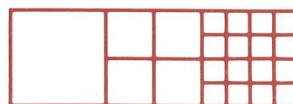


"TRANSAQUA"



BONIFICA S.p.A.
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CENTRAL AFRICAN — «TRANSAQUA»

The «Pivot» role of the Central African Republic

1. The TRANSAQUA Project, in its Central African stretch, assuredly displays its most qualifying aspects, at both technical and social and economic level.
It is in the Central African Republic, in fact, that the project's most demanding technical engineering problems have to be resolved, considering that in this stretch the waterway will have to cross the divide between the Zaire-Lake Chad catchment areas, will have to feed an artificial lake which will be the basic infrastructure for a river port for containers, and lastly will have to link up with the country's major road: the Lagos-Mombasa Trans-African Highway.
From the functional aspect, the Central African area will host the vital centre of the TRANSAQUA Project and the system's operational nucleus.
In point of fact, the complex of works made up of the incoming canal, the balancing basin, the dam with its hydroelectric station, and the link roads with the Lagos-Mombasa Trans-African Highway, will constitute the Inter-African Polyfunctional Trading Area (I.P.T.A.), provided with an industrial free port area and a container port.
The geographical position of the Central African Republic, penalized by the lack of ocean outlets, is instead — in the context of this TRANSAQUA Project — privileged by its location straddling the Oubangui-Chad divide, enabling it to assume the highly important role of pivot between these two catchment areas.

Some technical considerations

2. The canal in the TRANSAQUA Project will flow through the territory of the Central African Republic for a length of approximately 800 km, in the northeastern part of the Zaire basin, drained by the OUBANGUI and its tributaries. The canal will run more or less parallel to the divide with the White Nile catchment area.
The canal alignment will then make a westward turn until it crosses the divide with the CHARI catchment basin at the most favourable point, the canal then discharging into said basin.
In Central African territory the canal will intercept the upper OUBANGUI basin in the area of the highest catchments of its right-bank tributaries as well as the right-bank tributaries of the River MBOMOU, in its turn the major tributary of the OUBANGUI and marking the northeastern border with the Republic of Zaire.
In its course the canal will drain an area of about 80,000 km² which will contribute some 20 billion cubic metres of water a year to the TRANSAQUA canal, i.e. about 10% of its total discharge.
This offtake from the right-hand part of the upper basin of the OUBANGUI, together with the water diverted from the left-hand part of its upper basin in Zairian territory, estimated as a further 25 billion cubic metres a year, will mean a decrease of approximately 18% in the total discharge of the river at its confluence with the ZAIRE, currently 6,000 m³/s. About 60% of this total offtake will concern the Central African Republic, and some 40% Zaire. The offtakes resulting from the canal drainage through the Central African Republic will be concentrated during the months of heaviest rainfall, in this way contributing towards regularizing river flows and controlling floods, by means of a series of balancing basins constructed along the canal.

The canal runs from south to north, as follows:

- the southernmost stretch of the canal enters Central Africa at 27° E and approx. 5° N, intercepting the River MBOMOU — which forms the border with Zaïre — in an area between Obo and Bambouti. Then, running through the UPPER MBOMOU region at elevations of around 700 m a.s.l., it receives the waters of the upper stretches of the Rivers OUARRA, NGOANGOA, VOVODO and CHINKO, in their turn all right-bank tributaries of the MBOMOU. The basins of these rivers receive a mean rainfall generally in excess of 1500 mm a year, and their runoff coefficients appear to be between 20 and 30%. The contributions of these four basins are concentrated from the months of May-June to September-October, in which periods more than two-thirds of the annual rainfall occurs;
- the northern stretch of the canal continues with a broad sweep westwards through the entire region of the UPPER KOTTO at elevations of under 700 m a.s.l. until it reaches the southern slope of the Bongo Massif north of Yangalia where the mountain chain separating the two basins is at its lowest point (about 600 m a.s.l.). In this last stretch, the canal intercepts the KOTTO and its tributary the BONGOU, the KOTTO being in its turn a direct tributary of the OUBANGUI. The features of the drainage system of this region are not very dissimilar to those of the UPPER MBOMOU, although flows are smaller because of the lower rainfall (generally under 1000 mm/year) and the longer dry period;
- the stretch of the canal affecting the Central African part of the Chad basin will start in a crossing area to be identified between the upper BAMINGUI basin and the upper basin of its tributary, the KOUKOUROU, both of these rivers being tributaries of the CHARI. Their river beds, duly conditioned, could receive TRANSAQUA's flow of over 3,000 m³/s in addition to their own natural discharges. The flows of what will be in actual practice a new river will be conveyed along the whole western border of the Bamingui-Bangoran National Park, entering Chad at the northern boundary of the Park. From the divide to the border with Chad, the BAMINGUI drops from about 600 to 300 m a.s.l., meeting the CHARI at the frontier between the Central African Republic and Chad.

**Foreseeable
environmental
impact**

3. The interception of the flows of the Upper OUBANGUI basin and the offtake of a total of about 35 billion cubic metres annually (of which some 2/3 in Zaïre and 1/3 in the Central African Republic) will not only not have negative consequences but, on the contrary, will have considerably positive effects.

In fact, the drainage basins intercepted by the canal are generally characterized by a hydrological behaviour differing through the course of the year: the southern basins have more than 1,500 mm of rain a year distributed over about 6 months; the northern basins instead have more modest rainfall (800-1000 mm/year) concentrated in 3-4 rainy months alternating with 8-9 dry months.

In Central Africa, the canal crosses, in fact, a belt of wet tropical climate, in its

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southern stretch, and a zone of Sub-Saharan type climate, with a long dry season, in its northern part.

The immediate effect of the canal will therefore be to control the floods and to convey the waters of the rivers intercepted in the south to the watercourses intercepted in the more northerly stretch, either by means of direct flow into the rivers or by creating special storage and balancing basins. This water compensation system will be able to guarantee longer annual periods of water use of even secondary rivers normally dry for several months.

From the climatological standpoint there can be no consequences of any sort, since the canal does not form a concentrated water surface, as instead is the case when large artificial reservoirs are constructed.

The ecological effects on the natural environment, finally, will be comparable with those caused by making a large thoroughfare through a more or less virgin area. In view of the great abundance of ecological themes and the huge area concerned, the canal will produce only negligible consequences from this point of view.

4. The Central African Republic's support for the TRANSAQUA Project will bring in very great economic and political benefits to the country.
Being situated at the very economic centre of the TRANSAQUA system, indeed, the country can expect the advantages deriving from the establishment of the Inter-African Polyfunctional Trading Area (I.P.T.A.) which will be located in the Upper the BADINGUI Valley in an area between said river and its tributary, the KOUKOUROU. These advantages can be summed up as follows:
 - powerful development of commercial traffic due to the new waterway which could be connected, by means of two simple road links, with the Lagos-Mombasa Highway, and also with the river port of Bangui and, via this, by river, with Brazzaville and Kinshasa;
 - the creation, for the first time in the heart of continental Africa, of a large river port equipped to handle containers, linked with the ocean ports of Lagos and Mombasa;
 - the production of a very great amount of hydroelectric energy with the construction of a series of dams along the modified course of the BADINGUI, the first and most important of which will be situated at the I.P.T.A. (the hydroelectric potential of TRANSAQUA in its drop to the CHAD is estimated as some 30-35 billion kWh/year, 2/3 of it producible in the Central African Republic and 1/3 in Chad;
 - the establishment, in the I.P.T.A. area, of a vast industrial zone specialized in the agro-food sector, capable of ensuring, with the setting up of agroindustries of adequate size, the processing of the agricultural and animal products from the newly developed agricultural areas. These areas will be created, both in Central Africa and in Zaire, along the alluvial valleys intercepted by the canal, and will be served by river landing stages;

- the upgrading and development of the mining region traversed by the canal, including Bakouma, Bria, Mouaka and Ouadda;
- the recovery for production purposes of a region of about 100,000 km² today completely without any road network and which will be able to use the waterway link the IPTA and, through this, to ensure the movement of agricultural and animal products to be processed and the supply of production inputs, in their turn indispensable for the development of the new agricultural areas;
- a massive and unprecedented influx of capital and of international undertakings into the country, guaranteeing permanent employment for at least twenty years for the Central African population.

There is no doubt that the socio-economic impact which the country will receive as a result of the TRANSAQUA Project will be decisive and will condition the whole development of the Central African population in the short, medium and long term. The TRANSAQUA Project — with its direct effects and its induced and side effects — will provide a formidable boost to the country's socio-economic development, and will be projected into a productive dimension and a commercial logic anticipating development models which, in the coming twenty years, the African continent will have to adopt, exploiting the inestimable resources of its territory above all by means of exporting agricultural and food products, obtained with suitable and appropriate technologies, to adjoining countries and also to markets outside of Africa, increasing the dynamism of agroindustry, transport and energy production.

Since the design logic foresees the start-up of canal construction at the northern end, then proceeding gradually with construction in successive stretches southwards, the Central African Republic will be the country that will «lay the foundation stone» of the TRANSAQUA Project, the first worksite being opened along the Oubangui-Chad artery in the vicinity of a mountain «crossing» from which it will be possible to dominate, in a southerly direction, the equatorial water-donating areas and, northwards, the arid, desolate regions of the Sahel, the final recipients of said water. At this «crossing», Africa will be able to show that the most viable North-South dialogue is one that can take place within the continent itself.

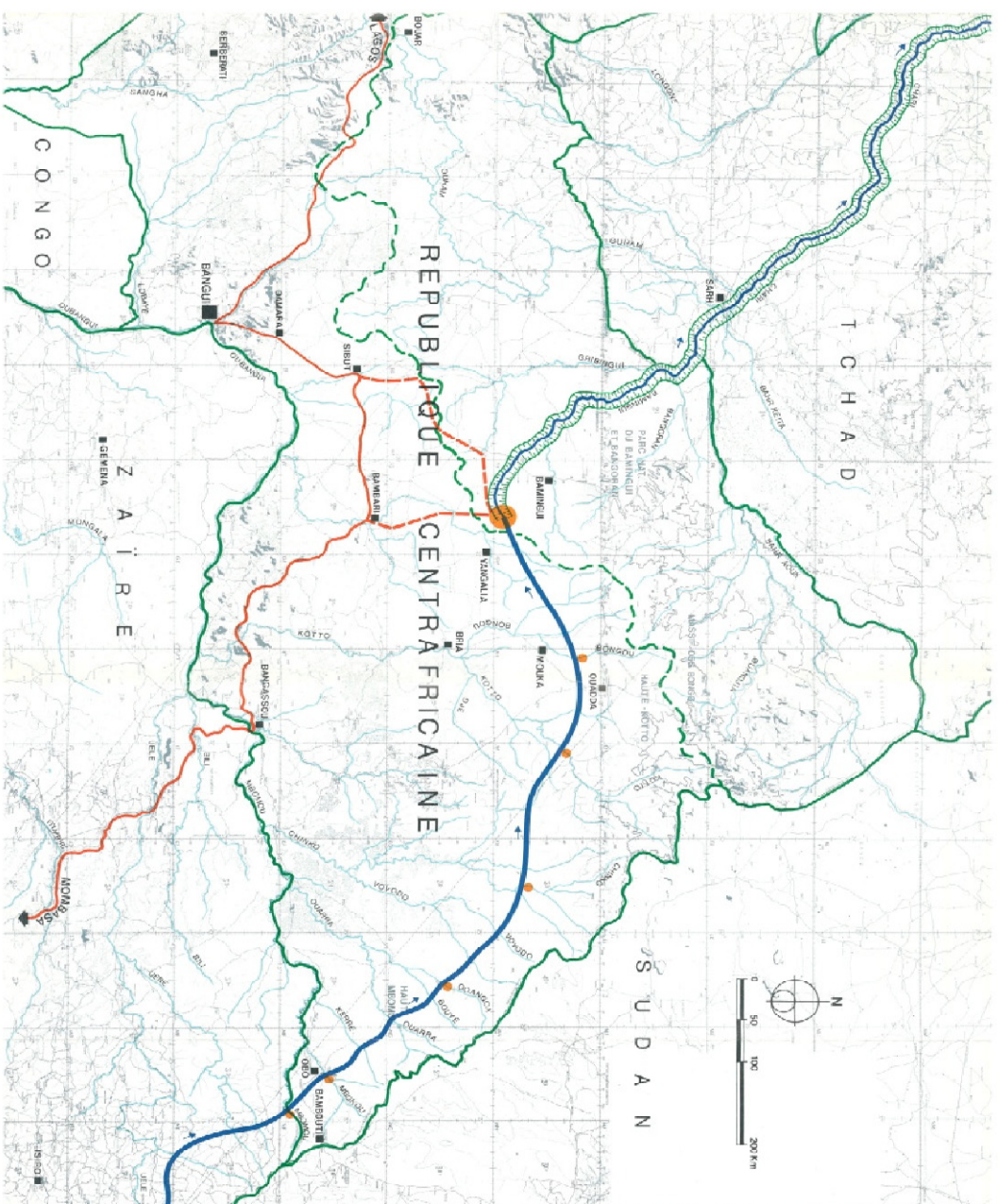


FIG. 1

- LEGENDE**
- SISTEMAZIONE DEI FIUMI
 - CANALE NAVIGABILE
 - CONFINI POLITICI
 - SPARTITACQUE
 - TRANSFRONTALI
 - LAOS-VOMBA
 - STRADE CONNESSE AL PROGETTO
 - AREA D SCAMBIO
 - PORTO FLUVIALE
 - CITTA MINICIPLE
- LEGENDE**
- TRADING WORKS ON RIVERS BRIMING AND CHAI
 - NAVIGABLE CANAL
 - POLITICAL BOUNDARY
 - WATERSHED
 - LAOS-VOMBA
 - TRANSFRONTAL HIGHWAY
 - PROJECT LINKED HIGHWAYS
 - TRADE AREA
 - RIVER PORT
 - MAIN TOWN
- LEGENDE**
- AMENAGEMENT DU BRIMING ET DU CHAI
 - CANAL NAVIGABLE
 - FRONTIERE POLITIQUE
 - LIMITES DE BASSIN VERSANT
 - TRANSFRONTALI
 - LAOS-VOMBA
 - ROUTES LIEES AU PROJET
 - AREE D SCAMBIO
 - PORTO FLUVIALE
 - CITTA MINICIPLE