

## **Egypt: Dreams and Tales of Building Nuclear Industry**



**By Kester Kenn Klomegah\***

**MOSCOW, July 23, 2015 (Business Africa)** -- Russia is looking to extend its footprint in Africa by supporting the construction of a huge nuclear power plant in Egypt. Nuclear energy is seen as a viable option for African economies.

Egyptian authorities have always dreamed of having a complete nuclear power industry to solve the energy shortage (deficit) in the country. Boosting electricity generation has long been a priority for Egypt, where shortages lead to frequent blackouts in cities, especially in the summer, which have stoked popular anger.

Early February 2015, Russian President Vladimir Putin and President Abdel Fattah Al Sisi signed an agreement to set up a nuclear plant in Dabaa, on the Mediterranean coast west of the port city of Alexandria, where a research reactor has stood for years. The deal was signed on the heels of talks held between Putin and Al Sisi, where both expressed high hopes that Russia would help construct the country's first nuclear facility.

After signing the agreement on nuclear plant construction, reports said Moscow and Cairo might take three months to draft the deal on NPP in Egypt. Experts, however, said the agreement

needs more time to be studied and implemented.

Unreservedly, Putin has offered Egypt Russia's full-scale assistance in building the country's first nuclear energy facility. "If the final agreements are reached, we will not only help build a nuclear power plant but will be able to assist (Egypt) in creating an entire nuclear power industry... including through training of personnel and help with scientific research," Putin said.

Egypt intends to build the Dabaa plant in the country's north. The power plant is expected to have a capacity of between 1,000 and 1,200 megawatts.

Egypt began its nuclear program in 1954 and in 1961, acquired a 2-megawatt research reactor, built by the Soviet Union. Plans to expand the site have been decades in the making but repeatedly fell through. In 2010, that reactor suffered a breakdown, though no radiation was reported to have leaked out.

Sergey Kiriyyenko, the head of Russia's Rosatom state-controlled nuclear corporation, a member of the Russian delegation, said the agreement signed envisages a power plant with four reactors producing 1,200 megawatts each.

In assertive remarks carried by local Russian news agencies, Kiriyyenko said that technical and commercial details of the project have yet to be finalized. He said it envisages new technology with strong safety measures that take into account lessons learned during the March 2011 Fukushima disaster in Japan, as well as a loan for its construction.

Along with the reactors, the plant will also have desalination capacities, Kiriyyenko said, adding that Rosatom will provide its fuel, personnel training, and build necessary infrastructure.

The United States supports peaceful nuclear programmes as long as they abide by the Nuclear Nonproliferation Treaty (NPT), it announced in response to Egypt's plans to build a nuclear facility. U.S. State Department Spokeswoman Jen Psaki told reporters in a press briefing that her government lacks detailed information about the signed agreement, adding that she understands the matter is under discussion.

"We support peaceful nuclear power programmes as long as obligations under the NPT to which Egypt is a signatory and obligations to the International Atomic Energy Agency are fully met and the highest international standards regulating security, nonproliferation, export controls, and physical security are strictly followed," she said.

Nuclear experts have also shown some concern. "Lack of electricity supply is a huge restraint on African economies and I think nuclear power could be an excellent source of large-scale grid electricity. Nuclear is not expensive compared with other energy sources.

To develop nuclear power, the country must first establish the necessary legal and regulatory framework. This is absolutely essential," Andrew Kenny, who is a professional engineer with degrees in physics and mechanical engineering, has 16 years of experience in the energy industry, including working for Eskom, the state-owned utility, and a researcher at the Energy Research Centre at the University of Cape Town, South Africa, told Business Africa media in an email.

Andrew Kenny pointed out further that "the project must comply with all international standards and regulation on nuclear power. Africa has a shortage of skills for nuclear power. However, Africa has a shortage of skill for any energy technology, so developing nuclear power would necessarily mean increasing African skills, which is in itself a good thing."

Interestingly, Egypt's dreams of building nuclear plant has spanned with agreement that was signed (as far back in March 2008) during an official visit to the Kremlin by the ousted Egyptian President Hosni Mubarak, and then through another former Egyptian leader Mohammed Morsi who discussed the same nuclear project with Putin in April 2013 in Sochi, southern Russia.

The tender for construction of that nuclear power plant was estimated to be worth up to \$2 billion dollars. The same agreement was signed between Sergey Kiriyenko, head of Rosatom, the state nuclear energy corporation, and Egyptian energy minister Hassan Younes. It also envisioned personnel training at nuclear facilities in Egypt and nuclear fuel supplies to the country.

It is well-known fact that Egypt had long ties with the former Soviet Union. Those bilateral diplomatic ties resulted in several development projects in late 1950s including the building of the Aswan dam.

During the Soviet times, many specialists were trained for Egypt. Mubarak, a former pilot, received training in what is now Kyrgyzstan, and further studied at the Soviet Military Academy in Moscow in the 1960s.

Sourcing for finance for the project seems still on the negotiation table. Interfax News Agency reports, quoting Rosatom chief Sergei Kiriyyenko, that Russian-Egyptian cooperation in building a nuclear power plant envisions the issuance of an intergovernmental loan by Russia to finance the project.

"This is comprehensive cooperation. Moreover, it presumes that Russia will also provide relevant financial support in the form of an intergovernmental loan," Kiriyyenko told journalists during media briefing session.

Further, Russian Economic Development minister Alexey Ulyukayev also said Russia may grant Egypt a loan for the construction of a nuclear power plant. "I can give the well-known example of the construction of a nuclear power plant in Finland, which is beginning and will be financed, as is known, from the National Welfare Fund. If the project is qualitative, then possibilities exist for its financing," Ulyukayev said.

The Russian minister suggested, however, the allocation of funds for the Egypt's nuclear project from the National Welfare Fund should be examined separately.

"But so far, no one has raised the issue of financing from the National Welfare Fund. When this issue was raised relative to the nuclear power plant in Finland, a positive decision was made," Ulyukayev said.

While visiting Moscow in April 2013, Mohammed Morsi's delegation sought \$4.8 billion dollars loan from International Monetary Fund (IMF) and also had asked for an unspecified amount of

loan from Russia to build the nuclear power plant.

The same year, following the revolutionary events and after a wave of mass anti-government actions, the army ousted the Moslem Brotherhood and their leader Mohammed Morsi, resulting in postponing or suspending the nuclear construction agreement.

The questions now are what next, why Russia could not continue the project despite the political change and if Russia can now deliver on its promises.

According to Viktor Polikarpov, the newly appointed regional vice-president of Rosatom International Network for Africa Projects, modern Russian nuclear projects correspond with all international, including post-Fukushima safety requirements and the IAEA safety standards.

Rosatom is the world's only company of a complete nuclear power cycle. Rosatom may offer a complete range nuclear power products and services from nuclear fuel supply, technical services and modernization to personnel training and establishing nuclear infrastructure.

Polikarpov, whose key responsibilities include overseeing, implementing and managing all Russian nuclear projects in Sub-Saharan African region, told Business Africa Media Group's researcher in an interview that "the advantages of nuclear, among other things, is the procurement of local suppliers to partner with Rosatom.

This will have a powerful impact to the development of local businesses contributing to the country's economy and international investment which will boost the country's Gross Domestic Product (GDP)."

While avoiding to give detailed information regarding the building of nuclear plants in Egypt, Polikarpov explains simply: "As far as I know, the deal has not been completed yet due to the known political events in Egypt. The new leadership of the country, however, is quite positive to continue. Negotiations are still under way."

Despite the long technical negotiation process, Rosatom expects to begin pre-design work on the Egyptian nuclear power plant in 2015. It anticipates that towards the end of this year to begin initial implementation of these projects, that is, surveying and pre-design work. The four blocks of the nuclear power plant will cost about \$20 billion.

The Egyptian political leadership continues to regard nuclear power plants as an important and indispensable source of energy that will underpin sustainable growth of the country's economy.

But, there is still one technical requirement. Egypt has yet to make an official announcement of the tender for the contract to build its nuclear plant. Media reports have also revealed that nuclear companies from China, the U.S., France, South Korea and Japan seek to take part in international tender.

Anton Khlopkov, director of the Center for Energy and Security Studies (CENESS) and Dmitry Konukhov, research associate at the Center for Energy and Security Studies (CENESS), wrote recently in an opinion report to Valdai Discussion Club, part of RIA Novosti Agency, that success of the Egyptian nuclear project will depend on three key factors: stabilization of the political and security situation in Egypt, a viable financing mechanism that reflects the country's economic situation, and the government's ability to secure support for the project among the local residents of El Dabaa, the site chosen for Egypt's first nuclear plant back in the 1980s.

In conclusion, Khlopkov and Konukhov believe that moving the plant project to another site would mean a delay of four or five years. Meanwhile, instability in Egypt and the wider region could push the project back even further. Even under the optimistic scenario, the first reactor of the future El Dabaa nuclear plant is unlikely to be launched before 2025.

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