

# Closure of the Pakistan-Based A. Q. Khan Network Case: A Hasty Burial?

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## Abstract

*North Korea's and Iran's showdown with the US and the West on the nuclear proliferation issue are closely related to their dubious proliferation connections with the Pakistan-based A Q Khan network. Yet, Pakistan has announced that the case against Khan and his proliferation cohorts is closed. To comprehensively understand the non-proliferation challenges, it is crucial that the details about the network's operations as also about Khan's associates as well as their benefactors are publicly revealed. Islamabad's recent decision to bury Khan's linkages leaves under wraps the disturbing dimensions of the scope of complicity of Pakistan's state agencies in Khan-led illegal transfers. In addition, many questions remain unanswered about the involvement of non-state actors in the Khan network internationally, including those in Europe and elsewhere.*

Pakistan's Foreign Office spokesperson announced on May 2, 2006, that "as far as we are concerned this chapter (A Q Khan affair) is closed."<sup>1</sup> Given the prevailing uncertainty regarding the actual beneficiaries, and the extent of their involvement, the case seems to have been closed in what is perceived to be a determined effort not to let Khan's associates be exposed. This has pulled the curtains over the sleeping cells of international proliferators, both within Pakistan and outside, making the international community vulnerable to proliferation of sensitive weapon technology as well as nuclear terrorism.

The Pakistani Foreign office spokesperson also stated that "we have shared our information with the IAEA (International Atomic Energy Agency) and other countries, including the United States,"<sup>2</sup> However, neither the IAEA nor the US has made public the actual details that

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*Strategic Analysis*, Vol. 30, No. 2, Apr-Jun 2006

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Pakistan has shared with it on the Khan network. It still remains unclear as to who are the 'other countries' with whom Pakistan has shared information and why? Ironically, even the US has done little to stop or check the nuclear network, although its intelligence has been tracking Pakistan and Dr. A Q Khan's clandestine activities for more than two decades.<sup>3</sup>

In a background briefing to 20 journalists on February 1, 2004, a senior Pakistani official said that Khan had confessed to having covertly shared nuclear secrets with Iran, Libya and North Korea from 1989 to 2000.<sup>4</sup> Besides this, according to Lt. Gen. Khalid Kidwai, Director General of Pakistan's Strategic Planning Division, senior military commanders did not have any clue about Khan's nuclear dealings with North Korea until 2000.<sup>5</sup> If the administration of Pakistan's President General Pervez Musharraf is said to have been provided by US intelligence inputs in 2000 on Khan's unauthorised clandestine activities (western writers here refer to Khan's removal from KRL in March 2001), then he is equally answerable for the proliferation activities in subsequent years, most remarkably, the transfer of weapons design in 2001-2002 to Libya and enrichment-related transfers to North Korea known up to 2002. If it is true that Khan had made a trip to North Korea as late as in June 2002,<sup>6</sup> Pakistani government must have been aware of the purpose of his visit.

Pakistan's nuclear complexes, widely known to be heavily guarded by the army, remain under the watch of the Inter-Services Intelligence (ISI). Transportation of nuclear equipment or material is most likely steered by army, with concurrence of the ISI. Thus, it is inconceivable that Khan alone would have ensured nuclear related shipments to foreign destinations without the approval of other official establishments. Pakistan's former Prime Minister, Benazir Bhutto, says categorically: "I don't believe that Khan did this on his own."<sup>7</sup>

In this background, it is pertinent to examine the patterns of international nuclear transfers involving the Pakistan-based Khan network; the potential risks of proliferation and the risks of nuclear terrorism. It is also important to examine the Pakistan's military ruler Pervez Musharraf's claims that no state agencies have been involved in the Khan-led international proliferation network and that the risks of proliferation from Pakistan do not exist any more.

## **Beginning of the Proliferation Game: China-Pakistan Nuclear Trade**

The chain of proliferation connecting China with Pakistan has been for quite some time an international concern. It has led to the emergence of Islamabad as a risky source of proliferation. Both China and Pakistan maintained for years a blanket denial of being the sources of nuclear weapons related technologies, equipment and know-how for any other country. But Pakistan's stand received a severe jolt following Libya's decision in October 2003 to disclose the details about its clandestine nuclear weapons programme. Pakistan drew further international attention when news appeared about the IAEA's interest in its uranium enrichment facilities and its desire to examine Khan in connection with the traces of Pakistani links found in Iran's clandestine nuclear activities. Pakistan's image dipped to a new low when Khan publicly confessed on television on February 4, 2004 his participation in international nuclear proliferation.

It was in this light that Chinese officials urged President Musharraf to end the controversy, fearing that Khan may publicly detail his network's links with them as well.<sup>8</sup> The Chinese desire gelled with Musharraf's shielding of Khan, as both wanted to hush up the controversy to avoid exposure of the extent of Khan's proliferation activities. By the early 1980s, China had provided Pakistan with key nuclear technology, equipment and materials.<sup>9</sup> Various reports and studies suggest that despite China having joined the NPT in 1992, the missile and nuclear cooperation between the two countries continued uninterrupted.<sup>10</sup> In the process, Khan was able to establish front companies to initially facilitate the clandestine nuclear weapons programme of Pakistan and subsequently to utilise them to proliferate nuclear technology and equipment to other countries.<sup>11</sup> Lack of international efforts, particularly the weak US response to stop known clandestine networks boosted Pakistan's confidence.

## **Pakistan-Libya Links**

Pakistan's proliferation links are traced since long. In fact, as early as in 1980 it was reported that equipment from Canada destined for Pakistan was being routed through Dubai involving the Jassim General Trading Company.<sup>12</sup> The centre of the Khan network was Dubai, a city whose role as the network's main trans-shipment centre began in the late 1970s at a time when Khan was trying to get Pakistan's own nuclear programme off the ground.<sup>13</sup> The significance of Dubai became public when a freighter

owned by a German company, *BBC China*, starting from Dubai and destined for Libya with five containers of components for uranium centrifuges was seized on October 4, 2003, in Italian Taranto port. The components were packed in wooden boxes and bore the logo of Scomi Precision Engineering (SCOPE). The parts, manufactured in Malaysia, had been shipped through Dubai.

Libya began receiving centrifuge transfers from the Khan network in 1997, when it acquired 20 assembled P-1 centrifuges and components for 200 additional units for a pilot centrifuge facility.<sup>14</sup> Again in September 2000, Libya received two P-2 centrifuges as demonstrator models and placed an order for components for 10,000 more to build a cascade.<sup>15</sup> The P-1 and P-2 types of centrifuges are Pakistani versions of URENCO uranium enrichment centrifuge designs of Almelo. These two URENCO blueprints were copied by A Q Khan from Almelo for Pakistan's nuclear weapon programme—one based on rotors made of aluminium and the other based on maraging steel.<sup>16</sup>

On December 19, 2003, Libya issued a statement saying, "the Libyan experts showed their (US and UK) counterparts the substances, equipment and programmes that could lead to production of internationally banned weapons."<sup>17</sup> According to the IAEA, on December 29, 2003, Libya provided IAEA with a brief time line summarising more than 20 years of undeclared nuclear activities, including information on how a uranium conversion plant, different types of gas centrifuges and their supporting equipment, tools for producing centrifuge components and some quantities of uranium hexafluoride were acquired from foreign sources.<sup>18</sup>

Libya also acknowledged that at the end of 2001 or early 2002, it had received documents related to nuclear weapon design and fabrication from a foreign source. Apart from the involvement of 'foreign intermediaries', including European companies, Libya admitted to having attempted to seek support for its enrichment programme from 'a nuclear-weapon state and a Far Eastern country'.<sup>19</sup> Libya has declared to the IAEA that most of the components for 200 L-1 centrifuges, except for aluminium rotors and magnets, and two L-2 test centrifuges, together with small UF<sub>6</sub> cylinders, were imported in 1997 and September 2000, respectively, from 'the supplier state'. IAEA's discussions with 'the supplier state' have confirmed this information.<sup>20</sup>

It has been brought out by independent analysts and western think-tanks that Pakistan has been Libya's most significant source of sensitive technologies for weapons as compared to other 'foreign sources'. The decision to close the case against A Q Khan and Mohammed Farooq (Director General of Khan Research Laboratory, in charge of overseas procurement), and to deny access to outsiders to question the two scientists casts further doubt on Pakistan's intentions.

Suspicious that Libya's nuclear technology and designs came from Pakistan were confirmed in January 2004 when Libya provided proof that it had received assistance from Pakistani scientists, including A Q Khan and Mohammed Farooq.<sup>21</sup> Not only was Pakistani uranium shipped to Libya,<sup>22</sup> the Chinese weapons design was also possibly retransferred to it from Pakistan. Documents found in Libya included Chinese texts, containing detailed instructions for assembling a nuclear weapon.<sup>23</sup> Libyan officials have been quoted as saying that the weapon blueprints along with the technology and equipment to enrich uranium had been bought from the Khan network for more than \$50 million.<sup>24</sup> Notably, Colonel Muammar Gaddafi's son, Saif al-Islam Gaddafi, acknowledged that Libya had spent at least \$40million to buy plans from Pakistani scientists to make a nuclear bomb.<sup>25</sup>

Despite all revelations, Musharraf still denies Pakistan's involvement in the nuclear transfers organised by Khan. Even if one agrees with what Musharraf has to say about Khan: "Dr. A Q Khan's part is only enriching the uranium to weapons grade. He does not know about making the bomb, he does not know about the trigger mechanism, he does not know about the delivery system,"<sup>26</sup> it is unclear as how the weapons design and fabrication details reached Libya from Pakistan. It is equally inconceivable that Khan had no knowledge of Pakistan's delivery systems (Nodong or Shaheen) that were imported from North Korea by the Khan Research Laboratory (KRL). After all, Khan was the nerve centre of 'Pakistan's global technology theft network.'<sup>27</sup>

### **Pakistan-Iran Proliferation Links**

The IAEA Director-General in his February 2004 report on Iran clearly stated that "...the timelines of conversion and centrifuge programmes of Iran and Libya are different, they share several common elements. The basic technology is very similar and was largely obtained from foreign

sources.”<sup>28</sup> The clandestine imports for centrifuge programmes of these two countries are mostly related to Pakistani types of P-1 and P-2 centrifuge components and technology.

Imports and associated activities in the uranium enrichment programme involving P-1 and P-2 centrifuges at different locations in Iran have remained issues of major contention between the IAEA and Iran. Pakistan remains the most crucial facilitator to Iranian uranium enrichment endeavours.<sup>29</sup> The Nuclear Suppliers Group (NSG) report of May 2003 specifically mentioned that “there are convincing indications about the origin of the technology – it is of Pakistani type.”<sup>30</sup> Iran’s uranium enrichment efforts apparently received crucial support from Pakistani sources.

IAEA’s November 29, 2004, report<sup>31</sup> provides a detailed picture of Iranian nuclear related activities. Iran acquired P-1 centrifuge drawings in 1987 through a clandestine supply network and gas centrifuge R&D testing began at the Teheran Nuclear Research Centre (TNRC) continued till 1995. The activities were moved to a workshop at Kalaye Electric Company under Atomic Energy Organisation (AEOI) of Iran. Between 1994 and 1996, Iran received another duplicate set of drawings for the P-1 centrifuge design, along with components for 500 centrifuges. Iran assembled and tested P-1 centrifuges between 1997 and 2002 at the Kalaye Electric Company workshop. According to the IAEA’s November 2004 report, Iran says it fed uranium hexafluoride (UF<sub>6</sub>) gas into a centrifuge for the first time in 1999 and in 2002, it fed nuclear material into a number of centrifuges (up to 19 machines). Iran also stated that P-2 centrifuge drawing had been received around 1995 but no actual work on the design had commenced until early 2002.

Despite the fact that Iran has informed the IAEA that 13 official meetings took place with the clandestine supply network between 1994 and 1999,<sup>32</sup> Teheran denied having received any P-1 or P-2 related shipments after 1995. There are news reports available saying that Iran may have received three sophisticated P-2 centrifuges in 1997.<sup>33</sup>

Khan is reported to have managed through Brig Muhammad Iqbal Tajwar<sup>34</sup>, then head of security at the KRL, and B S A Tahir, to ship components and even the entire centrifuge units for Iran directly from Pakistan during 1994-1995.<sup>35</sup> Tahir has disclosed that Iran also received three Pakistani-made P-2 centrifuge samples in the 1990s,<sup>36</sup> possibly in

1997 as reported by the western media. Pakistani analysts believe that if centrifuge hardware is moved out of the country, it apparently proves the direct involvement of the Pakistani army.<sup>37</sup> Yet, the reaction of the US to Khan's revelations, "President Musharraf has assured us that Pakistan was not involved in any kind of proliferation – I'm talking about the government of Pakistan,"<sup>38</sup> seemed to gloss over these reports.

Among the heaps of documents provided by Iran to the IAEA officials, the most controversial is the 15-page document in Iran's possession, received from Khan network. This document, which was handed over by Iran to IAEA in January 2006, describes "the procedures for the reduction of UF<sub>6</sub> to metal in small quantities, and the casting of enriched and depleted uranium metal into hemispheres, related to the fabrication of nuclear weapon components."<sup>39</sup> Iran says it has not used the information mentioned in the document for weapon works. However, this adds to the doubts of critics of Iran's nuclear programme.

Earlier on January 12, 2005, Iran provided IAEA officials with a handwritten one-page document reflecting an offer said to have been made to Iran in 1987 by a foreign intermediary, including the delivery of a sample machine (disassembled), with drawings, descriptions and specifications for production; the drawings, specifications and calculations for a complete plant, and materials for 2,000 centrifuge machines.<sup>40</sup> Iran also provided IAEA with the copies of the documents of four shipments between 1994 and 1995.<sup>41</sup>

The offers followed a meeting in 1987 between three Iranian officials with Khan's associates in Dubai to finalise a five-point phased plan of supply to Iran, including drawings, starter kit, components and centrifuges, auxiliary items, and conversion facility.<sup>42</sup> Besides his colleagues in government establishments, Khan himself is also said to have made secret trips to Iran.<sup>43</sup> He is reported to have visited various locations like Tehran, Isfahan, Bushehr and Karaj several times through late 1980s to September 27-30, 1999, including trips to Tehran in January and May 1995. It is said, about 30 Pakistani nuclear experts were working on Iranian enrichment project by April 2000.<sup>44</sup> These experts faced some problems in 2001 and sought assistance from the Shanghai Nuclear Engineering and Research Institute, China, and they were also subsequently replaced by 18 Pakistan nuclear scientists/engineers who reached Tehran on February 26, 2003.<sup>45</sup>

US State Department and Iranian officials also acknowledge that China supplied Iran with one tonne of UF<sub>6</sub> (uranium hexafluoride), 400 kg of UF<sub>4</sub> (uranium tetrafluoride), and 400 kg of UO<sub>2</sub> (uranium dioxide) in 1991.<sup>46</sup> Apart from the fact that China has helped build the Iranian inventory of delivery systems since mid-1980s,<sup>47</sup> Iran is also said to have attempted to buy two 300 MW power reactors from the China National Nuclear Corporation (CNNC) by signing an agreement in 1992.<sup>48</sup> It is also repeatedly mentioned by Western analysts that China provided Iran with the blueprints and equipment for the uranium conversion facility at Isfahan.

The US National Security Agency is also reported to have discovered that China was negotiating the secret sale of millions of dollars worth of material used to process weapons grade uranium (anhydrous hydrogen fluoride - AHF) to the Isfahan Nuclear Research Centre in Iran in 1998.<sup>49</sup> Though the deal did not materialise, they raise doubts about China's motives in negotiating nuclear related transfers with Iran, which were not possible under the NPT framework? If it was possible for both to do so, despite the fact that they were NPT signatories, it is not clear as to why Iran was denied help. The motives of both Iran and China behind these efforts are suspect.

Given these facts, it is obvious that Pakistan and China have brazenly contributed to proliferating nuclear material and technology in defiance of international concern. The available information on nuclear transfers negates the 'rogue scientists' theory officially held by the US and the IAEA. It is now difficult to believe that Khan's dealings with China (in case China received URENCO designs) or the outside world would have been enacted without the approval of the custodians of Pakistan's nuclear programme. Despite considerable information on Pakistani links to Iran, the IAEA Director-General surprisingly refrained for a long from naming Pakistan as the source of international proliferation.<sup>50</sup> Pakistan vehemently denies the possible complicity of state agencies in illicit transfers. Musharraf has shifted the entire responsibility on to Khan. Likewise, Pakistan rejects allegations of its army of having any role in bartering nuclear technology for missiles with North Korea. At the same time, Musharraf also claims that Khan's expertise is limited to centrifuges and he has no knowledge of design, delivery systems, etc. It is difficult to reconcile these two assertions of President Musharraf.

### **North Korea-Pakistan Linkages**

It has been maintained by US intelligence that by the end of the 1980s,

North Korea had diverted enough spent fuel to make one or two weapons with Chinese support.<sup>51</sup> During his visit to Pyongyang on October 4, 2002, the US Assistant Secretary of State for East Asia accused North Korea of secretly developing a programme to enrich uranium to weapons grade in violation of the '1994 Framework Agreement'.<sup>52</sup> Subsequently, the US and its allies also suspended supply of oil shipments to North Korea. In reaction, North Korea expelled IAEA inspectors and resumed reprocessing plutonium. Not only did it withdraw from the NPT but on February 10, 2005, it also declared that the North Koreans had manufactured nuclear weapons.

The extent of North Korean enrichment programme and its link with Pakistan remains a mystery for many.<sup>53</sup> Pakistan has played a substantial role in the progress of North Korea's nuclear programme,<sup>54</sup> so much so that Khan reportedly told his interrogators that during a trip to North Korea he was taken to a secret underground nuclear plant and shown three nuclear devices.<sup>55</sup>

In fact, the exchange of nuclear technology for North Korean missiles can be traced back to 1993, when the then Prime Minister Benazir Bhutto travelled to North Korea, a visit that was followed by Khan's visit. The relationship that was established thereafter continued for several years in facilitating North Korea with centrifuge design, equipment, materials and possibly weapons design too. Khan is widely believed to have made more than a dozen visits to North Korea.<sup>56</sup> Even after Khan himself admitted to having interacted with North Korea, the initial official response from Pakistan on the allegation of transfer of nuclear technology was that "no sensitive information or technology was shared with North Korea by any government of Pakistan, past or present."<sup>57</sup>

In an interview with a Japanese daily on August 24, 2005, Musharraf partially admitted that Khan had provided uranium enrichment centrifuge designs and machines to North Korea, but added that he was not sure of nuclear material transfer.<sup>58</sup> On the issue of technology swap, he said, "we got some artillery pieces from North Korea, once upon a time, many years ago ...We paid for each and every item that we got from North Korea. There was no exchange of knowledge or equipment. That is absolutely wrong."<sup>59</sup> It is not known as to what made Musharraf repeat what Khan had confessed a year ago about assisting the North Korean nuclear programme. If it was a partial admission (or concealment?) of Pakistan

being the source of proliferation, Khan's interrogation confirms the role of Pakistan's army in the process.

Not surprisingly, other attempts have been made to deny Pakistan's involvement in North Korea's nuclear programme. A glaring example was the statement made by Musharraf in February 2003 on the sidelines of the NAM Summit in Kuala Lumpur. Musharraf said: "We work on solid fuel and they operate on liquid fuel, we do not need to exchange anything with them," and "We have designs far superior to North Korea."<sup>60</sup> However, Benazir Bhutto had herself admitted to having gone to North Korea in 1993 to bring blueprints of North Korean missiles.<sup>61</sup>

On the issue of nuclear technology transfers, however, Bhutto tried to shift the responsibility on others by saying that "it is quite possible that in 1998, when we were facing a financial crunch because of our nuclear tests, this (exchange of nuclear technology for missiles) might have happened, but not by us."<sup>62</sup> In fact, Pakistani economy was passing through a very rough phase in 1990s because of the lack of assistance, similar to what they had got from the US during the Afghan war. Bhutto's admission not only shows how Pakistan got into 'the bartering' relationship with Korea, it is also suggestive of 'determined' proliferation.

According to a report<sup>63</sup> by *The Washington Post* on February 3, 2004, Khan revealed that the Pakistan Army was privy to his acts of proliferation. During investigations, Khan reportedly disclosed that in addition to Musharraf, two other army chiefs, Abdul Waheed and his successor, Jehangir Karamat, knew and approved of his nuclear dealings with North Korea. The report also explained that Benazir Bhutto, had travelled to North Korea at the request of General Abdul Waheed. Musharraf, who was then in charge of military operations under Waheed. General Karamat had also secretly visited North Korea in December 1997.

North Korea had placed orders for P-1 centrifuge components from 1997 to 1999, and Khan and his associates provided direct technical assistance to that country from 1998 to 2000.<sup>64</sup> It is also speculated that North Korean scientists began to enrich uranium sometime in 2001.<sup>65</sup> The *Los Angeles Times* report quoted one of the Pakistani officials involved in the Khan's investigations as saying that Khan had transferred P-1 and P-2 machines to North Korea along with drawings, sketches, technical data and uranium hexafluoride gas—the feedstock for gas centrifuges.<sup>66</sup> It is

also widely reported that many of the shipments to North Korea were flown directly from Pakistan using chartered and Pakistan Air Force planes.<sup>67</sup>

The strong circumstantial evidence casts serious doubts on the veracity of President Musharraf's assertion after he pardoned A.Q Khan as "no government or military official has been found involved in the activity of proliferation."<sup>68</sup>

There are indications now that North Korea is already on the path of trading missile and nuclear technologies, and is stepping fast into the shoes of its benefactors, i.e., China and Pakistan. It needs to be mentioned in this context that one of the variants of the Iranian Shahab missiles is believed to be a variant of the North Korean Nodong missiles.<sup>69</sup> Apart from Pakistan and Iran, other known beneficiaries of North Korean missile supplies are Libya, Syria and Yemen. It is said that the North Koreans had set up a company, New World Trading Slovakia, in 2002 in Bratislava to buy materials for their own nuclear programme and to sell missile technology to countries such as Egypt, Libya, Syria, Iran and Vietnam. The Slovakian police raided the company which, was run by two North Koreans.<sup>70</sup>

The US National Security Council representative, Michael Green, during his February 1-2, 2005, Beijing visit presented top Chinese officials, including President Hu Jintao, with intelligence evidence showing that North Korea had produced several tonnes of a uranium compound that had landed in Libya.<sup>71</sup>

The disclosures from North Korea stand to prove that the proliferation chain has completed the full circle, China to Pakistan to North Korea to Libya. Though Libya has voluntarily accepted abandoning and dismantling of nuclear weapons facilities, Pakistan, North Korea and China still remain potential sources of proliferation.

Pakistan remains the weakest in the chain of proliferation because the country is riddled with unstable politics, connections of military and intelligence personnel with terrorist networks and religious fanatics. However, the state centric proliferation that has come to light in the wake of the Khan episode requires further examination on the role of non-state actors, especially from Europe.

## **Role of Non-State Actors and the European Intermediaries**

It emerged after the seizure of *BBC China* freighter how centrifuge transfers to Libya were coordinated by B S A Tahir, who through Dubai's Gulf Technical Industries (GTI) roped in the Scomi Group (Scomi) to produce centrifuge components in a Malaysian factory - Scomi Precision Engineering (SCOPE). The subsequent disclosures related to Libya's clandestine programme establish how dangerously the technology for weapons of mass destruction was put on sale from Pakistan. According to the investigation report of the Inspector General of Malaysian Royal Police, Tahir came in contact with the Khan Research Laboratory (KRL) of Pakistan in 1985 where he not only got acquainted with Khan and other scientists but he also got to know middlemen from other countries, including Europe, who were involved in supplying uranium centrifuge components to Pakistan.<sup>72</sup>

Aside from how European governments overlooked 'the legal niceties and export control regulation'<sup>73</sup> in facilitating Pakistan's nuclear programme, investigations reveal that European firms were already involved in clandestine transfers even before they joined hands with the Khan-Tahir set-up. Retailing of nuclear materials by the Khan-Tahir duo along with European intermediaries, started in the 1980s and subsequently turned into a global 'nuclear smuggling ring.'<sup>74</sup> This network tempted the NPT countries to breach their international obligations. The network involved entities in a large number of countries, including the US, Germany, Britain, Canada, Spain, Italy, Switzerland, Turkey, Japan and South Africa. The IAEA Director General has been quoted as admitting that Khan had commercial contacts with at least 20 countries and with large companies.<sup>75</sup>

Khan's admission and Tahir's interrogation provides a picture of what technical experts and strategic analysts describe as a nuclear grey *bazaar*, spreading from Africa, through the US and Europe to Asia. This *bazaar* is swarming with middlemen and money launderers, ranging from government agents to organised-crime syndicates, scientists to entrepreneurs to manufacturers, and terrorists.<sup>76</sup> Despite the fact that the business of non-state actors thrives on state centric proliferation, the most disturbing aspect of their wide network is related to the potential threats of nuclear terror.

In collusion with the existing non-state nuclear trade suppliers, terrorist groups can get access to methods of mass destruction. According to one

study, there are four kinds of potential nuclear terror: “the theft and detonation of an intact nuclear weapon; the theft or purchase of fissile material leading to the fabrication and detonation of a crude nuclear weapon (an improvised nuclear device); attacks against and sabotage of nuclear facilities resulting in radioactive emissions; and the acquisition of radioactive materials for the fabrication and detonation of a radiological dispersion device (dirty bomb).”<sup>77</sup>

Russia and Pakistan are considered particularly vulnerable to the possibility of terrorists having easy access to their nuclear facilities.<sup>78</sup> However, there is only one confirmed case to date of attempted nuclear terrorism. That was on November 23, 1995, in Moscow when a Chechen rebel group placed a crude bomb containing 70 pounds of a mixture of cesium-137 and dynamite in a park.<sup>79</sup>

#### **Continuity of Proliferation Links during Musharraf’s Regime:**

One would do well to recall what Musharraf had said during the local print media conference just after pardoning Khan: “only three persons, the President, the army chief and Dr Khan—were privy to the affairs relating to the nuclear programme between 1988 and 1999. Before that, only Dr Khan and President Gen Zia-ul Haq knew what was happening at the KRL. Later, the then finance minister Ghulam Ishaq Khan was brought on board to look after the finances of the programme.... as the director-general, military operations, had no idea what was happening at the KRL.”<sup>80</sup> But there are numerous bits of information to suggest that the outside links of Pakistan’s missile and nuclear programme continued even after Musharraf assumed power in 1999.

Though there is no information available on whether nuclear related supplies from Pakistan to North Korea are still continuing, it is suspected that supplies to North Korea continued till 2002.<sup>81</sup> However, missile imports during Musharraf’s regime are widely known. The US spy satellite in July 2002 spotted a Pakistani Air force plane C-130 at Pyongyang airport in North Korea carrying missiles for Pakistan. The transfer of missiles from North Korea to Pakistan is reported to have continued till as late as March 2003. Japan’s *Sankei Shimbun* of April 2, 2003, was quoted in the Pakistani media as saying that US satellites and spy networks in March that year had detected North Korean exports of some 10 Scud B missiles to Pakistan.<sup>82</sup>

Such reports raise serious doubts regarding Musharraf's promises on non-proliferation.

Pakistan's nuclear imports for weapons programme are also reported to have continued during Musharraf's regime. Chinese support to Pakistan not only raises questions about the proliferation record of China as an NPT member, but also points to the violation of the pledge given by China to the US in May 1996 not to provide assistance to unsafeguarded nuclear facilities in any country. According to a report update by the US-based *Wisconsin Project*, China's Seventh Research and Design Institute, under the China National Nuclear Corporation (CNNC), had supplied 50 ceramic capacitors to New Labs in February 2001.<sup>83</sup> New Labs facility in Rawalpindi works on separating plutonium from spent fuel discharged from the unsafeguarded Khushab reactor.

Besides the Chinese assistance, Pakistan's connection with the clandestine nuclear trade market has been indispensable for sustaining its nuclear weapons programme. Like its enrichment route to weapons production that was created entirely from imports, Pakistan's plutonium production programme has also relied on imports from European sources.

As late in March 2000, *Nucleonics Week*<sup>84</sup> reported that an Arab businessman, who owned oil and gas fields in the Middle East, had ordered equipment for Khushab for an off-gas purification plant. The equipment was then loaded onto a ship chartered by the Pakistan Navy in Holland and shipped to Karachi. From Karachi, the items were then transported overland to Khushab. The Pakistan Atomic Energy Commission's (PAEC) chief procurement officer in Europe from 1973 to the mid-1990s, S.A. Butt, has been quoted in the report as saying that Pakistan obtained most of the equipment for the plant from European companies.

Apart from what Pakistan aspires to import, its uranium enrichment mainstay, KRL, has also been widely advertising the international sale of equipment during Musharraf's regime, both at official and clandestine levels. In a full-page newspaper advertisement in July 2000, the Pakistani Commerce Ministry had published an application form for the export of 11 radioactive substances, including depleted uranium, enriched uranium, plutonium and tritium, and 17 types of equipment, including nuclear power reactors, nuclear research reactors and reactor control systems.<sup>85</sup> It was at an international defence exhibition in November 2000 that KRL

publicly gave out glossy brochures promising technology for producing a nuclear bomb.<sup>86</sup> Even as late as 2003, a nuclear sale pamphlet from KRL was found doing the rounds outside Pakistan offering both technology and equipment assistance for the gas centrifuge programme.<sup>87</sup>

## Conclusion

The global proliferation network organised by Dr. A.Q. Khan apparently prospered under state-supported clandestine deals. The direct shipments of centrifuge enrichment designs, technology and equipment or materials from Pakistan in the pre-2000 period to Iran, Libya and North Korea; the numerous visits that Khan made to these countries; Khan's own disclosures; and mode of transportation used prove the complicity of Pakistan government agencies (army and intelligence) in the entire Khan episode. To close the case against Khan precludes possible trials against his collaborators in acts of proliferation.

Pakistani links to the international proliferation worked simultaneously to facilitate its own nuclear programme and to arrange supplies of Pakistani centrifuge technology, equipment and materials for other countries. The pattern of global links of Pakistan based Khan network provide a broader picture of international grey market, not only involving Khan and his associates and government agencies within the country but also the participation of European intermediaries. The complete details of the network in which Khan played a significant role are still unknown because of Pakistan's refusal to allow outside agencies to interrogate Khan and his proliferation cohorts.

Most literature pointing towards Khan's key role in the nuclear black *bazaar* suggests that Pakistan still remains a dangerous source of proliferation and therefore to the associated risks of nuclear terrorism as well. This assumption is largely based on the 'rogue scientist'<sup>88</sup> theory. Even those rogue scientists have been set free by Pakistan government's arbitrary decision to close the case against them. According to one research report, "the risks of nuclear proliferation in Pakistan may be more significantly linked to the acquired nuclear expertise combined with pro-radical political attitudes, than with the actual risk of leakage of fissile material or of nuclear weapons (at least at the present quantitative level of material and weapons)."<sup>89</sup> The other view is that the most troubling aspect of Pakistan's proliferation linkages is the possibility of nuclear weapons,

technology or material falling into the hands of terrorist organisations like Al Qaida.<sup>90</sup>

Pakistan continues to be crippled with religious fanaticism. The terrorist links of Pakistani military and intelligence too cannot be denied. However, it is evident from the statements of key government functionaries, particularly of Musharraf himself, that Pakistan army (incidentally whose chief is the President of the country as well) still remains the super custodian of nuclear weapons and facilities of the country. The possibility or the threat of nuclear terror, emanating from Pakistan is more likely to be through foreign network of intermediaries, who have global access to parts and components for dual use items.

From the available patterns of proliferation, it seems that North Korea is fast emerging as an alternate source of proliferation, other than China and Pakistan. North Korea has already started proliferating missiles. If it is confirmed by the IAEA that Libya received nuclear material from North Korea, then the latter's interest in sharing nuclear technology with others can be safely assumed.

Even in the case of Iran, the missing links in Iran's declarations on procurements from the 'network' could have been better understood if Khan and his associates had explained the extent Pakistan based Khan network's support to Tehran. Unfortunately, the case has been closed before a trial. With the closure of the case, the full facts and circumstances may never come to light.

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