

Transferring Water from the Congo to Lake Chad: The Transaqua Project

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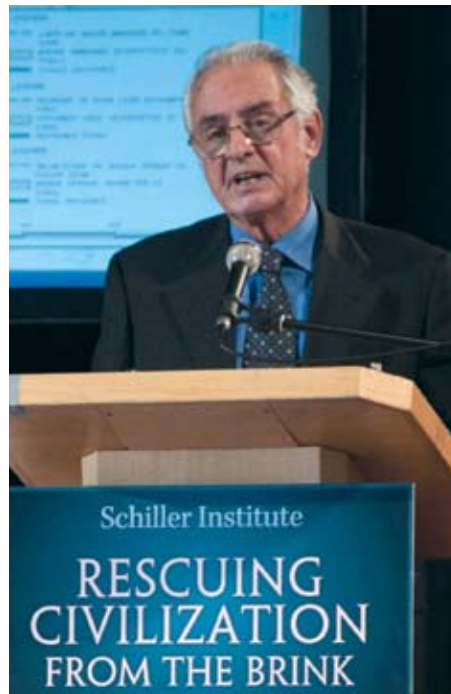
I want to talk about a story from 30 years ago, that for 30 years has been at a standstill, despite all of the initiatives taken to bring it to fruition.

First of all, I should bring the subject into focus, so you can be aware of the dimensions of the problem.

The idea of transferring water from the Congo River basin to the Lake Chad basin originated with a comparison between the two contiguous catchment basins, and their respective water and climate characteristics. The concept of contiguousness is to be understood with respect to the dimensions of a continent like Africa.

Straddling the equator, starting at about 8° North latitude and down to about 12° South latitude, is the largest African catchment basin, the second-largest in the world, after the Amazon River. This is an imposing natural amphitheater of 3,690,000 square kilometers, 12 times the area of Italy, more than 10 times that of Germany, and almost 90 times the area of Switzerland.

This majestic catchment basin drains 100% of the waters from the two principal countries it includes, the two republics of Congo, and portions of those from the bordering countries: Central African Republic, Cameroon, Angola, Zambia, Tanzania, Burundi, and Rwanda. Its geographic position straddling the equator, and its large territorial dimensions, allow the Congo River to



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be relatively unaffected by the seasonal variations in its flow. The annual averages at the mouth vary, based on the seasons, from approximately 42,000 to approximately 60,000 cubic meters per second, corresponding to an outflow of between 1,300 and 1,900 billion cubic meters of freshwater that flow annually into the Atlantic Ocean.

At the end of the 1970s, the idea was to divert a suitable portion of these billions of cubic meters towards the Lake Chad basin. Already then, Lake Chad was showing a marked tendency to suffer from the alarming level of drought breaking out in the entire Sahel region, and during the rainy periods, it was unable to recover the dimensions of previous years, due to the diminished contribution of its tributaries, essentially the Chari and Logone rivers. The contributing causes were

already clear at that time: decrease in rain; increase in temperatures, and thus, evaporation; and excessive exploitation by the local populations.

It then became clear that subtracting a significant mass of water from the Congo River (then known as the Zaire River) to send it into Lake Chad would be the only opportunity to fight the trend of a drastic reduction of its surface area, that, at the end of the 1970s, had already been cut in half with respect to the previous decade.

Giving a Hand to Nature

To be honest, at the time, it didn't seem to be a great idea, but rather only an obvious one: It was simply a question of giving a hand to nature, which, at a point about 1,000 km away, had created the conditions which, on the one hand, forced millions of farmers and shepherds to revise their own aspirations in life, and on the

other, allowed for one of the greatest dissipations of fresh-water in the world.

All that was required was to conduct a preliminary test of the feasibility of the “idea,” above all, from a technical standpoint: whether it would be possible to use an artificial canal to intercept the flow of some of the right-side tributaries of the Congo, and using the same canal, to cross the line dividing the Congo and Chad watersheds, in the Central African Republic, and thus bring the water to the top of one of the lake’s principal tributaries: either the Bamingui-Chari River or the Logone River.

The preliminary study was conducted based on the maps that existed at the time, in a scale of 1:1,000,000 as developed by the U.S. Air Force. For today’s youth, this might seem almost unbelievable, but at the end of the ’70s, it was not simple to conduct a series of even preliminary studies with a high degree of reliability in the area of the equator and the Sahel. Reliable maps and hydrologic data were scarce; satellites were only beginning to function, but only for military purposes, not civilian ones; cellular telephones were not sold, and field radios were used that had a limited range; nobody even knew what the Internet was.

A great deal of determination and enthusiasm were needed. Above all, we needed the firm and unquestionable conviction that Africa would never be able to take off if it lacked robust infrastructure at the continental level, that could only be created by strong and decisive interventions demanded by African countries, and solidly supported by the Western community. We were a group of experts convinced that no serious African problems could be dealt with through policies involving small and numerous random interventions, which were only useful to maintain subsistence and face emergencies. That wasn’t nothing, but in order to develop the continent, it was necessary to “think big.”

FIGURE 1
Central Africa



with what I have always called “project megalomania,” as opposed to project short-sightedness, indifference, and stinginess, which have always characterized the reception of large-scale international infrastructure projects for Africa.

Overcoming significant practical and political obstacles, and with the support of the Bonifica company, the group leader Italstat [the holding company of the former Italian state conglomerate IRI, Institute for Industrial Reconstruction], as well as robust enthusiasm, we concluded this study by formulating the idea of an artificial canal that would begin in the Kivu region (approximately 2° South latitude) and reach the Congo/Chad watershed line (approximately 8° North latitude) in a region where the upper South basin of the Bamingui-Chari river axis originated, the principal tributary of Lake Chad.

During its course of approximately 2,400 km, moving from south to north along the line of minimum inclination, the canal would intercept all of the tributaries on the right side of the Congo River, at the point of their upper basins, including between the canal itself and the borders of its catchment basin bordering with Burundi, Rwanda, Uganda, and Sudan, i.e., its north-eastern segment.

The idea was, and still is, to pour over 3,000 cubic meters per second of freshwater into Lake Chad (equal to about 100 billion cubic meters per year), removing from the Congo River only about 6-8% of its overall flow, but at the same time creating a large artificial canal with a flow one-and-a-half times that of the Nile at Asswan.

In its “fall” towards Lake Chad, this mass of water would be able to generate about 30 billion kWh of electricity per year, 2/3 of which would be produced in Central Africa and 1/3 in Chad. Once the Lake’s previous dimensions had been restored (20-25,000 square km surface area), the excess water available would be used for planting approximately 3 million hectares of land, to support the agricultural and zootechnical development of a vast area, in particular, in the territory of Chad, but also in the countries of Nigeria and Cameroon, as well as in Central Africa along the course of the Bamingui. The sum of these cultivable areas can be estimated to include approximately 50,000 square kilometers of territory (equal to about 1/6 of Italy).

Water Transport/Water Power

In addition to transporting this considerable mass of water to Chad, the artificial canal would perform another important, not marginal, function: It would represent a means of water transport for freight, that, as is known, is the most convenient form of transport that exists. This “river highway” of 2,400 km in the heart of Africa would cover approximately 800 km in the territory of the Central African Republic and 1,600 km in the territory of Congo. On the sides of the waterway there would be two service roads for the clearing of the wooded areas and the construction of the canal, as well as for maintenance once it is completed.

Along these roads, going “upstream,” and thus from north to south, could be a high-voltage electricity line, supplied in part by the 30 billion kWh produced annually by the “fall” towards Lake Chad of the mass of water directed by the artificial canal. This electricity line could serve all 2,400 km of the canal, along which there could be a series of river landings where the allu-

vial valleys of the intercepted rivers are located.

The area affected by such an infrastructure project, in terms of agriculture and zootechnical production, can be evaluated at around 100,000 square kilometers, and its basin of socio-economic influence could involve a surface area one-and-a-half times the area of Italy. In fact, a large geographic area, represented by the regions of the Kivu and the Upper Congo in the Democratic Republic of Congo, and the upper Mbomu and upper Kotto, in the Central African Republic, was—and I believe still is—dramatically lacking the most elementary and basic infrastructure, in particular permanent roads worthy of that name.

At the extreme north of the canal, in the territory of the Central African Republic, near the Congo/Chad watershed line, at the level of the upper valley of the Bamingui River, a large artificial lake is planned, where the canal would accumulate its waters to then use them in the first hydroelectric plant of the system, and then release them north of Lake Chad. On the banks of this artificial lake would be an “Inter-African Polyfunctional Exchange Area” (ASPI) in a region crossed by an East-West road corridor connecting the two ocean ports of Mombasa [Kenya] and Lagos [Nigeria], which route already partially existed at the time, and only needed to be completed and adapted to the most important needs of a “coast-to-coast” highway between the shores of the Indian and Atlantic Oceans.

The ASPI, which can be connected with a simple link road to the river port of Bangui [Central African Republic], and through that port, by river to Brazzaville and Kinshasa [Congo], could represent an important industrial area, specializing in the agricultural and food sector that would ensure the processing of agro-zootechnical products coming from the newly upgraded agricultural areas of Congo and Central Africa, and the expansion and development of the mining area of the upper Kotto. The ASPI, which would be positioned at the economic center of the water/road system, would be the first large river port in a strategic position in the African continent that is equipped for the handling of containers, and an industrial transformation center; a trade center for the importation of production equipment and distribution of African agricultural, zootechnical, and agro-industrial products towards other African countries and the ocean ports of Lagos and Mombasa, as well as the Mediterranean ports of Algiers and Tripoli, through the adaptation of the Lagos-Algiers Trans-Saharan Highway, and more recently, through the planned N’Djamena-

Tripoli “desert road.”

This grand river-and-land transport network would become indispensable not only for obvious reasons of general development, but also, in particular, for the marketing of African products and their export to foreign markets.

The agro-zootechnical production that would result from this vast irrigation of desert areas, would be so plentiful as to make it not convenient to produce beyond a certain limit, if the production were destined only to the local population and not for sale on other markets. If we add the anticipated agro-industrial production from the activities of the ASPI, it would make no sense to produce all of these agricultural, zootechnical and agro-industrial products without an efficient communications network for their marketing towards other African and extra-African markets. And the creation and optimization of this network should go hand in hand with the beginning of the canal.

‘Transaqua’: The Idea

All of this was called “Transaqua—An Idea for the Sahel.”

This simple name contains a synthesis of the two fundamental elements: the saving of Lake Chad through large-scale water transfer, and an international river and land transport network.

Between 1982 and 1985, three documents were published, in three languages, distributed to all of the African countries directly involved in the “idea.” These technical-promotional documents, presented under the aegis of “BONIFICA Spa-IRI-ITALSTAT,” were also sent to the international cooperation bodies.

At the time, a cost estimate for Transaqua—which was essentially arbitrary, as are all estimates not supported by a feasibility study—indicated an investment of between \$30 and 40 billion, an amount that, at the time, was considered too burdensome to be accepted by the numerous, and inevitable, skeptics.

FIGURE 2
Trans-Africa Highway Algiers-Lagos



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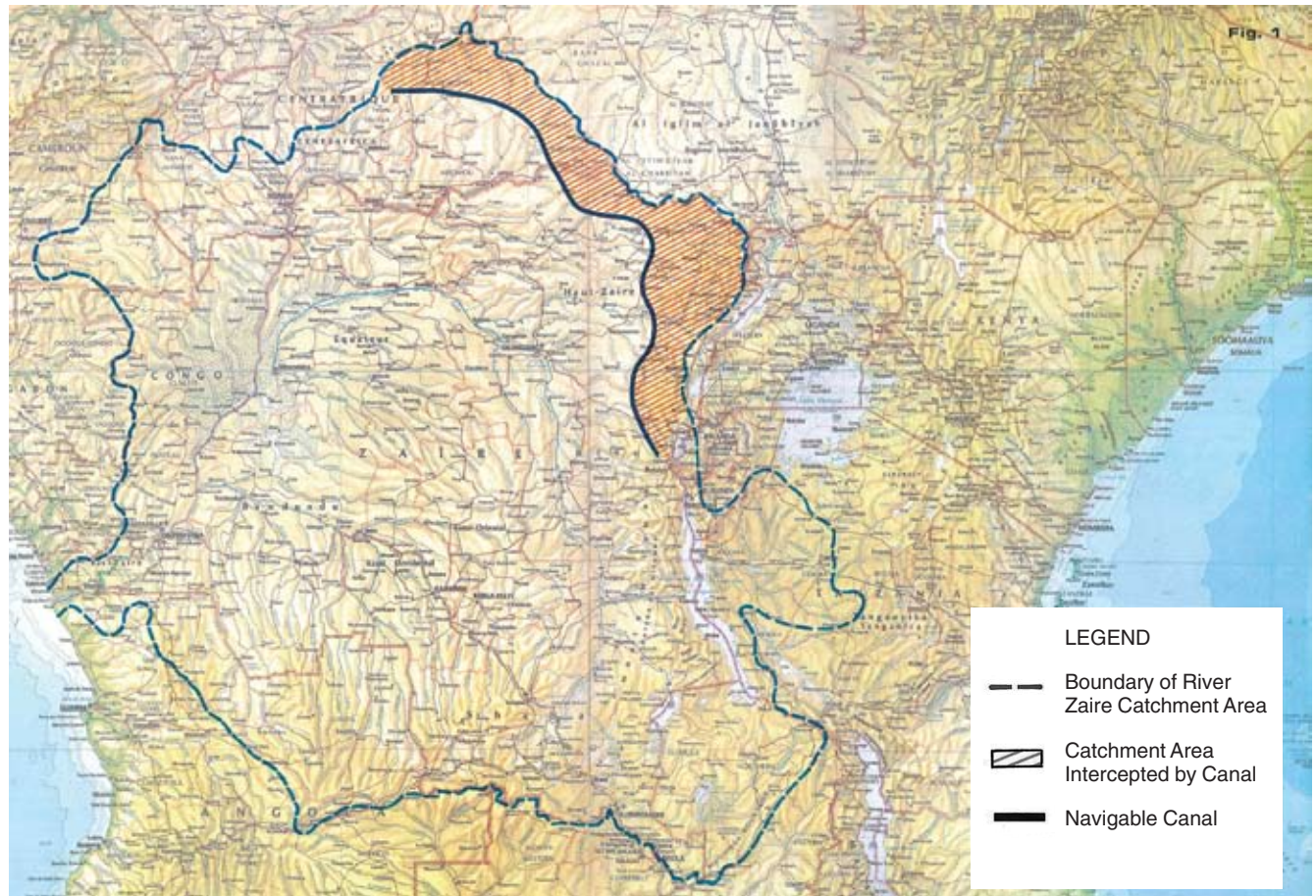
For 30 years, the reactions to the “idea” have not changed, and what could have become the largest work site in the world—if a feasibility study had been positively concluded—with millions and millions of work days, generations of African workers, staff, technicians, and managers, with an economic impact on a third of the African continent, never evolved from its status as a simple “idea,” not even to a pre-feasibility study.

The Italian political events of 1993 overwhelmed Bonifica, Italstat and also IRI, which disappeared from the Italian economic scene in a matter of a few months. And the idea ... remained an idea!

I never accepted the skepticism which blocked any potential progress on Transaqua, and in 2001, I continued to promote the “idea,” attempting to interest the Libyan authorities, who, at that time, were building the largest underground aqueduct in the world, to be used to bring 6 million cubic meters of water a day towards the country’s coastal area, to be pumped from the country’s Saharan fossil aquifers: the so-called GMR (“Great Man-made River”), that the international press called the “Eighth Wonder of the World.”

However, the removal of water from non-renewable fossil aquifers caused some apprehension for the bordering countries. In particular, there was fear that intense pumping from the Kufra, Tazirbu, and Sarir basins, which go from Chad to Egypt and Sudan, could influence the levels of the Egyptian and Sudanese aquifers. In addition, the hydrogeologists did not agree on the estimates of the aquifers and their duration in time, which would determine how much Libya would actually be able to pump from them in the future. Some spoke of 50-100 years, but others suggested it would be much less. In fact, Libya’s plans entailed broad use of the water for irrigation as well, in addition to civilian

FIGURE 3
The Transaqua Plan



and industrial uses, with large benefits for the population concentrated on the Mediterranean coast that could not continue to pump water from the coastal aquifers due to their gradual salination.

But, with the lowering of the aquifer, there was also the risk that its saline composition would deteriorate.

With the help of some friends who had good contacts with the Libyan authorities, a potential plan for replenishing the Kufra aquifer was drawn up, starting with a hypothetically replenished Lake Chad in the future. This extension of the Transaqua idea was given the name of “Interafrica,” and a technical-promotional document in English and Arabic was delivered to the Libyan authorities. Added interest in the Transaqua idea on Qaddafi’s part would have been very useful, given the efficiency and determination demonstrated in very quickly launching the grandiose GMR project: It was designed at the end of the ’80s; the first and second phases were inaugurated in 1991; and completion was anticipated for 2007.

The goal was to induce Qaddafi, together with the African countries interested in Transaqua, to promote the establishment of a *bailleurs de fonds* [donors] group that would have been able to begin considering the idea of Transaqua/Interafrica, as an occasion for intervening on the project at the continental level through the creation of consortia of mixed African-European companies, for the execution of the work and its subsequent operation.

In addition, Libya, besides being a partner with particularly abundant financial resources and special sensitivity to the problems of water in the Saharan environment, was an observer country in the CBLT, the Lake Chad Basin Commission, which it fully joined some years later.

But the Libyan initiative also failed to take hold.

‘It Costs Too Much’!

For 30 years, I have continued to ask myself why not a single dollar has been spent to verify the feasibility

ity of Transaqua, which still today is considered a fanciful and colossal idea, and in particular, so costly that it wouldn't even be worth it to verify its credibility. Opinions and financial assessments have been, and still are, thrown out carelessly, as if it were a question of estimating the profitability of an irrigation perimeter of 1,000 hectares. And nobody wants to consider the fact that the Transaqua proposal is proportionate to the enormous unsolved problems of the African continent.

The various international experts who are busy criticizing Transaqua on a financial level, have not, however, worried about verifying the most serious aspect of the proposal, that is, whether it is technically feasible. They criticize the costs of something that doesn't exist, although for 30 years we have been requesting an initial technical pre-feasibility study that, first of all, verifies the project's physical assumptions (levels, geographical route, inclination, dimensions, etc.).

It costs too much! As if there were projects that "cost too much" and projects that "cost little," and not projects that are feasible and convenient, and projects not feasible and not convenient.

Fanciful, it costs too much! A study signed by three international associations of real macro-economists—Oxfam, Saferworld, and International Action Network—included in a recent international report, found that in the last 15 years, in 23 of the more than 50 countries in Africa, \$284 billion has been spent in conflicts. That figure of \$284 billion only counts structures that have been destroyed, health-care costs, and costs linked to refugees. Then there are the other costs, that are not counted: managing the refugees, difficulties or paralysis of trade, and political instability. So there were approximately \$300 billion in "direct costs" among the 23 African countries considered by the study over 15 years: \$20 billion per year, from 1990 to 2005.

And this figure does not quantify the "collateral effects" such as the doubling of infant mortality, the increase of undernourishment, the reduction of life expectancy, the significant increase in illiteracy among adults, etc.; all elements that are real, not theoretical, and quantifiable in dollars, provided that socio-economists who consider them have a sufficient level of culture and professional skills. We can be certain that those costs have only increased since 2005.

30 Precious Years Lost

At this point, I would like to make an easy hypothesis. Let's imagine that during the 1980s, all of the aspects of Transaqua had been studied: geopolitics, geog-

raphy, hydraulics, climate, social and economic aspects, etc., and that it had been found to be feasible. Let's then imagine that, following that determination, it had been possible to somehow divert 10% of those costs to the project, and thus "only" \$2 billion per year. After 20 years, today, we would have had a series of massive worksites under full development and expansion at the Inter-African level.

Having said that, I believe that the insistence on promoting Transaqua has actually had an effect: The concept of "water transfer" from the Congo catchment basin to that of the Chad has been adopted, and the study underway on the "Project for water transfer from Oubangui [River] to Lake Chad" demonstrates this. It is a different treatment of the same question, but the approach is the same. We must only hope that the project currently underway is at least sufficient to stop the trend towards the disappearance of the Lake—which is otherwise almost certain; if that trend is stopped, the result would in any event be very positive. This is why I believe that the Oubangui/Chad project is not in contrast with Transaqua, but very probably is complementary. However, once again, a feasibility study for Transaqua would be necessary, which European cooperation programs will be unlikely to finance.

In my view, the reality is that Europe has lost 30 precious years that will be difficult to make up, since the ideological thrust, credibility, and financial means that Europe had a few decades ago are no longer present. Europe seems to be sliding towards a "coming Middle Ages," to paraphrase the title of a book by my friend Roberto Vacca.

Fortunately, however, a new level of credibility seems to be emerging at the international level for certain African countries. Six of the highest levels of economic growth in the last decade took place in African countries, that grew their GDP by an average of between 7 and 10%. I recently visited one of these countries, Mozambique, meeting enthusiastic and motivated youth, who are increasingly involved in the realization of public works and private initiatives throughout the country.

It is this generation of young experts, new entrepreneurs, courageous emerging intellectuals, that I believe Africa must use to offer operational "credibility," and to request financial trust from international organizations, joining together for the realization of large-scale infrastructure projects. International capital could, potentially, decide to invest in new economies that are active and evolving, preferring them to a Europe which is declining, old, and lacking any creative force.