

**REGIONAL TOOLS TO STRENGTHEN NUCLEAR SECURITY: THE AFRICAN CONTINENT**

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**I. An Alarming Situation**

Nuclear terrorism remains one of the most immediate and extreme threats to global security.<sup>1</sup> The question of how vulnerable nuclear and other radioactive material and associated facilities are to a terrorist attack in Africa came to the forefront after the November 8, 2007, attack on South Africa's most secretive nuclear research facility at Pelindaba by two armed teams. One team penetrated a 10,000-volt security fence, disabled intrusion detectors, went into the emergency control center, shot a worker there, spent 45 minutes inside the guarded perimeter, was never engaged by site security forces, and escaped, but without taking any nuclear material as they came under assault by guards.<sup>2</sup>

The Pelindaba episode and other real nuclear incidents triggered the creation of additional nuclear security tools worldwide to reduce nuclear risks.<sup>3</sup> Throughout this paper, the term "tool" will refer to any nuclear security measure such as a conference, a meeting, an organization, an institution, a network, or another initiative that already plays a role or can potentially play a role in reducing nuclear security risk. During the past decade, an increasing number of tools have been established to foster nuclear security culture and best practices in Africa. Nevertheless, it is less clear whether all these tools are of the type and quality needed. An analysis of existing nuclear security tools and potentially new ones is necessary to understand Africa's nuclear security environment.

The primary aim of this paper is to enhance the understanding of Africa's nuclear security tools. The paper is divided into three sections: current tools, relevant tools, and a new tool. For each of the current tools, the paper provides a brief description of the tool, an analysis of the effectiveness of its role in strengthening the international legal framework for nuclear security, building capacity of individuals and organizations at national levels, facilitating cooperation and coordination on nuclear security among states, building awareness and understanding of nuclear security issues, and bringing momentum and executive-level political attention to nuclear security issues. For each relevant tool that exists but does not currently play a role in nuclear security, the paper provides an analysis of how nuclear security could be incorporated into the tool's mission and activities. For a potential new tool, the paper provides information on how it can complement existing tools, fill gaps, and ensure synergy.

**II. Current Tools**

The primary regional tools that already play a role in nuclear security in the African continent are: the European Union Chemical, Biological, Radiological, and Nuclear Risk Mitigation Centres of Excellence (EU CBRN CoE), the International Miniature Neutron Source Reactor (MNSR) Training Center in Ghana, the African Network for Education in Nuclear Science and Technology (AFRA-NEST), the African Centre for Science and International Security (AFRICISIS), and the International Regulators Conference on Nuclear Security (IRCNS).

### ***European Union Chemical, Biological, Radiological, and Nuclear Risk Mitigation Centers of Excellence (EU CBRN CoE)***

The EU CBRN CoE is a cooperative engagement tool that already plays a role in nuclear security. It is a bottom-up and voluntary approach that was launched in 2010 in response to the need to strengthen the institutional capacities and human capabilities of countries outside the EU to mitigate CBRN risks.<sup>4</sup> The countries that join the centers work together in eight regions headed up by regional secretariats, which are platforms to promote and facilitate cooperation at regional and international levels.<sup>5</sup> Twenty-eight African countries are grouped under three regions, each having its secretariat: Eastern and Central Africa (ECA) in Kenya;<sup>6</sup> African Atlantic Façade (AAF) in Morocco; and North Africa and Sahel in Algeria.<sup>7</sup>

The EU CBRN CoEs hinge on several principles, such as addressing regional CBRN needs through specifically tailored projects in various areas of concern.<sup>8</sup> Some of the notable nuclear and radiological projects implemented or ongoing in Africa include Project 60 “Support to the EU CBRN CoE of Eastern and Central Africa in Nuclear Security in the ECA region and Project 24 “Development of a methodology for radiological and nuclear (RN) materials detection, management, and protection of the public.” Project 60 on strengthening nuclear security in the ECA region, for example, helps strengthen nuclear policy regimes in order to prevent trafficking in dangerous RN materials, including RN orphan sources. Such high-risk RN materials are at risk of being trafficked through ports to elsewhere in the world due to inadequate security measures, patchy governance, and weak regulation in a number of African countries.

One of the EU CBRN CoE’s achievements is the facilitation of cooperation and coordination on nuclear security among states in Africa. The case of the Rabat Centre of Excellence has proved how the CoE initiative works, acting at the same time as the secretariat of the AAF region and as an ordinary member of the North African Region.<sup>9</sup> The Centers facilitate the sharing of information and resources and enhance coordination and collaboration among participating countries. Cooperation between nuclear security stakeholders in a region through joint implementation of the Centers’ projects enhance nuclear security at national and regional levels. Additionally, cooperation may reduce suspicions about the national security implications and sensitivity of working cooperatively on nuclear security. Working on sensitive issues may pave the way for further collaboration and confidence-building activities.<sup>10</sup>

The EU CBRN CoE’s increasing number and relevance of tabletop and field exercises facilitate risk assessment and help identify gaps in national capacities. The EU CBRN CoEs have contributed to the establishment of a consolidated regional and global network of National Focal Points (NFPs) on nuclear security, built trust among NFPs, and fostered information exchange among NFPs even outside of official CoE framework. One evidence of successful collaboration in the AAF region was in March 2018 when Burkina Faso’s nuclear regulatory authorities informed the country’s NFP about the theft of radiological material in the country who then immediately informed Mali’s NFP.<sup>11</sup> Acting on the information, both Mali and Burkina Faso activated border cooperation and further discussed possible measures toward addressing the issue via the CoE.

### ***International Miniature Neutron Source Reactor (MSNR) Training Center in Ghana (IMTC)***

The IMTC is a fissile material minimization training tool that is located at the National Nuclear Research Institute of the Ghana Atomic Energy Commission (NNRI/GAEC) facility in Accra, Ghana.<sup>12</sup> It has two missions, namely to provide a full-scale training center for MNSR operators facing highly enriched uranium (HEU) core removal challenges, and a temporary storage and maintenance area for MNSR transport packages, accessories, and tools. The Center was jointly planned and constructed by the

United States and Ghana between October 2016 and August 2017. The 689 m<sup>2</sup> facility consists of a classroom, mock-up of a reactor pool/reactor core, observation stage, 5-ton capacity overhead gantry crane, changing rooms, and outside cask storage and loading area.<sup>13</sup>

In an important sense, the Center is the spinoff of a decade of complex scientific and political international cooperation involving the United States, Ghana, China, and the IAEA. This cooperation was instrumental in the successful conversion of Ghana's only operating research reactor, Chinese-built MNSR, GHARR-1, in Accra, Ghana, from HEU to low enriched uranium (LEU) fuel on June 13, 2017. Ghana's MNSR was the first commercial reactor of this type to be converted outside of China. Experts consider the Center as a breakthrough in MNSR HEU reduction efforts worldwide.

Similar to Ghana, the IMTC was fully used in preparations for HEU removal from Nigeria's only operating research reactor, Chinese-built MNSR, NIRR-1 in Zaria, Nigeria. During three training campaigns plus one dry run demonstration, from March through August 2018, participants developed proficiency with the components of the technical equipment used to remove the HEU core from the reactor vessel, as well as opening, loading, and closing the SKODA and TUK-145/C shipping casks.<sup>14</sup> Consequently, Nigerian nuclear engineers performed MNSR core removal and package loading operations independently without external support. The HEU repatriation from Nigeria to China was successfully accomplished in December 2018.

Beyond the training of engineers from countries in the process of MNSR HEU-LEU conversion, the Center can also play a role in nuclear security education in Africa. The knowledge and skills acquired from the training can be useful in addressing other nuclear security issues. Similar to the Norwegian nuclear disarmament verification simulation project in the post United Kingdom - Norway initiative,<sup>15</sup> Ghana with the support of partner states and organizations can launch a scholarship program, the Ghana HEU Minimization Seminar, that will bring together select nuclear and international security graduate students and young professionals in the field of nuclear security to simulate HEU-LEU conversion during a one-week seminar. Successful participation in the seminar could earn college credit toward a nuclear-related course at the graduate level. The start of the seminar is one way to encourage African student involvement in nuclear security.

### ***African Network for Education in Nuclear Science and Technology (AFRA-NEST)***

The AFRA-NEST was established by the IAEA-endorsed Africa Regional Cooperative Agreement for Research, Development and Training related to Nuclear Science and Technology (AFRA), an intergovernmental Agreement, established in 1990 by African Member States.<sup>16</sup> AFRA-NEST's mission is to facilitate sustainable human resource development and nuclear knowledge management to meet the needs of Member States in their priority areas of atomic energy programs.<sup>17</sup> Ghana Atomic Energy Commission hosts AFRA-NEST's *Cyber Learning Platform* for nuclear education and training. The IAEA performs secretariat duties of AFRA-NEST.

The AFRA Agreement first entered into force in 1990. Since then, the Agreement Governments Parties have been extended the Agreement five times for further periods of five years by notifying IAEA's Director-General of AFRA Member States' acceptance of the renewal of the Agreement, and of their desire to continue participating in the Agreement. For the current period, the Agreement entered into force on April 4, 2015, and will last through April 3, 2020.

The main objective of AFRA-NEST is to facilitate cooperation and networking in higher education, training and research in nuclear science and technology in African region.<sup>18</sup> Cooperation and networking

is achieved through, among other activities, the sharing of information and resources on nuclear education and training.

Importantly, AFRA-NEST helps to integrate all available higher education capabilities in Africa as well as the industries in nuclear professional associations in synergy with existing IAEA and other regional/international nuclear educational institutions. The IAEA convenes a Meeting of Representatives of the Governments Parties at the IAEA headquarters in Vienna annually to, inter alia, determine a program of activities and establish priorities. In one such meeting, AFRA Member States identified nuclear security as a global issue of regional significance and a priority for regional cooperation.<sup>19</sup> Since 2002, the IAEA Nuclear Security Program has conducted training activities to assist the AFRA Member States in improving their systems for protecting nuclear and other radioactive material while in use, in storage, and while being transported, and in combating the illicit trafficking of such material.

Cooperation in the area of nuclear security between the AFRA Member States and the IAEA has increased consistently for nearly three decades. To date, the AFRA program has provided nuclear security training for more than 850 participants, including law enforcement, customs, civil defense, and regulatory personnel.<sup>20</sup> Looking past, joint nuclear security projects fostered communication, good practices, and working relationships among stakeholders in the AFRA Member States. AFRA Member States' commitment to improving nuclear security is reflected in the growing Africa's support for relevant international conventions and agreements. Example projects in the field of nuclear security include Project RAF/9/050 Supporting Human Resource Development in Nuclear Security, and Project RAF/9/054 Strengthening Radioactive Waste Management that was implemented during 2014–2017.

#### ***African Centre for Science and International Security (AFRISIS)***

AFRISIS is a leading nonprofit nuclear organization<sup>21</sup> that has played a prominent role in nuclear security in Africa since 2012.<sup>22</sup> AFRISIS's Nuclear Security Program (NSP) aims to encourage dialogue and sustain Africa's nuclear security efforts.<sup>23</sup> During the past seven years, dozens of AFRISIS nuclear security activities have played a role in building capacity of individuals and organizations at national levels, facilitating cooperation and coordination on nuclear security among states, and building awareness and understanding of nuclear security issues in Africa.<sup>24</sup>

In 2015, AFRISIS organized a two-week U.S.-funded professional development course on Nuclear Security and Safeguards for 30 university professors, regulators, and scientists from 16 African countries.<sup>25</sup> Through the course, new and existing professionals contributed to building their and others' competencies and to the development of a new cadre of nuclear security experts. Other nuclear security training activities in Africa include the 2019 Nonproliferation and Security Course for African women in STEM<sup>26</sup> and the 2016 Nuclear Security Capacity Building Workshop.<sup>27</sup>

AFRISIS second track diplomacy activities build awareness and understanding of nuclear security issues and bring momentum and executive-level political attention to nuclear security. AFRISIS created, for example, the African University Consortium for Nuclear Security and Safeguards Education in 2016 to maintain focus on nuclear security and safeguards culture and to build youth capacity. As of September 2019, eight African nuclear-related schools and university departments had joined or expressed interest in joining the network. Currently, only two of the Consortium's members play a role in their national nuclear security education. The University of Port Harcourt established its first Postgraduate Certificate Program in Nuclear Security Science in 2017.<sup>28</sup> The University of Witwatersrand's Department of Physics has incorporated a nuclear security course in the master's degree program in the school of mechanical, industrial, and aeronautical engineering.<sup>29</sup>

During the 2014 INSEN annual meeting,<sup>30</sup> AFRICSIS, together with other Consortium members, successfully advocated for the IAEA to approve two Regional Schools on Nuclear Security in the African continent: one hosted by the government of Morocco for citizens of French African countries<sup>31</sup> and the other hosted by the government of South Africa for citizens of English speaking African countries.<sup>32</sup> The objective of these schools is to offer early career professionals from African countries the opportunity to learn, understand, and explore a broad spectrum of topics in nuclear security and enhance their skills in the field.<sup>33</sup>

AFRICSIS's increased role in nuclear security can facilitate the exchange of information and tools for training and outreach in the nuclear field, promote collaboration among African Union Member States and other regional educational networks, and promote sharing of best practices in nuclear education and educational resources. One area to increase the role of AFRICSIS in nuclear security is support of AFRICSIS scientists in order to provide independent scientific advice and support to African policy makers on nuclear security issues. Policy-driven technical studies will contribute to the steady, incremental improvement of Africa's nuclear security and the prevention of nuclear terrorism in the world.

#### ***International Regulators Conference on Nuclear Security (IRCNS)***

IRCNS is a multilateral cooperative engagement tool dedicated to discussing a wide range of activities relevant to enhancing regulatory approaches and practices for nuclear security at civilian facilities.<sup>34</sup> The IRCNS brings together the world's senior regulators, security professionals, decision-makers, and high-level officers from Technical and Scientific Support Organizations, regional and international organizations in the area of regulatory activities and their implementation, as well as stakeholders responsible for the area of nuclear security.<sup>35</sup> The first-ever IRCNS held in Washington, D.C., USA in 2012, the second IRCNS held in Madrid, Spain in 2016, and the third IRCNS, the first-ever in Africa, was held in Marrakech, Morocco on October 1-4, 2019.<sup>36</sup>

The primary objectives of the third IRCNS were to strengthen international cooperation further and enhance capacity building for nuclear security around the world in general and in Africa, in particular. The IRCNS program comprised 10 thematic areas, three side events, and one special session. The session on sustainable, strong and independent nuclear security regulatory framework focused on the elements of a robust national nuclear security framework, the criteria, and approaches to ensure continuous improvements and sustainability.<sup>37</sup> Participants shared, among other things, national experiences on the role of NSSC/CoE in sustaining a national nuclear security system and successful stakeholder practices in supporting the nuclear security regime. The discussion was an effective way to demonstrate how all players should coordinate their activities carefully to implement a practical national nuclear security framework. The side event on promoting nuclear security through regional networks was one opportunity to share lessons of how a regional network played or is playing a role in promoting nuclear security.

However, the Africa Conference was a one-off event, and it is not clear where the next IRCNS will be held and when. One essential feature of any nuclear security tool is sustainability in order to contribute to strengthening nuclear security. To achieve sustainability, the IRCNS should feature in the agenda of the next Conference of States Parties of the African Commission on Nuclear Energy (AFCONE). AFCONE Member States should recognize that the IRCNS is an important African nuclear security tool and decide to make it a regular annual activity of AFCONE. AFCONE Member States can commit to convening the IRCNS annually, and it could rotate among capitals according to the alphabetic order of the country

names. The AFCONE secretariat can provide planning and organizational services for the IRCNS. Relevant international organizations like the IAEA and the EU and partner states like the United States and Canada could support the IRCNS activities. Regular Africa conferences will enhance cooperation and coordination on nuclear security among more African states and increase awareness and understanding of region-specific nuclear security issues.

### **III. Relevant Tools**

Unlike the current tools that already play a role in nuclear security, four tools—the African Union Mechanism for Police Cooperation (AFRIPOL), the Forum for Nuclear Regulatory Bodies in Africa (FNRBA), the Alexandria University’s Department of Nuclear and Radiation Engineering (the Department), University of Ghana’s School of Nuclear and Allied Sciences (SNAS), and African Commission on Nuclear Energy (AFCONE)—are relevant prominent nuclear-related tools that could play a significant role in Africa’s nuclear security.

#### ***African Union Mechanism for Police Cooperation (AFRIPOL)***

The AFRIPOL is a technical institution of the African Union (AU), created by a January 2017 AU Statute for the mechanism for police cooperation for the Member States.<sup>38</sup> Headquartered in Algiers, Algeria, AFRIPOL’s main objective is to establish a framework for police cooperation at the strategic, operational, and tactical levels between AU Member States police institutions to combat cross-border crime, cybercrime, and terrorism.<sup>39</sup> AFRIPOL does not currently play a role in nuclear security, but its legal capacity and geographic scope have the potential to facilitate inter-state cooperation and bring high-level political attention to nuclear security in the continent.

To initiate the process of incorporating nuclear security into AFRIPOL’s functions and future activities, either an AU Member State or another stakeholder, in consultation with AFRIPOL Secretariat, should convene a nuclear security stakeholder workshop on the role of AFRIPOL in tackling the threat of criminals and terrorists obtaining nuclear or other radioactive materials. The workshop outcome report could provide a valuable contribution to AFRIPOL’s Steering Committee or can be added by an AU Member State to the agenda for consideration at the subsequent annual Ordinary Session of the General Assembly. Among states, AFRIPOL’s role in nuclear security can improve coordination of information sharing, intelligence analysis, capacity building, and operational support in combating nuclear and radiological terrorism. It can also contribute to the establishment of nuclear and radiological terrorism prevention and response mechanisms among the agencies concerned, including police, customs, border controls, public health professionals, the military, intelligence services, and environmental management.

#### ***Forum for Nuclear Regulatory Bodies in Africa (FNRBA)***

The FNRBA is an intergovernmental networking nuclear tool on radiation and nuclear safety and security matters. An IAEA-supported network, FNRBA was established in 2009, and it comprises regulatory bodies in 33 African countries.<sup>40</sup> The forum is a key instrument for nuclear safety and security capacity building in the African region. It helps strengthen the social network and promotes communication, coordination, and collaboration among participating countries.<sup>41</sup> Presently the FNRBA knowledge network consists of 10 thematic working groups consisting of experts working together on issues of common interest, sharing knowledge, developing solutions to address common problems, and working towards filling common gaps.<sup>42</sup>

Nuclear security infrastructure is one of the 10 working groups of the Forum. With the support of the IAEA, the Forum has held training courses and workshops to strengthen nuclear safety and security in its member countries during the past decade. A majority of the training courses and workshops focus on nuclear safety, radiation protection, and waste and transport safety.<sup>43</sup> In 2017, the IAEA launched a comprehensive project on Enhancing National Regulatory Frameworks for Nuclear Security in the African States at a regional workshop in Rabat, Morocco.<sup>44</sup> To this end, the legal capacity and geographic scope of the Forum has the potential to strengthen the international legal framework for nuclear security, build the capacity of individuals and organizations at national levels, and build awareness and understanding of nuclear security issues.

The Forum's charter already include the objective to strengthen nuclear security.<sup>45</sup> In such a situation, strengthening the role of the Forum in nuclear security entails designing, tailoring, and implementing nuclear security projects to meet region-specific needs. It also entails the Forum collaborating with its partner organizations such as the EU and the United States to build the capacity of individuals and organizations in Member States and improve nuclear security culture. Implementing nuclear security projects through the network has important benefits. Networking provides the most widely accessible and collaborative activity in which professionals can engage to share knowledge and expertise, build enduring professional relationships, and build their capacity.

#### ***Alexandria University's Department of Nuclear and Radiation Engineering (the Department)***

The Department is an essential nuclear tool for education and training in the Middle East and Africa that was established in 1963 in Egypt as a part of the Egyptian Nuclear Program.<sup>46</sup> The Department's mission is to train the next generation of nuclear professionals in academia, government, and industry with the goal of maintaining and strengthening the application and peaceful uses of nuclear science and technology in Egypt, the Middle East, and Africa.<sup>47</sup> Since March 2017, it is one of the established AFRA Regional Designated Centres of Higher and Professional Education in the African region.<sup>48</sup> To that end, the Department trains IAEA-funded African students in its two-year Master's degree program in Nuclear Science and Technology<sup>49</sup> within the framework of the implementation of AFRA project, RAF9056 - Strengthening Education and Training in Radiation Safety and Sustaining Human Resources Development and Nuclear Knowledge Management.<sup>50</sup>

In 2013, and building on the momentum of the Nuclear Security Summit process, a Nuclear Security and Safeguards course was included in the Department's graduate studies internal bylaws; although, the course was neither placed as a requirement under the Diploma program nor the Master's program.<sup>51</sup> In May 2018, the Department created a consulting team to develop a framework for the establishment of a nuclear security diploma program as part of the Egyptian human resource development program in enhancing nuclear security education and spreading nuclear security culture in the country.<sup>52</sup> The program will also support capacity building of persons in the AFRA Member States, and it was projected to start in 2019. As of October 2019, the program start date had been postponed indefinitely.<sup>53</sup>

Despite the Department's progress in promoting nuclear security capacity in recent years, there is more to be done. One way to extend the role of the Department to include nuclear security education and training is to start with a Postgraduate Certificate Program in Nuclear Security Science similar to that currently offered in the University of Port Harcourt. The certificate program can be later scaled into a degree program based on lessons learned, increasing regional demand, and professors available to teach the various aspects of nuclear security.

### ***School of Nuclear and Allied Sciences of the University of Ghana (SNAS)***

The SNAS is a nuclear capacity building tool that was jointly established by the Ghana Atomic Energy Commission and the University of Ghana in cooperation with the IAEA in 2006 to educate and train high caliber human resources in the field of nuclear science and technology in Ghana and Africa.<sup>54</sup> The IAEA approved the School as an African Regional Designated Centre (RDC) for Professional and Higher Education in Nuclear Science and Technology in September 2009 and in Radiation Protection in October 2011.<sup>55</sup>

The SNAS currently has five academic departments, including the Department of Nuclear Safety and Security, which offers 12 accredited Master of Philosophy (M.Phil.) and Doctor of Philosophy (Ph.D.) programs and a five-month IAEA postgraduate education course in radiation protection.<sup>56</sup> The School receives several postgraduate international students through the AFRA fellowships supported by IAEA. However, the School has yet to introduce a nuclear security course into one of its existing Masters programs, launch a graduate certificate program in nuclear security, or start a Master's degree program in nuclear security.

To play a role in Africa's nuclear security, the SNAS can draw lessons from other schools that have already played a role in nuclear security. During the past five years, the School's faculty members and researchers have benefited from Nuclear Security 'Train-the-Trainer' Professional Development Courses (PDC).<sup>57</sup> The School has successfully developed a nuclear security curriculum for a nuclear security certificate and Master's degree program in nuclear security. It seems several of the challenges to launching the program are issues with accreditation, insufficient domestic demand, and program sustainability. A modest step would be to conduct an IAEA-funded PDC for Ghana only. PDCs provide a platform for instructors from different institutions to gain sufficient knowledge and expertise necessary to advance and succeed in the field.

The PDC training course would be an initial step of the School toward incorporating an introduction of nuclear security and nuclear security culture as elective courses into an existing graduate curriculum. The lessons from the course and regional awareness of the course can attract students from across the continent to meet the minimum demand required by the School to run a certificate program in nuclear security. The purpose of introducing the courses is to enhance the understanding of technical, policy, and regulatory challenges associated with nuclear security and to create a nuclear security culture among relevant institutions in Africa. Still, the most effective way to improve the quality of human resources is to educate current and potential members of the nuclear security community.

### ***African Commission on Nuclear Energy (AFCONE)***

The AFCONE is a nuclear intergovernmental tool that does not currently play a role in Africa's nuclear security. Headquartered in South Africa, AFCONE was established in 2010 by Article 12 of the Treaty of Pelindaba; its permanent secretariat became operational in 2015.<sup>58</sup> AFCONE aims to support nuclear research and training activities with an emphasis on continually improving in the fields of nuclear safety, security, and safeguards, especially to contribute to the integration of nuclear power within the regional energy mix in a safe, efficient, and secure manner.<sup>59</sup> AFCONE's mission includes encouraging regional and sub-regional programs for cooperation in the peaceful uses of nuclear science and technology. AFCONE had 40 members as of September 2019.<sup>60</sup> Members of AFCONE are represented through Commissioners, who meet in annual Ordinary Sessions to discuss all aspects relating to the implementation of the AFCONE program of work.



In line with Pelindaba Treaty Provisions, AFCONE priority activities in its current program of work include the setting up of legal and institutional frameworks for nuclear security and safety as well as building partnerships at regional and international levels.<sup>61</sup> For example, an IAEA-funded workshop on Strengthening the National Nuclear Security Systems is one of the earmarked activities in the list of future high-level events of AFCONE. The implementation of these activities is one way to impact nuclear security culture at national levels, improve nuclear security in the continent, and assist the Treaty's States Parties with fulfilling their nuclear security commitments successfully. AFCONE can contribute to achieving a strong nuclear security culture by fostering extensive interpersonal interaction and by enabling an environment conducive for positive and professional relationships among nuclear security stakeholders.

Efforts to expand the role of AFCONE into Africa's nuclear security require leadership of the AFCONE Secretariat and investment from the Commission's members. The AFCONE's long term organizational structure includes a Department of Safety and Security, which is inactive in the current structure.<sup>62</sup> The operationalization of this department will require resources: infrastructure, competent personnel, and finance. The AFCONE has a permanent secretariat in South Africa that is capable to accommodate the long term structure of the Commission.<sup>63</sup> Currently, there exists considerable nuclear security expertise in the continent as evidenced in the membership number of African institutions and experts in the IAEA International Nuclear Security Education Network (INSEN).<sup>64</sup> INSEN, together with NSSC/COEs networks, provide a large pool for competent personnel to man the nuclear security unit of AFCONE.

Regarding finance, it is almost certain that funding will be a major challenge in the future roll-out of AFCONE's nuclear safety and security department. To proactively address this potential challenge, payments of assessed contributions by AFCONE's Member States are a priority. Funding could also be achieved through increased contributions of capable States Parties. Additionally, the subsequent Conference of States Parties can create a voluntary fund for nuclear security in Africa that will be open to contributions from outside states and international organizations with an interest in Africa's nuclear security. Investment toward AFCONE's role in enhancing nuclear security is important for the security and stability of its members as most African countries use radioactive sources that could be used for malicious acts. More so, it is widely acknowledged that the threat of nuclear terrorism is real and that the response has to be global.

#### **IV. A New Tool**

##### ***African Leadership Network (ALN)***

The ALN is a proposed second track diplomacy tool to be conceptualized, launched, and implemented as a project of AFRICSIS. The ALN will comprise a group of 15 former political and diplomatic leaders from the African continent who will release a joint statement announcing the creation and important role for the network at the time of its launch. The Network idea in Africa which dates back to 2016, which stemmed from a discussion between NTI and AFRICSIS nuclear security teams within the framework of NTI's support for regional networks under the umbrella of the Nuclear Security Project. AFRICSIS has carried out some preliminary work and has had some initial success in developing the concept.

There is currently a lack of understanding of nuclear security issues in the region, and young people are not part of the discussion. AFRICSIS also recognizes the need for think tanks, NGOs, media, and academia to become more active on this set of issues. Therefore, principal objectives of the ALN are to influence decision-makers, raise awareness of nuclear threats across the African region, help bring the

African voice into the global debate, and promote a better understanding of the perspectives and complexities of debates in other countries on nuclear issues. AFRICISIS, based in Ghana, will serve as the Secretariat of the ALN and support the network, including by building contacts with potential partners and maintaining contact with NTI and the other NTI-supported regional network secretariats.

As part of the ALN's activities, in addition to its inaugural statement, the 15 founding ALN members will release a network statement within six months of its launch urging African leaders to take steps toward reducing nuclear risks.

A significant portion of the ALN's activities will focus on awareness-raising of the ALN's work and region-specific nuclear security issues through press releases, media outreach, op-eds, participation in meetings, events, and meetings with government officials. The ALN will launch a dedicated website, a Facebook page, and a Twitter account. In addition, an ALN monthly brochure will be produced and distributed to share information about the need for action in preventing nuclear terrorism in Africa, the objectives of the network, members, and key priorities.

Since 2016, AFRICISIS has been working to identify and attract pioneer members from across the continent. The director of AFRICISIS has met potential members to review and agree on the strategic planning for the network, including convening a side meeting during a significant regional event in African Union's headquarters Addis Ababa in Ethiopia. Currently, six leaders have agreed to become members of the network.

AFRICIS has identified the security of nuclear and other radioactive materials as a priority issue that will drive the ALN's analytic and policy activities: addressing African states with advanced nuclear development and in possession of sensitive technology, the potential emergence of new nuclear actors in the region, deterrence and African security perspectives, and international terrorism and the upsurge of organized crime within the continent.

## **V. Summary**

Overall, the status of tools have been explored in the context of their role in nuclear security in Africa: existing tools that already play a role in nuclear security, existing tools that do not currently play a role, but can play a role, in nuclear security, and one new tool that can complement existing tools and fill a nuclear security gap in Africa. It has been observed that Africa has a number of tools supporting nuclear security in the continent, albeit not to the extent of their potential. There is a need to enhance the role and provide support to existing tools and consider incorporating nuclear security-related activities to existing tools. There is also a need for state and intergovernmental agencies to give priority to nuclear security issues to ensure that African governments have the competent staff to implement nuclear security measure and best practices. One of the biggest challenges facing African countries is human resource development. Significant advances have been made to address long-term capacity-building needs, in line with the vision of the existing organizations that currently play a role in nuclear security, but gaps remain. Strengthening of the international legal framework, improving inter-state cooperation, and bringing high-level political attention to nuclear security are important components in nuclear newcomer countries and plays a key role in the introduction of nuclear power plants in Africa. Vulnerable facilities which house nuclear or radioactive materials could be attacked by the terrorists. Such incidents will damage human health and the environment, create panic, and affect economic and political stability.

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