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Dr. Marcello Vichi

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# The Congo-Chad Water Transfer: The Main Features of a Feasibility Study

*Dr. Vichi is the author of the Transaqua study and the former director of Bonifica SpA. His speech, reprinted below, was submitted in writing to the Sept. 25 Berlin conference on “Rebuilding the World Economy—NAWAPA, the Bering Strait, and the Eurasian Land-Bridge.” A summary of the speech was presented at the conference. It was translated from Italian for EIR, and some subheads have been added.*

## Historical Clarification

ROME, Sept. 18—I think it is important to clarify that the idea of transferring an adequate amount of water from the Congo River Basin to the Lake Chad Basin originated at the end of the 1970s, and that I personally drafted the text of the project published at the time by Bonifica. Five hundred copies of that project were published in three languages, illustrated with maps, under the well-known name “Transaqua: An Idea for the Sahel.” I had been assigned the task by the CEO of Bonifica, and did a preliminary study, using the only cartography of Africa with contour lines available at that time: maps from the U.S. Air Force in 1:1,000,000 scale. This first major publication was sent in December 1982, with promotional aims, to all countries involved, and all international agencies, as potential funders of a feasibility study. This first publication was followed by “Transaqua-Zaire,” in April 1982 and “Transaqua-Centrafrigue,” in February 1985.

To complete the information, in July 1985, Bonifica, in agreement with “Florence Expedition,” an Italian sporting club, founded in 1973 by agronomist Dr. Jacopo Mazzei (who had opened the navigation of several rivers worldwide), had planned the “Transaqua Expedition,” whose program was to use specially equipped rubber rafts to navigate one of the most important tributaries touched by the Transaqua canal: the Ituri-Aruwimi River and its upstream tributaries.

A team of highly qualified experts planned to conduct a large sample survey to produce an accurate study

on an important, but little known hydrographic system, that would be a tributary of the canal, with the purpose of developing a research model divided into various parts, which, once tested, could be easily applied to the other basins involved, allowing for moving on to the next phases of the investigations, with relatively certain plans and cost estimates.

This expedition was never initiated, because the authorizations never arrived: The country was subjected to strong international criticism, because a few months earlier, it had allowed a group of whitewater rafters to navigate the terrible Inga rapids, a rash and courageous enterprise that, despite the high professionalism of the French team, ended tragically with the death of the whole group.

Between May 28 and June 3, 1989, the Italstat group organized a meeting in Moscow on water resources, where I gave a speech on “Protection and Management of Resources—Future Scenarios,” including a presentation of the Transaqua project.

Again, in 1987, Italian TV journalist Mino Damato interviewed then Zaire State President Mobutu Sese Seko on Transaqua; on March 27, 1988, together with Niger’s Dr. Bukar Shaib, then-chairman of the Commission to Save Lake Chad, I presented the project on the RAI program *Alla Ricerca dell’Arca*; in 1990, I went to Tokyo with a collaborator, upon invitation from the most important Japanese engineering consulting company, Nippon Koei, to discuss the Transaqua project and, in particular, the Lagos-Mombasa road connection; and other similar initiatives.

Having said all this (reported in detail at [www.transaquaproject.it](http://www.transaquaproject.it), under the chapter “La Storia” [The History], it is impossible to comprehend why, still today, international specialized media insist on dating the birth of the Transaqua idea to 1992, i.e., exactly 10 years after its publication, despite all of the international initiatives developed before that date. Maybe, because in May 1992, Dr. Roberto Vacca and I again presented the



Videograb Courtesy of Dr. Marcello Vichi

*Dr. Marcello Vichi personally drafted the text of the Transaqua water project for the Sahel in the 1970s. The proposal to bring about a major upshift in the North African Biosphere, is now back on the agenda, as a corollary to NAWAPA.*

project at the “Second World Conference on the Environment,” in Rio de Janeiro. We were sponsored by Italstat, the holding company of the IRI conglomerate.

### **A Thirty-Year Battle**

This clarification allows us to express some useful considerations:

For 30 (and not 20) years, nobody has found it appropriate to even carry out an initial “feasibility” study of a proposal made by a firm which was the leading Italian engineering company. It is plausible for me to think that this is not due to a lack of information, but to lack of interest.

From the end of the 1970s, through the ’80s, in our country, there were firms and men convinced that the African continent would never be able to emerge from underdevelopment, without the courageous implementation of a series of large-scale, pan-African, international infrastructure projects.

The promotion of Transaqua began 30 years ago, a project with a transport network that envisioned not only 2,400 km of river “highways,” but also a “crossing” with the Lagos-Mombasa road axis, connecting the two ports on the Atlantic and Indian oceans: a real future highway which would also be connected to the Mediterranean through the Lagos (Nigeria)-Algiers Trans-Saharan road. In the general framework of such initiatives, which

the Office of Special Projects of my company, Bonifica, was developing in those years, Transaqua’s Lagos-Mombasa (Kenya) connection was to be called TA2 (Trans-African Two), because TA1 (Transafrican 1: Alexandria-Dar es Salaam) was being conceived, and a first draft was ready. The BB (Beirut-Basra) study was also already at an advanced stage, although I am unaware of its outcome, as I was not the head of the project. All of this documentation has been lost through the changes that occurred in the company.

Conceiving large-scale infrastructure projects for the African continent 50 years ago was not easy: Reliable maps and hydrological data were scarce; satellites were at an initial stage of functioning, and it was not possible to get images of the relevant areas, which U.S. space research centers refused to provide for military reasons; the Italian space center in Fucino, managing images from one satellite, was only able to provide information up to the northern

borders of the Sahara; cellular phones had not yet been invented and field radios were used, with limited range; the Internet was not even conceived, and so on.

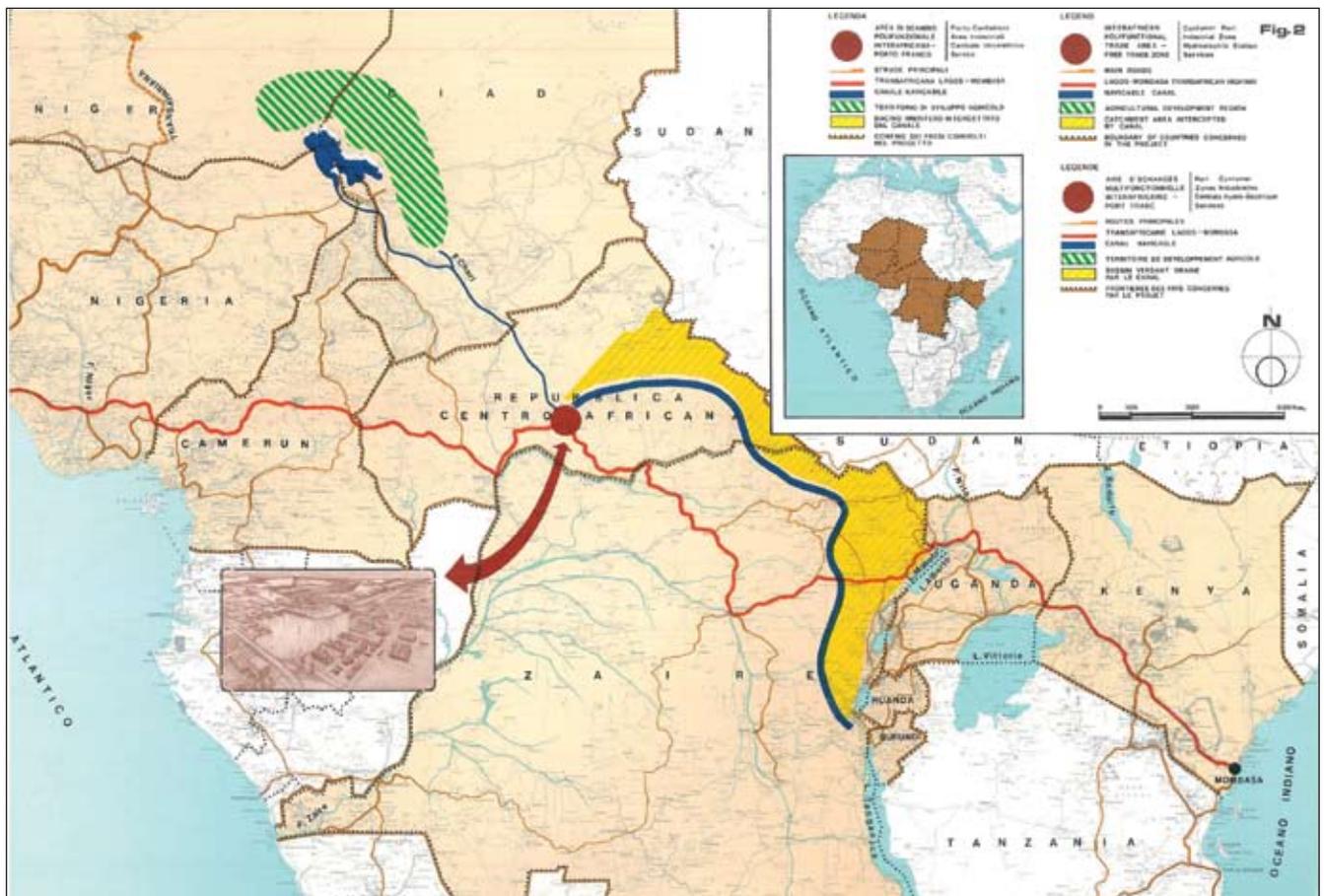
Why has the Congo/Chad water transfer become of interest again, today?

In my view, there are two reasons:

1. The enormous African population growth, and the related population pressure on Europe: In the last 30 years, as European population grew by about 4.5%, average population growth in Africa was about 85%, i.e., almost 20 times the European rate. In particular, Egypt went from 40 million inhabitants in 1980-81, to the current figure of approximately 75 million, with an increase of approximately 87-88%; In the same period, Chad had a 120% growth; and so on (Central African Republic, approximately 60%; Democratic Republic of Congo [D.R.C.], 130-140%; Nigeria, approximately 80%; Niger, 140%, etc.).

The scarcity of food and water resources per capita has become dramatic, and even more dramatic has been the absence or modesty of economic development processes, which has led to an absolutely unsustainable level of youth unemployment. In many countries of sub-Saharan Africa, endemic hunger—already present with traditional subsistence farming—has turned into starvation and despair, especially for the youth, leading them to risk their lives in order to try to reach Europe,

FIGURE 1  
**Transaqua: An Idea for the Sahel**



www.transaqua-project.com

where there is water and food. The “quality of life” does not count any more: life counts.

Didn't we know all of this 30 years ago? Of course we knew it; but we hoped it would happen as late as possible, hoping that the burden of finding a political solution to such problems would lie not on those responsible at the time, but on their successors. Thirty years ago, the presentation of the “Idea for the Sahel” (Transaqua) concluded as follows: “The units of measurement of the costs of investment are not only millions of dollars, but also the absence of wars, millions of human beings saved from starvation, social peace, and an international conscience.”

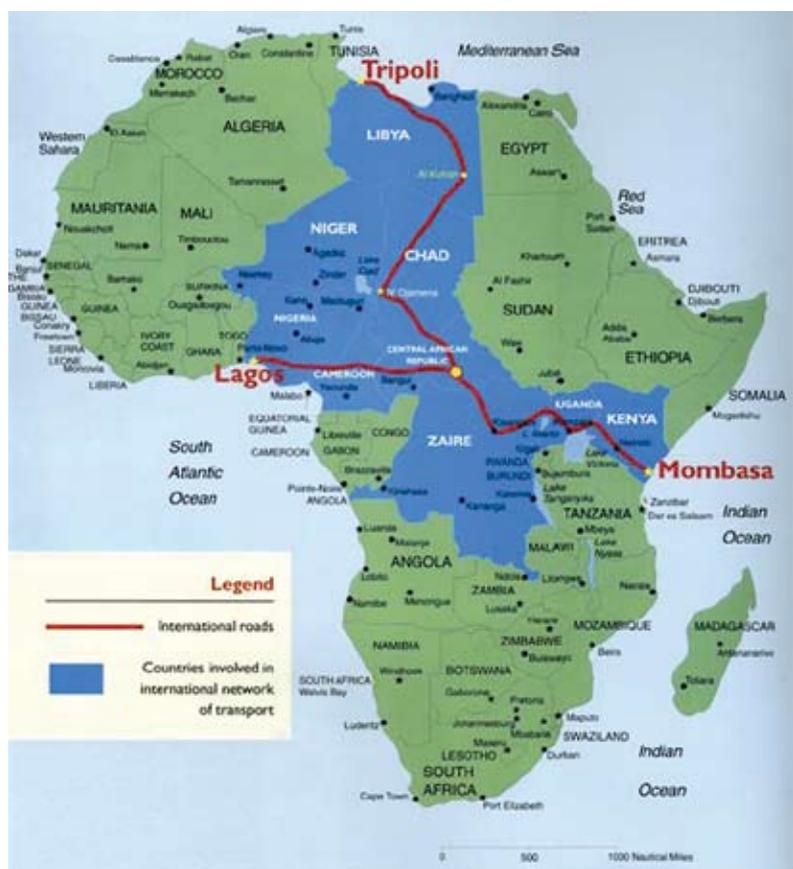
Recently, Sen. Emma Bonino, speaking at an event on “What’s Happening in Africa,” stressed that “European indifference is worse than the old colonialism, which at least created activities and jobs. We are paying for this indifference, and we have not yet seen the

worst.” Is it perhaps due to the certainty of an upcoming debt to be paid, that there are signs that Europe is starting to pay attention?

2. New technologies available today to deal with such projects: Thirty years ago, numerous “inspections on the ground” were required, and serious obstacles existed to finding reliable hydrological data and maps on a scale that allowed for a credible feasibility study. Today, this is faster and cheaper, thanks to satellites, and the great deal of information available on the Internet. If, 30 years ago, we thought of moving from the “idea,” to a “pre-feasibility study” in about two years, today, I think that a real “technical-economic feasibility” study can be completed in much less time. Such a study would suffice to define not only the relevant “social returns,” but also the “economic returns,” whose profitability in the long run was anticipated.

In case of a positive feasibility concerning the prob-

FIGURE 2  
International Network of Transport



able implementation of the project, new technologies could also be of great help in this phase, compared to 30 years ago, when it was judged that the timespan necessary to implement the project was one generation. Today, this would probably not change much, but the costs would change, being limited by the use of modern and future mechanical equipment.

### What Terms of Reference?

The Terms of Reference will have to be defined by a multi-disciplinary team of high-level experts with significant experience. They will cover all aspects of the project: geopolitics, technical-economic, financial, social and environmental aspects, etc., and consider the principles that inspired the Transaqua idea. Just to recall the main aspects and to stress their importance, we list here the most important ones, well aware that this is not an exhaustive list.

- The geopolitical survey, aimed at establishing, as

a priority, the desire of African countries directly involved in the project to reach agreements on non-belligerence, border controls, and security guarantees for experts and economic operators (possibly through the establishment of an ad hoc Consortium);

- Study of the canal route on satellite-based maps in the appropriate scale; appropriate updating and verification of minimum/maximum and average carrying capacities of the main tributaries to be intercepted, as well as the water systems of the two most important tributaries of Lake Chad: the Chari and Logone rivers; calculation of carrying capacities subtracted from all catchment areas intercepted by the canal; verification of the slope of the lay-out to confirm the first principle informing the project, i.e., that water transfer occurs using gravity, excluding large pumping stations; geotechnical and engineering studies to identify the most appropriate hydraulic and construction technical solutions;

- Study of the various hypotheses of canal length, taking into account the second principle informing the project, i.e., the transfer towards Lake Chad of an amount of water that, in a certain period of time (which could be short or long), is able to restore the surface of the lake to at least 20-25,000

square kilometers. Clearly, this could be achieved in the shortest time with a transfer of ca. 100 billions cm/annum, or, in a longer time, with a minimum transfer of 70-80 billions cm/annum. Below those levels it would not appear to be useful to go ahead with the project, unless one wants to confine it to limiting the losses due to evaporation of the residual lake surface, which not even the Chari and Logone capacities seem to be sufficient to replace;

- Study of the characteristics of the various segments of the canal, evaluating the suitability of its maximum length, estimated to be approximately 2,400 km, and the minimum length, estimated to be approximately 1,700 km; that is, whether it is more advantageous to start the canal in a locality close to Bukavu, west of Kivu Lake, or to start it at the height of the Aruwimi River, a tributary of the first large catchment area intercepted.

- Study of the navigability of the canal, taking into account the third principle informing the project: that,

along with the water transfer, the canal must also constitute a transport waterway in an area of the D.R.C. and the Central African Republic that completely lacks reliable transport infrastructure;

- Study of the technical feasibility and determination of possible sites to build a “multi-functional area of exchange,” taking into account a fourth principle informing the project: i.e., that in order to reach Lake Chad, the water mass that will flow in at the head of the Chari river is first accumulated in a large reservoir on whose shores a series of agro-industrial plants should be built, able to transform and package agricultural and zootechnical products resulting from the development of a very large area—currently without any lines of communication—crossed by the canal and transported on barges through the canal, until the “multi-functional area of exchange.”

- Study of the international road, railway, and port interconnections, taking into account a sixth principle informing the project: i.e., that in its “fall” through Lake Chad, this mass of water can generate a huge amount of electricity, fully usable on-site, in part for Chad, and in part supplying energy to the new river ports that could surely be built at the confluence of the canal and the rivers intercepted by the canal in the territory of the D.R.C. and the Central African Republic; and also, a study of a hydroelectric power plant in correspondence with the Multifunctional Area of Exchange and determination of sites on the Chari River, suitable for the building of dams equipped with hydroelectric plants;

- Agricultural and zootechnical study that takes into account a seventh informing principle: i.e., that once Lake Chad is re-created with its minimally acceptable dimensions, the anticipated water volumes could be used, together with the water of the Chari and Logone rivers (the two main tributaries of the lake), to make up for the losses from evaporation, and the surplus could be used for irrigation and other civilian purposes. Determination of the sites, both in Chad and in the Central African Republic, as well as in the D.R.C., susceptible of hydroagricultural, zootechnical, and halieutic development; identification of agricultural and zootechnical potentials of the various sites; water consumption, production, commercialization of production in the African countries connected through the international transport network; the possibility of developing foreign markets through the rapid reaching of ports on the oceans and the Mediterranean, especially for processed or packaged products, etc.

- Environmental study: the impact that this monumental project could have on the environment, and in particular, on the interruption which the canal could produce in the wooded area; how to partially remedy this situation through works to reconnect the two shores of the canal (types of connections, their frequency, ensuring they do not obstruct navigation, etc.); evaluation of an “environmental balance” among these weak points of the project and the strong points of the re-creation of Lake Chad, with its consequences;

- Socioeconomic study: short-term consequences on local populations involved in the project in terms of the creation of millions of jobs at all levels, influence on living standards, resulting increase of consumption and development of the service sector and related activities. Long-term socio-economical development to create jobs resulting from the management of the infrastructure built, which will last in time: agricultural, zootechnical and agro-industrial activities; activities related to river and port maintenance and management; activities related to the management of hydroelectric power plants; activities related to the increase of trade and the development of the service sector and the activities linked to industry and trade. Forecast for at least 30 years.

Transaqua could become the largest African development pole—maybe one of the largest ones on the planet—which during its construction and the subsequent management, could employ labor and professional activities both locally and from all countries of the continent. It could offer an enormous labor market to many generations of Africans, without forcing them to play the Europe card—where the labor market is very hard for Africans, uprooted from their natural and cultural environment. On their own continent, and even considering the inevitable differences due to different cultures and ethnicities (but still all African!), Africans could build a series of local development models generated by this enormous continental infrastructure project.

Almost thirty years have been lost—at least concerning the verification of feasibility—during which Europe and Africa have paid very high economic and political costs, but above all human costs, resulting from the almost biblical exodus which has driven, and is still driving people who are desperate due to the lack of water, food, and work, to cross the Sahara to reach the mirage of Europe, which is often hostile.

*www.transaquaproject.it*