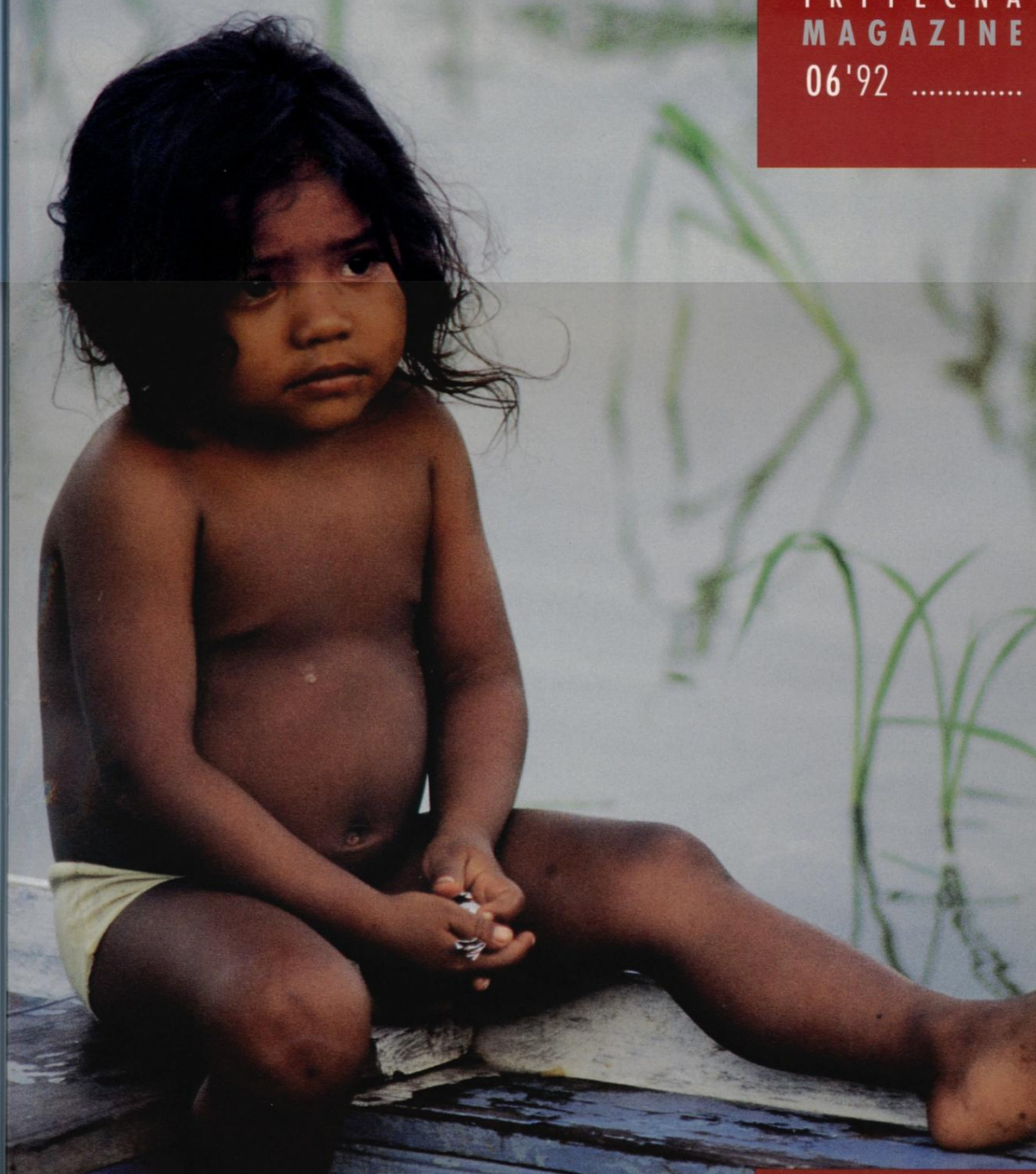


I'M

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Sommario

EVENTI EVENTS

Il degrado che unisce

The degradation which unites **2**

Mario Lupo - Vice Presidente IRITECNA

CONSAPEVOLEZZE | AWARENESS

Progettare il futuro, progettare la vita

Planning the future, planning life **12**

Ernesto B. Schiano - Amministratore Delegato IRITECNA

Lo sviluppo sostenibile

Sustainable development **14**

Umberto Colombo - Presidente dell'ENEA

Nascerà a Rio una "Carta della Terra"

An "Earth Charter" will be created in Rio **22**

Gabriella Manazza - Giornalista

La cultura dell'evoluzione

The culture of progress **28**

Giulio Rossi Crespi - Direttore Scuola Ambiente CASTALIA

Lo stato dell'ambiente in Italia: luci e ombre

The state of the environment in Italy: lights and shadows **34**

Marco Fano - Esperto in pianificazione territoriale e problemi ambientali

Il conto delle risorse

Accounting for resources **46**

Gianfranco Bologna - Vice Direttore Generale WWF

Summary

2	Inquinamento e salvezza del Mediterraneo Pollution and salvation in the Mediterranean 52 Gianfranco Merli - Componente della Commissione Ambiente del CNR e Segretario Generale dell'Autorità per l'Adriatico
12	Un progetto italiano per salvare il Sahel An italian project to save the Sahel 58 Marcello Vichi - Condirettore Generale BONIFICA
14	Sul mare incendiato On the burning sea 64 Antonella Vitale - Giornalista
22	La periferia vuole uscire dal ghetto The suburbs want to come out of the ghetto 68 Sergio Teresi - Relazioni Esterne BONIFICA
28	I rifiuti dello sviluppo Wastes of development 72 Giuseppe Tripaldi - Responsabile Ricerca e Sviluppo CASTALIA
34	Nel deserto la scoperta del riso In the desert in search of rice 76 Giuseppe Rosasco - Immagine e Comunicazione IRITECNA
46	OBIETTIVI AIMS Lo sviluppo auspicabile Desirable development 80 Fulvio Tornich - Amministratore Delegato IRITECNA

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The significance of a presence

The IRITECNA MAGAZINE has come out, albeit in a special, monographic edition, with the opening of the Second Conference on the Environment now being held in Rio. A leading international group like IRITECNA, which devotes its valuable financial, managerial and technical resources to large-scale works on the territory, could not miss this important meeting. But our holding - the result of a merger between two companies with a long-established reputation, Italstat and Italimpianti - has not only inherited a well-proven know-how enabling it to tackle the international challenge with renewed energy. It can also boast, through its affiliates operating worldwide, a rare and complex experience gained in the most delicate corners of the globe, from Sahel to Senegal, precisely in that sector of environmental protection to which this important summit is dedicated. All this, together with the package of projects created by IRITECNA companies (one of which, "Transaqua", supplies 100 cubic kilometres of water a year to Lake Chad), makes our group one of the most qualified to help redefine the industrialized countries' strategies for the big international cooperation plans.

In a certain way, the supplement to the IRITECNA MAGAZINE, in which these notes are to be found, acts as a "poster" for some of the topics of this conference. We have illustrated it with pictures of three disasters - the destruction of the Amazon forest, Chernobyl and the Haven supertanker accident (where one of IRITECNA's companies intervened). The Rio meeting wants to prompt a more informed mobilisation of the entrepreneurial energies engaged in finding an acceptable model of "sustainable development" against these kinds of risks. The cover of the supplement and magazine carries an image which touches our conscience and our responsibility as industrialized Countries.

Finally, IRITECNA MAGAZINE thanks all the companies, and particularly those of the IRI Group, which have contributed to the accomplishment of this project.

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ACQUA TECNOLOGICA

L'acqua è preziosa non solo dove manca, e non può arrivare nemmeno con avveniristiche condotte, ma anche laddove è abbondante, se viene inquinata dai processi industriali, dagli usi urbani e da pratiche agricole poco rispettose dell'ambiente. Proprio per questi motivi le recenti normative sullo sfruttamento delle risorse idriche considerano l'intervento antropico alla stregua di un by-pass sul ciclo idrologico naturale che deve causare la minore alterazione possibile della qualità della risorsa originaria.

La risposta alla crescente domanda di acqua deve perciò essere anche cercata attingendo a fonti non direttamente utilizzabili, ad esempio dal mare, o rigenerando le risorse degradate.

Tale soluzione, caratterizzata da un nuovo approccio al problema del reperimento di fonti idriche, si concretizza nella realizzazione di apposite strutture (dissalatori, impianti di depurazione) per la produzione di "acqua tecnologica".

Il riutilizzo dell'acqua derivata dagli impianti di depurazione è riservata a fini irrigui o industriali. E' subordinato però alla presenza di un sistema di trattamento completo e comunque non può eccedere il 60 per cento dell'acqua in entrata dal sistema fognario. Nella dissalazione, invece, il processo tecnologico di trattamento spinto permette di intervenire fortemente sulla qualità dell'acqua e di raggiungere facilmente le caratteristiche di potabilità.

L'incidenza di acqua proveniente da impianti di dissalazione trova un limite solo nei costi di realizzazione dei sistemi di trattamento e della loro gestione.

Già oggi, in relazione a queste caratteristiche, nel Nord Europa l'acqua di ricircolo dei depuratori arriva sino al 30% del fabbisogno, soddisfacendo quasi per intero la domanda industriale, mentre nei Paesi del Golfo Persico l'acqua dissalata arriva a coprire il 60-70% del fabbisogno totale.

Nel nostro futuro, però, ci sarà sempre più posto per l'"acqua tecnologica".

TECHNOLOGICAL WATER

Water is precious, not only where it is lacking and cannot even arrive with the aid of water pipes, but also where it is abundant if it becomes polluted by industrial processes, by urban uses, or by agricultural practices that do not respect the environment. It is for these very reasons that the recent standards for the use of water resources consider man's intervention a by-pass in the natural hydraulic cycle that must cause the least possible alterations in the quality of the original source.

The answer to this growing question about water must therefore also be sought by drawing from water sources that are not directly usable, for example, the sea or depleted sources that have been regenerated. This solution, characterized by a new approach to finding water sources, is realized with special equipment (desalting machines, purification plants) made for the production of "technological water".

The use of recycled water from the purification plants is reserved for irrigation or industrial uses. It is subordinate however to the presence of a complete treatment system and therefore cannot exceed the amount of 60% of the water from the sewer systems. In desalting, the technological treatment process allows for a strong intervention in the water's quality, which easily gains the characteristics necessary for potability. The discussion about water that comes from desalting plants becomes limited however regarding the costs of realizing the treatment system and maintaining it.

Already today, the percentage of recycled water by purification in Northern Europe has reached 30% of what is required, almost completely satisfying the industrial demand, while in the Persian Gulf countries the percentage of desalted water reaches 60-70% of the total demand. Perhaps in the future there will be room for "technological water".

Marcello Vichi

An italian project to save the Sahel

62

Water is becoming an ever more precious and rare resource for our planet and the need for this primary source has generated in the whole world a series of colossal projects that attempt to defeat a thirst that could become chronic. In China it has just been decided to begin construction, on the Yang-tse, of the biggest dam in the world, in the United States the construction of a colossal barrier is projected which should close the James Bay, to transform

deferments. It is enough to think of what has happened in the Sahel. At the beginning of the sixties imposing works were carried out to irrigate the territories which surround Lake Chad. Today, thirty years later, it is as if those works had never been carried out because the more than four thousand kilometres of canals which should have impeded the desertification of the Sahel are almost completely dry while the evolution of climatic processes in all those

drought rages and where water resources are lacking - and the other to the south, where precipitations and therefore vegetation are in abundance, but where ecological richness is not able to transform itself also into economic richness because of the lack of efficient means of communication.

With the BONIFICA project the mass of water of the Zaire river, the most important river of Africa and the second of the planet, is "impoverished" of only just 5% of its capacity for the operation of transfer into Lake Chad. Such a withdrawal, of absolutely no influence as regards the ecosystem of the river, is however capable of transforming radically the possibility of survival of 10 million people who at present entrust themselves to external help and to their extraordinary physical resistance.

The water removal proposed by "TRANSAQUA" is a theoretical capacity of 3200 cubic metres per sec., equal almost to double the capacity of the Nile to the north of Assuan.

Examining the topography of the Zaire river, technicians of BONIFICA have hypothesized the realization of a navigable canal capable of intercepting the waters of the extreme north-eastern margins to reach, after a distance of more than 2400 km, the Zaire-Chad watershed in the territory of the Republic of Central Africa. This latter, today penalized by the lack of outlets to the ocean, is rather extremely privileged by the project of the firm IRITECNA which invests it with the most important role of hinge between the two basins of the Oubangui and of Chad. A particular discourse must be made as regards the utilization of the waters.

In their "fall" towards Chad the 100 billions of cubic metres of annual water can develop - through a series of hydroelectric power stations - energy valued at about 35 billion KW, equal to about 20% of the entire Italian energy production (water, thermic and nuclear). Such a potentiality can without doubt change radically the aspect of present rural settlements in both qualitative and quantitative terms, and impart a vigorous impulse to future agricultural developments in the interested areas, with the construction of two electric cables of high tension, destined to distribute energy towards Chad and along the canal.

"TRANSAQUA" foresees, what's more, the involvement of the waters taken away from

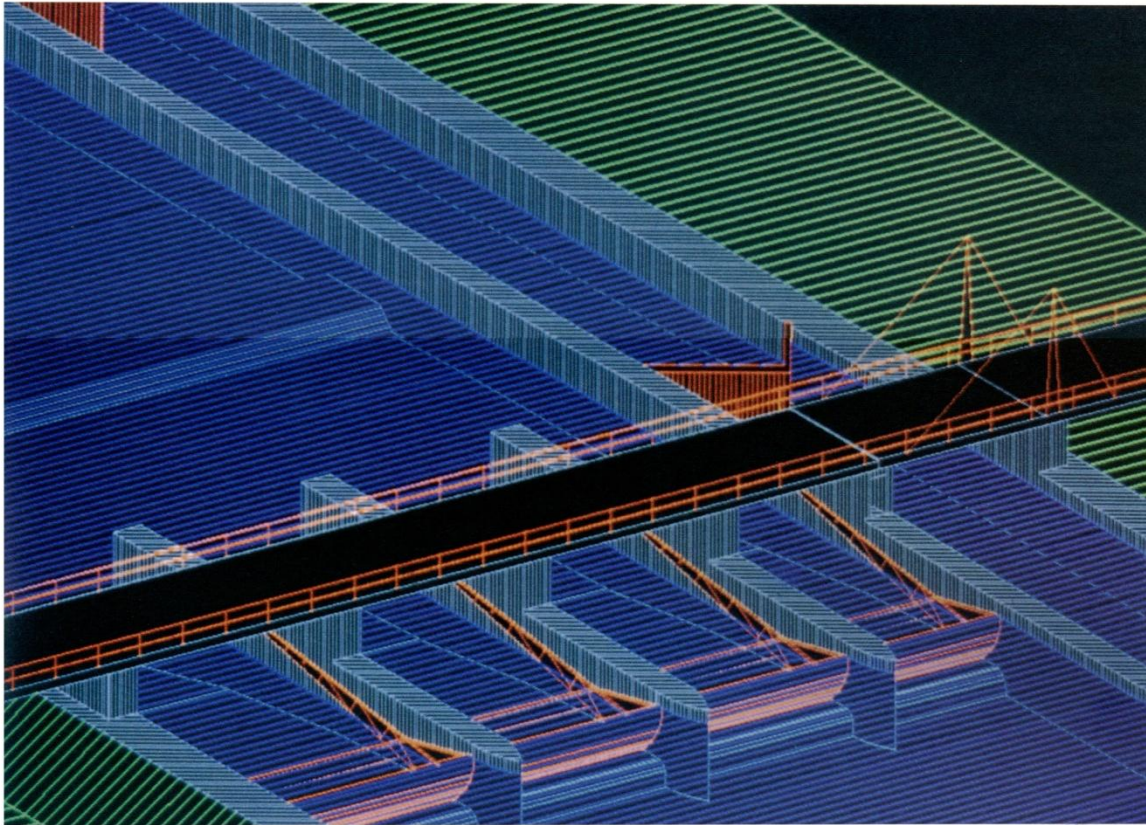
The "Transaqua" operation will permit the transference of more than 100 billion cubic metres of water from the Zaire river to the territories which surround Lake Chad helping towards the survival of ten million inhabitants.

into fresh water, to pump to the regions to the south, the water of the rivers that flow into the basin, while finally, the Israelis, are even thinking of widening the Dead Sea transporting from the Mediterranean more than a million and a half cubic metres of water per year through a pumping station and a tunnel under the hills of Beersheva. One could also talk of projects under investigation in other countries, like the ex-Soviet Union, but Africa would still remain the continent in which the problem of water resources has reached dimensions more than dramatic. The progressive drying out of the African continent has been particularly aggravated in recent years above all after 1980, because of the climatic "caprices" which have broken the ecological equilibrium represented for centuries by scarce and precarious natural resources, by an agriculture of subsistence and by the nomadism of shepherds. To all this, implacably, has been added a frightening and irrational demographic growth. All this has ended up by setting off a chain reaction of catastrophes, like those which struck the African populations in 1983-1984, but has also triggered off the awareness that it is now necessary to react rapidly and courageously to defeat drought and hunger creating no less than an agricultural revolution and stimulating at the same time the development of human resources and the valorization of the natural ones. The dangerous degradation of the environment does not permit us further

areas has even reduced the very dimensions of the lake. From this the decision to re-fill Lake Chad taking the water directly from the biggest African river, the Zaire, through which flows forty thousand cubic metres of water per second. From this the renewed certainty, on the part of the international community that the problems of the environment are not territorial but supranational because without a concrete answer to the needs of the third world also the industrialized countries will meet with grave difficulties in their future development. From this, finally, the commitment of Italy which, precisely in the African continent, has decided to enter the field with works which it would not be exaggerated to define Pharaonic to help thirsty Sahel. It will do it through BONIFICA, a firm of the IRITECNA group, amongst the first in the world in the sector of the advanced tertiary applied to territory, which has put together an ambitious project, defined as TRANSAQUA, which envisages the transference of about 100 billions of cubic metres of fresh water from the catchment basin of the Zaire towards the area of the countries of the Sahel, or towards those territories already semi-desertified which surround Lake Chad.

The validity of the project is supported by the geographical reality of central Africa; the watershed Zaire-Chad is a stupefying natural barrier which separates two grandiose catchment basins, one to the north - where

In the "fall" towards Chad the 100 billion cubic metres of annual water develop an energy calculable as about 35 billion kw.



Eidomatic elaboration of CAD of the canal for the transference of water.

the Zaire towards the areas of Chad, of Niger, of Cameroun and of Nigeria to favour for it agricultural development.

The idea of a water transference for its own sake would result certainly partial and insufficient if it didn't enter into the biggest system of African international transport: the projected transafricana road Lagos-Mombasa and the transahariana Lagos-Algeria.

The "TRANSAQUA" project must however be considered also in the context of large African international means of communication: it creates in fact a great fluvial "motorway" capable of connecting the markets of vast central-African "enclaves" like Ruanda, Burundi, the region of Kivu, the whole extreme north-east of Zaire and the Central

African Republic, with the centres of consumption of other countries of Central Africa (Nigeria, Niger, Chad, Cameroun, Kenya and Uganda) and with the two oceanic ports of Port Harcourt and Mombasa for extra-continental commercial fluxes.

Seen in the context of the countries of central Africa more or less directly interested in the network of international fluvial and land transport, "TRANSAQUA" surely represents a decisively propulsive element for the realization of the post-colonial African dream of an international economic and productive integration of the continent, which is also the unavoidable condition for economic autonomy and real political independence.

It is a project which is not limited to

improving and assuring the life of populations which live with privations, day to day, but which assures also a direct way to fluvial transport, permitting an increased economic, and why not, political integration to the countries which could benefit. New fertile lands could be cultivated and new activities in secondary and tertiary sectors would be created.

Now we can only wait for "TRANSAQUA", which has already obtained the adhesion in principle of all the interested states to come forth finally from the condition of project and become reality.