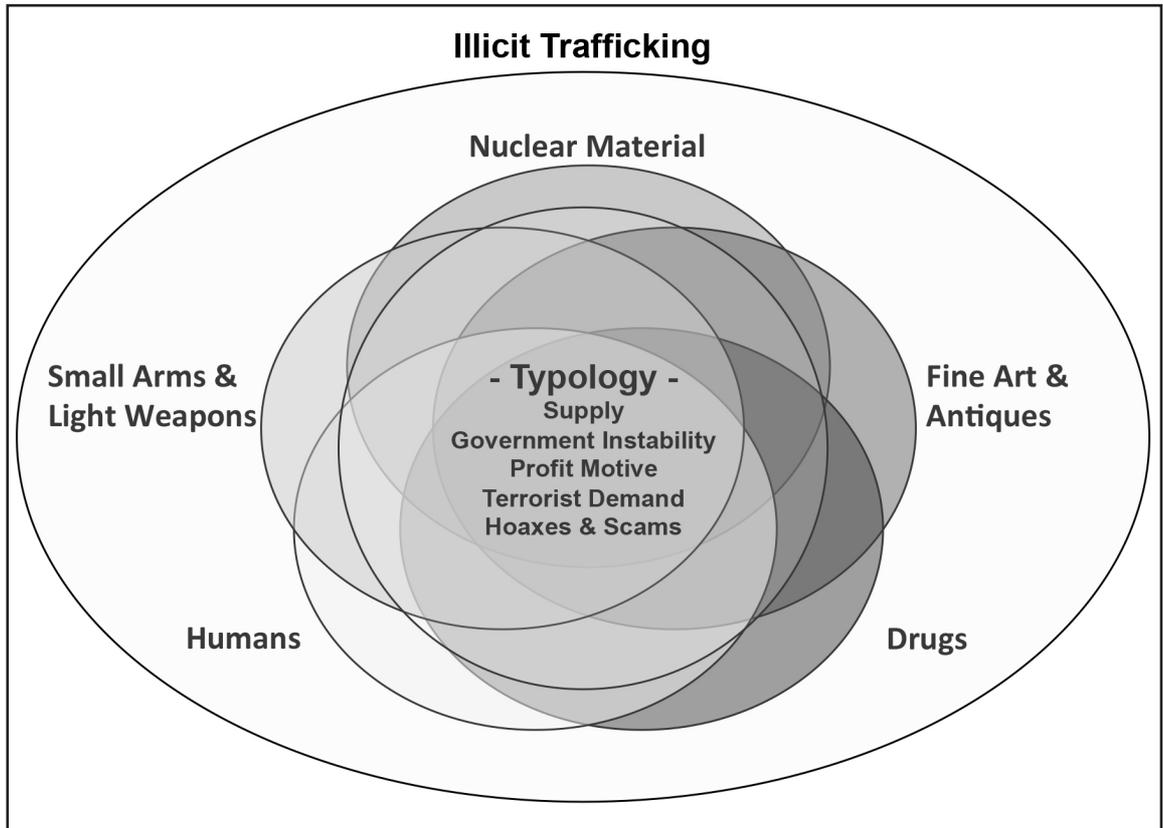
*by Joshua D. Foss*

The global security environment continues to evolve. Globalization, advances in technology, and greater connectedness of people and economies have enabled transnational organized crime and new and existing illicit markets to expand. Never has the prolific and rapid dissemination of technology and information enabled transnational organized criminals and terrorists to work together at such a speed and scope. Nefarious actors undertake a broad range of illicit activities—to include human smuggling, software and music piracy, illegal wildlife trade, product counterfeiting, and fine art smuggling—to exploit global advancement and global interconnectedness for financial gain. Persons not directly affected by these smuggling activities may see them as benign (as in the case of music piracy) or as cases of lawlessness (as in the case of illegal wildlife trade) or even as cases of human tragedy (as in the case of human trafficking), and indeed, they are all of these things. However, close examination of illicit activities like these reveals profound implications and consequences for U.S. national security. For example, consider a terrorist organization using the proceeds from illicit trafficking of pirated music to finance terrorist recruitment and procurement of weapons. The illicit trafficking of pirated music could fund terrorist operations against U.S. Soldiers abroad or against the U.S. homeland. Thus, the seemingly benign threat of pirated music could affect U.S. national security and U.S. interests around the world.

Some smuggled goods such as illegal arms trafficking and radiological and nuclear material trafficking, are obvious threats to national security. Anecdotal evidence shows that characteristics associated with smuggling and trafficking of nuclear material are no different than the characteristics associated with smuggling and trafficking other illicit commodities. This commonality allows us to identify a typology among the illicit trafficking of humans, drugs, weapons, fine art, and nuclear material. Lessons from one of these forms of illicit trafficking are applicable to all, and that commonality can provide important insights in support of interagency efforts to counter illicit trafficking.

The illicit black market is a global enterprise that according to some estimates generates between \$1.63 trillion and \$1.98 trillion annually.<sup>1</sup> Commodities found in illicit markets include drugs,

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**Figure 1. Illicit Trafficking**

counterfeit products, arms, cigarettes, diamonds, humans, oil, exotic wildlife, fine art, and nuclear material. These commodities—for all their differences—exhibit certain remarkable similarities. For example, both fine art and nuclear material are physical, inanimate items that are generally safeguarded and secure; require extraordinary physical access to steal; are generally small and portable; can be obtained illegally only within the bounds of well-defined parameters; and have a niche demand and market. Thieves generally have a hard time finding buyers for stolen nuclear material and fine art. Generally, the more famous the art piece or art heist, the harder it is to sell in both licit and illicit markets. Similarly, selling nuclear material is also a challenge in the underworld of the black-market exchange. Without receiving the attention of intelligence or law enforcement agencies, identifying demand or the end-user of stolen nuclear material can be a challenge. More often than not, original sellers of nuclear material rarely find a single buyer of the material.<sup>2</sup> These similarities provide at least five interesting bases for comparison:

1. Supply.
2. Government instability.
3. Profit motive.
4. Terrorist demand.
5. Hoaxes and scams.

## Supply

While the exact quantity of fine art and nuclear/radiological material around the globe is unknown, both are large. However, neither fine art nor nuclear/radiological material is easily acquired, since both are generally well protected and access to them is restricted. Nevertheless, there is no shortage in supply for would-be smugglers of fine art and nuclear/radiological material to exploit, and this abundance presents an opportunity for would-be traffickers.

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According to the Art Loss Register—the world’s largest private database of lost and stolen art, antiques, and collectibles—most art is stolen from private residences, followed by museums and galleries, churches, and companies. These thefts result in billions of dollars of fine art theft each year.

Though private companies, such as the Art Loss Register, and law enforcement entities around the globe try to maintain records on stolen art, the illicit art trade is much larger than documented. Recordkeeping inconsistencies and the inability to include the uncatalogued artifacts that are stolen from archaeological sites make having a complete picture of the size and scope of stolen art a challenge.

According to the International Atomic Energy Agency (IAEA), millions of radiological sources have been distributed worldwide over the past 50 years, with hundreds of thousands currently being used, stored, or produced.<sup>3</sup> The common use of radiological sources worldwide presents an opportunity for the theft and acquisition by would-be nuclear traffickers.

A nuclear trafficker could acquire or pilfer radiological material through licensing fraud and from a variety of places, such as universities and hospitals.

In addition to radiological material, fissile nuclear material likewise exists in abundance. Many tons of highly enriched uranium (HEU) and plutonium (Pu) are processed and stockpiled in bulk each year by several countries. As with fine art, there is no current comprehensive, authoritative inventory of HEU globally; however, estimates of global HEU is estimated at 1,345 tons with almost 99 percent of the HEU in nuclear weapon states.<sup>4</sup> Seizures of fissile nuclear material is rare on the illicit black market but not non-existent. The IAEA reports 15 confirmed incidents of unauthorized possession of HEU and Pu between 1993 and 2012. Cumulatively, these incidents included a total of about 20 kg of weapons-usable nuclear material. According to the Database on Nuclear Smuggling, Theft, and Orphan Radiation Sources, the most recent nuclear smuggling event occurred in 2011, when Moldovan police arrested six people for attempting to sell four grams of HEU.<sup>5</sup> The traffickers thought they were negotiating with a North African buyer and were selling the HEU from between \$29 million and \$144 million per kilogram<sup>6</sup>—highlighting that a paucity of confirmed incidents does not indicate a paucity of demand.

## Government Instability

Both nuclear and art traffickers thrive in struggling nations, particularly those weakened by civil war, insurgency, poverty, and corruption. Criminals profit from instability, where control of governance is weak, security is inadequate, and other dimensions of state control and structure are poor.

As countries become plagued with conflict and political strife, the difficulty and challenge of protecting art, antiques, and cultural artifacts increase. Robert Wittman, the founder of the

FBI's Art Crime Team identifies that "semi-lawless, war-torn regions have long been vulnerable" to illicit art and antiques trade.<sup>7</sup> Both Iraq and Syria serve as great examples of the correlational relationship between fine art trafficking and government instability. The FBI has alerted art collectors and dealers to be cautious trading Near Eastern antiques, warning that artifacts plundered by terrorist organizations such as Islamic State in Iraq and the Levant (ISIL) are entering the marketplace.<sup>8</sup> ISIL and similar groups are exploiting the instability in Iraq and Syria—a region rich with ancient treasures and artifacts—by profiting from stolen fine art in the region.

Government instability likewise enhances opportunity for the illicit transfer of nuclear materials. The most nuclear trafficking events occurred during the early 1990s in Eastern Europe and former Soviet Union. The IAEA's Incidents Trafficking Database dramatically peaked in the early 1990s, concurrent with the fall of the Soviet Union. Between 1992 and 1994, 300 employees at storage and production facilities in Russia were caught stealing, illegally transporting, or possessing radioactive waste.<sup>9</sup>

Conflict or post-conflict areas are particularly vulnerable to nuclear theft and smuggling. The conflicts in Iraq and Libya serve as great examples of this correlational phenomenon. After the U.S. invasion of Iraq in 2003, looting of Iraq's nuclear infrastructure became a nuclear proliferation and trafficking concern for the U.S.

During Libya's civil war in 2011, the international community became increasingly concerned about nuclear proliferation as a result of government instability. Lawlessness and the absence of state-controlled security and order led to the theft and looting of Libya's nuclear infrastructure and material holdings. Because of Libya's civil war, 1,000 metric tons of yellowcake was abandoned and came into the possession of rebel fighters.<sup>10</sup>

## Profit Motive

The single most prominent motive for art theft is profit. The amount of criminal income generated by art crime each year is estimated at \$6 to \$8 billion.<sup>11</sup> A single stolen painting can earn a trafficker millions of dollars. For instance, in 2004, two paintings—Edvard Munch's *Scream* and *Madonna*—stolen from the Norwegian Munch Museum had an estimated value of around \$19 million. Although the paintings would be recovered two years later, the theft demonstrates the significant value fine art can potentially generate for art thieves and smugglers.<sup>12</sup> In the art world, a single set of pliers and a screw driver have been used to steal millions dollar paintings for fine art traffickers.<sup>13</sup>

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In a similar way, the expectation of financial gain from selling nuclear material on the black market is the primary motivation for nuclear theft. Nuclear proliferation expert Lyudmila Zaitseva identifies profit as the number one motive for stealing nuclear/ radiological material.<sup>14</sup> Most known thefts of actual weapons-usable nuclear material have been committed by impoverished insiders with the hope of selling nuclear material on the black market.<sup>15</sup> In 1992, Leonid Smirnov, the first known thief of weapons-usable nuclear material, diverted 1.5 kg of HEU from the Luch Scientific Production Association in Podolsk, Russia, to improve his financial situation. Smirnov, a technician at the nuclear facility, stole the HEU in 25-30 gram increments. Investigation of the theft reveals that Smirnov intended to sell the material to make enough money to buy a new stove and

refrigerator.<sup>16</sup> The Smirnov case is just one of many cases involving the theft and illegal acquisition of nuclear material for financial gain.

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### **Terrorist Demand**

The biggest enabler of terrorism is money; the theft and trafficking of stolen art is one of the many illicit activities terrorist undertake to fund their efforts. Terrorist desire both fine art and nuclear material. Perhaps the best-known example of terrorist connection between terrorism and illicit art comes from the 9/11 hijacker, Mohammed Atta. In 2005, the German secret service reported that Atta, in an attempt to fund his terrorist activity, tried to sell Afghan antiques to a German professor. ISIL reportedly have earned as much as ten million U.S. dollars from fine art stolen from Syria and Iraq.<sup>17</sup> Matthew Levitt of the Washington Institute for Near East Policy told a House Congressional committee that the sale of antiques—both those stolen from collections and those from archeological sites—was the group's second-largest source of revenue after illicit oil sales.<sup>18</sup>

Several international legal instruments have been adopted to prevent and reduce stolen fine art and nuclear/radiological material being introduced on the black market. In February 2015, the United Nations Security Council unanimously voted for Resolution 2199, which obligates member states to take steps to prevent terrorist groups in Iraq and Syria from receiving donations and from benefiting from trade in

commodities, like fine art and antiques. This action was intended to curb art theft and prevent revenue streams by terrorist organizations in Iraq and Syria.<sup>19</sup> Similarly, in 2005, the UN recognized the terrorist demand for nuclear/radiological material and the threat that material posed. As a result, the International Convention for the Suppression of Acts of Nuclear Terrorism is a legal instrument developed to address the threat. Under this convention, member states would have an obligation to criminalize a wide range of activities involving nuclear/radiological material.<sup>20</sup> Given the demand of nuclear/radiological material and fine art by terrorists, the international community has developed legal instruments to prevent terrorist access to and use of both commodities, be it for profit or to cause terror.

Terrorist groups have also demonstrated a demand for nuclear material and have made serious attempts to acquire nuclear material since at least 1993. Long before the 2003 *fatwa*—which Osama bin Laden received from Shaikh Nasir bin Hamid al-Fahd, a radical Saudi Islamic scholar justifying the permissibility of nuclear weapons under Islamic law—global jihadist networks have made explicit their desire for nuclear weapons for use against the U.S. and its allies.<sup>21</sup> Bin Laden called the acquisition of weapons of mass destruction a “religious duty,” and *al-Qaeda* operatives have made repeated attempts to buy stolen nuclear material in order to make nuclear weapons.<sup>22</sup> Though Bin Laden was killed in 2011, *al-Qaeda* and similar groups may still continue to pursue nuclear efforts. For instance, the emergence of the apocalyptic and political-religious group ISIL may have no reservations against employing an improvised nuclear device. Although no open source evidence links terrorist organization with cases of illicit trafficking of fissile material, ISIL's radical and apocalyptic agenda may increase the possibility of future nuclear smuggling and nuclear terrorism.<sup>23</sup>

## Hoaxes and Scams

The black market of stolen fine art and nuclear material is fraught with hoaxes and scams. Fraudulent dealers and scam artists recognize that stolen art and nuclear material are potential lucrative markets. Most fine art scams involve the replication of fine art to sell in both licit and illicit markets. The replication of art is commonly referred to as forgery. A scam artist can forge fine art in several different ways. Forgery can be a direct copy of an art piece, attempting to complete an accurate recreation of a known existing piece of art, or it can be pastiche, where an art forger takes elements and style and patches them together in such a manner to capture the era.<sup>24</sup> For nuclear material scams, the most prevalent scam on the black market is sellers misrepresenting their wares using hoax non-nuclear material. Scam artists attempt to sell non-nuclear material as nuclear material to unwitting buyers. The propensity for fraud, hoaxes, and scams are high in the underworld of illicit black markets because black markets operate on a level beneath legitimate markets and are not regulated. The relative ease of misrepresenting factual information and products makes scams and hoaxes considerably more prevalent than instances where actual fine art and antiques and nuclear material is undertaken.

Parallel factors contribute to the abundance of hoaxes and scams found in the underworld of nuclear/radiological smuggling and fine art smuggling. The act of procuring nuclear/radiological material and stolen art on the black market is a criminal act. Reporting fraudulent nuclear/radiological or art to authorities would self-incriminate and expose the illicit activity. There is, generally, no formal, legal dispute settlement procedures or legal recourse when a procured item is found to be fraudulent.

The sale of counterfeit art is reported to generate tens of millions of dollars each year. A factor that contributes to the abundance

of forged art on the black market is the lack of technical expertise and the inability to properly authenticate fine art. The underworld of art smuggling requires a higher level of understanding and expertise to authenticate stolen art. The current system of fine art authentication is based on a three-pillar approach of connoisseurship, provenance, and technical analysis.

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For connoisseurship, an expert can distinguish fraudulent art and antiques with training in characteristic features of an artist's style and techniques. Through provenance, an authenticator evaluates the history of an artwork's origin, ownership, location, and transaction. Technical analysis allows for scrutiny with scientific equipment of a work's material components to determine consistency or inconsistency with a purported era, age, or attribution.<sup>25</sup> Ironically, as with the authentication of nuclear/radiological material, proper and thorough authentication of art requires special equipment for technical analysis to determine authenticity. Scientific methods such as carbon dating and various tests involving X-rays are used for authentication. The lack of proper authentication allows forgers to flood both the licit and illicit market with forged art.

Similar to the authentication of fine art, to ensure its *bona fides*, nuclear/radiological material must also be authenticated on the black market. The authentication of nuclear/radiological material requires a level of technical expertise and a basic understanding of nuclear properties to differentiate nuclear and nonnuclear material. Failure to properly authenticate

nuclear/radiological material can result in being scammed.

To ensure the legitimacy of nuclear/radiological material on the black market, one must understand nuclear material and have proper equipment, such as radiation or gamma and neutron detectors to test and verify the properties of the material. Proper authentication is vital for nuclear/radiological verification and possibly something terrorists lack. For instance, according to former CIA Director, John Brennan, *al-Qaeda* has “been scammed a number of times” in its quest for nuclear material.<sup>26</sup> As previously identified, *al-Qaeda* is reported to have searched for weapons-grade nuclear material in the 1990s, but was conned into buying low-grade or hoax material, such as “red mercury.”<sup>27</sup> In 1993, *al-Qaeda* operatives in Sudan sought to purchase what they believed was uranium being offered for sale but ultimately proved to be a scam.<sup>28</sup> Though *al-Qaeda* may have been scammed on a number of occasions with fake nuclear/radiological material, these scams pose a threat because it shows *al-Qaeda*’s quest for nuclear material.<sup>29</sup>

**...al-Qaeda has “been scammed a number of times” in its quest for nuclear material.**

Over the last 25 years, several reoccurring non-nuclear material scams have occurred on the nuclear black market. These scams include the sale of lead pigs containing hoax nuclear/radiological material and the sale of “red mercury,” as identified above. Lead pigs—a colloquial term describing a nuclear container—is used to ship or store radioactive material. For instance, one such persistent scam, primarily centered in Southeast Asia included the sale of irregular shaped metal pigs allegedly containing HEU or Pu with the markings of “uranium,” “made in USA,” or a skull-and-crossbones

symbol.<sup>30</sup> Generally, the contents of the pig would be non-nuclear hoax material. Another persistent nuclear material scam includes the so-called “red mercury” scam. Nuclear scam artists identify “red mercury” as constituent or essential component of nuclear weapons.<sup>31</sup> “Red mercury” is a non-nuclear substance—typically mercury oxide, mercuric iodide, or mercury mixed with red dye—and has been found to be sold on black market for \$100,000 to \$300,000.<sup>32</sup> The ease of misrepresenting or exaggerating nuclear/radiological material on the black market is much more prevalent than instances in which nuclear/radiological material is actually sold or intercepted.<sup>33</sup>

## Conclusion

As Walter Kemp of the United Nations Office of Drugs and Crime has observed:

In the last 20 years, globalization has outpaced the growth of mechanisms for global governance. This has resulted in a lack of regulations—whether it be on the Internet, in banking systems, or free trade zones. The same conditions that have led to unprecedented openness in trade, travel, and communications have created massive opportunities for criminals. As a result, organized crime has diversified, gone global, and reached macro-economic proportions. This is having an impact on security.<sup>34</sup>

Although fine art and nuclear materials may appear to reside on opposite ends of the national security threat spectrum, unique typological characteristics can be developed to draw similarities between the trafficking of both commodities. The typological characteristics of supply, government instability, profit motive, terrorist demand, and hoaxes and scams are characteristics associated with both the illicit trafficking of nuclear material and fine art.

The typology suggests illicit trafficking

is a multi-layered phenomenon and can be captured in a rather simple rubric. Illicit smuggling activities such as drug smuggling, human trafficking, precious metal smuggling, arms smuggling, and other illicit trafficking can apply the same typological characteristics used to compare nuclear and art smuggling. Accordingly, this typology can serve as a starting point to help understand illicit trafficking of all kinds, to include nuclear/radiological material trafficking. As such, the entire interagency—charged, as it is, with the responsibility of protecting the nation against varied and multifaceted threats—can only benefit from recognizing the commonalities that exist among those threats. **IAJ**

## NOTES

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The CGSC Foundation and the Arthur D. Simons Center for Interagency Cooperation would like to congratulate the graduating classes of 2017 from SAMS and CGSOC. As you celebrate your accomplishments, we want to thank you for dedication and sacrifice, both in furthering your education and career, and in making this nation a better, more secure place.

It is our hope that you can look back at your time at the U.S. Army Command and General Staff College with a smile. It is a pleasure to support the College, in no small part due to the students and their families. We wish you well in the future.



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