



**James Martin Center for Nonproliferation Studies**  
Monterey Institute of International Studies  
*An Affiliate of Middlebury College*

## **The Potential Role and Functions of the African Commission on Nuclear Energy: Assessing the Benefits for Africa**

*By Jean du Preez,  
James Martin Center for Nonproliferation Studies*

### **Introduction**

The Pelindaba Treaty holds significant advantages for peaceful regional nuclear cooperation with potential commercial benefits. As such the Treaty requires its state parties to promote “individually and collectively” the use of nuclear science and technology for economic and social development. Given a renewed global interest in nuclear energy as an alternative and sustainable energy source, in addition to proven advantages of other peaceful applications of nuclear science (such as health care, nutrition and crop production; and insect and pest control) the peaceful uses aspect of the Treaty should be one of the most attractive incentives to move the Treaty into force.

After entry-into-force, the Pelindaba parties will meet to agree to establish an African Commission on Nuclear Energy (AFCONE) in order (i) to ensure compliance with their Treaty undertakings; and (ii) to promote regional and sub-regional cooperation in the peaceful uses of nuclear science and technology.

The Commission could work in very similar ways as other regional and sub regional organizations tasked to verify regional compliance with safeguards on the one hand, while promoting the peaceful application of nuclear energy and use of material and technologies on the other. For instance, the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) has among its tasks verification of comprehensive safeguards agreements (CSAs) in both countries in a Quadripartite Agreement with the IAEA. This means mutual inspections alongside IAEA inspectors. As such the Agreement and the Agency established provides additional confidence in the two nations’ application of nuclear energy and material for peaceful purposes.

This paper discusses the potential of AFCONE as a regional partner of the IAEA as part of the network of International Nuclear Fuel Centers (INFC).

### **Striking a balance between the “Achilles Heel” and the “inalienable right to nuclear energy for peaceful purposes.**

Article IV of the Nuclear Nonproliferation Treaty (NPT) recognizes the “inalienable right” of all parties to that treaty to use nuclear energy for peaceful purposes provided they are members in good standing. The same article requires all NPT parties to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. State parties in a position to do so should also co-operate in contributing alone or together with

other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States (NNWS), with due consideration for the needs of the developing areas of the world. Many developing countries, including African states parties, have over the years expressed concern that Article IV has been eroded, and that the last part, in particular, is being ignored.

The Pelindaba Treaty builds on the NPT, but provides for pronounced peaceful nuclear cooperation since it requires its state parties to promote “individually and collectively” the use of nuclear science and technology for economic and social development. To this end the parties undertake to establish and strengthen mechanisms for cooperation at the bilateral, sub regional and regional levels.

When considering accounts of the early negotiating history of the NPT, it is clear that Article IV was not intended to restrict the right to the peaceful use of the atom beyond those activities prohibited under the treaty. Notably, however, the original drafters did not envisage that every state should be entitled to develop the full nuclear fuel cycle, given the near nuclear-weapons-ready status associated with uranium-enrichment and plutonium reprocessing capabilities.

In recent years, a small number of NNWS—North Korea, Iraq, and Libya—have abused their rights to use the atom for peaceful purposes as cover to do research on or actually develop nuclear weapons capabilities. Likewise, ongoing concerns over Iran’s nuclear intentions yet again highlight the potential risks of allowing states to develop an entire nuclear fuel cycle legitimately without having a sufficient mechanism to gauge their nuclear intentions objectively.

The IAEA Director General, Dr. Mohammed ElBaradei, in 2003, referred to the proliferation of the technologies involved in the most sensitive parts of the nuclear fuel cycle –uranium enrichment and spent fuel reprocessing- as the “Achilles Heel” of the non-proliferation regime. This analogy is based on the argument that a country with a fully developed nuclear fuel cycle could decide to withdraw from the NPT and potentially manufacture a nuclear explosive device.

A multilateral approach to the nuclear fuel cycle, as opposed to national approaches, in general has the potential to facilitate the continued and expected increase of use of nuclear energy for peaceful purposes with shared benefits to participating states. Such approach holds the promise of providing benefits of cost-effectiveness and economies of scale in the use of nuclear technologies for countries, especially those from the developing world. A multilateral approach would also provide additional assurance to the international community that the sensitive parts of the civilian nuclear fuel cycle are less vulnerable to misuse for non-peaceful purposes. This means that nonproliferation and economic considerations can co-exist, and be mutually reinforcing, while providing security of fuel supply to states that choose to participate in such a system.<sup>1</sup>

Following a comprehensive study conducted in 2004 by an international Expert Group on Multilateral Approaches to the Nuclear Fuel Cycle a number of proposals have been

---

<sup>1</sup> See “Possible New Framework for the Utilization of Nuclear Energy: Option for Assurance of Supply of Nuclear Fuel,” IAEA GOV/INF/2007/11, 13 June 2007

made regarding assurances of nuclear fuel supply and regarding the establishments of international fuel cycle centers.

In September 2006, the IAEA organized a Conference, “*New Framework for the Utilization of Nuclear Energy: Assurances of Supply and Non-Proliferation*”, to discuss possible mechanisms with which states without sensitive nuclear facilities would be assured that their nuclear fuel demand would be met. At the conference several proposals were made with the aim to serve as incentives to countries not to develop indigenous sensitive nuclear facilities. It was argued that sufficient supply exists to provide enrichment services for nations that require it and that the proliferation of such facilities could lead to diversion of nuclear material for nuclear weapons programs.

Some of the proposals made prior, during and following this conference include:

- Russia committed to establish an International Uranium Enrichment Center (IUEC) on the site of the Angarsk Electrolysis Chemical Complex (AECC). This center would allow participation of other interested members, and would provide participating organizations with guaranteed access to enrichment capabilities.
- The United States proposed a Global Nuclear Energy Partnership (GNEP) in terms of which a “fuel services programme” will enable nations to acquire nuclear energy economically while limiting proliferation risks. Under GNEP, a consortium of nations with advanced nuclear technologies would ensure that countries who agree to forgo their own investment in enrichment and reprocessing technologies will have reliable access to nuclear fuel.
- The major suppliers of enrichment services (France, Germany, the Netherlands, the Russian Federation, the United Kingdom and the United States) offered to establish a mechanism under which they would substitute for each other in case there is a disruption in supply of enrichment services to a customer country. To be eligible, the customer country should have decided not to develop sensitive nuclear capabilities. In addition to this mechanism, the suppliers announced they could also keep virtual or physical stockpiles of LEU to be used in case the previous mechanism fails.
- The Nuclear Threat Initiative (NTI) offered 50 million dollars to the IAEA to start up a LEU stockpile. Under this proposal the IAEA would own and manage the stockpile and the material could be made available to countries in case their supply is disrupted. There are two conditions attached to the NTI proposal: (i) The IAEA should take the necessary steps to establish such stockpile within two years of the offer (i.e. until September 2008), and (ii) Other countries should offer additional \$100 million in funding or the equivalent of LEU. The Norwegian Government recently pledged \$5 million for this purpose.
- Germany proposed the construction and operation, by a commercial company, of a uranium enrichment facility in a territory administered by the IAEA. This facility would work on a commercial basis and provide enrichment services to interested countries.
- Austria proposed a nuclear fuel bank to ensure, monitor and secure fair distribution of nuclear fuel. It was also proposed that eventually all existing civilian enrichment and reprocessing facilities will operate exclusively through such a fuel bank.

After the 2006 conference, the IAEA Director General submitted a report to the June 2007 Board of Governors<sup>2</sup>, which contained possible options for assurances of supply of nuclear fuel. In addition to listing all proposals presented during and following the 2006 conference, the report includes a proposal regarding the creation of new International Nuclear Fuel Centers (INFC). According to the report such centers could be established to promote access to nuclear energy & to strengthen nonproliferation, and could focus on provision of enrichment services and assured supply of low enriched uranium (LEU).

There is already strong interest from many states to host such enrichment centers or even fuel banks. In fact the report specifically mentions the potential use of a Russian national facility at Angarsk offered by the Russian government as such a facility with the IAEA's role being focused on decisions regarding the release of nuclear material. Another option would be for the establishment of IAEA centers where the Agency will be responsible for construction, operation, and monitoring of an enrichment plant.

While this issue is not likely to be resolved soon given the political and practical implications involved, it is already clear that significant financial and technological advantages would be attached to the country or region that host such centers. As in the case with many other such initiatives, it is again the industrialized nations that are likely to benefit from such arrangements, even at the expense of less development countries of the south.

#### **Promoting AFCONE as a regional nuclear fuel center**

At a time when most, if not all, African countries are concerned that current initiatives to strengthen general nonproliferation obligations are designed to further limit their rights to peaceful nuclear uses, the role and function of AFCONE should be emphasized and further explored. Notwithstanding legitimate political concerns over attempts to shut the door on developing countries' ability to develop independent nuclear fuel supply sources, the potential role of AFCONE as part of a network of international nuclear fuel centers under the aegis of the IAEA should be explored.

Already initiatives are afoot in Europe and in Russia to expand enrichment capacities, at nuclear facilities such as URENCO, AREVA and Angarsk, so as to enable these facilities to become major suppliers of enrichment services (as opposed to national facilities) with obvious lucrative benefits for the hosting countries. In this context, major African uranium exporting countries such as Namibia, Niger and South Africa will have to weigh economic and political considerations involved with a system in terms of which they would export strategic natural resources to industrialized nations, just to buy it back as nuclear fuel. As such African nations would potentially be subjected again to northern control of not only their strategic natural resources, but also their future livelihood – energy.

African states should consider linking any agreement on a future multilateral approach to fuel cycle control to the establishment of an African fuel center under the aegis of AFCONE, but in partnership with the IAEA as part of a network of International Nuclear Fuel Centers (INFC). Given the interest among several African states to enrich uranium,

---

<sup>2</sup> IAEA GOV/INF/2007/11, 13 June 2007

AFCONE could not only work in conjunction with the IAEA, but also serve other regions as part of the INFC network. In this regard an INFC in Africa (under the aegis of AFCONE) could:

- i. Serve as a new and trustful supplier of enrichment services to African countries interested in nuclear energy;
- ii. Serve interested parties in other regions and, therefore, diminishing the need for the development of domestic enrichment capabilities. Here OPANAL could cooperate with regional organizations such as OPANAL and ASEAN;
- iii. Support an assurances of supply mechanism established under the IAEA.

AFCONE could facilitate, and perhaps over time even offer, more economically viable options to African states. Instead of establishing very expensive and potentially dangerous national nuclear fuel enrichment facilities, nuclear fuel could be acquired through AFCONE without political intervention. AFCONE could also work with more nuclear advanced states such as South Africa to provide much needed training to African nuclear scientists and engineers.

### **Conclusion**

In conclusion, while the establishment of AFCONE might be seen by some as another costly organization without a clear mandate, linking it to the IAEA's approach to establish a network of intentional fuel centers will hold significant political, technical and financial benefits for Africa. Such a regional approach to ensure enrichment services to African countries interested in nuclear energy would benefit the future social and economic development of the continent. The existence of AFCONE will also provide confidence that African countries' interest in nuclear energy will be for peaceful purposes only.

The establishment of an INFC under the aegis of AFCONE, and in partnership with the IAEA, will also benefit the non-proliferation regime by establishing a new source of enrichment services and, therefore, providing incentives to other countries not to develop national enrichment capacities.