

Outlook for nuclear energy in Africa

Let's use nuclear power to desalinate water and irrigate the Sahara-Sahel, says Amadou Sakho—and launch a new era between Europe and Africa.

Dr. Sakho, an architect from Guinea, has long studied the technological and economic development of Africa, and has written a book on high-speed transport for the continent. The following is the translation of a speech on May 22 he gave to a Schiller Institute conference in Paris on the economic imperatives of a united Europe.

The control of nuclear energy by Africans is a vast program which, for many people, is not on the immediate agenda. And this will be so for some time to come. And then, who knows?

Fundamentally, nuclear energy originates from three materials: First, there is *gray matter*, which is found principally in Europe, which guards over it with a wicked jealousy. "She" alone is able, throughout the world, to decide who has the right to control this energy. Next, *uranium*, the source of heat (the same as coal or fuel), of which Africa is already an important producer and holds the most important (known) reserves in the world. Finally, *water*. Sea water and fresh water also constitute the raw material that is otherwise the most widespread of our planet. Outside of its function in a nuclear reactor, water, as you know, has other functions. It is generally recognized, since the dawn of time, that water is the source of life. In this speech, which must be brief, I will limit myself to the production of fresh water by means of nuclear energy. There you have it: a completely peaceful use for nuclear power!

Why should we desalinate sea water? To irrigate the Sahara-Sahel. Don't laugh! This is serious and quite feasible. In producing millions of cubic meters of fresh water by desalinating sea water—which is inexhaustible—one can give rise to a truly continental water industry, an industry which could give work to hundreds of thousands of people, well paid, and this for several decades. In order to put this industry into place, in a continent as vast as our own, the contribution of Europe, the keeper of gray matter, could become an important factor. But this is not all. I accept the fact, loyally, that in the course of "humanity's" long history, the Europeans have been among the people who have sought and succeeded

in controlling the flow and flooding of water. This mastery over water had often been motivated solely as an ornamentation of daily life. It was only much later that the European made use of water as an energy source.

Water management as a source of pleasure

After having made your mouth water by what I just told you, I owe you a few "textual illustrations." Sit still, this will be quick. Utilization of water as a source of pleasure is several thousand years old.

Rome: "The Eternal City" is not an empty term. Everyone who has visited this capital has remarked on the incalculable number of fountains with running water. Some of these fountains date back to the Roman era. The centerpiece of this aquatic magic, even in 1991, is still the gardens of Hadrian's villa at Tivoli, built during the first century—in other words, 2000 years ago.

The Alhambra of Granada in Spain: On the same order of reference, but a bit closer in time, the *generalife* of the Alhambra of Granada, built by the Arab emirs 800 years ago, is such a marvel of water management, that it is unanimously classed as one of the Seven Wonders of the World. The Spanish guard it with a well-justified jealousy, keeping in mind that, even in 1991, this marvel is an important source of tourist income, and therefore hard currency.

Versailles of Louis the Great: Closer still to us is the Versailles of Louis XIV, which is relatively yesterday, since this masterpiece of the Sun King is no more than 300 years old. And furthermore, at Versailles, the mastery over the water sprite is of an unsurpassable perfection, even with the most sophisticated means we have today! And this very fact renders the sumptuous pace of life itself timeless. Here, the water took routes, eruptions, sonorities, at which we marvel endlessly. Better yet, the lifestyle is so timeless that the G-7 itself, the greatest among the great, could find no better place than the salons of the Sun King to swill champagne.

The Bois de Boulogne: Even closer to us, since that's just outside the door, the Bois de Boulogne. A tourist guide who might have a sense of humor would tell you, with a

straight face: "You see all these rivers, these waterfalls, the islets, the lakes? Okay: They are all artificial, created by the hand of man."

After this long detour, you are asking yourself what I'm getting at? Okay, I am coming to the power of knowledge: The *power of knowledge* is the unshakeable will that some people have to create what others think or believe is impossible to create. Thanks to this power of knowledge, the human species was able to take a walk on the Moon, exactly the way someone spends a weekend at Deauville. With the technological means we possess even today, and if Europe does not withhold its cooperation from Africa, either by playing at defeatism, in rage over decolonization, [or] by being the gold-braided avenger . . . I affirm before you all that it is possible to irrigate the Sahara-Sahel. Thanks to nuclear energy, it will be possible to desalinate considerable quantities of water, every day . . . all 12 months of the year.

The irrigation of the Sahara-Sahel

Let's make things clear: I am not saying that it were necessary to transform the 8 million square kilometers of the Sahara into a vast vegetable garden, or a giant park, verdant and flowering every square meter of its expanse. No! That is not what I mean to say here. Roughly several tens of thousands of years ago, the Sahara was not this immense desert of sand, arid and without vegetation. Along its entire expanse, from the Western Sahara to the Red Sea, from the Niger River to the Mediterranean, or even from Lake Chad to the Gulf of Syrtes, streams of water (wadis) and lakes (sebkas) irrigated the Sahara. Some of these streams ran more than 300 km in length. The surface of the lakes varied from 2 square kilometers to several tens of square kilometers.

Most of the riverbeds have not been filled in with sand. Hence they are recoverable. In the case of particular ones, it will be sufficient to feed the source of the stream by a forced canalization (under pressure)—as this is done at the Bois de Boulogne. The peculiarity of the African network will be that the canals will be hundreds of kilometers long, perhaps even thousands. In the U.S.S.R., there is a pipeline that runs nearly 5,000 km long. In Saudi Arabia, the pipeline going from Ghawar to Yanbu is over 1,200 km long, with a potential annual output of nearly 100 million cubic meters. If that were fresh water, this would be 100 billion liters, otherwise, the annual household consumption of a total of 1.5 million inhabitants. That is quite considerable!

It goes without saying that in order to achieve such a program, we will require several power plants for the treatment of sea water. These power plants will be sited along the coastlines, of which, happily enough, our continent has no dearth. What this means is, it is not economically feasible that a power plant at the mouth of the Senegal River would provide Djibouti with fresh water. The power plant for Djibouti will be installed on the Red Sea. Such a program of providing fresh water for consumption and irrigation would

involve directly nearly 27 of the 54 states that make up the continents and its islands. That is, from Namibia to Algeria, from Senegal from Somalia, while going through the entirety of the states of the Sahel and the Savannah.

With no doubt whatever, this program for development will have happy repercussions on the other activities of the continent. Notably on:

- Since millions of kilometers of canals will have to be manufactured, this will mean the creation of a strong metallurgical industry. When I say millions, you are thinking I exaggerate? Not in the least! Presently in the U.S., the network of pipelines runs over 800,000 kilometers long for all fluids combined. In the U.S.S.R., this is not less than 200,000 kilometers.

- Irrigation will return to use lands that have lain fallow for several dozen centuries. A true agricultural industry would be thereby developed. Thus, the deadly effects of all the droughts and the famines in their wake will be forever banished from our continent.

- There will certainly be an ecological effect: Rather than allow the Sahara to advance toward the Equator, we will roll it back to its outermost limits. After decades of irrigation, the Sahara-Sahel would be able to become one of the granaries of our vast continent.

European-African complementarity

One can raise this question, for, within this complementarity, it has been Europe which, for the last six centuries, holds the "big bite." Africa plays the role of the "servant," and Europe the "served," also known as the "All Powerful Master." By this title, Africa owes it an unwavering and unconditional fidelity, always at the ready to mobilize to the last man to resolve the problems great and small of the European master. Once they have found a happy solution, thanks, in part, to the Africans, Europe dons again the mantle of "Supreme Master."

Africa owes it everything: cacao, coffee, bananas, palm trees, peanuts, cotton, wood, sugar, etc.—and all these for nothing, or a pittance, if you prefer. Benefiting from this situation, and adding to it their mastery of science and technology, some of the European agents have built up a dynasty of several billion French francs, British pounds, dollars, Swiss francs, several times over. Despite the accumulation of these fabulous fortunes, with a smile on their lips, they watch the ruin of Africa, the goose that laid the golden egg. For this reason, I ask myself if, tomorrow, the Euro-African complementarity will be a beneficial reality for our continent.

This said, I owe you a specification: In the present collapse and degradation of Africa, starting from the 1960s, the European political authorities of all stripes bear no responsibility for this. The responsible policymakers in Europe are democratically elected. Hence, they have accounts to settle, in perpetuity. It is also necessary that Africa acknowledge its responsibilities in the present situation.