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## "PAESI DELL'AFRICA MEDITERRANEA E ITALIA: INTER DIPENDENZA E COOPERAZIONE ALLO SVILUPPO"

# CAIRO, 12-16 APRILE 1987

13/4 RELAZIONE SU "INTERDIPENDENZA E COOPERAZIONE: PROCESSO DI INTEGRAZIONE ECONOMICA NELL'AREA MEDITERRANEA"

#### "PAESI DELL'AFRICA MEDITERRANEA E ITALIA: INTERDIPENDENZA E COOPERAZIONE ALLO SVILUPPO" IRI/MAE, Cairo, 12-16/IV/1987

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## THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

lind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) — 12/16 april 1987

IRI/REG.CONF.II/CAIRO 87/PL/10

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ORIGINAL: ARABIC

ADDRESS

DELIVERED BY

ENGINEER MOHAMED MAHMOUD ABDEL WAHAB MINISTER OF INDUSTRY

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AT THE OPENING OF THE IRI CONFERENCE

CAIRO, 12-16 APRIL, 1987

Dr. Romano Prodi, Distinguished guests, Ladies and gentlemen,

I first wish to extend a warm welcome to you all, expressing the hope that the deliberations of your present Conference on the various topics before you will be crowned with success.

It also gives me great pleasure to express our profound appreciation to IRI who, in concertation with the Italian Foreign Ministry, chose our beloved Egypt as a venue for this important Conference, attended by those who participated in the training programmes organized by IRI, or those it organized, in cooperation, with UNIDO. This applies to the Egyptians, most of whom are attached to the industrial sector, and to African brothers from sister countries.

The response of the Egyptian Ministries of Foreign Affairs and Industry was most appreciative of the choice of Egypt as venue for such an international meeting, given the Arab and African dimensions it involves, let alone its significance in terms of the cooperation existing between Egypt and Italy who have been enjoying close links in all fields that date back to the earliest eras of history, and are expected to grow even closer in the future. Ladies and Gentlemen,

At the outset of our Meeting, I wish to address myself briefly to some aspects of technical cooperation between the Italian Government, represented by IRI, and the Egyptian Government, represented by the industrial sector.

1) In July, 1975, the Italian and Egyptian Governments signed a Technical and Cultural Agreement in the training field. By virtue of this Agreement, the Italian side was called upon to draw up training programmes to be organized in each of the two countries, in the fields of maintenance and personnel training, as well as grant scholarships in various industrial fields.

The volume of Italian assistance at that time stood at \$400,000 for the years 1976-1977 devoted to the following programmes: maintenance management industrial maintenance - mechanical maintenance electro-mechanical maintenance - equipment maintenance car maintenance - and training of personnel.

- 2) An Agreement was signed by the Italian Government, represented by IRI, and the Egyptian Government on industrial vocational training for two years, as of July, 1977. Under this agreement, specialized training programmes were organized in Italy and Egypt for technicians, industrial maintenance administrations and instructors for cooling, air-conditioning and humidification systems.
- 3) In December, 1979, a draft protocol was signed by the two countries for a period of two years (1980/81 -1981-1982). By virtue of this protocol, specialized training courses were organized for engineers and specialists attached to the Production Self-Sufficiency and Vocational Training Organ, and to industrial firms.
- 4) In February, 1983, the Italian Government agreed to finance an assistance programme for specialized training, with a view to developing vocational training, within the context of technical cooperation between the Egyptian

Government, represented by the Production Self-Sufficiency and Vocational Training Organ, and the Italian Government, represented by the Italian Training Authority (ANCEFAP).

5) A protocol was drawn up between the two Governments for the years 1983 and 1984, that covered a number of specialized training programmes to be organized in Italy for the personnel involved in training planning, programme specialists and instructors and also aimed at upgrading the skills of technicians, attached to the Production Self-Sufficiency Organ and to industrial firms. Each course will be preceded by a few weeks devoted to the learning of the Italian language, and followed by a few weeks for follow up purposes in Cairo, as regards returning trainees.

This is in addition to a vocational orientation programme for individuals, programmes for directors of centres and supervisors of theoretical studies. These programmes shall also be organized in Italy, in the form of scholarships, to be equally preceded by a few weeks to learn the Italian language and followed by a few weeks of follow up purposes in Cairo, as regards returning trainees.

It is noteworthy that the number of trainees who attended the above-mentioned courses which amount to 343, are all attached to the Production Self-Sufficiency and Vocational Training Organ, and to industrial firms.

Distinguished participants,

This brief expose is very indicative of the extent of technical assistance existing at the level of Italy and Egypt, in one of the most vital fields, that of training

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industrial cadles and enhancing their skills, in terms of a sound performance and assimilation of the appropriate technology, to keep pace with all developments, in the interest of the socio-economic development projects in Egypt.

May God Almighty bless your deliberations at your working sessiors, I firmly believe that you will arrive at the hoped for results.

However, I also hope that the programmes for our foreign and African guests will also avail them the opportunity of visiting some of our touristic landmarks, which bear witness to the civilization of Egypt over the ages, past and present.

> I wish you a pleasant stay, and success in your work. May God's peace and blessing be upon you.

## Minister of Industry

#### Engineer Mohamed Mahmoud Abdel Wahab

#### THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

lind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes

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THE STATE OF RELATIONS BETWEEN THE

COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY

IN THE FIELD OF COOPERATION FOR DEVELOPMENT

By:

General Director of Cooperation for Development

Minister PATRIZIO SCHMIDLIN

Ministry of Foreign Affairs

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## THE STATE OF RELATIONS BETWEEN THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY IN THE FIELD OF COOPERATION FOR DEVELOPMENT

Paper by the Plenipotentiary Minister Patrizio Schmidlin General Director of Cooperation for Development Ministry of Foreign Affairs

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On February 26th of this year. the Italian Parliament approved the text of a new law on cooperation with developing countries. Later on, we shall have a chance to come back to this important legislative deed; for the moment, I wish to call ቴርጋ concept which is contained in the first article of miod this new law. Art. 1 states: "Cooperation for development <u>i</u> 5 an. integral part of Italy's foreign policy and pursues objectives of solidarity among peoples and full attainment of the basic rights of man".

I wanted to draw your attention to this because in the geographic area to which this Meeting is dedicated, namely in the belt of countries overlooking the Southern Mediterranean, the "political" worth of Italian cooperation is especially evident; cooperation which is one aspect, one facet of the policy pursued by the Italian Government with a view to peace and solidarity among peoples.

We are aware that the Mediterranean is a vital area for the security and well-being of our own country; we are aware that the stability and development of all its components are the guarantee for the stability and the development of each one of them. This o+ten Italy's basis of what. is called. awareness i S the vocation" which is encouraged in the various "Mediterranean international centres, beginning from the European Community.

In this regard, I also wish to recall, during the year which signals its thirtieth anniversary, that right from the start the European Community, has practised a "Mediterranean policy" of cooperation; just over the last few weeks, the Cabinet has come to an agreement - with a significant contribution from the Italian delegation - regarding the <u>third generation</u> of <u>Mediterranean financial protocols</u> which envisages, an overall average increase in resources of 60% with respect to the previous protocols (615 MECU in balance aid and 1003 MECU in BEI loans).

The Italian financial law for 1987 envisaged for Italian public aid to developing countries, an overall- sum of 4000 billion line (including contributions to multilateral organisms). It is a figure which, according to estimates, should represent 0.4 of the Gross Internal Product. The goal declared remains at 0.7 of the GIP before the end of the decade.

Over the last five years, the rate of increase in Italian public aid was, in real terms, the highest of all OECD-DAC members: 3.7% the average overall increase recorded by the latter, 21% recorded in Italy.

In fact, we believe that public aid to the developing countries has become a fundamental factor in the current structure of international relations and that it should be intensified during a phase in which financial contributors from the private sectors have decreased and the proceeds generated by exports of basic products have dropped to the lowest levels reached over the decade.

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How do the countries of Mediterranean Africa fit into this framework: Their position is one which enjoys a special degree of priority, owing to evident historical, geographic and political Feasons.

The belt of countries stretching from Morocco to Egypt therefore represents a "privileged area" for Italian cooperation.

Naturally, the specific conditions true to each one of them different approaches: consideration of economic indicate such as the annual per-capital income, places indicators, restrictions on the activities which can be financed with Italian public aid (donations and aid credit). Nevertheless, the fact remains that three of these countries have always been priority countries for Italian coopenation (I am referring to Egypt, Morocco and Tunisia, and that for a fourth (Algeria), it was recently agreed, on the occasion of the Mixed Commission held in Rome last January, to open up opportunities for recourse to aid credits, in the form of mixed credits, for individual projects precisely geared toward development aid.

With the intention of providing some figures to give an example of Italian committment, I would recall the following: from 1981 to 1986, from a total of around 3.500 billion line put to use in donation projects in all the developing countries, around 650 (i.e. more than 18%) were earmarked for the Mediterranean basin area. If we then take a look at the data relating to the distribution of aid credit - which has always been the most suitable instrument for cooperation with countries

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such as those at the southern edge of the Mediterranean) already equipped with structures which are potentially admitting of self-supported development processes - we can see that the percentage rises to 34%: in fact, and again from 1981 to 1986, of a total of around 1,600 billion line of aid credit distributed, a good 540 billion was assigned to countries in the Mediterranean basin.

Looking further into these data, one notes that of the total sum of donations destined for the Mediterranean basin during the same period, a good 367 billion (that is, more than 57%) were allocated to the three already mentioned. Priority countries: Egypt, Morocco and Tunisia. As regards aid credits, these same countries have benefitted from over 150 billion (tree, from a total of 542 allocated to the area, which gives a percentage of 28%.

The accounting data become more significant if at the same time we consider the nature and contents of our cooperation activities with Mediterranean Africa.

By far the most common form was that of the <u>aid</u> <u>eroject</u>, within the framework of the <u>multi-year</u> <u>packages</u> of intervention agreed upon with the individual countries during the special intergovernmental meetings: I recall that for Morocco a two-year wrogramme outlined by the Mixed Commission has been underway since April 1986; for Tunisia the 185-187 three-year programme is nearing completion, arranged during the meeting of the Prime

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Ministers and Ministers for Foreign Affairs in December 1984; for Egypt, there is the programme approved by the High Mixed Commission in January of this year.

Our endeavours have been concentrated in those <u>sectors</u> deemed priority by the respective hational development plans and by the Italian regulations on cooperation in development: in first place agriculture (including agroindustry and fisheries), then energy, the economic and social infrastructures, the health sector. <u>Professional training</u> merits a mention of its own; it is a component present in virtually all of our cooperation ventures. In fact, we believe that investment in a country's human resources is, both in the medium and long term, the most productive; we believe that one ought to pursue an objective of endogenous development, as regards human resources, through constant training, an excellent instrument for the transfer of technological and managerial know how.

In 1985, we allocated 60 billion line in donations to receive more than 3000 technicians, personnel and managers from the developing countries who attended training courses in Italy. Of these, 18% came from developing countries in the Mediterranean basin. This endeavour was set underway with the aid of a good 45 different Italian training boards and the involvement of university institutes, public and private firms, research organisms. I particularly wish to underline this aspect of Italian cooperation in circumstances such as these, where we have

gathered together the managerial staft of the Mediterranean countries who have participated on one of the IRI or UNIDO-IRI courses, or other training or professional specialization courses run by the Ministry of Foreign Affairs-IRL.

The work of this regional Meeting and the indications which will result from it, will give reason for careful thought on Italian cooperation.

In addition to programmes in Italy, we have completed numerous training ventures actually in the beneficiary countries themselves: creating centres in the developing countries and sending our instructors over enables a greater number of people to be trained and affords a swifter response to employment trends. <u>Among the many ventures embarked upon in the countries</u> of Mediterranean Africa, 1 wish to recall but a few:

In Egypt, two programmes for professional training of staff and technicians in the PVTD (Professional Vocation Training Department) and in the GOF1 (General Organization for Industry); the programme for the intensification of professional training activities in the mechanical engineering sector at the technical institutes in Cairo and Alexandria; two professional training EEA (Egyptian Electricity programmes for personnel from the the SOPC (Suez Oil Processing Company); Authority) and the training programme in the automobile servicing sector for NASCO, and sea training for the exercise of fishing activities. Lastly, important workshop-school in the prestigious archeological an area .of Sakkara and a protessional training programme linked to the recovery of the historical Devish theatre.

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- In Morocco, two large training centres in Tangiers and Casablanca, in the mechanical engineering and textile industry sectors respectively, to complete the previous programmes set underway in the same sectors in Settat and on behalf of the Applied Technology Institutes.

In Tunisia, integrated training programmes in the sector of petroleum activities, in that of the running and servicing of electric power stations and in fisheries: in addition, a programme of technical and and professional training to set up the National Centre for building materials, ceramics and glass.

- In Algeria, a programme of several years duration at postuniversity level at the Ecole Politechnique d'Architecture Urbaine.

In Libya, training programmes for personnel specialized in the sector of recovery and protection of archeological monuments.
 I have attempted to give an extremely concise, but necessarily incomplete picture of what Italian cooperation has achieved together with partners in Mediterranean Africa. At this point, one might ask what are the prospects for the coming years. In an attempt to give some idea of the outlook, several things must be said beforehand regarding the economic situation involving the region and the more urgent problems this causes for development.

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Mediterranean Africa, too, is undergoing the negative effects of an economic situation characterized by the halving of crude oil prices over the last three years, by a notable drop in the return of emigrated workers, by a fall-off in the tourist movemen and by international raw material costs at their lowest levels in history. Each country has been affected, and will continue to be affected, to different extents, according to the economic and social structures present.

The general picture seems worsened by the slowing down in the recovery of the economies in industrialized countries, particularly that of the United States of America. The dollar depreciation witnessed during the last three months of the past year, further reduced the buying power of developing countries on the markets other than the American market. In this economic Framework, the years which remain at the close of this decade are seen by many as crucial transition years: years which must test whether it is possible for developing countries to return to a position of Financial credibility and supported growth like that of the '70s. The outcome will depend upon political choices made by Governments in the developing countries and the industrialized countries. The countries of Mediterranean Africa are  $\Box \Box$ have, however - and this is perhaps the exception; they most encouraging aspect - the advantage of possessing a clear awareness of the situation and of having resolutely . positioned road toward chemselvés 👘 σn the policies for structural eadjustment. To a different extent this is true for Egypt, for

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Tunisia, for Morocco and also for Algeria. It is comforting to noté in these Governments a committment to reviewing and modifying national structures and policies, not to mention the use which is made of external financial flows. In effect foreign debt cannot be considered an isolated phenomenon, something which occasionally becomes a reason for crisis. The causes remain upstream; and they must be adoressed.

All this backs the <u>renewed</u> interest in Europe on the part of. countries in Mediterranean Africa, an interest which i s manifested in the form of an increased demand for cooperation. It a phenomenon which we have witnessed in the is numerous intergovernmental meetings and which merits all our attention. Even more than in the past, there is in these countries a clearcut awareness of the imperative nature of their relationship with Europe, something which is highlighted in a rather paradoxical manner by the demand for EEC membership put forward by Morocco. Europe remains the main market for petroleum and gas; in addition, while a certain need is experienced by the States in the region to diversify their own economy, the importance of:

Europe as a supplier of technology, know-how, capital increases, not to mention representing a significant outlet market for non-Petroleum products.

<u>Cooperation is, more than ever before; the compulsory</u> <u>response</u>. As during the 70s, at the time of the petrol shocks, it is in the basic interests of all, industrial countries and Mediterranean developing countries. In fact, although the

advantages and disadvantages of the current economic situation seem to be distributed in a somewhat unequal fashion, the overall result, namely increased political instability, is prejudicial to all.

Italy is ready to take on its share of the responsibility; among other things, it demonstrated this availability a little more than a month ago by approving a new law on cooperation for development which restructures this important field of its foreign policy in an organic manner. We are ready to respond to the increased demand for coopertion coming from the countries in Mediterranean Africa and we have the political willingness to do

so.

As in the past, it is to be within a framework of dialogue with our partners that we shall establish the most suitable directive lines and forms for this cooperation. The plans for structural readjustment are to be supported. concentrating endeavours in the directly productive sectors, in particular agriculture and industry. With regard to agriculture, the aim is to reduce and eliminate food dependence, which unfortunately has increased over the last five years. As to industrial cooperation, understood in the broad sense in order to include scientific, technological projects etc., endeavours must be geared toward setting in motion the process of direct investments, that is, of cooperation between Italian firms and those in Mediterranean Africa. In achieving this, the role of public aid is to be that of catalyst.

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The new law on cooperation opens up interesting prospects in this direction, establishing that facilitated credit may be granted to Italian firms, with partial financing of their risk capital quota in mixed undertakings to be realized in developing countries with the participation of investors, public or private, in the receiving country.

The instruments and political willingness do exist then. It is up to the operators engaged in cooperation between Italy and Mediterranean Africa to make the best use of it in order to attain results which meet the expectations of our peoples and the needs of the present situation. This regional Meeting is an important contribution in this direction and as such will not fail to produce the effects we are all hoping for.

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### THE COUNTRIES OF MEDITERRANEAN AFRICA, AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

lind Regional Conference for Participants In IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) - 12/16 april 1987

#### IRI/REG.CONF.II/CAIRO 87/PL/06

ORIIGNAL: ENGLISH

PROF. ROMANO PRODI

CHAIRMAN OF IRI

## THE IRI GROUP: TECHNOLOGY DEVELOPMENT, SECTORIAL

### STRATEGIES AND FOREIGN COMPONENT

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## THE IRI GROUP: TECHNOLOGICAL DEVELOPMENT, SECTORIAL STRATEGIES AND FOREIGN COMPONENT

## I. IRI IN THE INTERNATIONAL CONTEXT

IRI IS ONE OF THE LARGEST WORLD GROUPS, IN THE LAST FORTUNE SCALE (REFERRING TO 1985), IRI IS PLACED:

- IN TERMS OF TURNOVER, 14TH IN THE WORLD, IN 3RD PLACE EXCLUDING USA FIRMS, IN 1ST PLACE EXCLUDING THE PETROL COMPANIES;
  - IN TERMS OF EMPLOYEES, IN 2ND PLACE IN THE WORLD AFTER GENERAL MOTORS,

IN 1986 THE IRI GROUP REALIZED A TURNOVER OF MORE THAN 30 BILLION DOLLARS, WITH AROUND 450 THOUSAND EMPLOYEES.

## IRI IN THE ITALIAN ECONOMIC CONTEXT

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IRI IS, THEREFORE, THE <u>LARGEST ITALIAN GROUP</u>, WITH AN AMPLY <u>DIVERSIFIED STRUCTURE</u> IN TERMS OF PRODUCTIVE ACTIVITIES:

- FROM IRON AND STEEL (55% OF ITALIAN PRODUCTION) TO ELECTRONICS (98% OF COMPONENTS INDUSTRY, 50% OF COMMUTATION SYSTEMS), TO AEROSPACE (55%) TO SHIP BUILDING (70%);

2.

- FROM ENGINEERING TO PLANT CONSTRUCTION INDUSTRIAL (25%) AND ENERGY (65%) - AND LARGE CIVIL WORKS;
- FROM TELECOMMUNICATIONS (82%) TO AIR TRANSPORT (91%) AND SEA TRANSPORT (21%), TO CREDIT (17%).

## 3. IRI AND THE ITALIAN SYSTEM OF STATE PARTICIPATION

IRI IS NOT A PUBLIC ENTERPRISE, BUT AN ITALIAN STATE BODY ENTRUSTED WITH THE MANAGEMENT, BY MEANS OF SHARE HOLDING, OF OVER 450 COMPANIES OPERATING IN THE SECTORS QUOTED.

(IF NON-CONTROLLING SHAREHOLDINGS ARE ALSO TAKEN INTO ACCOUNT, THE IRI GROUP OPERATING AREA EXCEEDS ONE THOUSAND COMPANIES),

ONE OF IRI'S BASIC TASKS IS THE OPTIMAL ALLOCATION OF AVAILABLE RESOURCES, ON THE BASIS OF ECONOMIC AND INDUSTRIAL POLICY GUIDALINES, ENACTED BY PARLIAMENT AND THE GOVERNMENT.

## 4. IRI'S STRATEGIES

DURING THE FIRST HALF OF THE EIGHTIES, COUNTRIES AND FIRMS HAD TO DEAL WITH COMPLEX PROBLEMS IN MODERNIZATION AND IN THE RELAUNCHING OF THE PRODUCTIVE APPARATUS.

IN THE CONTEXT OF THE FAR-REACHING RESTRUCTURIZATION WHICH ALSO INVOLVED ITALIAN INDUSTRY (AND TO WHICH IRI MADE A SIZEABLE CONTRIBUTION), IRI'S <u>STRATEGIC CHOICES</u> WERE BASICALLY CONCENTRATED UPON THE FOLLOWING :

 GRADUAL WORK AIMED A LEVELLING OUT THE SYSTEM OF MATURED SECTORS;

3.

INTENSE ACTION DESIGNED WITH THE PURPOSE OF <u>EXTENDING</u> THE PRESENCE OF THE GROUP IN THE TECHNOLOGICALLY <u>ADVANCED</u> <u>SECTORS</u>.

THE GUIDELINES FOLLOWED BY IRI FALL WITHIN THIS FRAMEWORK AS REGARDS :

THE PINPOINTING OF NON-STRATEGIC ACTIVITIES WITHIN THE GROUP (<u>PRIVATIZATION</u>, THOUGH AS A CHOICE OF INDUSTRIAL RATIONALIZATION RATHER THAN AN "IDEOLOGICAL" CHOICE, AS SHOWN IN THE EXPERIENCE OF OTHER EUROPEAN COUNTRIES);

• THE <u>INTERNATIONALIZATION</u> OF THE GROUP.

## 5. IRI AND INTERNATIONALIZATION

BY NOW, THE MANAGERIAL CULTURE HAS ACCEPTED THAT - ONCE FIRMS HAVE CHOSEN CLOSE CONFRONTATION WITH INTERNATIONAL COMPETITION - THE MORE THEY GROW, THE MORE THEY MATCH UP AGAINST THE LEADERS AT WORLD LEVEL.

IT SHOULD ALSO BE NOTED THAT THE FIELD FOR <u>COMPETITION</u> - WHICH CONTINUES ANYWAY - ALSO BECOMES A FIELD FOR <u>COLLABORATION</u>, THAT IS FOR INTEGRATION AND FURTHER GROWTH IN AREAS OF MUTUAL INTEREST TO THE PARTNERS.

THE IRI OPTION FOR AN INTENSE <u>PARTNERSHIP POLICY</u> STEMS - IN THE CURRENT SITUATION, BUT EVEN MORE SO IN OUTLOOK - FROM IMPORTANT FACTORS SUCH AS:

- THE VERY INTERNATIONAL CHARACTER OF MANY PRODUCTIVE SECTORS AND, PRIMARILY, OF ADVANCED SECTORS;

THE SUBSTANTIAL INTERDEPENDENCE OF ECONOMIC SYSTEMS, BEYOND PROTECTIONIST OBSTRUCTIONISM AND RECURRING SITUATIONS OF INSTABILITY OR UNREST.

THIS <u>INTERDEPENDENCE OF COUNTRIES AND FIRMS</u> CONNOT DO OTHER THAN LEAD TO :

- THE MAXIMIZATION OF PRODUCTIVE AND COMMERCIAL COMPLEMENTARITY;

THE INTENSIFICATION OF TRANSFER OF TECHNOLOGY AND KNOW HOW,

LARGELY SPEAKING, THE ENDEAVOURS EMBARKED UPON BY IRI FOR THE FURTHER GROWTH OF THE GROUP AT INTERNATIONAL LEVEL AIM AT:

 SEEK OUT INCREASINGLY CLOSE LINKS WITH LEADING WORLD GROUPS;
 BUILD UPON POSITIONS IN COUNTRIES WHERE THE GROUP IS ALREADY PRESENT TO A SIGNIFICANT EXTENT.

IN REGARD TO THE <u>ALLIANCES</u> AND <u>JOINT VENTURES</u> ACCOMPLISHED BY IRI, THE GROUP'S MAJOR INTERNATIONAL PARTNERS ARE, TO MENTION BUT A FEW: IBM, BOEING, MC DONNELL DOUGLAS, GENERAL ELECTRIC, WESTINGHOUSE, MBB, SIEMENS, AEG, AEROSPATIALE.

As to the <u>sectorial MIX</u> of IRI EXPORT, IT SHOULD BE STRESSED THAT ACTIVITIES WITH A HIGH TECHNOLOGICAL CONTENT AND/OR MARKET IN EXPANSION TODAY REPRESENT OVER 50% OF THE TOTAL, WITH RESPECT TO THE 28% OF 1981.

LASTLY, SOME FIGURES PERTAINING TO THE IRI'S INTERNATIONAL RANGE (PRELIMINARY 1986 FIGURES):

- THE FOREIGN TURNOVER IS OVER 7 BILLION DOLLARS, CONTRIBUTED BY :

AROUND 120 COMPANIES WITH HEADQUARTERS IN ITALY WITH AN EXPORT OF 6 BILLION DOLLARS;

5. <sup>:</sup>

AROUND 90 CONTROLLED CONCERNS WITH HEADQUARTERS ABROAD WITH SALES FOR ONE BILLION DOLLARS;

- THE IRI GROUP ALSO HOLDS MINORITY SHARES (FROM 10% TO 50%) IN AROUND 30 COMPANIES WITH HEADQUARTERS ABROAD.

IN DRAWING TO THE FOREIGN CONTROLLED COMPANIES AND HOLDINGS, THE FOLLOWING ASPECTS OUGHT TO BE UNDERLINED :

- A) THE CONSIDERABLE EXTENT OF THE IRI CONTRIBUTION TO THE RISK CAPITAL OF THESE SOCIETIES, WHICH IS OF THE ORDER OF ONE BILLION DOLLARS FOR CONTROLLING INTERESTS AND 700 MILLION DOLLARS FOR NON-CONTROLLING SHARES;
- B) THE WIDE DIVERSIFICATION IN TYPE OF ACTIVITY:
  - FROM MATURED SECTORS (SUCH AS IRON AND STEEL), IN WHICH THE GROUP'S FOREIGN COMPANIES PERFORM MAINLY COMMERCIAL ACTIVITIES;

TO THE ADVANCED SECTORS, IN WHICH A FULL-FLEDGED MULTINATIONAL PROFILE HAS DELEVOPED (AS IN THE CASE OF SGS IN THE ELECTRONIC COMPONENTS INDSTRY), OR TO OTHER CASES, IN WHICH ALTERNATIVE FORMS OF PARTNERSHIP HAVE DEVELOPED, THROUGH LOCAL JOINT VENTURES (AS WITH ANSALDO AND ITALIMPIANTI IN PLANT ENGINEERING).

THUS WITHIN THE IRI FRAMEWORK, VARIOUS FORMS OF INTERNATIONALIZATION COEXIST :

A) FROM SHARE HOLDING BY THE GROUP IN FOREIGN ACTIVITIES (A PHENOMENON WHICH, AS WE HAVE SEEN, IS RATHER WIDESPREAD) TO FOREIGN PARTICIPATION IN ACTIVITIES OF THE GROUP (WHICH IS A PHENOMENON OF LESSER IMPORTANCE);

6.

- B) FROM CONTROL OF COMMERCIAL COMPANIES TO THAT OF PRODUCTIVE UNITS ABROAD (THE FORMER PREVAILS OVER THE LATTER);
- C) FROM PURE EXPORT (WHICH STILL REPRESENTS THE LARGEST SHARE OF THE GROUP'S FOREIGN ACTIVITIES) TO THE VARIOUS FORMS OF PARTNERSHIP, BY MEANS OF ALLIANCES AND COOPERATION. AGREEMENTS,

## 6. COOPERATION WITH DEVELOPING COUNTRIES

WITHIN THE REALM OF COOPERATION, IRI'S COMMITTMENT TO DEVELOPING COUNTRIES IS EXTENSIVE, AND THIS COMMITTMENT HAS ITS OWN SPECIAL CHARACTERISTICS.

REGARDING THIS IMPORTANT ASPECT, IT IS IRI'S BELIEF THAT -WHATEVER THE IDEAL DISTRIBUTION OF RESOURCES MAY BE BETWEEN EMERGENCY AID AND STRUCTURAL INTERVENTION - THE GOAL TO PURSUE IN VIEW OF COOPERATION IS THE BUILDING OF <u>LASTING PARTNERSHIP</u> <u>RELATIONS</u> WITH COUNTRIES LESS ADVANCED THAN OUR OWN.

A QUARTER OF WORLD TRADE TAKES PLACE BETWEEN THE INDUSTRALIZED COUNTRIES AND DEVELOPING COUNTRIES. THEREFORE, IN MANY SECTORS PROSPECTS FOR EXPANSION ARE INCONCEIVABLE IF THE DEVELOPING AREAS ARE NOT INCLUDED.

IT IS ALSO TRUE THAT THE SITUATIONS OF THE INDIVIDUAL COUNTRIES DIFFER LARGELY, AND THIS ENTAILS - IN ORDER TO RESPECT THE RULE OF THE MARKET - <u>RECIPROCAL STRUCTURAL ADAPTATION</u>; NAMELY, IT WILL BE NECESSARY FOR THIS ADJUSTMENT TO COMPLY WITH THE COOPERATION INITIATIVES TO BE ACCOMPLISHED,

COOPERATION - WHICH REQUIRES LENGTHY PERIODS OF TIME - CANNOT BE PERSUED WITHOUT ACCEPTING - ITS IMPLICATIONS IN TERMS OF INTERNAL

#### AND INTERNATIONAL ECONOMIC POLICY.

IN REALITY, AN EFFICIENT COOPERATION STRATEGY BASICALLY MEANS <u>COOPERATION FOR THE MODERNIZATION</u> OF THE PRODUCTIVE APPARATUS: INFRASTRUCTURES, SERVICES, MANUFACTURING,

A PROMINENT FEATURE OF COOPERATION WILL THEREFORE BE THE <u>TRANSFER</u> OF <u>KNOWLEDGE</u>. TRAINING, RESEARCHE, RELEASE OF TECHNOLOGIES, PRODUCTIVE JOINT VENTURES, ETC., WILL ALL BE COMPONENTS IN THE MODERNIZATION DESIGN, IN A PROCESS OF RECIPROCAL ADAPTATION.

## 7. IRI'S PROSPECTS IN AFRICA AND IN EGYPT

IRI'S ATTITUDE TOWARDS THE AFRICAN CONTINENT - AND IN PARTICULAR TOWARDS THE MEDITERRANEAN BELT - OUGHT TO BE VIEWED IN THE AFOREMENTIONED FRAMEWORK OF STRENGTHENING THE PRESENCE OF IRI IN THE COUNTRIES WHERE IT IS ALREADY OPERATING WITH SUCCESS.

THE AIMS FOR GROWTH IN THE AFRICAN COUNTRIES ARE SUCH AS TO ENABLE AN <u>INVOLVEMENT</u> OF THE IRI GROUP'S POTENTIAL IN A <u>LONG TERM</u> PERSPECTIVE BY MEANS OF :

- THE IMPLEMENTATION OF DEVELOPMENT PLANS, PINPOINTING (AREAS IN WHICH LOCAL INVESTMENT PRIORITIES DO MATCH WITH IRI'S LEADING SECTORS OF ACTIVITY;
- THE CONSEQUENT OPPORTUNITIES FOR COLLABORATION BETWEEN THE IRI FIRMS AND THE LOCAL PARTNERS, ON THE BASIS OF THE POSITIVE EXPERIENCE GAINED TO DATE.

8, -

THE PRESENCE OF THE IRI GROUP IN EGYPT IS TO BE FORMED IN A NUMBER OF FIELDS :

- FROM THE ENERGY SECTOR TO ELECTRONICS AND TELECOMMUNICATIONS;

FROM INDUSTRIAL PLANT ENGINEERING TO LARGE CIVIL WORKS.

IN ADDITION, THE IRI GROUP HAS SIGNIFICANT SHARES IN JOINT VENTURES IN THE TWO COMPANIES EGITALEC (45%) AND PETROJECT (20%).

AMONG THE MOST IMPORTANT INITIATIVES SET UNDERWAY BY THE IRI GROUP IN EGYPT IT IS APPROPRIATE TO RECALL :

- THE RECOVERY AND SAFEGARDING OF THE AREA OF THE PHILAE TEMPLES;
- THE EQUIPMENT FOR THE SHOUBRA EL KEIMA PLANT BY ANSALDO;
- THE ENLARGEMENT OF THE DAMIETTA DAM BY ITALSTAT;
- INDUSTRIAL EQUIPMENT SUPPLIES BY ITALIMPIANTI;
- THE COLLABORATION BETWEEN STET AND ARENTO FOR TELECOMMUNICATIONS.

IN ADDITION, IRI CONSIDERS THE RELATIONS EXISTING WITH THE EGYPTIAN OPERATORS NOT AS POINT OF ARRIVAL, BUT RATHER OF DEPARTURE, TO EXPAND THEM FURTHER AND TO PROMOTE A LEAP IN QUALITY IN THE TYPOLOGY OF THE RELATIONS AND IN THE CONTENTS OF TECHNOLOGY AND KNOW HOW WHICH THE IRI GROUP IS IN A POSITION TO TRANSFER.

9.

## 8. CONCLUSION REMARKS

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IT IS PERTINENT TO UNDERLINE ONE LEADING ASPECT WHICH COULD HAVE REMAINED HIDDEN, REGARDING THE "PHILOSOPHY" UNDERLYING THE IRI APPROACH TOPWARDS AFRICA IN GENERAL AND EGYPT IN PARTICULAR.

A PHILOSOPHY AND AN <u>APPROACH NOT COMMERCIALLY INSPIRED</u>, BUT WITH A VEIW TO - AS MENTIONED EARLIER - SEEKING LASTING COLLABORATION LINKS.

FACED AS WE ARE WITH THE CHALLENGES OF THE NINETIES, IT IS NECESSARY TO SEW THE SEEDS FOR INTEGRATION BETWEEN PARTNERS WHO INTEND TO ACCEPT THOSE CHALLENGES.

IRI IS READY TO GIVE ITS <u>CONTRIBUTION</u> TO EGYPT AND TO THE OTHER COUNTRIES OF THE MEDITERRANEAN BELT, WHO ALSO HAVE GREAT POTENTIAL IN TERMS OF THE HUMAN AND INTELLECTUAL RESOURCES ROOTED IN THEIR CULTURAL HERITAGE.

AND, TO CONCLUDE, A STATEMENT WHICH IS ALSO THE EXPRESSION OF A HOPE: THAT OF REMOVING PROTECTIONIST OBSTACLES FROM THE ROAD TO COOPERATION.

EXPECTING TO EXERCISE, AS MANY COUNTRIES DO, BOTH <u>COOPERATION AND</u> <u>PROTECTIONISM</u> IS A CONTRADICTION.

INSTEAD, IT IS NECESSARY TO CONVINCE OURSELVES THAT SUCH A CONTRADICTION MUST BE ELIMINATED, SETTING IN MOTION A FAR-SIGHTED ALLIANCE STRATEGY AT WORLD LEVEL AMONG COUNTRIES AND FIRMS.

IT IS A STRATEGY WHICH REQUIRES THE COURAGE OF PUTTING ONESELF TO THE TEST WITH DIFFERENT EXPERIENCES AND DIFFERENT CULTURES.

10.

NEVERTHELESS, IT IS THE ONLY REAL CHANCE OF OVERCOMING, THROUGH DIALOGUE, THE USELESS AND DEVASTATING WARS BETWEEN THE SYSTEMS, WHOSE PRICE GOES FAR MORE THAN PURELY ECONOMIC.

ONLY ONE THING CAN BE SAID IN THIS REGARD: IN THIS INCREASINGLY CROWDED WORLD WHICH IS CONFRONTED WITH DRAMATIC PROBLEMS OF SURVIVAL IN VAST REGIONS, IS THERE STILL ROOM FOR COMMERCIAL WARFARE WITHIN THE AREA OF THE WEALTHY COUNTRIES, HEEDLESS OF THE EFFECTS THAT THIS MAY HAVE UPON WEAKER ECONOMIC SYSTEMS?

SO THIS IS THE CHALLANGE. THE ABILITY, OR LACK OF ABILITY, TO LOOK A LITTLE FURTHER THAN OUR OWN BACK GARDEN, WITH THE AWARENESS THAN IN THE FUTURE THERE MUST BE ROOM FOR EVERYONE.

#### THE COUNTRIES OF MEDITERRANEAN AFRICA, AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

Ind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) - 12/16 april 1987

## IRI/Conf. II/Cairo 87/PN 03

#### Original/English

## HISTORY OF THE ELECTRONICS INDUSTRY IN EGYPT

By Eng. Abdel Wahab El Habbak Chairman Engineering Industries Corporation.

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#### HISTORY OF THE ELECTRONICS INDUSTRY IN EGYPT

The involvement of Egypt in the Electronics industry dates back to 1936 when the Philips Company first established its wholly owned factory for the assembly of radio sets from imported complete kits in Alexandria.

An Egyptian private assembly shop for other radio models under license from Philips also was later established. In the fifties another small factory was established in Ismailia to assemble radio sets from complete kits and under license from Telefunken of Germany.

The involvement however remained at the surface, and no deep penetration in the electronics industry through components manufacture or in the design and development activities was thought of due to re generally small scale under which these companies operated.

After the introduction of television transmission in Egypt in 1960, the government seriously considered the development of public sector electronics industry for the local production of television receivers in principle and other entertainment electronic equipment. The market of television receivers was expanding at a high rate because the government believing in utilizing the power of this media for gaining people's support to the regime, decided to tax exempt these receivers making their price in the market very low. The market was considered big enough to justify establishing an industry.

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Government policy at that time also was directed towards the establishment of a strong army. An important tool toward the achievement of that objective was the establishment and development of a strong military industry. A government venture was established for the production of military electronic equipment.

In the television receiver's field, the two existing companies Philips and Telefunken, were developed to assemble television receivers from kits bought from their licensors in fairly large quantities. A new company was also established specially for the purpose of manufacturing television receivers and components. By 1964, this company was producing, under license from RCA more than 100.000 black and white television receivers per year, and also the following components:

- Black and white picture tubes
- Transformers, yokes and coils
- Metal parts
- Tuners
- Loud speakers
- EHT transformers
- Printed circuit boards
- Cabinets both plastic and wooden

The company in the military electronics field took another direction by producing, in hense, standard components such as:

- Resistors: Carbon film and
- Ceramic capacitors
- Potentiameters
- Transistors
- Electron tubes

besides of course assembly of military electronic equipment

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Because this industry has not been backed by a story design and development base, production of components has been neglected and was finally abandonned in both companies. The equipment assembled, whether television receivers or military equipment, is based on designs and kits supplied under licence from foreign manufacturers.

Becoming aware of the necessity of a design and development as regards this industry, the electronics industry research and development centre was later established in early seventies. For this purpose, but due to the fact that the electronics industry companies continued the easy way of importing complete kits incorporating the design from abroad, the reliance and cooperation of these companies with the center was lost and the center is now mainly involved in the industrial electronics field, where its role in supporting other industries is of great help.

#### PLANS FOR DEVELOPING THE ELECTRONICS INDUSTRY IN EGYPT

There is a general awareness among responsible institutions, that electronics in its various techniques and applications, play a crucial role in society, in communications, entertainment, industry, education, services and almost every aspect of life.

The involvement of Egypt in the modern electronics technology is inevitable. From the stand point of application, Egypt is importing most of the requirements of its development capital equipment as well as many of the consumer products from developed countries. These products contain micro electronic's based systems. The knowledge and skills required to operate, install maintain and repair these systems is inevitable for the proper utilization and up keeping of these equipment and systems.

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It is also recognised that electronics technology is an accelerating agent of development. Low cost micro electronics systems and products can contribute to a great extend to the increased efficiency of operations in almost all sectors of economy, industry, energy, services etc.. Awareness and knowledge of the potential of micro electronics applications in improving efficiency, reliability and performance, and the ability to specify and design systems to perform these functions can accelerate the developing process of the Egyptian economy and reduce its costs.

Because the modern micro electronics technology involves brain, soft and hardware components, the design and developement of software, the customization of micro electronics systems and the local assembly of systems and equipment from standard chips and components imported from international markets, are high value-added, brain intensive types of activity. Involvement of Egypt in these fields can be considered as a direct link to the progress of the technological capabilities in general. This way the entire economic structure of the country can be shifted towards a high level of sophistication and a higher value added structure.

The need for software on the international level is growing enormously and the market for software products is rather open. Egypt can have a substantial advantage in some areas in producing software for export to developed countries at a small portion of the cost compared to the cost of production in these countries.

In the information oriented society of the future, the development of micro electronics industry should be considered from a standpoint which perceives micro electronics not simply as a manufacturing industry producing electronic machines (hardware)

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but as an information industry which covers wider area and exercices a tremendously great influences on other industries, services and the whole economic and social structure of the country, Micro electronics technology is the very technology concerning the processing, storing and transmitting of information.

At present there is hardly any production of electronic components in Egypt. The present demand is being met by importation, either in the form of separate components or mostly in complete kits for assembly of both entertainment and military equipment. The demand for components will rise because of the increase in local production of systems and the increasing pervasiveness of electronics in all capital and consumers equipment. On the other hand the increasing integration of more functions on integrated circuits decreases the number of active and passive components in a system.

Electronification of industry requires the availability of electronic components as spare parts. Shortage of components will slow down the drive of electronification with a resulting from increased efficiency of operation.

In the light of all above, the following are the areas where the engineering industries corporation is planning to concentrate upon in the next plan and where support and cooperation is needed:

 The local production of components specifically non-standard (circuit boards), components for radio, television and video recorders.
- Development and production of circuits based on thick film hybrid technology. A pilot plant already exists in Egypt.
- 3. Custom integrated circuit design and production following the silicon foundry approach. The following activities can be carried out in Egypt:
  - System definition
  - Circuit design
  - Mask design

Whereas the fabrication process can be made in a joint venture plant jointly established by a group of countries, in the area or in a plant in a developed country to cooperate with Egypt, in this respect this silicon foundry would carry out:

- Mask fabrication
- Chip fabrication
- Packaging and bending

Development a center of excellence in the micro electronics technology to act as the core for the development of this technology in the country. This center should be responsible for the following activities:

- a) Development, design of micro electronic systems for typical application for the Egyptian economy. Examples are:
  - Telecommunications private automated branch exchange
  - Entertainment: Digital television receiver
  - CAM: Data acquisition and analysis in assembly line manufacturing.

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- Micro processor based applications: General purpose computer board for applications such as instrumentation (medical and technical), control of industrial processes, board checkers for electronic equipment assembly lines etc..
- b.)....Software development for above mentioned and other custom equipment.
- c) Training of engineers from various sectors of the economy, specially industry on the applications, maintenance and repair of electronic equipment and systems, and micro processor adaptation in industrial and other applications.

# THE COUNTRIES OF MEDITERRANEAN AFRICA, AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

ilind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) — 12/16 april 1987

IRI/CONF.II/CAIRO 87/PN/04

### ORIGINAL: ENGLISH

## DEVELOPMENT AND COOPERATION PROSPECTS IN THE

## TELECOMMUNICATIONS AND ELECTRONICS SECTOR

Mr. Michele Principe

## Chairman STET

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2nd Regional Conference of former IRI fellowship-holders

(Cairo, 12-16 April, 1987)

Development and Cooperation Prospects in the Telecommunications and Electronics Sector

1.

In his book on the problems of the African economy, presented at the end of February, the governor of the Central Bank of Kenya pointed out that Africa has received huge "rivers" of sympathy from the industrialized world, but only tiny "streams" of concrete acts of aid and cooperation.

This may be generally true, but I personally feel that this Conference is a demonstration of the firm desire of the Italian Government and IRI to thoroughly explore every possible form of cooperation in very concrete terms and on the basis of interdependence, acting on an equal footing and with equal dignity.

As far as telecommunications and electronics are concerned, we must broaden our analysis to cover the development of services, the transfer of technical and operational know-how and, lastly, industrial-type agreements, ensuring that we overlook no opportunity offered by the tremendous growth that is taking place in both these sectors.

 Actually, there have been many major opportunities in the past for cooperation between our countries, and they offer us a basis on which to build the future.

I still vividly remember one major initiative (when I was the general.Manager of the ASST telephone company) which led to the laying of the Alexandria-Catanzaro submarine cable, which was the very first permanent telecommunications link between Italy and Egypt.

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That was at the end of the Sixties. In those days, Italy only had radio links with the majority of the Mediterranean countries, with all the quantitative and qualitative shortcomings in the service that this entailed; and it was Italy which took the initiative to establish submarine telephone links with all its main partners.

A completely novel kind of agreement was drawn up with Egypt, under which the project (costing about 7,000 million Lire at that time, equivalent to 60,000 million today, or 90 million Egyptian pounds) was to be wholly financed by the Italian PT Administration, with Egypt's undertaking to repay its share (one half of the total cost) in annual instalments equal to Egypt's annual extra revenues from telephony, telex and telegraph from the new link, up to a maximum of US\$600,000 (or \$00,000 Egyptian pounds at the current rate of exchange). This could be considered as a kind of venture capital operation demonstrating the Italian PT Administration's confidence in the prospects for developing relations between our two countries, and Egypt's capacity to manage this development. And indeed, Egypt's traffic increased so sharply after the cable came into operation that the loan was repaid in the shortest time stipulated in the agreement.

But that is by no means the only example of Italy's cooperation with African countries in the telecommunications sector, to which the IRI Group companies have made a substantial contribution under the Italian government's policy to play an increasingly important part in the development of Africa.

One very important example, is the Italo-Tunisian agreement to broadcast RAI's Channel 1 programmes in Tunisia, demonstrating and enhancing the bonds of friendship that

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exist between the two countries. This agreement, wholly funded by the Italian government, is already being implemented in the coastal areas and work is scheduled to begin shortly on extending the service to cover the whole country.

Lastly I should like to recall the fact that last February, Italy and Egypt concluded an agreement for a soft loan (using grants and loans provided by the Italian Cooperative movement) to finance the contract awarded by the Arab Republic of Egypt National Telecommunications Organization -ARENTO to the Sirti-Italtel-Telettra Consortium for the construction of the Cairo-Aswan radio relay system. This is a further demonstration of Italy's desire to contribute to the implementation of African countries' development plans forming part of a clearly defined programme. The Cairo-Aswan radio link will not only constitute one of the main arteries of the Egyptian telecommunications system, but also a basic component of the system to link the Mediterranean to the countries of East and Southern Africa where largescale schemes are being implemented with Italian aid, involving a large number of companies belonging to our Group.

3. But rather than congratulating ourselves on past achievements, we must try to see what we are in a position to do together in future. To begin with, I feel I should give you a short account of IRI's place and strategies in the telecommunications and electronics industry. I shall be brief, because I am addressing an audience that is very well acquainted with the role of IRI in the Italian economy.

As you know already, STET is the holding company which controls all of IRI's telecommunications and electronics activities. STET is the pillar on which Italian telecommunications rests, and constitutes one of the world's leading professional electronics conglomerates. It controls a group of corporations with very close vertical integration,

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operating in both the services and manufacturing industries.

With regard to services, STET manages the domestic telephone service through SIP, and the intercontinental telecommunications services through Italcable. Its subsidiary Telespazio manages Italy's satellite communications facilities. These three companies operate under government franchise issued by the Ministry of Posts and Telecommunications.

The other telecommunications services, particularly telegrams and telex in Italy and the telephone, telegraph and telex services with the rest of Europe and the main Mediterranean countries, are supplied directly by the PT Administration. The government is currently examining the reorganization of the system under which all the domestic and international services will be handled respectively by the two franchisees, SIP and Italcable, while the PT Ministry retains full responsibility for overall planning. Once this further streamlining has taken place, Italy will be better, and hence more efficiently, equipped to take up the most exciting challenge to telecommunications in the Nineties: the development of the new information-based society.

In manufacturing, the STET Group controls a large number of subsidiaries which, although belonging to apparently widely differing fields, very closely complement the telecommunications services which are not only the main point of reference for their activities, but are also a major factor which stimulates the promotion and development of the latest technologies. The main companies in this area are:

 the Italtel division, which is Italy's main manufacturing group for public and private telecommunications equipment and systems;

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 the Selenia-Elsag division, which manufactures large electronic systems, such as factory automation systems for the supervision and control of continuous cycle

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industrial processes, and the automation and control of services in the national interest and for defence;

- SGS Microelettronica which underpins the activities of the two divisions mentioned above by designing, manufacturing and conducting research into electronics components;
- SIRTI, which mainly operates in the telecommunications plant engineering sector, and manufactures optical fibres through FOS
- the SEAT division which publishes and prints the telephone directories, and which has now broadened its activities to cover research and production of new products in the ambit of information systems using the latest telematics technologies and techniques.

The STET Group had an aggregate turnover in 1986 of about 10,500 million dollars (equivalent to 12,000 million Egyptian pounds) of which some 25% came from manufacturing, and employed 133,000 people. Its research effort, which is coordinated at Group level by a central laboratory in Turin, but is applied by all the companies in the Group, was worth million dollars, eguivalent to 13.5% of 402 the manufacturing turnover, which was quite substantial for companies operating in this industry. Foreign sales totalled 1,090 million dollars, and accounted for 40% of the total turnover of the manufacturing and plant engineering subsidiaries. What is particularly significant about the Group's relations with the rest of the world is the fact that they are being increasingly geared to fostering international economic and technological integration (through technical cooperation, technology transfer and joint ventures).

With regard to ongoing programmes, the PT Ministry's National Plan provides for the telecommunications services to develop and diversify at quite a rapid pace. The number of telephone subscribers is expected to rise by 8% million

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between 1985 and 1994.

By 1994, with 25 million subscribers, the telephone density will reach 94 home subscribers per 100 households. It is also planned to double the current number of telex subscribers and foster the rapid development of the teletex service. Thanks to the entry into operation of the ITAPAC packet switching network after 1985, the number of data transmission terminals will double to reach 522,000 when the programme is completed. Equally bright are the prospects for developing the mobile telephone, radio paging and facsimile services. During the ten-year period in question, new valueadded services will gradually be phased in, including the management of the services and the processing of the messages transmitted. According to the latest thinking on the subject, these new services will be supplied both by the public corporations and private companies, on a competitive basis.

To attain these targets, it will be necessary to phase in the integrated services digital network (ISDN) followed by the largescale introduction of the full range of the very latest communication and information technologies.

The STET Group is in readiness to take up this challenge, whose difficulty can be gauged from the size of the scheduled investment (45,500,000 million at 1983 prices for the development of the public network), because it has thoroughly planned all the aspects and stages for this huge expansion of the franchisees, and thanks to the industrial commitment of the manufacturing subsidiaries. The gradual digitalization of the trunk transmission lines started in the mid-70s, and in 1983 work began on the introduction of time division electronic exchanges. At the beginning of 1987, there were about 800 digital exchanges in service, catering for 1½ million numbers and 1.6 million junctions.

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As from next year, all the new installations will use electronic technology. The Italtel division is making a decisive contribution to this changeover, now that it has acquired worldwide status as a leading manufacturer of the very latest technological transmission and switching equipment. The UT switching exchanges, which constitute the national pole of the new Italian digital network, have attracted the attention of a great many foreign PT Administrations which have either already decided to adopt them or are contemplating doing so.

With the gradual introduction of digital technologies, work has begun on laying the main fibre optic cables which will form the backbone of the future integrated network, and on setting up the regional and local optical systems.

Satellites also play a vital role. After an initial experimental phase (the Sirio satellite was launched in 1977), it is planned to integrate the satellites systematically into the ground-based system by the mid-90s. The Selenia division, which built the Sirio satellite and has been a partner in the international consortiums which have built satellites and earth stations for the Intelsat global system, the Eutelsat European system and many other regional satellites (Arabsat, for example) and domestic satellites (Insat, for example) throughout the world, is currently working on the production of Italsat (Italy's first operational satellite) which is scheduled for launching in 1989. Another major use of satellites is the direct broadcasting of television which will begin in Italy towards the end of the 80s.

The national network has to be increasingly and better integrated into the world telecommunications system. This is the responsibility of Italcable and Telespazio, which are taking part in all the leading ongoing and scheduled

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programmes for the rationalization and development of international cable and satellite links. I should like to make specific mention here - because it is in the common and immediate interest of all our countries - of our Group's participation in the project for the new optical fibre cable network in the Mediterranean which will link the coastal States of the Mediterranean to the main submarine traffic routes in the 90s, once they are cabled up to the Sea-Me-We system, of which Egypt is a nodal point, and to the TAT-9 Transatlantic system.

Programmes of this magnitude in a sector in which the rapid development of technology demands such huge investments in R&D that no one country can reasonably afford to go it alone, can only be implemented by following a strategy aimed at rationalization in an increasingly broad international framework. Against this background, the STET Group is playing an active part in the drafting and implementation of the European policy for the development of telecommunications and the electronics industry, and is currently forging industrial relations and alliances which will strengthen its international position. To be brief, I will only mention our contribution to the definition of European standards, our partnership in the Esprit, Race and Eureka programmes, and the recent STET-Fiat agreements for the incorporation of the Telit company to take over Italtel and Telettra's industrial operations.

In other areas of telecommunications, too, the Group's overall strategy is to maintain its leadership on the international market so that italian industry can play a competitive part in programmes to implement largescale technological infrastructures.

In this connection, we are focusing on a number of highly topical issues, such as:

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- the latest developments in automated mail sorting
- civil air traffic control
- remote sensing and other territorial surveillance systems
- modern industrial process control and regulation systems, and robotics
- biomedical engineering applications.

A great deal has been achieved so far, as evidenced by the excellent commercial results and by the cooperation agreements that have been concluded with the most advanced international corporations.

4. Italy has always been a natural avenue for fostering relations between Africa and Europe, and has close bonds of friendship and cooperation with the African countries bordering on the Mediterranean. With these countries, Italy shares her geographic position, economic situation, and historical and cultural traditions. It is therefore quite natural for Italy and Africa to find new opportunities for cooperation in activities which have a particularly significant impact on the future development of society. the policy for cooperating in Africa's development, which the Italian government is promoting, is a further stimulus and essential source of support.

The aim must be to tighten economic and technical integration, to optimize resource-use and create the conditions for the development of intrinsically sound ventures.

STET can contribute to this in a variety of ways.

In the area of services, the best development prospects and most interesting opportunities for cooperation lie in valueadded services: electronic mail, data bank access, credit card transactions, home banking and similar fields. Here, for example, the domestic carrier (such as ARENTO in the

case of Egypt) could join forces in a joint venture with an international partner - such as Italcable - with a vast store of specific technical, operational and commercial knowhow, to construct a service centre to offer local services and provide access to the international network. This is what occurred recently in the STET Group, with the incorporation of the TELEO company by the Italian national carrier SIP and Italcable. TELEO will run a voice and written message service, enabling the subscribers to forward their messages by voice to message processing centres using an ordinary telephone, or using a PC electronic keyboard or something similar. The messages thus memorized are then forwarded to their addressees who may reply if they so wish. With the messages memorized in electronic mail-boxes, one can obviate the problems caused by - for example - time zones. This service can be linked to similar services in other countries.

While on the subject of the services sector, but moving away from telecommunications for a moment, there are interesting prospects for cooperation in the area of remote sensing by satellite for the development and management of the territory, monitoring the environmental and the sea, prospecting for natural resources, and forecasting harvests.

Telespazio has been operating in this sphere since the early 70s, when it set up the first European remote sensing station (Fucino-Rome). Today, this centre has large archives of data not only on the European countries, but also on the countries in the Mediterranean basin and North Africa. Since 1975, a number of North African countries have used this Centre. Telespazio has now applied to the Italian authorities for permission to build a second Mediterranean remote sensing centre at Scanzano (Palermo). The motion tabled by the Italian minister for the Environment to give the centre a "Remote sensing in the Mediterranean" function

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was adopted, in principle, at the inter-governmental conference of Mediterranean countries (Genoa, September 1985). This Centre will provide extremely valuable information to the Mediterranean countries, and its coverage will take in Central Africa and extend as far as Saudi Arabia. It will later be integrated with the African Remote Sensing Centre at Nairobi, for which Telespazio will take part in drafting the feasibility study with EEC grants, to provide a complete coverage of Africa, receiving and storing data from all the remote sensing satellites.

There are a great many remote sensing applications, and many cooperation ventures for applications projects can be particularly interesting. One of the most important applications as far as the African countries are concerned is the development and biological control of cassava parasites. Telespazio, using funds provided by the Italian Ministry of Foreign Affairs, is currently conducting a feasibility study for IFAD (International Fund for Agricultural Development). Other developments include a census of the water tables, agriculture in general, forestry applications, desertification, geology, pollution, in addition to the most obvious of all, cartography.

Once again in the telecommunications sector, STET can offer the knowhow of its operating companies for planning, designing and providing assistance for the implementation and management of telecommunications networks. Consultel is also offering the experience of the Italian franchisees, SIP, Italcable and Telespazio, drawing on its valuable experience in major cooperation programmes with African countries, such as the drafting of the Somali telecommunications Master Plan, and the design of the Mozambican national network. In the Mediterranean area, Consultel has worked with the Administrations of Egypt, Libya and Morocco on projects relating to both the planning of urban and rural services, and the

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organization of special subscriber services such as telephone directory services.

With regard to consulting engineering, installation and maintenance, SIRTI is interested in setting up joint ventures with local companies to develop public and private telecommunications services, and for railway and energy projects. While on the subject of SIRTI, I would like to recall the 8,000 km Libyan coaxial cable system built in conjunction with other Italian companies, the complex telecommunications facilities built in Saudi Arabia, and the many earth stations in Africa and the Arabian peninsula.

Lastly, I will briefly examine the possibilities for cooperation in manufacturing, with technology transfer and the joint development of products that are specially designed for the African environment. I am thinking of the project for the manufacture of Italtel's user terminals and rural radio telephone equipment, and the ESA survey conducted by Telespazio and Selenia Spazio to design small stations for satellite communications. Several ventures with African countries are currently being appraised, particularly to ensure that there are appropriate market outlets.

Quite apart from the industrial opportunities that exist, STET is also willing to embark on research programmes in cooperation with specialized institutions in African countries, with the main aim of developing autonomous design capabilities.

There are so many opportunities and forms of cooperation. I hope that the other speakers on this panel will help us to pinpoint them more clearly.

Before I conclude, I should like to be allowed to say a few words based on my own long experience in telecommunications,

with reference to the problems of development which are of particular interest to me. It is my conviction that any new venture in our industry must not be restricted simply to the technical and financial/economic aspects, but must also take account of the social changes brought about by the development of telecommunications and information services.

If we were to allow the expansion of the world telecommunications network to be guided solely by technical and economic criteria, we would run the risk of creating a traumatic gulf at national and international level between those with full and unrestricted access to the network (and the information distributed by it) and those denied access to it. The old gulf between the "haves" and "have-nots" in economic terms might be further widened by a new gap opening up between the "knows" and the "know-nots". It is a problem which affects every country in the world, albeit to varying degrees, and not only the developing countries. All the hopes that are being pinned on the construction of the information-based society would be dashed, with dangerous consequences for the balanced development of the world. We must not forget that the poor in every country are entitled to have the same powers to deal with the problems of the saturation of environmental resources and the stability of social and economic development as the political classes and the technicians.

It is therefore necessary to give the less wealthy sections of society the chance to obtain information and use channels through which they can express their particular problems or offer their solutions to them. And this can only be done if we manage to ensure that the development of domestic and international telecommunications networks is not governed merely by technical and economic considerations, but by a determined act of solidarity.

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To do this, the first thing is to change our attitudes and accept two fundamental premisses:

- there is no one single solution that is the be-all and end-all; every problem has to be viewed from different points of view and by taking a variety of approaches;
- our terms of reference as people responsible for the development of telecommunications require us to establish full solidarity with the whole human race, ranging beyond national borders and the divisions between the rich and the poor, and between personal and general interests. It is therefore important for new projects to be designed at all times on an interdisciplinary basis so that all the implications of the problems can be properly appraised.

I would like to take the liberty of inviting all the members of this panel to ensure that their work is guided at all times by these principles.

A famous Canadian sociologist, Marshall McLuhan, who has done so much to change and enhance our perception about the role of communication in human activity, and to improve our understanding of the influence that communications can have on our cultural matrices, once said that the expansion of the world telecommunications system could transform the planet into a "global village".

If we ask ourselves, with intellectual honesty, how many people inhabit this village today we have to reluctantly admit that citizenship of the global village of which McLuhan spoke is still a privilege the few: it is a village of certain élites.

Recently, a pop concert to raise funds to help the droughtstricken countries of Africa caused a sensation throughout the world, and was watched by millions of television

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viewers. But two thirds of the earth's inhabitants were not able to hear it.

And this perhaps helps to explain the real reason for our presence here in Cairo, and for the Italian government's commitment: namely, our desire to play our part, with the cooperation of everyone concerned, to transform this village of élites into a genuine "global village", in which every member of this planet has citizenship rights, and equal dignity.

It is my sincere hope that we shall be successful in our intent to guarantee greater prosperity to all the countries represented here.

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# THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

Ind Regional Conference for Participants In IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) - 12/16 april 1987

# IRI/REG.CONF.II/CAIRO 87/PL/03

# Original : ENGLISH

## INTERDEPENDENCE AND ECONOMIC INTEGRATION

# PROCESSES IN THE MEDITERRANEAN AREA

By: Ambassador AHMED HAGGAG

Director of African Dept. Egyptian Ministry of Foreign Affairs

Mr. Chairman, Distinguished participants,

It is a great honour and a pleasure for me to participate today in a debate on "Interdependence and Economic Integration Process in the Mediterranean Area". May I first express my appreciation to IRI for preparing this important meeting for participants from countries of Mediterranean Africa and Italy. We in Egypt deem that such meeting reflects cooperation between North and South and it is no wonder that Italy is a pioneer in this regard.

Mr. Chairman,

Egypt has since a long time played an important role in the Mediterranean liaising between the countries in the North and Africa. This relationship dates back to several centuries and has had its ups and down but never ceased to manifest itself. It was not only confined to trade and politics but more important to culture. The two old civilizations of Italy and Egypt, were sometimes rivals in the Mediterranean but the bonds of culture were stronger than any rivalry and in general were a driving force in the interest of all the peoples.

In recent history relations between Italy and Mediterranean Africa were strengthened specially since the European Economic Community was established. Besides its active cooperation with the countries of North Africa, Italy plays an important role in relations between the EEC and this region as a whole. Egypt for its part seeks closer and stronger relations in the future, believing that such cooperation could serve as an example to other regions and specially to the rest of Africa. In today's world no group of countries can live alone without mutual cooperation and interdependence. Africa addressed itself

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to this problem in the Lagos Plan of Action which stressed the importance of regional and subregional cooperation.

Africa has been facing in recent years a multiplicity of problems which led to the acute crisis are undergoing. An increased populations, a deterioration in agriculture, growing debts and mismanagements of its economies. The effects of growing desertification with the devastating pressure brought to bear on the environment further aggravated these problems. After two decades of stressing political issues, African leaders are presently focussing a greater attention on economic issues. Indeed, Africa is still facing the problems of apartheid in South Africa and the independence of Namibia, but economic problems can no longer be ignored and must be dealt with in a first and drastic manner.

Let me dwell briefly on the aspects of an African Economic Community which is doubted by a great many in the world believing that it will not be achieved in the near future as the EEC was established in Europe. Without underestimating the difficulties facing Africa, one should bear in mind that Europe, after World War II had faced greater difficulties, but with a political will be managed to forge a viable and reasonable economic community.

Firstly, Inter-African trade generally constitutes a very small percentage of Africa's world trade. It must be taken into consideration that the most important objective of an African Economic Community is to generate new productive capacity which is not possible in a single-nation economy. Under the circumstances, its primary objective should be to seek greater specialization and higher productivity in agriculture and promote industrial planning so that Member States may enjoy economics of scale consistent with a wider market. The latter is of course not possible in small national economies where heavy industry and large scale production is often judged sub-optional. To achieve

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this end, the community would need infrastructural development linking African economies into a larger whole. Transport and Communications are, in this context, priority projects. Joint planning of economic development between African States would therefore be a pre-requisite to the formation of an African Economic Community. Such a Community would be in a better bargaining position vis-a-vis the rest of the world on vital economic issues which concern Africa. It would give Africa greater leverage in negotiating between "North" and "South", between EEC and ACP countries. The most important of such issues are international commodity agreements. The General System of Preferences of GATT and the Lane Convention with the European Communities.

The United Nations Economic Commission for Africa has sketched two alternative scenarios for Africa by the year 2008. One scenario assumes the continuity of African development in its unintegrated form, the second envisions a continent which faithfully implements the Lagos Plan of Action and adhere to the Final Act of Lagos. The ECA study refers to the social and economic conditions/of an Africa which retained discrete national economies as "almost' a nightmare". Food deficits would continue to worsen, so would /income inequalities, urban blight, unemployment, external debt and/external dependence on industrial and capital goods. GNP for the/whole continent would grow at 5.3% per year yielding a per capital income of US\$1287 by 2008 for a population estimated at 1.1 billion. Under the "normative" outlook, the GNP would be growing at 7.3% per year, agriculture at 4.3%, industry at 8.8%. The continent would be on the verge of industrial take off, while being simultaneously self-sufficient in food, energy resources and capital. It would be a rosy and more optimistic picture, but all this hinges on accelerated economic integration among African States. One important way to achieve this end is to start by depending on existing sub-regional economic organization, instead of trying to depend exclusively on a continental one.

The May 1986 Special Session of the United Nations General Assembly on Africa produced an encouraging consensus on a Programme for African Economic Recovery for 1986-1990. The programme was based on the realistic and widely commended proposals formulated by African governments through the Organization of African Unity (OAU). However, the general endorsement which this programme received from the United Nations was not accompanied to any significant degree by immediate arrangements for follow-up implementation to assist African governments in strengthening their capacities for programme and policy design, administration, training and funding.

It is clear that special efforts will have to be made if the quantity and quality of external assistance required by African nations to carry out this programme are to be mobilized. Countries and organizations with a particular development interest in and commitment to Africa must take the lead in providing Africa with the support and cooperation it needs in order to make the best possible use of available resources.

U.N. coordination has played an important role in worldwide relief efforts during the recent African drought and famine emergency. Also noteworthy is the role of the World Bank in assisting with structural reforms in Africa, reviewed by the Bank/IMF Development Committee in April 1986.

In order to maintain the momentum of the Special Session and to mobilize international support, the U.N. Secretary General established a Steering Committee in New York comprising the executive heads, or their designated alternates, of U.N. agencies and entities most directly concerned. The Steering Committee is responsible for

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organizing and stimulating action by the United Nations required for the effective implementation of the programme, promoting productive consultations with the international community, reviewing and reporting on developments at the national, regional and international levels, and proposing such other initiatives as may be appropriate.

The U.N. Steering Committee in its first meeting on September 4-5, 1986 brought to the fore the principle that "African Governments themselves must be the center and driving force for the implementation, follow-up and monitoring of the Programme". The need for early consultations with African governments to discuss how they intended to implement the programme and to explore how the United Nations could assist in these efforts resulted in an ECA/UNDP-sponsored Extraordinary Meeting of African Ministers of Planning to discuss the follow-up of the Special Session. Further to this, the U.N. Steering Committee established an "operational strategy", or work programme, which focuses on five principal targets:

1. To ensure that the priorities of the May 1986 Special Session on Africa are brought to the attention of and incorporated in the work of other ongoing U.N. conferences and negotiations.

2. To step up resource mobilization activities for multilateral financial organizations, such as replenishment of the World Bank's IDA-VIII and the African Development Bank, IFAD and other international programmes directly concerned with development in Africa. It was assumed that bilateral resourcemobilization for Africa would be handled by the OECD Development Assistance Committee (DAC). This must be closely attuned to and coordinated with the resource mobilization activities of the multilateral organizations.

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3. To strengthen the existing privileged fora for coordination - the North South Roundtables and the World Bank Consultative Groups - where most of the important decisions affecting aid and related requirements should be taken.

4. To expand public opinion and information support strategy and activities in order to maintain the momentum generated by the U.N. Special Session on Africa and to promote long-term development initiatives. There is an opportunity to capitalize on current international public interest in human-dimension issues, as well as a need to change the image of Africa from that of a basket case of development and a famine riden continent to one of societies where strong and purposeful measures for recovery are underway measures which hold the promise of success and deserve to be internationally supported.

5. To ensure that the annual report which the U.N. Secretary General submits to the General Assembly on the progress in achieving the goals of the Special Session on Africa becomes a vehicle for mobilizing further support.

The Special Session and its projected programme for African Recovery coincided with somewhat improved prospects and opportunities for Africa. During 1986, normal rains had returned to most of the continent. In many countries, good harvests had relieved shortages of food and lowered food prices. Improvements in some exports and lower oil prices had improved external balances for a number of countries.

African participants recognized that these modest improvements did not constitute a decisive break in the trend of chronic decline that had afflicted their countries. However, they did provide relief from the difficult economic circumstances of the last few years and an opportunity to accelerate the pace of economic adjustment and reform.

The U.N. Special Session brought into heightened focus an already perceived need for a redirection of African development priorities and programmes and for improved donor support and assistance. African governments had already begun to formulate recovery and adjustment programmes through the OAU, the African Development Bank and other regional institutions. Now there was a convergence of views on the need for comprehensive structural reforms and major sectoral adjustments in the economies of the sub-Saharan countries.

Mr. Chairman,

Allow me to lay stress on Egypt's policy and relations with Africa.

The Nile and geography have constituted and still constitute Egypt's life-links with Africa. Not only did the Nile transform a would-be desert area into a lush green valley, thus establishing the world's greatest and most ancient civilization, but made it possible, even necessary, for the Egyptian inhabitants of the Nile valley, depending utterly on its waters for irrigating their fields and for their livelihood, to establish very close friendly relations and much needed cooperation with the countries up-river such as the Sudan, Ethiopia, Tanzania, Uganda, and Kenya. This very close relationship was expressed by deep and constant ethnic,

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cultural, religious, and commercial exchanges and contacts between them. Thus, the Nile sealed the destinies of Egypt and these African states together for over five thousand years. Ever since Egypt's emergence as a state, she has retained characteristics.

The ancient Egyptians found the Nile the most logical and convenient means of transportation up the river to the sources of the Nile. Not only were the Egyptians driven by simple curiosity to go up river to explore the upper reaches of the Nile, the life-giver, but made their way to Central and East Africa, following its stream southward, to bring the goods and merchandise Egypt needed from the Sudan, Ethiopia, Kenya, Uganda and Tanzania. To this end also, Egyptians made a short sea voyage from what is now the city of Suez on the Northern tip of the Red Sea down the Sea to Punt which is now approximately the area of Ethiopia and Somalia.

Egypt and African countries were also tied together over the ages by bonds of intermarriage and the similarity of cultural and even religious heritage; there were times when Sudan and Ethiopia came under ancient Egyptian rule, and other times when Egypt was conquered and governed by Nubian or even Ethiopian Kings ensuing in the fusion of Egyptian, Sudanese and Ethiopian races.

One of the instruments which fosters our relation with Africa is the Egyptian Fund for Technical Cooperative with Africa, since Egypt strongly believes in South/South cooperation specially in the technical fields. The Fund was established in 1980 at the Egyptian Ministry of Foreign Affairs and proved to be a great success since its establishment. The Fund's objectives are:

- Providing African Countries with technical assistance either in the form of experts in various specializations, scholarships and training courses for nationals of these countries.

- Participating in feasibility studies for projects in African countries.

- Participating in development projects pertaining to African countries and peoples at the economic social and cultural levels.

The Resources of the Fund are:

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- Credits allocated by the Government of Egypt for the Fund in the annual budget.

- Contributions of countries and International Organizations according to agreements contrided to that effect, by the Government:

- Loans and credit fact lities provided by the State in the interest of the Fund.

- Donations, grants, aid trusts accepted by the Board of Directors which should conform to the Fund's objectives.

The Fund has a Bpard of Directors and a General Sector A. The Chairman of the Board of Directors is the Egyptian Aister of Foreign Affairs. It includes as well the Minister of State for Foreign Affairs who represents the airman if the Board when the former is absent. The Secretary whereal of the Fund is the Director of the African Department.

The Fund focuses its activities at present on rendering technical assistance in manpower by seconding Egyptian experts from all specializations and fields to African Countries as well as granting scholarships for training in Egypt.

Briefly, some of the latest activities of the Fund:

 The Egyptian Experts in African Countries now exceed
450 in number and the Fund has granted over 500 scholarships for training in Egypt.

2) The Fund has contributed two million US Dollars to the campaign organized to help African refugees, in accordance with the resolutions of the International Conference on Assisting Refugees in Africa, Geneva in April 1981.

3) The Fund signed in July 1984 an agreement with UNIDO in the interest of African Countries within the framework of the Industrial Development Decade for Africa. The Fund contributes services of experts equivalent to the sum of one million US Dollars and was expanded to meet the cost of salaries and travel of Egyptian Technical experts.

4) The Fund cooperates with Japan through the Japanese International Cooperation Agency (JICA) to finance annual short term training courses in nursing and multimodel transport workshops, etc...

5) The Fund has provided African States with national assistance such as food, medicines, blankets, etc.. to counter the effects of famine and disertification.

6) The Fund finances and organizes training courses for Media personnel twice a year for French and English speaking African Countries.

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7) The Fund financed and organized, the First Conference of the Ministers of Interior which was sheld in Cairo in December 1985 as well as the First Conference of the African Ministers of Information which was held in Cairo in November 1985. It will organize and finance the First African Conference of the Ministers of Health this month, April 1987. Those Conferences are also attended by representatives of International Organizations and of friendly countries.

8) The Fund cooperates with the International Agricultural Centre in Cairo, in financing and organizing short term training courses in all agricultural fields in English, French and Spanish for trainees from Africa, Asia and Latin America.

I have mentioned only some of the activities of the Egyptian Technical Cooperation Fund for Africa which reflects a sound South/South Cooperation, as Egypt is fully convinced that it is an obligation toward her sister African countries. I would also like to emphasize that the economic crisis which Egypt is undergoing has not affected the activities of the Fund.

Mr. Chairman,

I thank you for your kind attention to what I said about Africa and Egypt's policy. I do believe that this Meeting organized by IRI is an important event which should recur in the future to foster North/South dialogue and cooperation and indeed interdependence in a world which will no longer recognize any boundaries between nations in talent, trade and culture.

I thank you.

## THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

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## INTERDEPENDENCE AND INTEGRATION IN THE

# EURO-ARAB ECONOMIC RELATIONS

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## INTERDEPENDENCE AND INTEGRATION IN THE EURO-ARAB ECONOMIC RELATIONS

## by Roberto Aliboni Director, International Affairs Institute, Rome

## IRI-MAE, 2nd Regional Conference of the Participants in the Iri-Mae International Technical Cooperation Programmes Cairo, April 12-16, 1987

## Inter-regional vs. regional solidarities

During the last 15 to 20 years the Mediterranean countries, like countries in other regions, have attempted to change the character of their relations from colonial or semi-colonial to normal international relations among peers. Because of oil, change has been particularly sweeping. The strategic importance of this history-old area, both on economic and political grounds, has brought about a multiplicity of actors, including the two superpowers and other external powers. This has made the Mediterranean a highly conflictual area. Nonetheless different networks of cooperation have been created. The European Community has set up a number of association agreements with all the riparian countries except Albania and Libya. Arab and West European countries have started the complex exercise they call Arab-European dialogue, while the European Community and the League of the Arab States have continued their regional cooperation. Important bilateral relations, such as that between Yugoslavia and Italy, have finally been evolved, along with specific Mediterranean multilateral undertakings such as the United Nations Environment Programme's "Plan Bleu".

In view of this mixed predicament of conflict and cooperation two different attitudes have been worked out by Mediterranean peoples towards the area. A first attitude - by far the most widespread and active - stresses the common cultural heritage and blames external interferences (especially that coming from the presence in the Basin of the superpowers) for both the outstanding conflicts and the lack of political and economic integration. In this view the Mediterranean is considered a region of its own, cutting across Western Europe as well as Africa and the commic development and political attitude stresses existing differences in economic development and political alignments and, without ruling out the potential for cooperation, looks at the latter as inter-regional in character. The working of a Mediterranean cooperation is then subservient to respective regional cooperation schemes. It cannot outstep both regional and international interests and alignments.

Although the "Mediterranean" school of thought has been mostly vocal in its rethoric, the evidence is that Mediterranean countries, such as Italy and Egypt, will cooperate at their best but any goal of Mediterranean unity will never supersede, in their eyes, either European or Arab unity. Rivalries between Mediterranean and non-Mediterranean countries within the European Community have been largely responsible for working out such a misleading reality. France, and partially Italy, in order to shift the centre of gravity of the European Community have attempted to claim the existence of a regional

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Mediterranean region. The real substance of this attempt is clarified by the fact that the so-called EC's "global" Mediterranean policy, far from being a multilateral arrangement, is a set of bilateral agreements without any other link between them other than the Community itself. This is not to give a negative appreciation of the EC's Mediterranean presence, but only to say that its regional rethoric should not conceal the Mediterranean inter-regional reality.

Once the inter-regional nature of the Mediterranean relations is ascertained, the main consequences - as we hinted at previously - is that whichever scheme for cooperation must be studied (analysis) and prepared (policies) starting from the working of cooperation and integration processes within the various regions bordering the Mediterranean Basin. Another consequence is that conflicts induced from outside cannot simply be played down as alien influences which bother an otherwise cooperative environment. Beside conflicts, cooperation is also coming from outside the Mediterranean. On the other hand, conflicts emerging within the Mediterranean belong to the different regions bordering the basin and not to the Mediterranean itself. All this suggests that international integration and involvement is also an important factor in analysing the Mediterranean regional and inter-regional set.

In order to put all these factors together on the path of a virtuous circle, we can envisage the following sequence:

the revalorisation and the national reappropriation of oil has started a process of growing international interdependence by triggering new patterns of trade and financial flows all over the world and new processes of industrialisation into both the oil exporting countries and the so-called newly industrialized countries. The financial and real aspects of this evolution are decoupled. Whereas the financial flows have tended to increase interdependence at a worldwide level, interdependence related to the real aspects of trade, industrial development, etc., has largely grown across the Mediterranean, especially between the Arab and the West European countries.

This enhanced inter-regional interdependence has given way to both dangers of conflicts and opportunities for cooperation. To lessen conflicts and catch opportunities within the inter-regional frame, a significant progress in the respective regional integrative processes is needed. Were the Mediterranean countries to fail in accelerating their respective processes of integration, inter-regional relations would never manage to overcome present conflicts and to evolve a smooth and fruitful economic cooperation. In particular, one has to bear in mind that a factor of Arab integration is at the same time a factor of Arab economic development and a factor which is supposed to allow the European Community and the other West European countries to evolve interdependence into sound international specialisation and integration. The key to the working of the virtuous circle is then the deepening of Arab integration.

In the following sections, in order to test such a sequence, we will discuss the Mediterranean industrial growth and the financial Arab integration.

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### Industrial Growth in the Mediterranean

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At the global level industry grew very rapidly until the beginning of the seventies. In the last decade, however, global industrial growth has slowed down considerably.

These global tendencies are the result of partly divergent national and regional trends. Until the early 70s Japan and most West European countries

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tended to grow faster than the United States and Great Britain, while within the group of developing countries a subgroup experiencing considerable expansion of industry emerged. In the seventies the slowdown of industrial growth affected mostly the industrial nations. Western Europe ceased to grow more rapidly than the United States, while Japan continued to grow more rapidly than both, although at a considerably reduced pace. Industrial growth continued and was only marginally affected in those developing countries that had begun to industrialise in the previous decade(s), while the oil-producing countries were able to devote increasing amounts of financial capital to investment in industry.

In relation to these global trends, the Mediterranean fared rather well. Industrial growth was more dynamic than the global averages, while at the same time there was a redistribution of industry, which at the beginning was concentrated in France and North Italy.

Although the process of industrialisation has specific traits in each of the countries under consideration, the data show that there is no country in the Mediterranean which is not experiencing some industrial growth.

This is the result of a determined effort on the part of national governments which have been pursuing an industrialisation policy whose primary goal is to find sufficient domestic employment for a rapidly expanding labour force.

Some major aspects qualifying such evolution of the Mediterranean industrial growth deserve elaboration. The first of these is the role of energy in the process of industrialisation.

The circumstances under which energy is supplied are going to play a growing role in the Mediterranean context. The Arab oil producers intend to increase the value added to their exports domestically by integrating their oil industry downstream and exporting an increasing proportion of refined and petrochemical products instead of crude oil. This will change the geography of the above two sectors, which in the past tended to concentrate on the Northern shore of the Mediterranean.

A second important element linked to crude oil is the probable evolution in the transportation system, which will bring an increase in the role of pipelines and a larger proportion of exports from Mediterranean outlets. This will change the geography of transportation costs, affecting the localisation of some types of industrial activity.

A further important development is the valorisation of gas resources. This can be pursued through the utilisation of natural gas in industrial processes in the producing countries or through exports. Both alternatives will be pursued. As far as exports are concerned, because of persisting problems with the economies of liquefaction, we might witness the development of a Mediterranean grid of gas pipelines which would become a strong attraction for industrial activities with a high energy content.

Finally, a development could occur of new technologies to utilise coal in liquefied or gasified form in order to take advantage of existing transportation infrastructure once the supply of hydrocarbons it was originally conceived for starts to decrease.

The second remarkable aspect is the widespread importance in all the Mediterranean countries of basic industries. This feature is due to the crucial role played by the State in the industrialisation of typical latecomer countries.

This creates both dangers of conflict and opportunities for cooperation; the outcome will depend on the total installed capacity in some crucial sectors. The two sectors in which conflict is most likely are petrochemicals

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and steel. In both cases the increase in the production capacity of the Arab and European NICs cannot be singled out as a relevant cause of the overcapacity plaguing the European countries including some Mediterranean ones. Yet the problem remains because of the essentially regional nature of these markets, which is a consequence of global conditions of excess capacity and of Widespread protectionism.

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Altogether, steel production and industrialisation "downstream" from oil production represents additional productive capacity in sectors where the West European countries are already strongly present; hence, it could take place only if there were a shift of such activity to the developing Mediterranean countries (MCs), with a simultaneous liberalisation by the EC and the other West European countries with respect to imports of those products from the new Mediterranean plants.

A third crucial aspect is witnessed by the fact that the current processes of industrialisation, based on the exploitation of the MCs' natural resources and On the development of substantial basic industry, ordinarily state-owned, create economic and social tensions within each of the industrialising countries, with evident imbalances between the rise in incomes and the limited productive capacity for consumer and intermediate goods. In the more populous countries, such imbalances tend to be covered in the short run by virtually exclusive recourse to imports. The only way to avoid greater and greater dependency on imported manufactures is to induce a parallel growth of light industry integrated with the basic industries already established, and for the most part this course is only open to the more heavily populated nations. However, this type of intermediate industrialisation can no longer be based on simple import substitution under policies of autarky. Rather, to be sustainable and to constitute a driving force for each individual economy, it must be open to international competition, trying to find new outlets at the regional level, particularly in the markets of the "new" countries with rising incomes.

In all we have just said it would be easy to pick up indications for cooperation in the energy field, among public firms and in trade and investment policies. However, these problematic aspects of industrialisation assume a situation or rivalry among the various economies, inasmuch as efforts by any individual country or group of countries to obtain a new position in the industrial division of labour can always be interpreted simply as threats to the other countries. The industrial policies of the oil-producing MCs are in fact founded upon just such conflictual confrontations, thanks to the powerful weapons of energy supplies, which has shown itself to be an extremely effective tool for producing accelerated growth. If we posit such conflictual mechanisms as the only factors that generate industrialising drive, however, it would appear that the MCs' industrial growth "trail" cannot go much further than a conflict-ridden expansion of productive activity connected with energy resources.

Of course, we must ask whether there is an alternative to this confictual scenario. Actually, we can imagine a "concerted" process of industrial transformation for the Mediterranean economies, by means of a policy of inter-regional cooperation, which could produce more positive results for all the countries of the Mediterranean area.

The substantial role of the state in the MCs' industrial policy has already been underscored. What is imaginable, now, is the end of the strictly "national" outlook that rules the activity of the MCs' public industrial enterprises, to establish regional cooperation among the various publicly owned industrial groups. Such an arrangement would provide a framework of natural economic and social interest in which compromise agreements could be reached on

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exploitation of natural resources, "downstream" industrialisation, marketing, and regional division of production.

Obviously, such concerted action would not necessarily exclude private firms. But the main thing is to establish a framework of cooperation necessarily a public one - within which all countries' economic and social problems can be properly considered.

Essentially, this hypothesis means getting over the "spontaneous" confrontation between Mediterranean economies, with oil-price rises, protectionist measures, and deflationary tight-money policies, that has so far dominated economic relations within the Western European Mediterranean macro-region. Oil price policies and the industrial countries' trade policies would thus be put in a new context and would spur growth in all the countries of the macro-region. Only in conditions of rising income for all the economies concerned, indeed, can we imagine the development of new manufacturing activities in the industrialising MCs together with an accompanying rise in industrial exports from the advanced economies.

A state of recession in the OECD area cannot help damaging the Third World's prospects for industrialisation, relegating industrial development in the emerging MCs to the more modest status of growth hyper-concentrated in a few energy-based products.

Thus, the alternative - more dynamic cooperation between the less developed MCs and the Western European countries tries is undemiably attractive. In conditions of rising world demand, it will be easier to make the needed production adjustments gradually, through a subsequent relocation of some energy-intensive production activities to the developing MCs, just as it will be possible to understand the benefits of creating new market-oriented manufacturing plants once the economic geography of the Mediterranean Basin becomes more decentralized.

In our view, however, the prerequisite to make this path of inter-regional cooperation possible is the strengthening of both the European and Arab processes of regional integration. This is the point we must revert to.

#### Arab Financial Integration

The West European area is certainly well integrated by average standards. The European Community integration process, however, is lagging behind for it does not manage implement a significant financial and monetary union. What is making impossible any further progress of the economic integration is the European inability to set up an integrated set of political institutions. Despite these difficulties, Western Europe and especially the European Community are so economically integrated as to allow a fruitful inter-regional cooperation anyway. An important point, however, is that the possible presence of a growing integration in the Arab region may be an incentive to go ahead with the European integration. The two processes may be interrelated and sustain one another. This would be helpful for both the process of regional and inter-regional cooperation and integration. As we said in the first section of this paper, the starting of an integration process in the most dynamic Arab area today may orfer Western Europe opportunities for cooperation which would translate present interdependence into a more articulated and flexible inter-regional integration. For this reason any progress in the integration of the Arab area is presently the key to start a viable inter-regional cooperation across the Mediterranean.

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The state and most of all the prospects of the Arab economic integration is very diversely appreciated by the people concerned. In that appreciation the historical experience of the European integration, successfully based on trade liberalisation and increase, weighs very heavily. As the literature on economic integration among developing countries has widely shown, different situations require different instruments. In the Arab case it is the development of a large range of financial flows that is the engine of the Arab incoming integration. For capital movements may lead the way to the movement of goods and - as they already have done - labour. Development of banking, both domestically and internationally, is supposed to play a key role in that evolution.

The present expansion of Arab banks may be considered the fourth echeion of national banks on the international markets after the American banks in the 50s and b0s, the European banks in the 70s and the Japanese banks quite recently. The factor behind the first three echelons has to be identified in the necessity for the national banks to help the international projection of their clients or to capture it in cooperation or competition with the parallel tremendous growth of the xenocurrency markets. As for the Arab banks, their international development is predicated on the plain necessity to invert financial surpluses coming from oil. In other words, while the OECD's banks would have pegged their international financial integration to the real development of the national entities they were based in, the Arab banks would be experiencing a purely financial integration of .

In our view this evaluation does not take into account a number of important features which are emerging in the evolution of the Arab financial system. Although the size of such emerging features may appear limited in relation to the size of the international integration of the Arab banks, the tendencies are supposed to have a dynamic impact on the real aspects of the Arab economies and on their integration.

The first aspect to consider is the implementation of development plans, particularly in the less populated oil-exporting countries. Altogether they have been successful and as a result these countries have began to recycle domestically a much larger proportion of their financial surpluses than was supposed possible. A crucial aspect of this domestic recycling is the large transfer to individuals, families and firms which have been operated as public expenditures in the form of housing allowances, low or free interest loans, and subsidies designed for diverse purposes. This development is preparing a new significant balance between international and domestic uses of available financial resource. In any case the industrial growth stimulated by the implementation of the development plans has triggered a tremendous increase in the inter-Arab migration flows. This in turn has been translated into significant flows of remittances. These particular financial flows, along with aid extended for political and military reasons - to Jordan for example - is creating an Arab use, as opposed to the international use, of available rinancial resources and is working as a potent element of Arab integration. In fact, remittances are initiated today in the building of private houses in the countries of origin and will be invested tomorrow in the productive activities of migrants who have returned home. Another way in which resources are recycled into the Arab world as a whole is the setting up of public and private joint ventures. For cultural as well as for political reasons these joint ventures very often linked to the intergovernmental network - have grown based in populated Arab countries, such as Jordan, Egypt and Tunisia. This is very neiprul in maximising the Arab-wide recycling of financial resources. In this \_\_\_\_\_\_\_

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framework the role of the banks and of other financial institutions is becoming increasingly important. As was said by an Arab economist: "The regional and national financial institutions which have been established have acted as a channel for the multilateral transfer of Arab funds among the Arab countries, in addition to direct bilateral transfers which have taken place for economic and non-economic reasons. This is an important form of cooperation because the flow of capital has been induced generally in accordance with certain criteria designed for this purpose. In the absence of such institutions these flows may not have occurred, at least their level and geographic and investment pattern would have been different, being then governed by autonomous decisions based on a calculus of private costs and benefits". (1)

The second aspect which tends to be misinterpreted or overlooked in the observation of the Arab international integration is the evolution of the institutional banking structure in itself. To get a significant synthetic idea of the evolution we are talking about one must refer to the total financial activities to GDP ratio and to the domestic to international ratio of such activities. According to the most recent available figures (end of 1970s) Arab countries can be divided into three categories: a) countries with a high ratio of total financial activities to GDP, i.e. Lebanon (172%), Jordan (122%), Egypt (90%), Aigeria (182%), Syria (67%), Tunisia (66%), Morocco (62%); b) countries with a low ratio, i.e. Iraq (34%), Sudan (43%), Arab Republic of Yemen (56%); c) oil-exporting countries, i.e. Bahrein (119%), Kuwait (75%), Libya (49%), Saudi Arabia (122%). While the second category needs a case by case explanation, the first and third categories correspond to different absorbing capacities and different roles of the financial institutions. This is more evident when considering the second ratio, namely that of domestic to international activities. For the countries of the third category domestic activities on GDP are about one third of total activities, whereas for the other countries it is about two thirds. The first category countries are clearly developing a financial market to serve their economic development by recycling resources from international to Arab uses. The second category countries are more integrated in the international market, in forms and with roles as different as those of Saudi Arabia (plainly investing abroad) and Banrein (an off-shore center). The overall (Arab) picture is one of an incipient organic financial system with all its specialisation of functions to cater for different requirements and demands. Historically, one may maintain that this ability to specialise while growing is the mark of the birth of a unitary system. On the same nistorical ground one has to say that, as international as their projection may be today, their national base will not remain without effect in the future.

Both these remarks speak for a strengthening of Arab integration along the path to a successful economic development. If this is correct it is up to the West European countries to take up the opportunities for cooperation and growth this process may offer. This would be the starting point of a sound inter-regional cooperation favouring the industrialisation of the Mediterranean countries beyond the problems it presents today.

(1) Samir A.Makdisi, "Arab Economic Co-operation: Implications for the Arab and World Economies", in Roberto Aliboni (ed.), <u>Arab Industrialization and Economic Integration</u>, Croom Heim, London, 1979, pp. 94-5

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### THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

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Ind Regional Conterence for Participants in IRI - MAE International Technical Cooperation Programmes

Cairo (Egypt) — 12/16 april 1987

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Original: FRENCH

#### COOPERATION IN DEVELOPMENT BETWEEN THE

MAGHREB COUNTRIES AND THE EUROPEAN COMMUNITY

By: SADOK BELAID

Professor at the Faculty of Law and Political Science of TUNISIA Former Dean

What recently happened in Brussels at the EEC Meeting of Foreign Ministers, on help to Mediterranean countries, is most significant for various reasons: the agenda item was on the volume of assistance, in the form of donations, that the EEC should grant to the Mediterranean countries from 1987 to 1991. The proposal of ECU 700 million was turned down by Germany and the United Kindgom, whereas Italy and Spain deemed that the figure of ECU 625 million, proposed by Belgium as a compromise solution, was totally insufficient. Whereas the first two countries argued that the amount proposed was higher by 50% over the preceding figures (ECU 415 million), the second two countries pointed out that this increase was merely adjusting the former amount to take into account the on-larged scope membership of the EEC and inflation. In other terms, what is relevant in that slight controversy is that the European assistance for the period (1987-1991) is not very much higher than that allocated for the period 1982-1987. But this controversy was very significant on another ground; it indicated that, within the EEC, awareness of Mediterranean problems clearly varied, and differences arose in this regard, setting the nordio European countries in opposition to Mediterranean Europe, mainly Italy, France, Greece and Spain. This attitude on the part of Mediterranean Europe is in fact not an isolated fact: very recently, Italy and Spain, through their Prime Ministers meeting in Palma de Majorca, last January - like France at earlier occasions - reaffirmed the need to reactivate the Euro-Arab dialogue, which has been at a deadlock for over five years, and to resume cooperation with the Mediterranean countries, within the context of a "forum" grouping the North and South Mediterranean countries. Hence, we are far removed from a controversy over some ECU millions to be doled out over five years. It is quite another vision of relations between the North and South Mediterranean countries which is presently considered, and which implies on the part of the North Mediterranean countries, an in-depth review of their vision of Mediterranean problems

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"a region which we have long ignored" (as stated by Mr. Craxi) as well as a more forceful and wider European commitment than that of the past vis-a-vis South Mediterranean countries.

In an important declaration recently published by the EEC Foreign Ministers (23 February, 1987), the EEC recalled "the very important historic, political, geographic, economic, religious, cultural and human links" shared with these peoples, adding that it is "directly interested in seeking negotiated solutions likely to restore in that region a just and lasting peace, good neighbourliness relations and a long forsaken economic, social and cultural development" and is willing to contribute to the "economic and social development of the region".

This declaration is important on several grounds: firstly, at a general political level, it should be borne in mind that this declaration was made, following the above-mentioned stands taken by the Mediterranean Europe countries; we also note that the terms used by Messrs Craxi and Gonzales, in the declaration, reproduce certain parts of the EEC decisions, indicating that the core of the decision vis-a-vis Mediterranean countries has to some extent moved in favour of Mediterranean Europe. Moreover, this declaration recalls and goes beyond the Venice declaration of 1980 which also indicates that, under the influence of Mediterranean European countries, Europe intends once again to break free from the American policy that, had hitherto, imposed on its European allies its monopole of any initiative in the political and security domains in that region of the world.

Secondly, as far as substance is concerned, it indicates awareness by the European countries of the vital importance for Europe, itself, of relations with the south Mediterranean countries; it also indicates an awareness by the European countries of the overall nature of Mediterranean problems; namely the indestructible relations between economic problems, on the one hand, and political problems, on the other; finally, it

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indicates awareness by the European countries of the need to assume their share of responsibility in the solution of Mediterranean problems in their overall context, and within the overall context of the Mediterranean. This statement implies the renewal of the vision of Mediterranean problems, of relations between north and south Mediterranean countries, and the setting up of a "forum" to quote Mr. Craxi's term for a global negotiation, at a truly Mediterranean level, on future relations between the two groups of countries. This was also the understanding of the Arab world which, through the Secretary General of the Arab League, advocated the "resumption of the Euro-Arab Dialogue" (Declaration of 25 February, 1987). In other terms, this implies the review of the bilateral vision - hitherto applied - and a conception of another type of relations, at the scope and level of the "important historic, political, geographic, economic, religious, cultural and human links", binding the two groups of countries, to quote the above-mentioned EEC declaration. We then witness what will probably constitute a turning point in relations between north and south Mediterranean countries, a transition between what existed - meaning the situation prevailing over the past 15 years, if we start from the premise of the definition by the EEC of its economic policy towards the south Mediterranean countries - for which a balance sheet should be drawn up and lessons learnt thereform, and what should exist, bearing in mind the evolution perceived in the vision of problems, reflected in the recent stands of the leaders of the two groups of countries. We wish to focus our expose on these two aspects of the issue. We shall nevertheless emphasize that our comments deal mainly with the Maghreb experience, as indicated in the topic we were asked to deal with. Bearing in mind the great similarity between the problems of Maghreb countries and those of the other south Mediterranean countries, we shall from time to time take the liberty of referring to the general aspects of the issue and drawing conclusion from this reapproachment.

## A BALANCE SHEET OF COOPERATION RELATIONS FOR DEVELOPMENT BETWEEN THE EEC AND MAGHREB COUNTRIES

We do not intend to submit a detailed study on economic and cooperation relations for development which have been woven over the past 15 years between the EEC, on the one hand, and Maghreb countries, on the other. Such detailed study would transcend the scope of our meeting and would require a longer time than the one allocated to us. It is much more opportune and useful for our meeting, taking into account the trend to prospect the future, which should always be kept in mind given the recent development we have recalled, to proceed to an overall examination of these cooperation relations, draw up a general and indicative balance sheet and identify the dominating trend of the European policy in this regard, in order to draw lessons for the future. We must point out that our examination shall focus on relations between Maghreb countries and the EEC, as such, meaning that we shall not consider relations between Maghreb and European countries, taken individually, relations which are most certainly of importance, but come within a more complex historical and political framework, and cover a longer period than that of the contribution of the EEC, as such.

A. The framework of the relations was first outlined in the Agreements of 1969, concluded with Tunisia and Morocco; Algeria was not party to these Agreements, but concluded with the EEC partial arrangements for its trade with the EEC. New agreements were later concluded in 1976. Finally, in 1985, the EEC Council defined directives for future negotiations with 8 Mediterranean countries, including Tunisia, Morocco and Algeria, that dealt with agreements related to financial and technical cooperation between the EEC and these countries. Negotiations started within the context of these proposals and agreements were concluded with a number of Mediterranean countries.

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The first agreements were called association agreements and were meant to guarantee to Morocco and Tunisia free access for their industrial products, excluding certain products such as, mainly, refined petroleum and iron and steel products, and included a special system for agricultural products to render more flexible the EEC protectionist system, in accordance with the nature of the product and their access system (special tariffs and quotas...). Hence, they were mainly commercial agreements. As for the 1976 agreements, they reflected the spirit of their authors in a totally different context, that of the "global cooperation" initiated by the EEC and aimed at contributing to the economic development of the Maghreb countries. They covered commercial, technical financial and social aspects. They were worked out within a context that went beyond the short term and had to contribute to the achievement of the development plans of the considered countries. As regards, the trade system, the advantage given to the EEC was that of the most favoured nation on Maghreb markets. In return, the Maghreb countries were granted free access for their industrial products, excluding some products; viewed from this angle, these agreements would be playing an important role in the industrialization of the Maghreb countries. The latter benefitted from a "preferential access system" for some agricultural products, subject to some precautionary measures to protect similar European products. The second part dealt with financial cooperation and defined modalities for contribution by the EEC to the financing of development and infrastructure projects in the Maghreb countries as well as inducements to encourage European investments in the economy of these countries. The third part covered scientific and technical cooperation, and provided in particular for the training of Maghreb cadres, cooperation between university and research institutions, and a form of transfer of technology, through favourable terms for the acquisition of invention patents. Finally, the social part comprised a special system for Maghreb labour ensuring non-discrimination in wages and work conditions, and certain social security rights as regards transfer of income, pension, insurance and family allowances.

On 30 March, 1985, the EEC Council defined guidelines for proposals to conclude new protocols related to financial and technical cooperation with south Mediterranean countries. In these proposals, the EEC "reaffirmed its intention, taking into account the development objectives set by its Mediterranean partners, to pursue its contribution to their economic and social development through financial and technical cooperation". To this end, it gave priority to the following three fields:

- "agricultural development aimed at reducing food dependence and in particular, assistance to national food strategies, in order to enhance self-sufficiency, and to efforts exerted to diversity the agricultural production".
- -"the strengthening, in their mutual interest, of economic links, through the development of industrial, scientific, technological and commercial cooperation".

-"regional and multilateral cooperation".

As pointed out by a Tunisian specialist, and bearing in mind demographic constraints, world economy constraints, difficulties for young nations to insert their economies in a world economy marked by development inequalities, technological gaps, protectionist tendencies and the economic stagnation which had been ongoing for several years, weighing heavily on the more vulnerable economies, these proposals meant the review of the balance of relations between the two groups of countries and, above all, a stronger commitment on the part of Europe to support the development policies of the considered countries, in particular through assistance in the strengthening and modernization of the Maghreb industrial and production potentials, mobilization of financial resources needed for development, opening of European markets before Maghreb products and services under conditions ensuring to them stability and equitable returns, and a significant contribution to the valorization of the Maghreb scientific and technolgoical patrimony so that it could modernize itself and keep pace with the ongoing self-development cycles and, finally encouragement to interregional integration, as a condition for an harmonious and balanced development between the two groups of partners.

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в. Within the context of these agreements, one can generally note that trade between the two groups has significantly increased over the years, as proved by the following figures: Maghreb imports from Europe developed as follows: from 1977 to 1983: for Algeria from US\$ 4.1 billion to 5.6 billion; for Tunisia from US\$ 1.1 billion to 2 billion; but for Morocco, it dropped from US\$ 1.6 billion to 1-3 billion, an increase by about 30% and 100% for the first two, and a reduction by 20% for Morocco. As for Maghreb exports to the EEC over the same period, they were as follows: for Algeria they rose from US\$ 2.2 billion to 6.6 billion; for Tunisia from US\$ 0.65 billion to 1.2 billion and for Morocco from US\$ 0.8 billion to 1.06 billion, or a respective increase by 300%, 200% and 130%. The 1976 agreements, in particular, have intensified They increased the share of manufactured products and trade. textiles in Maghreb exports to the EEC as well as increased agricultural exports. The Migration circuit and the protection system have enabled an increase in employment and in transfers to the Maghreb countries. In 1982, for example, transfers of migrants to the Maghreb countries were respectively as follows: for Algeria US\$ 291 million, or 0.6% of the G.D.P., but for Morocco US\$ 840 million, or 5.7 of the G.D.P., and for Tunisia US\$ 359 million, or 4.5% of the G.D.P..

We come to the end of the optimistic aspect of this balance sheet, and it is not a bad thing to admit it, if one intends to set relations between the Maghreb and the EEC, within a long term and an interdependence perspective, which must be the case bearing in mind the strong links of all forms which bind them and which were opportunely recalled in the recent above-mentioned EEC declaration.

We shall not expatiate on the first experience of 1969; it has become past history and relates to a period when the EEC did not have a clear vision of its own economic policy with

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neighbouring countries, in particular Maghreb countries. What can safely be said is that these agreements were merely trading agreements, whose chapter "contribution and development" and provision for development were most limited, not to say inexistent. The balance sheet of the 1976 agreements is much more significant, firstly due to the period they cover, secondly because they claim to be reflecting a concerted European policy and, finally, because they were submitted by the EEC, under a European policy of contribution to the economic development of the countries it deals with.

Viewed under this angle, the results of the 1976 agreements reflect, in fact, the same imbalance noted during the preceding period, and reflect as well ongoing unequal relations which are characteristic of relations between developed and developing countries, so that one might rightly raise the query as to whether the European policy announced under the heading of "global policy of economic development" has attained or is likely to attain the objectives it has set itself.

\* The persisting previous imbalance: this is perceived in the examination of the trade balance and, particularly, in the decrease of the coverage rate of imports by exports, a rate which was already alarming during the first period, since, in the case of Algeria, it had fallen from 81% in 1971, to 73% in 1975; for Morocco, from 102% to 77%, and for Tunisia from 65% to 50%, and fell again, in 1977, respectively to 57%, 55% and 45%. In the case of Tunisia, in particular, the coverage rate of its trade with its major partners - France, FRG, Italy, England and Hollandwas 79% in 1974, 47% in 1975, 44% in 1976, 49% in 1977, and 45% in 1978. In 1983, this disbalance amounted to 50%.

\* The tangible proof of unequal relationships: in spite of some changes, whose impact is certainly limited, the case of Tunisian textile exports in particular, - the trade structure remains to a large extent similar and typical of relations

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between developed and developing countries, that is European countries remain exporters of manufactured and added value products, whereas Maghreb countries remain mainly exporters of agricultural products and raw materials. If, in the case of Tunisia, the share of manufactured products rose from 10% to 33% from 1970 to 1977, it only rose from 7% to 18%, in the case of Morocco and, for Algeria, it was only 3% and 1.4%. In 1980, the share of agricultural products, of mining industries and of manufactured products was respectively, for Morocco, 38%, 35% and 28%, for Tunisia, 15%, 38% and 46%, and for Algeria, 1%, 35% and 28%. Thus, the first two domains total, alone, 73%, 54% and 36% respectively. What is even more significant is their percentage in relation with the G.D.P. of the Maghreb countries considered. In 1980, the exported manufactured products to the EEC represented 6.5% for Tunisia, and 2.1% for Morocco.

Unequal relationships which will be seriously aggravated by the enlargement of the EEC, through the membership of Greece and, more recently, of Spain and Portugal. This enlargement will impose a double constraint on the Maghreb countries, as regards manufactured products and, particularly, agricultural As far as agricultural products are concerned, which products. represent an important share in the exports of the Maghreb countries, the competition of similar products of the new members, will provide Europe with a substantial self-sufficiency which will put Maghreb products in a marginal position and will sharpen the imbalance already shown at the level of commercial balances. The recent negotiations between Maghreb countries and Europe were characterized by some apprehension on the part of the Maghreb negotiators, indeed by a certain tension. This evolution is even more serious due to the enlarged membership of the EEC, because the notion of "traditional trade-trends", mentioned in the directives of the Council of Ministers of the Ten, in November 1985, is fundamentally and irreversibly modified.

Unequal relationships in the field of trade relations, but which are not compensated in other economic fields: This is the case of the financial field. As pointed out by a Tunisian economist, Professor Ben Slama, "the implementation of financial cooperation agreements, which only provide for a modest contribution of the EEC to development financing in the Maghreb countries, as a supporting factor to assistance given, within bilateral frameworks, seem to be impeded by serious difficulties. In fact, the projects proposed by these countries give rise to strong reticence on the part of the EEC, because of the "sesnsitivity" of the community industries - in particular in the enlargement perspective - towards these products". Matters did not significantly change during the new negotiations on the basis of the European proposals of November 1985. The overall amount of loans at preferential terms for Mediterranean countries total ECU 1.025 million and it was noted that the Foreign Ministers of the Twelve wavered between ECU 709 million and ECU 625 million as regards "donations" to the same group of countries.

#### ELEMENTS OF A NEW VISION

The conclusions that may be drawn from the above detailed explanations are relatively simple and clear-cut:

\* The recently negotiated agreements are only provisional arrangements valid for a short term period. They cannot constitute a basis for a consistent and long term cooperation for development.

\* The present structure of trade between the Maghreb countries and the Community shows very serious disbalances to the detriment of the former which, due to the present structure of the economy in the Maghreb countries, cannot be fundamentally modified to redress the noted disbalances.

\* The modification of the present condition of Euro-Maghreb trade can be brought about only through a basic diversification of the Maghreb export structure, that is a substantial increase of the Maghreb industrial production, and, accordingly, of manufactured products exports.

\* This objective can be achieved only if two conditions are met: an intensive industrialization of the Maghreb economy aimed at valorizing its agricultural and natural resources, and the existence of an open and favourable export market.

\* For political, economic, social, cultural and demographic reasons, the Maghreb countries, like the other south Mediterranean countris, must exert strenuous developmental efforts in order to ensure their own survival and safeguard their identity and their political and economic security.

Bearing in mind, the globalization of present world economy and the importance of the scientific and technological factor, the national dimension for a dynamic and developed economy, is no longer valid today. As proven by various contemporary experiences, primarily that of the EEC, economic development can be achieved only through integration and pooling of efforts. The economic development of the Maghreb countries and, in general, that of south Mediterranean countries, must emanate from an inter-regional concentration aimed at economic integration, which would have a dynamic impact on the economies of these countries and be mutually beneficial. These comments totally differ from the emotional speeches which, for so long, have confused thoughts in this domain. The regional economic integration, to which we here refer, is not an ideological or political address, neither is it a sentimental speech; it is an objective need, based on strictly economic bases and similar interests. Recent experiences indicate that economic cooperation, indeed even regional economic integrations, can be

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translated into concrete terms, despite political or ideological differences which could oppose the concerned countries. In the case of the south Mediterranean countries, the dbjective economic conditions and the appropriate means for a concerted development undoubtedly exist.

\* It is only such in-depth readjustment of the economies of the Maghreb countries and those of the south Mediterranean countries, as a whole, that is likely to redress the unequal relations existing between the north and south Mediterranean countries.

\* As regards, in particular North-South Mediterranean relations, one should point out the global dependence relations between these two groups of countries. Economically, the countries of the North need to have in the countries of the South a sound economic partner capable of widening the circuit of trade and enhancing economic relations with these countries. Politically, the countries of the North cannot "ignore" what occurs in the other region of the Mediterranean, nor remain indifferent to the problems of security and political stability in that region. The south Mediterranean countries have the same dependence relations vis-a-vis a natural partner, which is Europe, politically as well as economically.

\* If it is really true that relations between the north and south Mediterranean countries are characterized by an unavoidable and strong political and economic interdependence, an interdependence dictated by geography and history, it is then to their mutual and strictly objective interest to contribute, through internal as well as international efforts, to the economic development of this less developed region of the Mediterranean. As called for by quite a number of people, it is a genuine Development Contract which must be negotiated by the partners on the two shores of the Mediterranean and, within such contract the complementarity of interests founded

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on a redistribution of economic activities, mutually profitable and equitable, must be defined on the basis of a long term vision of relations between the two groups of countries. Moreover, it should be recalled that, following World War II, the reconstruction of Europe was achieved by the Marshall Plan, that is on the basis of a bet on the future, nurtured by an awareness and a mutual interest in safeguarding that future. The relation of reciprocal dependence between the interest of the North and South Mediterranean countries dictates the need to work out such a cooperation model, in order to build up a future involving the joint responsibility of the two groups of countries.

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\* Being a new approach to the relations between the two groups of countries, the initiative for such global negotiations must be expressed at political level: the appropriate framework is that of the EURO-ARAB DIALOGUE, which must be resumed and set, not within the climate of crisis which had prevailed when it was launched, in 1973, but within the context of a new vision of a common future to be built together.

May this appeal be echoed one day . . . .

### THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

Ind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) - 12/16 april 1987

## IRI/REG.CONF.II/CAIRO 87/PL/05

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#### COOPERATION FOR DEVELOPMENT

#### BETWEEN THE E E C AND

THE COUNTRIES OF MEDITERRANEAN AFRICA

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By: ENRICO GRILLO PASQUARELLI European Community Commission Member of the Cabinet of H.E. Vice-Chairman NATALI

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It is an honour and a privilege for the European Community Commission, which I represent, to address an audience, so highly qualified, convening on the occasion of the Second Regional Meeting of participants in the programmes of international technical cooperation organized by IRI and the Italian Ministry of Foreign Affairs. That is why I first wish to express my gratitude to the organizers of the Conference who, in giving me the floor to make my intervention, wished to emphasize that the Italian cooperation for development could neither be perceived nor appreciated unless it was put in a much wider context, that of the European Community, within which all the policies of development assistance, of its 12 Member States, are coordinated but where is also devised a common European cooperation policy, translating the concern of a regional group, to which Italy belongs, over the common destiny of mankind.

I also wish to add my voice to those who have thanked the authorities of the Host Country for their hospitality and their contribution to the organization of this Conference. Although Europe feels very old for having given birth to the modern world, I cannot help think of the relativity of such considerations, standing as I am, a few kilometers away from the Pyramids, which date back to millenia, and is a city which will celebrate next year (1988) the millenium of its prestigious university of al-Azhar (a century older than the Bologna University, the oldest in Europe which, will celebrate in 1988, its ninehundredth anniversary.

I wish to convey to you all the best wishes for success from Mr. L. Natali, Vice Chairman of the European Community Commission, responsible for development assistance and, formerly, for the global Mediterranean policy and of Mr. Claude Cheysson, member of the Commission responsible for relations with Mediterranean countries.

I have just been referring to a common European policy of cooperation for development. In addition to obvious moral and political reasons, it is the awareness of the close economic interdependence between North and South, between Europe and developing countries which underlies this policy. Much more than the United States, the EEC is outward looking: its foreign trade represents 25% of its GDP, whereas in the United States, this figure stands at 7%. The share of the developing countries in this trade is about 40% for the EEC, and 30% for the United States. "The economic stimulus of the West could well be dimmed by the lack of clients . . . or by the lack of raw materials", said Edgard Pisani, former member of the Commission, and responsible for cooperation for development, whereas Willy Brandt, in his well-known report reminded us that "the North could not hope to have a greater volume of exports as long as it did not provide the South with a better access to its own markets".

Hence, it is taking into account this obvious economic interest, that it would be hyprocritical to under-estimate, and from the premise of moral and political considerations which remain primordial, that the Community has worked out a policy of interest to the Third World. Its main instruments are preferential customs system (generalized system of preferences or other contractual systems even more advantageous) food aids and emergency aid, technical and financial cooperation and assistance to non-governmental organizations. These various instruments are used individually or together with different developing countries with which the EEC has relations. But, it is in favour of two regional groups, the so-called ACP countries on the one hand, (the 66 countries of sub-Saharan Africa, the Carribean and the Pacific with whom the Community has concluded the Lome Convention) and the countries of the South and East Mediterranean, on the other hand, that a global approach was devised combining, in an integrated policy, the cooperation instruments as a whole.

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It is about cooperation with Mediterranean Africa that I wish to address myself, but I would be remiss towards my Sudanese friends if I did not briefly refer to the Third Lome Convention, to which the Sudan is party -the Sudan obviously not being a Mediterranean country - which was concluded for the period 1985-1990, and pursues, strengthens and renders more effective the two first Lome Conventions (signed in 1975 and 1979), and earlier the Yaounde Convention which, since 1963, associated to the Community, some newly independent 20 Countries. It is the originality of this Convention, which emanates from its nature as a cooperation contract freely negotiated in the mutual interest of two equal partners assembled in two regional groups, that makes it the major contribution of the Community to world developmental efforts. This is in addition to the trade benefits incident to the exemption of all customs duties on approximately 99.5% of goods entering the territories of the Community from ACP countries. The Third Lome Convention guarantees to the ACP countries a total amount of development assistance, under various forms and according to different modalities, funds amounting to ECU 8.5 billion over 5 years, that is about 9.7 billion US dollars.

The Lome Convention, given the number of its participating members the considerable financial funds earmarked therefore, and the magnitude of problems that it has to handle (I would not say solve) is, in quantitative terms, the main Community achievement in the field of cooperation for development. Ι believe that it is through the relations which developed between Europe and the Mediterranean countries, that one can perceive the moral, political and economic reasons to which I was referring as being the basis of the Community action in favour of development. Firstly, moral and historical reasons: we have shared the same history throughout the ages. At times we ran after each other around or across the Mediterranean, in wars and conquests, in crusades for some and in the conquest of Spain, Sicily for others.

In truth, our associates are basically linked by a certain conception of man, a metaphysical conception, and it is no coincidence that the three monotheist religions which link us were born and developed on the shores of the Mediterranean. If our past was linked, we know that our future is also linked. This explains the wealth of our mutual ability to understand one another, not to be compared with our ability to underatand other friends we have throughout the world, not to be compared, in particular, with our ability to understand our problems which one notes in the Superpowers.

Then, political reasone: The Mediterranean basin is one of the rare regions in the world, where capitalism, socialism and the Third World meet one another and, may be, where they are the closest to one another. Hence, our interaction in our problems: any serious problem in Europe affects the Arab World, any serious problem in the Arab World directly affects us and, accordingly, the element of stabilization which we represent to one another in a period of detente.

Finally, economic reasons linked to the notion of independence. In this regard, two phenomena are particularly striking in the history of the Mediterranean Basin, following World War II.

The first is the reappearance of the Mediterranean countries as important actors on the economic and political scene. Sometime earlier, decolonization had turned them into full-fledged actors, a status that had hitherto been reserved for European Later, the economic expansion contributed countries alone. to their industrialization. The European economies of the Basin caught up with the richer northern economies, an indispensible prerequisite to adhere to the Community. The other countries of the region reaffirmed their cultural and national traditions. But, in general, they are still at the first stage, the most fragile stage of their industrialization. The outcome of development was to link the fate of most of them to the ills of Western Europe, and the economic stagnation which

did not coincide with a significant reduction of their demographic growth. In brief terms, the Mediterranean societies have achieved great progress accompanied by painful tensions, which renders them more vulnerable in numerous fields.

The second major phenomenon has been the rebirth of interest by Europe, following the rapid liquidation of colonial empires, in the economic and political situation of the region, although the strategic domination of Europe on the region had been replaced by that of the Superpowers. This phenomenon emanates from the economic weight of the Community in the Basin, and the option it offers to the non-Member Mediterranean countries who do not wish to align themselves totally on one of the Superpowers. Moreover, the Mediterranean countries, located on the southern frontiers of a Community that has spread towards the South, have a crucial importance, in terms of the security, exports, employment and prosperity of Europe. The privileged relations between the Community and Mediterranean countries strike roots in a natural interdependence. Partnership is unavoidable. It lies in facts.

Some figures to give tangible proof to my statement: the market of the 12 Mediterranean partners of the Community represents twice the American market, and three times the Japanese market, and it is where the Community draws the biggest surplus in its commercial balance. If we limit ourselves to the 8 countries of the South and East Mediterranean, with whom we have cooperations agreements, we note that they account for 8 to 10% of the Community exports. In 1983, we had with the concerned countries a positive commercial balance amounting to ECU 10 billion, which in 1985, dropped to ECU 7.7 billion, and if we exclude Algeria, the only country with whom our commercial balance is negative. Moreover, we represent 60% of the foreign trade of Tunisia, 50% of that of Algeria and over 40% of that of Morocco and Egypt.

The Rome Treaty, on which rests the Community, whose thirtieth anniversary we have just celebrated - that of its signature - already emphasized the particular attention Europe intended to lend to its relations with Mediterranean Africa. We read in the Treaty, a declaration of intent .... indicating the readiness of the Community to conclude with the independent countries of the Franc Zone conventions of economic assistance "seeking to maintain and intensify the tradition trade trends as well as contribute to the economic development of these countries. Contractual relations were later established between the Community, as such, and Tunisia and Morocco, which culminated into the conclusion of cooperation agreement of a purely commercial character. However, in 1971, the Commission had to draw up a mitigated balance sheet as regards the Community action in the Mediterranean region. Given the great importance of what was at stake, economically and politically, and the influence that Europe could have in the region, the agreements concluded did not adequately express the potentials of relations which had as yet to be expressed. Hitherto, the Community had only slightly contributed to the economic development of this part of the world.

There was need for a new take-off, for a global approach. The definition of this global Mediterranean approach was worked out in 1972 and solemnly endorsed by the Heads of State and Government, at the Paris Summit of October, 1972, in which the Nine, then attempted to set, in an overall perspective, the evolution of their relations with the riparian countries of the Mediterranean Basin, and,accordingly identified the basic elements needed to conclude or renew agreements with the concerned countries. Within that framework, was also indicated, in particular, the priority to be given to financial and technical cooperation with the Maghreb countries. The negotiations conducted by the Commission, on behalf of the

Community, started in July, 1973, with three Maghreb countries and were concluded during the first fortnight of January 1976. Once again the objective difficulties - recognized by the two sides encountered when working out certain elements of the agreement - in the agricultural field mainly, called for lengthy debates and protracted thinking and, on the part of the community, for internal arrangements. These very difficulties are a yardstick of the will of the two sides to succeed, but they also indicate the orientation of the future cooperation; in fact if the <u>essential part of the negotiations</u> related to the indispensible compromise between two sectors directly competitive of respective economies, <u>the essential part of the cooperation</u> was to contribute to the development of their complementary elements and their interdependences.

The cooperation agreements with the three Maghreb countries were signed in April, 1976, and in January, 1977, similar cooperation agreements were signed with Egypt and Asian countries of the Mediterranean coast. One main objectively state that it was a result of which each party could be proud. Despite tensions and conflicts in that part of the world, it has been possible to weave a network of relations with the region, as a whole. The southern Mediterranean economies are more developed and closer, and accordingly, more directly competitive That is why we can say, that more than those of Black Africa. so than in the case of the Lome conventions, the Mediterranean cooperation agreements, as far as the Community is concerned, are the real test of its will to contribute to the development of its partners, even when this calls for an extremely difficult exercise to conciliate sometimes competing interests of producers and economic operations on both shores of the Mediterranean.

Based on the same mode, and seeking to establish a "large cooperation" among partners, the 1976 and 1977 agreements with the Maghreb and those of 1977 with the Mashrek make it possible to combine the various actions likely to contribute to the

economic and social development of the concerned countries, in the fields of trade and of economic, technical and financial cooperation, as well (exclusively as regards the Maghreb) in the social field.

Agreements of an unlimited duration, they lend this global "cooperation" the perspective needed to face the developmental problems beyond the short term. Thus, for example, it is only the guarantee of access to markets for an unlimited period that provided an incentive to productive investments in particular in the industrial field - over and beyond the financial contribution of the Community to these investments.

The outward outlook at the future is a first factor of a dynamic cooperation, but this dynamism may also rest on an institutional machinery, provided for in the agreements, a machinery which makes it possible to appreciate results achieved, more precise; y define certain actions and, if need arises, consider actions. A Council of Ministers assisted by a committee at plenipotentiary level and, in case of need, specialized committees enable a permanent dialogue. Moreover, special dates had been fixed to consider the results of the agreements and improvement that could be brought thereto. It is precisely within the context of such periodical meetings that the agreements were reviewed, as regards their economic chapter, to take into account the enlarged membership of the Community the affiliation of Spain and Portugal, and which shall be updated as far as their financial content is concerned, in order to renew the financial protocols which have expired.

Since these two events I have just mentioned - review of the agreements after the enlargement of the Committee and the renewal of financial agreements, accompanied by new orientations for cooperation - have a fundamental bearing on the prospects of cooperation between the Community and the countries of Mediterranean Africa, it seems useless to me to expatiate at this juncture, on a description of cooperation agreements

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emanating from the texts of 1976 and 1977. Suffice it to briefly recall, their distinct elements as we go through the headings of chapters, to identify the prospects of cooperation in the years to come on the basis of the experience acquired in the various chapters of the agreements, and from the premise from modifications brought or in the process of being brought to them.

The commercial part first: European exports to Maghreb and Mashrek countries enjoy a preferential treatment other than that under the most favoured-nation clause, whereas the imports by the Community of products originating from Mediterranean countries, as regards industrial products with the exception of textiles, are totally exempted from customs duties. On the other hand, it was not possible to grant such generous concessions, but for most agricultural products, reductions from 20 to 100% of customs duties were granted, according to the product, quantities and date of exportation. Despite such limitations, the system was worked out with the aim of developing trade, because of its permanent character and the resulting security it provides to trade, with the aim also of contributing to the industrialization of the partner countries. It is true that the granting of similar preferences to other developing countries has somewhat eroded the advantages of Mediterranean countries and that the difficulties encountered by the Community in managing its agricultural markets and the restructuration of its textile industry did not enable it to liberalize trade as hoped for by the Mediterranean countries. Nevertheless, the commercial balance sheet of the agreements is not negative, far from being negative. Globally, the commercial deficit of the Mediterranean partners with the Community remains high but, in most cases, the coverage rate of imports by exports has significantly improved, and the share of industrial or manufactured products out of total exports has increased to the detriment of agricultural exports.

For example, the relationship import-export in Morocco rose from 61% (1978-1979) to 72% (1980-1982); in Tunisia from 50% (1975) to 60% (1982) and in Egypt from 23% (1975) to 70% (1981-1982). Hence, ten years ago in the case of Tunisia, agricultural exports represented about 25% of total exports. They dropped to 14% in 1985. The manufactured products, which represented 30% of Tunisian exports to the Community rose to 49%. For Morocco, agricultural exports which represented 41% of total exports in 1976, dropped to 28% in 1985. There is no doubt that the existence of a contractual relationship guaranteeing access to markets has facilitated integrated developments between the Mediterranean North and South, including the textile sector, by means of what we call passive improvement of traffic, (exporting European textiles to the Mediterranean countries for processing and re-exportation to Europe).

The second chapter of the agreements was and remains economic, technical and financial cooperation. This cooperation, yesterday i as today, could only represent additional efforts besides those exerted by the concerned countries, within the framework of the objectives and priorities of their own development plan and programme. Emphasis was laid on regional cooperation and on the undertaking of integrated actions, that is combining modes of action (e.g. training, investment aids, trade promotion).

Beyond the community's financial participation in the development of the production and economic infrastructure of each country, mainly through financial protocols, lies a wide scope for further action, as regards:

- \* marketing and sale promotion,
- \* industrial cooperation, through contacts between economic operators by means of facilitating the acquisition of patents at favourable terms, and endeavouring to remove non-tariff obstacle, etc..,
- \* encouragement of private investments,
- \* cooperation in the fields of science, technology, environment and fisheries,

\* as regards Algeria and Tunisia, a cooperation in the field of energy, favouring the participation of community operators in programmes of research, production or processing of energy resources as well as regards a sound execution of long term delivery contracts of oil products.

The third chapter of cooperation agreements, somewhat the factor which makes possible the implementation of the second chapter, is the financial protocol appended to each agreement, determining the means and modalities of the contribution brought by the Community over a period of 4 years (1978-1981, the first series of protocols) then for a second period of 5 years (1982 - 1986). As a whole, the first protocols commanded funds amounting to MECU 307, appropriated in the Community budget, in the form of loans at special conditions and non-reimbursable assistance, and MECU 362, in the form of loans on the resources of the European Investment Bank (BEI), accompanied by an improved interest rate deducted from the non-reimbursable community assistance. The second protocols have enabled the mobilization of MECU 415 from the Community budget (an increase by 35% over the previous appropriation) and MECU 600 from BEI resources (an increase by 65% over the previous protocol).

On the basis of programmation with each Mediterranean country, the budgetary funds of the first two series of protocols were earmarked as follows:

\* 44% for agriculture
\* 23% for infrastructure
\* 18% for training and education
\*4.6% for industry and trade
\*4.6% for sanitation project
\* 4% for research
\*1.6% for health

- The share of the agricultural sector rose from 12% in the first protocols to 44% in the second.

It is to be noted that all the resources of the Tunisia protocol and 44% of the Egypt protocol shall be allocated to that sector.

The financed projects are mainly lines of credit opened by agricultural development banks, followed by point actions (soil reclamation, irrigation, seed production, cattle breeding, fisheries). Agricultural training and research comes in third position; aid projects as regards product marketing and storage are also included in the programmes.

- The share of the industrial sector is clearly weaker in the second protocols (23%) than in the first (42%).

The projects financed relate to equipment (dams, water supply, roads, ports, power stations). An important share of the resources allocated to this sector would be useful to improve BEI loan interest rates.

- The share of the training-education sector is slightly below that of its share in the second protocols (18%) in relation to the first protocols (22.5%); noteworthy is the importance attached by Algeria to this sector, and the lesser share of physical structure in relation to training as such.

With the exception of Lebanon, where the funds will be used to rehabilitate schools, projects are mainly aimed at vocational training: applied technology institutes for medium level technicians, vocational skill centers for skilled labour, training of workers for heavy industries, etc..

- Whereas in the first protocols, each country had projects aimed at industrial development or trade promotion, Egypt, Jordan and Algeria, alone, still allocate funds under this sector in the second protocols than its share in the first.

Resources allocated to lines of credit in favour of industrial development banks (loans to small industries) improvement of BEI interest rates, training activities, studies, technical assistance and trade promotion.

Bearing in mind the relative weakness of available funds, the Commission wished to focus its interventions on a limited number of sectors in order to examine the impact of the Community contributions.

It rather financed weak capital intensive projects, moreover, intervention in the infrastructure sector tends to become the exception.

Projects have been chosen, taking into account the need to increase the production capacity of these countries - in particular that of agriculture - on the one hand, and, on the other hand, the need to ascertain to the Community as important a multiplying impact as possible.

As I mentioned above, the affiliation of Spain and Portugal to the Community - though giving it a wider access to the South and to the Mediterranean - and the deadline for the renewal of the financial protocols gave rise to in-depth thinking on the part of the two sides, that is the community side and that of the Mediterranean countries, as regards the orientation and content of cooperation. The enlarged membership obviously implies a favourable political dimension to the third-party Mediterranean countries as well; it also implies attractive economic perspectives, given the gradual access of exports from Mediterranean countries to a market as important as that of Iberia, which was one of the most protected markets of the industrial world. The weakening of this protection and, in the case of preferential agreements, the disappearance of tariff protection for the main bulk of their exports has also a most positive impact on the North African countries.

Spain, as of now, is the second client of Morocco, but the commercial imbalance is serious between the two, since coverage by Morocco of its exports is under 50% of the value of its imports from Spain. There also lies attractive perspectives for development.

Indeed, some countries faced a number of problems likely to jeopardize their future. For agricultural products, in particular, competition in exports is obvious. The clients are the same clients, soil is similar, and the difference in schedule is slight. Yet, some of the competing products, though they represent only marginal quantities in relation to the Community production, are very important to South Mediterranean countries. Out of this observation, emanates a first need: in order to ensure that integration of the North Mediterranean region in the Community would not bring about a split with the southern shore, means had to be devised whereby to ascertain to these countries the continued presence of their traditions exports, mainly agricultural, on the Community market. Suffice it to recall the political and economic importance, indeed cultural, of citrus production for Morocco, and olive oil production for Tunisia.

On the other hand, as regards cooperation as such, it was high time to review the implementation process in order to reorient it, taking into account the new developmental priorities assigned to themselves by the countries, partners of the Community.

The European Community Council did then make its declaration of 30 March, 1985, in which it defined the orientations and priorities of the future action of the Community in the region. Two basic objectives were determined:

- \* prevent the eventual consequences of the enlargement by maintaining the traditional exports trends of the Mediterranean partners with the EEC;
- \* strengthen the existing cooperation, seeking mediumterm important and stable results as regards the economic development of the concerned countries, and trade relations between them and the Community.

To meet the first of these objectives, the Community, as a result of its enlargement, has negotiated with each of its Mediterranean partners protocols aimed at adapting the economic chapter of the cooperation agreements. With respect to the countries of Mediterranean Africa, negotiations were concluded with Algeria, Tunisia and Egypt. They still have to be concluded with Morocco, given the complexity of the agricultural chapter and undoubtedly, that of a certain linkage with the fisheries agreement still to be concluded between the Community As for the second objective, the Council and this country. has already determined the orientations that should govern the cooperation policy, and has just provided this cooperation with new financial means, through appropriations for the third series of financial protocols of funds amounting to MECU 1,618 (1.8 billion \$) for the coming five years (1987-1991)

How do the agreements which now link the Community of 12 to the States, East and South of the Mediterranean, in particular the North African countries, fit in this new cooperation phase.

Very briefly as far as the commercial aspect is concerned: industrial products, since the outset, were exempted from customs duties; hence the improvements provided only relate to agricultural products. I shall spare you the relevant technical details, which are most complex, and explain to you the guiding principle of the amended agreements: the assurance that the competition of conditions between agricultural products

exported by the North African countries, within traditional quantities, and products exported by the new Member States, will remain identical to what they have been in the past. To the extent that access conditions of Spanish agricultural conditions are improved vis-a-vis the Community, similar access conditions must be provided to agricultural products of South Mediterranean countries to the Community market.

Is it to be expected that these agricultural exports shall witness an important development in the future ? It is useless to indulge in illusions, and this does not apply only to trans-Mediterranean relations, but also to international trade of commodities as a whole. The Mediterranean countries, in their trade relations, should focus on exportation of industrial exports and, as regards agriculture, seek to reorient and reconvert the share of their production which can no longer be absorbed by the Community market. The role of the economic and technical cooperation granted by Europe is to enable the achievement of these objectives.

We now come to the second part of the new Mediterranean policy of the Community. At this juncture, I believe there is need for greater details, since we will be referring to real orientations which shall guide our policy for the years to come.

In concrete terms, these orientations must be translated into the priority given to three cooperation fields:

- \* support to the food strategies of our partners in order to alleviate the food dependence;
- \* development of close and long cooperations industrial, scientific, technological, trade ... training - where community incentives and support will provide support to the dynamism of economic operators;
- \* support to the efforts exerted by our Mediterranean partners to bring about a regional and multilateral cooperation, including a cooperation with Africa.

#### A. Alleviation of food dependence:

Under various forms, all the Mediterranean partners have affirmed the will to reduce the food dependence which has seriously aggravated and acquired alarming proportions. Some of them have already worked out programmes of action. On our part, in its declaration of 30 March, 1985, the Council has expressed the will of the Community to "effectively support the efforts exerted by these countries to reduce their agricultural and food deficit".

Along this same line, the Community is of the view that an important share of the Community interventions should be devoted to agricultural development, in particular food development, within the framework of a support guaranteed to multi-annual operations that seem likely to promote agricultural production for local and regional consumption. Such orientation also corresponds to the development priorities that of the Community has agreed upon with its partners in other regions of the Third World (ACP and some non-associated countries). Seeking a better coherence in our interventions, of a synergy impact, should lead us to focus our action on specific sectors, that will vary according to the country, its potentials, its intentions: cultivation of cereals, cattle breeding, oily substances ... The Community should commit itself to a lasting support to the efforts exerted by each country or by the region to develop the relevant sector or sectors.

In this connection, the Commission deems that the partners who adopt a reasonable programme to reduce their food dependence should, in support to such programmes and in order to put an end to food imports, be granted support from the Community commensurate with their own efforts. In this report, this support - whose modalities shall be determined case by case - could involve multi-annual commitments

of community deliveries linked to specific objectives, along the lines successfully applied in India by the Community in co-financing with the World Bank the "Flood II" programme. Seeking to extend a long term support to its partners in their quest for food self-sufficiency, the Committee intends to give thought to the diversification of the external instruments of its agricultural policy. In this regard, priority attention shall be accorded to the Mediterranean countries.

Agricultural cooperation should not stop at support to developmental efforts as regards subsistence products; it should also set as an objective the diversification of agricultural exports, at the level of both products and markets. Action in this field - training, research, reconversion and trade promotion . . - can bring about a better complementarity of the production of the countries of the Mediterranean Basin and a better exploitation of the potentials of world and regional markets. In so doing, it shall alleviate or prevent tensions on the Community market, while enlarging the basis of the agricultural exports of our partners. The close collaboration of the Community provided for.

#### B. Quest for a better economic complementarity:

The developmental level attained by some Mediterranean partners of the Community, their de facto integration in the Community market, their will to maintain long term relations with Europe imply that the industrial, scientific ... technological ... cooperation taken in its widest cause (including the fields of research, transfer of technology, energy, training, services, banks, transport ...) should constitute to the second axis of the Community action in the years to come. It is a question of enabling our partners, and our undertakings to better compare, associate, and pool their knowledge, capital and access to markets to arrive at a better

complementarity of actions, on both shores of the Mediterranean, and lend a systematic character to the search of long term joint actions.

The range of operations which could be envisaged with a view to arriving at a genuine complementarity is quite wide. It should be identified in close consultation with the concerned economic circles. In a number of cases, the direct contribution of operators will have to be sought. An effective participation on the part of entrepreneurs, bankers, industrialists, merchants obviously implies favourable conditions adequately "motivating" so that investment and/or cooperation undertakings between Europeans operators and concerns of partner countries can be welcomed by them. It also implies an appropriately diversified and oriented utilization of the resources of financial and technical cooperation.

Despite noteworthy developments in some industrial sectors, such as that of textiles and fertilizers, our Mediterranean partners and our own concerns have as yet to benefit by the advantages provided by the resources of our partners of the South, by the proximity and preferential conditions of access to the bigger world market of manufactured products. Industrial links have not developed at the expected rate and have not always been at the level of expectations.

Faced with the situation, and given the fact that the options of this development, freely accepted by our partners, imply a strengthening of their economy by the contribution of private capital and external technology, the Mediterranean countries should first try to promote a more attractive climate. Beyond prospects of economic growth and reasonably optimistic outlets, operators react according to the environment provided to their activities : important administrative measure as dissociated from bureaucracy as possible, non-restrictive taxation, real possibilities for transfer of capital and profits, freedom of trade and prices ... are of interest to them.
In this connection, the Commission deems that the conclusion of the Euro-Arab draft convention on mutual protection of investments would improve the investment climate and attract private capital. It emphasizes the importance it attaches to the rapid conclusion of work as regards this Convention, submitted to the organs of the Euro-Arab dialogue.

The contribution of the Community, as such, to a better economic complementarity with the Mediterranean partners, in the viewpoint of the Commission should intervene at 5 different levels: the status of trade, financial incentives to joint investments, concentration among operators, training and exchange of information and data.

It is essential for the complementary economic a) development we seek that the framework of trade seem open and stable to operators. The free access accorded to industrial products coming from Mediterranean countries no longer allows, in this regard, for a formal improvement of the commercial provisions of the Agreements. However, the textile crisis has necessarily laid terms derogatory from this free access system. The Community, in this exceptional framework, did indeed manage to safeguard at best the interest of the Mediterranean countries (in fact their exports and their share in the Community market have greatly increased). Nevertheless, this derogation from the free-access system provided for in the Agreements lessens its credibility. That is why the Commission insists that the Council provide the needed assurances to its partners, as the will to pursue the objective of liberalizing the textile trade. This implies that the Community should as far as possible revert to the normal system provided for in the cooperation agreements, negotiated and managed within their framework and spirit, in accordance with the objective of the Mediterranean policy.

b) The Community attaches a great importance to an efficient machinery to attract risk capital to Mediterranean countries. This is essential, in particular as regards small and medium sized enterprises. Experience has proved that the inclusion in each financial protocol of specific resources to be used to this end do not constitute a sufficiently flexible solution. This is why the Commission, as of 1987, has created a new budgetary line to finance Community participation in joint ventures between firms of our Mediterranean partners and Community firms.

c) Concurrently, the Community will have to maintain the financing of the industrialists of the Mediterranean countries, consolidating such financing if possible:

- \* The BEI interventions should continue to favour small and medium-sized undertakings, through national industrial development banks, on the one hand, and, on the other hand, be directly aimed at the eligible productive enterprises.
- \* The resources of the Community budget should, on their part, be used first and foremost for financing training activities, facilitate, in particular, "in-service training in European enterprises, provide technical assistance (assistance to efforts exerted to promote investments in the partner countries) support research activities, establish contacts among economic partners and organize the recourse to consultants, should the need arise.

d) Past experiences - and I also think in terms of this meeting - which indicate that direct contacts of economic operators are of vital necessity; they have induced effects although they cannot be quantified. The object is to induce as many Community and Mediterranean country enterprises as possibe to undertake an effective cooperation (exchange of know-how, collaboration in marketing, exchange of technicians, participation, joint ventures training courses in plants and concerns).

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Moreover, it is highly desirable to bring about meetings between entrepreneurs and operators in all fields, to exchange views, compare their market analyses, confront their prospects as regards development of market and production potentials, whenever a new take-off is expected. Such "concertation" among operators can definitely not be restraining in its conclusions, but would prevent some costly and non-profitable developments; it would assign responsibilities to the concerned parties.

Contacts within the scope of these various hypotheses will obviously be facilitated by existing specialized organs (chambers of commerce, vocational associations) or to be established (such as the economic cooperation centre in the Mediterranean whose establishment was recently proposed by the Italian Government). To the extent of the wishes of our partners, the Commission will help develop this type of action, whose cost is relatively limited, but whose usefulness is undeniable.

At the development stage of our partners, the training e) of men emerges as one of the vital domains in which efforts should be exerted. The programmes related to the second financial protocols already indicate the intention to allocate thereto a greater share of resources, within the framework of sectoral orientations agreed upon. Such training activities must be intensified; the nature and modalities of training must take into account the new cooperation orientations. Some of the desired types of training have already been mentioned. In more general terms, specific training linked to given projects (industrial, scientific ...) training with enterprises, research institutes, banks, administration etc... Training courses for the specialized personnel must be increased in number. An inventory of such types of training facilities which could be entered in a computer file and put at the disposal of our partners, should be undertaken in the light of needs and jointly utilized by the operators and Governments of the two sides.

In order to bring about closer cooperation and greater collaboration among the enterprises of our partners and European operators, an exchange of economic information must be developed; in this connection, an improved access to European data banks, exchange of economic information on production and markets and the dissemination of statistics must be encouraged. Part of this information must be made available in Arabic.

# C. Support to regional and multilateral cooperations:

The Commission still argues that direct relations between the Community and each of its partners should some day be set within a global convention between the European and South Mediterranean regions or, at least, within agreements with each sub-region. There is need to define the economic conditions of cooperation in such manner that when political conditions allow their conclusion, such agreements may be rapidly finalized.

Industrialization efforts of Mediterranean countries, like the complementary development of agricultural economies, would be greatly facilitated if they could be exerted within a multilateral framework grouping the region as a whole or, at least, the sub-region, along the lines of the economic space created in Western Europe. The Commission deems that it is in the interest of both sides to actively support efforts exerted to bring about a closer cooperation in the Mediterranean, pending on common and better integrated economic space.

Such development is of course a long term exercise. A direct contribution by the Community can be only of a modest nature. Its effectiveness shall be mainly incident to the will of the Mediterranean partners, themselves, to commit themselves in this direction.

Beyond that attitude, mainly political, the Community will have to tangibly contribute to concrete actions of regional or multilateral cooperation:

- within the context of the financial protocols, the Community could favour the financing of activities of a general nature involving several Mediterranean countries: trans-frontiers connections, countering desertification, research on agriculture in arid zones or the utilization of solar energy, inter-alia, open a wide scope for action;
  - the community shall strengthen its support to private or semi-public organs, such as the International Centre for Mediterranean Agricultural Higher Studies of the Assembly of the Mediterranean Chambers of Commerce, and to organs, institutes and vocational chambers belonging to various riparian Mediterranean countries in order to develop a concrete cooperation;
  - in the same spirit, the Community could provide financial assistance to the establishment and functioning of the above-mentioned economic cooperation centre;
- finally, the Community shall propose to its partners that, in the future, the bids for tender linked to markets financed by the resources of a protocol, be open - on a basis of reciprocity - to operators of other countries of the region, linked to the Community by similar agreements, including ACP countries.

The strengthening of economic cooperation between the Community and European countries obviously calls for the availability of appropriate financial resources.

The second protocols concluded with the South and East Mediterranean countries expired on 31 October 1986. But it is only last month, after protracted and difficult negotiations that the EC Council has come to an agreement as regards the determination and distribution of the global amount of the third series of protocols. Negotiations were difficult, as is often the case among 12 partners, but also bearing in mind the numerous internal and external financial obligations of the Community, and given the profound changes brought to cooperation with the non-member Mediterranean countries. If, in this context, financing other than community financing, in particular financing yielded by the economic sector, is expected to bear a new significance, there is nevertheless need for the Community financing to remain significant and to take into account the genuine efforts needed to pursue in a concrete manner the objectives assigned to the new cooperation. Thus, in order to determine the share of financing by the Community, the Council first took into account the nominal amount of the first two protocols, and then adjusted it, bearing in mind:

- inflation;
- an additional effort to be made, firstly to give concrete form to the new priorities and the qualitative improvements of cooperation, as indicated above and, secondly to reflect the enlargement of the Community.

The total amount globally corresponds to MECU 1,61 an increase by 59% over the second protocols. It is distributed as follows: MECU 615 in the form of budgetary resources (+48%) and MECU 1003 as BEI loans (°67%). It is appropriate to point out, at this forum that, among the various South and East Mediterranean States benefitting by the financial protocols, the four countries here represented are those who enjoy the most important global increase: Morocco \* 68.81%, Egypt +62.68%, Tunisia \* 61.15% and Algeria \* 58%.

An important element in the mobilization machinery of the protocols, meeting the wish expressed to assign a greater role to the private sector in cooperation initiatives for development, consists in the fact that a share (small but significant) of the budgetary resources allocated to each country shall be available and may be utilized as risk capital, for the participation of private enterprises of the concerned countries.

At the conclusion of this expose, I wish to emphasize to what extent the Mediterranean policy of the Community meets not only the interests of each of its partners and of the region, as a whole, but also reflects a singular impetus of will which, to an external observer, might well seem to be a counter-current of history. In fact, from the Mediterranean to the Atlantic and, today, from the Atlantic to the Pacific, the center of gravity of the planet has not stopped veering throughout the centuries. Should we then resign ourselves to considering the Mediterranean as a museum wherein to gaze with religious fervour at the relics of the successive civilizations which unfolded on its shores ? Or, on the contrary, should se set aside the temptation of fatalism - although so : convenient to our temperament - and continue to believe in its vitality and profound unity, despite its imbalances and contra-I am personally convinced that the quest for unity dictions ? and homogeneity of the Mediterranean region, through a global approach policy, and within the framework of a large scale political outlook, could bring about the birth and development of an inter-Mediterranean dialogue, eventually endowed one day with an institutional forum, where present conflicts (not only economic conflicts, not only conflicts linked to North-South dialogue) could find solutions through the pooling of experiences and the quest for cooperation. The Romans called Mare Nostrum our sea, the Mediterranean which, in the past,

separated us and which, today, unites us. May the success of our cooperation lead us once more to call this sea our sea, not with the arrogance of the old conquerors, but out of an awareness of a common destiny which unites peoples of three continents living on its shores, where grow one tree, the olive tree, which has become a symbol of peace and civilization.

#### THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

lind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) - 12/16 april 1987

#### IRI/REG.CONF.II/CAIRO 87/PN/08

ORIGINAL: ENGLISH

#### DEVELOPMENT AND COOPERATION

BETWEEN THE EGYPTIAN INDUSTRIAL SECTOR AND UNITED NATIONS AGENCIES IN INDUSTRIAL ENERGY CONSERVATION

> BY DR. MAHMOUD H. SELIM PRESIDENT OF TABBIN

INSTITUTE FOR METALLURGICAL STUDIES

#### IRI/REG.CONF.II/CAIRO 87/PN/08

It is well known that through the implementation of industrial energy conservation measures, a considerable improvement in energy situation can be achieved.

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As an example, voluntary energy efficiency improvement targets in were developed in USA jointly by industry and government for energy, intensive industries for the period from base year 1972 to January 1980, and these ranged from 9 to 24%. The targets were estimated for each industry to include both technically and economically feasible conservation measures. The equivalent target for the ten industries as a whole, calculated as a weighted average of the individual targets, was about 14 percent. By the end of 1979, the average improvement actually achieved by the largest consumers in the energyintensive industries was 15.4%, with some industries already reporting a much greater improvement than their 1980 target.

Accordingly, the energy conservation measures can compensate the growth of energy demands in industry.

Scince the oil crisis, the Ministry of Industry and national scientific and technical organizations began to give awareness for benefits of energy conservation in industrial sector. In 1980, TIMS organized the first Egyptian French symposium on Energy Conservation in Iron and Steel Industry.

After that date a number of seminars, conferences, and symposia were organized by the initiative of industrial and petrolum organizations which gave a number of recommendations to start a national program for energy conservation.

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As a result, the ministry of industry has issued a number of measures to be stricktly followed in the industrial sector to improve the energy situation in the sector.

Moreover, intensive contacts has been made with international organizations for technical cooperation to support the measures taken in the industrial sector for energy conservation. As a result a project for creation of a center for energy conservation in industry was signed between the Ministry of Industry and the United Nations Development Program (UNDP) on May, 1983. This center is implemented in the frame of Tabbin Institute (TIMS).

The activities of the project were mainly directed towards energy audit and training of industrial energy managers.

As a result of these activities it was revealed that considerable potential for energy conservation can be achieved through minor capital investment.

Consequently negotiations were carried out with UNDP to assist in the implementation of a number of projects with cost sharing of the required instruments.

These negotiations eventually resulted in signing the second UNDF/ARE Project for Energy Conservation in Metallurgical, Glass and other Industries to cover 2 companies.

A third project is planned to be executed in the fourth country program which extends the activities of the second project to 2 more industrial companies.

In the following, a brief description of each project is given

#### ABSTRACT

Tabbin Institute for Metallurgical Studies (TIMS) is a scientific establishment affiliated to the Ministry of Industry in ARE. The Institute's activities include upgrading of industry specialists carrying out rescarch works and sharing in technology transfer to Egyptian Industry. It started its activites in November, 1968. Since 1979 TIMS had directed a considerable part of its activites towards the area of industrial energy conservation. In 1983 an initiative cooperation between the institute and the United Nations Development Programme UNDP was resuled in the first UNDP/ARE Energy Conservation in Industry Project ECIP. In view of the achievements of ECIP in this field in the first three years of its activities, another project between UNDF and TIMS wes signed on Dec. 1985. This second project is mainly concerned with minor capital investment in the field of energy conservation in some selected industrial companies. In this paper prief notes about development and cooperation between TIMS, Industrial Companies and international agencies in industrial energy conservation are given.

#### 1. Background

industry in Egypt, as in many other countries, is heavy energy consumer. Concerning electric energy, industrial sector consumes about 60% of its total local production and about 30% of oil consumption in the country. The high increase in energy consumption in the country as a whole which amount to 15% annually and the inefficient utilization of energy lead to the increase of energy demands.

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# Summary of Project Implementation

a) Frame Work

An opereational energy conservation center equipped with:

- A mobile diagnostic energy unit (Energy Bus) containing comprehensive sets of portable devices for carrying energy audit work in industrial companies;
- Laboratory for maintenance and calibration of energy measuring instruments;
- Computer laboratory;
- Energy library;
- 'Iwo lecture rooms, educational films and demonstrating aids for training purposes.

## b) Training Field

- 13 energy conservation workshops on sectorial bases were executed covering metallurgical, engineering, textile, glass, building materials & retractories, chemical industries and industrial transport, for 227 industrial energy specialists and managers.
- 6 study tours were organized in W.Germany, Austrial and CSSR for 47 energy specialists, managers and ECIP staff members.
- Creation of two teams for energy bus operation. Each team comprises 2 engineers and 4 technicians to carry out energy audit in industrial plants. Each team is headed by a staff number.

# c) IN-PLANT ENERGY CONSERVATION ACTIVITIES:

The energy bus was received in Sept 1985 and started its visits to the industrial plants from Nov.1985. Since that date and until Dec 1986 the following has been achieved:

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1. 28 plants were visited by the bus to carry out test runs and energy audit for the most intensive energy consumming units, as follows:

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- More than 30 fire tube and water tube boilers have been tested and adjusted. The evaluation reports show that about 5000 |
  t.o.e. annual saving were achieved only due to the adjustment measures carried out by the team of the bus. Other recommended measures can realize an additional 12000 t.o.e. annual savings with low cost investment in other tested units.
  - More than 36 furnaces of different types were also tested and some of them has been successfully adjusted. According to the evaluation reports, 2000 t.o.e annual saving were achieved due to this adjustment while other 14800 t.o.e. can also be realized with the improvement of maintenance operations as recommended in the reports.
- The evaluation of the efficiency of the electric energy consumption showed a considerable low power factor in the visited plants averaging 0.61 which could be increased to 0.85-0.90. Accordingly the average percentage of electric energy losses amounts to 37% which represent 257000 MWH annually, equivelent to 77000 t.o.e/year. In this concern Minor energy conservation projects for the improvement of power factor in such plants can realize a considerable saving with short payback periods.
- 2. About 70 reports concerning energy analysis in about 40 industrial companies were prepared by the industrial specialists and energy managers and under the supervision of the ECLP staff. These reports were evaluated and the potentials for energy savings were determined.

- About 6 detailed energy audits in selected metallurgical, chemical and glass industries were conducted.
- d) Conferences, Seminars and International Technical Consultancy.

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- Six UNIDO experts and consultants were recruited for short periods to assist in the implementation of the project activities .
- More than 14 seminars covering the different energy conservation fields were held.
- Six volumes about energy conservation in different industrial sectors were issued and distributed to the relevant industrial companies. Two more manuals were also published in the field of electric energy utilization and energy conservation instruments.

#### 111 ENERGY CONSERVATION IN METALLURGICAL, GLASS AND OTHER INDUSTRIES.

- \* Project Budjet : (2000 L.E. (Government input) 400000 USD (UNDP input)
- \* Project Duration : 1 year (Practically it needs 2 years).
- \* Project Immediate Objective:
  - To establish a basis for energy conservation activities in a number of companies under the Minstry of Industry through energy audit.
  - 2. To determine potential savings in energy consumption at two selected companies through:
    - a) improved management and utilization of existing equipment facilities;
    - b) capital investment.

3. To develop some successful case studies that will enable the Government/ UNDP to establish an energy cost sharing fund.

The Egyptian Copper Works (ECW) and the El-Nasr Glass and Crystal Company (NGCC) were choosen for the implementation of this project.

As a result of this new energy conservation programme, it is expected that consciousness regarding energy conservation will be raised not only in the industries directly involved in the project but also in other sectors of the economy.

This approach will introduce a new dimension in programming.

#### Project activities

- 1. To collect data concerning production technology, detailed design features of the furnace, existing measuring and control facilities and the furnace operation schedule.
- 2. To carry out energy audit of the furnace and collect full information on the material and its energy consumptions.
- To measure the performance and efficiency of burners, recuperators and to check the quantities of the different types of heat losses.
   Present a report on the base-line situation of energy consumption, recommendations and investments needed.
- 5. To formulate a set of recommendations and technology instructions aiming at the decrease of energy consumption per unit of the product.
  6. To asses savings that will be if the recommendations are carried out.

7. To asses the investments needed in order to realize further saving in energy consumption.

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- 8. Implementation of the recommendations through the installation of the equipment and the automatic control systems needed.
- 9. To asses the actual saving in energy consumption.

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#### Summary of Project Implementation

- Two prepared reports including energy conservation possibilities in ECW and NGCC companies.
- 'Iwo detailed studies based on in-plant measurements including energy saving potentials and the specification of the required equipment in the two companies.
- 'Iwo prepared reports including the recommendations of UNIDO experts related to the proposed projects.
- 'Iwo placed purchase orders for the requested equipment and instruments for the two companies.
- The possible savings after the equipment delivery, erection, and commussioning will reache 4000 t.o.e. annually for the two projects.
- A cost sharing fund for financing energy conservation projects in industrial companies was initiated under the supervision of the Ministry of Foreign Affairs.

#### IV. FUTURE DEVELOPMENT AND COPPERATION PROSPECTS:

In view of the marked energy saving potentials in most of the investigated industrial plants, the approach of minor capital investment projects seems to be the main prospect of the industrial energy conservation activities in the near future.

Accordingly TIMS through the Ministry of Industry, has submitted several proposals concerning the priorities of energy -10-

conservation projects to the concerned international development agencies such as USAID, CIDA and UNIDO, as the majority of these eprojects needs a considerable financial and technical assistance. The size of the cooperation between TIMS, as the representative of the ministry of industry in the field of energy conservation, industrial companies and the international technical development agencies will determine to a large extent the reality of this approach. On other hand, more energy conservation could be achieved by the cumulative effect of many small efficiency improvements as shown from the experience of the energy bus activities. So, more attention will be given to widen its scope of operation to cover a larger number of public and private industrial companies.

Now, TIMS has already established its own energy conservation frame work, with its facilities of advanced energy instruments and experienced staff. This creates a good possibility to extend the copperation links to the neighbouring Arabic and African countries. The field of cooperation can cover training, technical assistance and technology transfer.

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#### THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

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MEMORIA ENERGIA \_\_\_\_

BY ENG. LUCIANO CRAVAROLO GENERAL DIRECTOR, ANSALDO

. THE OVERALL ENERGY FRAMEWORK

Energy problems and policies are not new to developing countries. Long before the double oil price increase of the '70s, many countries were faced with difficulties in providing adequate supplies of energy for both the modern and the traditional sectors of their economies.

High rates of population growth, increasing urbanization as well as significant economic performances have been the major determinants of the rapid increase in commercial energy consumption. The rise in oil price in 1973/74 and in 1979 and the contemporary stagnation in international trade changed this situation drastically, at least for the oil-importing developing countries (OIDCs).

Oil imports bill rose sharply up to 40% of total export earnings thus limiting the amount of foreign exchange available for other strategic imports. At the same time higher prices of oil and other imports accelerated domestic inflation and increased the consumption of the traditional energy fuels (wood wastes, agricultural residues and cow dung) leading to deforestation phenomena, recourse to chemical fertilizers or decrease in agricultural productivity.

Different problems occurred in oil-exporting developing countries (OXDC) where, in fact, domestic consumption of commercial energy grew much more rapidly than gross domestic product (GDP) so that energy intensity of the economy rose substantially. Pricing policies as well as conservation measures were sluggish, petroleum share in total energy consumption dropped by only 1.2% between 1973 and 1983 and coal has played an insignificant role in the energy picture. As a result, most energy projections show that some of these countries may become large energy consumers with net imports of energy before the end of the century.

The recent oil price collapse occurred early in 1986 has provided new and important elements: some relief to the hard pressed economies of many OIDCs, financial and economic problems in the oil exporters area.

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Nevertheless, energy issues continue to be a major concern of these countries: energy investments remain large and oil imports (exports) still represent a major outlay (or source) of foreign exchange. Short-term trends in the oil international market have probably little or no influence in the long-term perspectives: the availability of adequate energy resources at an acceptable cost is still a necessary condition for economic and social growth to enhance the standard of living of the developing nations.

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Developing countries will play a predominat role in the coming decades. First, these countries, as a group, are net exporters of energy particularly of oil; during the '80s they accounted on average for 48% of world production and 70% of world gross exports of petroleum. Second, all the energy projections tell us that energy requirements will continue to grow in the future as a consequence of better economic attainments and population growth, especially in urban areas. By the year 2000 developing nations are expected to become a more important group in the world energy markets both in term of production and consumption covering more than 20% of the world total.

Among the different energy sources, electricity will increase its importance. The growth of the electric installed capacity and the connection of small towns and, to some extent, rural settlements to the growing interconnected electric grids would substantially modify living conditions of the population and economic development potential at local, regional and national level.

According to the last World Energy Conference estimates, the share of total primary energy consumption used for electricity generation will average 27% by the end of this century. This scenario implies, for the developing nations as a whole, significant net additions of new generating capacity (barely 500 GWe between 1985 and 2000), even assuming conservative hypotheses in terms of economic and social growth.

The related future investment requirements for electricity generation can be assessed in the order of 700 billion US\$ (at 1980

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prices) for the next 15 years, while at least 500 billion of US\$ will be required to set up transmission and distribution facilities.

#### EGYPT: ISSUES AND OPTIONS IN THE ENERGY SECTOR

Egypt, like many other developing countries, has exeperienced in the past the problems and the opportunities outlined above. Total population is now near to 50 million inhabitants of which at least 35% is concentrated in the two major cities: the rate of increase of population in the last two decades average 2.8% per year, a growth even more impressive considering that by the year 2000 population is expected to reach 70 million of inhabitants and that today barely 99% of the total population is settled in less than 4% of the overall surface area of the country.

Together with demographic determinants, a sustained economic growth during the '70s and the '80s - favoured by the good conditions in the oil export market - contributed to increase commercial energy consumption with an energy/GDP elasticity well beyond the unity. Moreover, contributing to the rapid rate of growth in energy demand in recent years, have undoubtely been the very heavy subsidies on both petroleum fuels and electricity as part of an overall policy of social betterment of the Egyptian people.

Electricity consumption, as in many other countries, showed by far the most rapid rate of growth and the installed electric capacity grew more than 4 times in the last ten years. On the other hand oil remains the most important energy source representing more than 70% of the whole consumption of the country. The importance of petroleum in the egyptian economy is also clearly related to the availability of foreign currency to support development programmes.

The recent decline in international oil prices and the accompanying price related uncertainties have in fact created their own new set of



problems: investment programmes have to be re-examined and conservation policies as well as near-term interfuel substitution options must be addressed.

Most available forecasts of Egypt's energy demand seem to indicate that fuel requirements will grow substantially in future, even considering the possibility of setting up significant conservation policies in the different end-use sectors. Although the country can rely on alternative energy sources, oil will probably continue to expand its role in fuelling the Egyptian economy thus increasing competition between exports and domestic uses.

The development of oil production and the objective of achieving and maintaining a stable production level of about 1 million bbl/day for the next 20 years will in turn imply considerable and increasing annual expenditure on exploration and development activities. Even assuming it were possible to meet these production targets, prospects for economic growth and related domestic requirements seem to indicate that Egypt may become net importer of crude in the second half of the '90s.

Bearing all these considerations in mind, major and important energy policy options for a country like Egypt as well as for other developing nations with similar characteristics should be aimed to:

- increase the investment effort in the oil sector allowing for the future optimal exploitation of available resources as well as an appropriate balance between external and domestic uses;
- foster energy conservation programmes in the different end-use sectors through appropriate pricing policies;
- develop all the alternative energy sources such as hydro, nuclear, gas and coal and to some extent renewable energy technologies;

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strengthen international economic and technical cooperation with particular reference to technology transfer and acquisition aspects.

## INTERNATIONAL COOPERATION AND TECHNOLOGY TRANSFER

Solving the energy problems for most developing nations has become increasingly difficult and there should be no doubt that international cooperation, aimed at strengthening long-term relationships among the developing and the developed world and based on the principle of a mutually convenient interdependence is one of the most important instrument to face the dimensions of the overall energy problem.

In addition, significant changes are taking place in the world energy capital goods market:

- a relative decline in market prospects in the OECD countries resulting from increased efficiency of energy uses, spare installed capacity and slower economic growth;
- innovative strategies of the large "core" firms that, emerged on the basis of large and usually closed home markets, tend to approach new open markets by offering a wide range of financial and technical services within the framework of multilateral and bilateral government aid programmes;
- the increasing importance of the Third World energy markets which are likely to represent a sizeable fraction (30 to 40%) of the total world demand for energy capital goods over the next couple of decades.

The international cooperation is often related with technology transfer and acquisition concepts, not only restricted to engineering and design but concerned with development of skills, knowhow, technical

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 services and subcontracting activities through the promotion and development of an efficient network of local firms. In this context, Government assistance in the form of applied research and prototype development contracts therefore needs to be aimed at strengthening the chain of relationships in the network as a whole rather than at particular lead firms.

Given pervasive capital shortages, import substitution policies through technology acquisition strategies will play a key role in developing countries especially in the power plants sector where large-scale projects require high upfront investments and often have long payback periods, depending on the economics and financing of the project.

Although no general prescriptions apply, decisions should be influenced by overall development strategy, local capabilities in terms of skill and industrial structure, the size of the home market and appreciation of characteristics of the international energy capital goods market. No unique technological trajectory can be followed by each country: technology strategy involves in fact choice as to the direction as well as to the speed of progression. Horizontal progression, which entails mastering the easier end of successive technology ranges in different sectors, has to be considered as well as vertical progression within the same sector towards sophisticated technologies which are difficult to master.

Broadly speaking, it seems more suitable to concentrate on horizontal rather than vertical progression, ie gradually supplying a wider range of low/middle technology items where design, manufacture and maintenance are relatively easy to master and of relevance to a variety of projects. It is perhaps true that horizontal progression involves continued dependence on foreign technology, but so too does vertical progression since this is not an area in which "technological leapfrogging" is likely to be a fruitful concept. In areas where learning by doing is important, successive step jumps in technology, require time and generally cannot be mastered without sufficient design and operating experience at each stage.

In other words, a key issue in developing cooperation in the power sector is the question of how should the transfer of the relevant technology take place, ie by importing the technology, by fostering a domestic capability in the specific field or by an appropriate combination of these strategies. Building up a domestic capability, normally requires long term relationships between the industrial firm providing the technology and the recipient developing country. Moreover, the size of the home market is an important consideration where unit costs depend upon scale economies and exporting may become a difficult task for new entrants due to clients' emphasis upon experience, technical reputation and servicing.

Given the general condition of capital scarcity, the common requirement is that the client organizations should become "informed buyers". There is in fact a general need to have expertise in investment appraisal, choosing the appropriate technology and evaluating complex bids in terms of equipment performance, price, credit terms and servicing arrangements.

Finally, "informed buyers" are essential for an import substitution policy, for they can select foreign suppliers who are willing to subcontract or transfer technology to local firms. They can also promote local firms which are likely to become efficient and which may warrant infant industry assistance as opposed to inherently inefficient firms requiring permanent subsidy.

#### CAPABILITIES AND COMPETITIVENESS OF THE ITALIAN INDUSTRY

The Italian industry has been present in the developing countries market of power plants design, supply and construction since the early '50s. ANSALDO, as the leading Italian industrial group operating in the power sector, is undoubtely one of the most important international suppliers of the world energy market. In addition, ANSALDO capabilities cover not only the design, engineering, industrial architecture and main contracting for a wide range of conventional and nuclear technologies, but also specific manufacturing capabilities for several components such as steam generators, steam and hydraulic turbines, rotating electric machines, transformers, reactors and capacitors.

A closer integration between engineering and manufacturing activities is the hallmark of ANSALDO competitiveness together with the experience accumulated over many projects, leading to lower unit costs, high technical reputation and ability to satisfy clients' requirements: over 30,000 MWe-plants-have been completed in I-taly and worlwide by the Company, most of them carried out as turn key contracts.

ANSALDO services cover, in addition, a wide variety of energy and environment related applications, such as new and renewable energy sources, advanced technologies, environmental services, reliability and management consulting and training.

The Company's policy aimed at fostering long-term cooperation and transfer of technology to developing countries, together with the willingness of the Italian Authorities to provide significant government backing, can be considered the most important reason of the recent success: ANSALDO world market share for power plant design, supply and/or installation has in fact increased substantially as confirmed by the significant orders volume awarded during the last year.

With particular reference to the Middle East area, it is worthwile to remember some relevant contracts booked during 1986: the two 170 MWe units of the oil-fired power plant of Mers EL Hadjadj in Algeria, as well as the boiler for the fourth unit of Shoubrah El Kheima power plant and the last important contract awarded for the construction of the 300 Mwe oil-fired power plant at Damanhour in Egypt. Apart from designing the complete Damanhour power plant and the overall responsibility of the project, ANSALDO is manufacturing the turbine and generator, the synchronous electric motors for the feedpumps, the auxiliary boilers and the control and instrumentation system.

The whole order bookings of 1986 confirms and reinforces ANSALDO strategies of international expansion as well as the strong effort to

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develop local presence and acquisitions in selected international markets to which priority has been given. Milestones of the Company's policy have been and will be in the future:

- cooperation agreements aimed at developing consultancy services including socio-economic development, energy demand and supply analyses and forecasts, environmental impact and assessment of the institutional structure to acquire a complete and first hand knowledge of the country's issues and options in the energy sector;
- industrial agreements, aimed at increasing the local participation in the implementation of projects, including manufacturing of systems and components, engineering design and software needed to guarantee quality and performance, project management, know-how and techniques.

A key point for the success of the industrial cooperation is the capability to create positive long-term relationships with local industrial partners able and willing to share the technical and organizational effort. An effective participation, however, is not always a spontaneous process but the result of a considerable effort from the project leader. Moreover, where local partners are not available, the project leader may invest in promoting local facilities and training managers and technical personnel.

Where local suppliers are enough developed, self-confident and with a high propensity to invest, granting of "open licenses" becomes the usual tool of cooperation. In some countries the relationship between ANSALDO and the local firms has become so tight and the degree of cooperation so advanced that joint ventures as well as joint companies have been established to commercialise systems and products not only within the domestic market but also in third countries.

Finally, the construction phase of a power plant deserves some few remarks as far as a closer relation between the project architect engineer and local partners is concerned. Management and organisation of

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the site during the erection phase could be crucial in terms of timing, quality and performance. Construction technology should be made available timely to local partners and project management activities should be reasonably shared between the architet engineer and the local third parties. To this end, ANSALDO has developed a high degree of flexibility to comply with local requirements, since in each single case project management strategies have to cope with competitiveness priority needs.

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#### JOINT VENTURES AS AN INSTRUMENT

#### FOR INDUSTRIAL COOPERATION

By: Dr. ADEL GAZARIN Chairman

Federation of Egyptian Industries

# JOINT VENTURES AS AN INSTRUMENT FOR INDUSTRIAL COOPERATION BY : DR. A.GAZARIN

#### CHAIRMAN, FEDERATION OF EGYPTIAN INDUSTRIES

Mr. Chairman,

Ladies & Gentlemen

An industrial joint venture is an industrial project whereby at least two partners join hands to form a company for the execution of the project. Normally one of the partners is the owner of the licence and the one to offer the know-how and the technical assistance for the production. The other is the national partner or partners where the project will be executed. At that point I would like to recall the story of the pig and the hen who decided to form a joint-venture to produce ham and egg. After having signed the agreement, the pig discovered .. unfortunately too late that while his partner the hen will contribute with an egg only .. he will have the contribute with his whole life .. well this happens sometimes in real life.

I am telling this story to emphasize the fact that a successfull joint venture should take into consideration the interests if all partners involved on fair basis. The contribution of the partners should not necessarily be in cash .. it can be also in kind. The licence-owner can contribute with the value of his licence or the value of the know-how .. or eventually with the value of some of the equipment to be delivered. Each value, should however be subject to mutual agreement prior to the decision of contributing it as part of the venture equity. The contribution of the national partner can be in the form of land, building or both, it can also be in the form of some existing plant. The end result is that the equity is distributed among the partners according to their evaluated contributions

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wether in cash or kind.

Now the question arises : Why a joint venture ? and what advantages does it bring to a normal licence agreement ? Let us look at the matter from both sides of the picture. From the national partner side the clear advantages could be cited as follows :

- A feeling of more security and more confidence in the success of the project. By having the licenser as a partner, his interest in the success of the project is undoubtedly increased. The project promotion and securing of the required capital and loans becomes normally easier.
- b. There is more guarantee to chieve the quality similer to the original product, and normally the product can then carry the same trademark of the original supplier and be marketed under this name. New developments introduced on the product can become more accessible to the local producer
- c. The above advantage reflects itself on easier distribution of the product both in local market or in export. Especially in export this advantage becomes more clear. The licenser is more liable to agree on export to wider markets as otherwise possible.
- d. More assistance in management and introduction of suitable systems should be expected and the presence of the licensor delegates in the board can be positively utilised.
   From the licensor side the advantages can be as follows :
- a. A good chance for investment and securing profits, provided that the investment environment in the country where he is investing is favourable.
- b. His involvment in the management of the venture can increase the chances of success of the project and thus guarantee longer business relations as compared to simple licence agreements.
- c. Good chances to open new markets through exporting from the country where the venture is established making use of the country's offered advantages such as the geographical situation,

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cheap labour, political relations and others.

The advantages are thus obvious. On the other side some difficulties might show up during the execution phases, such as :

- Disputes over management decisions which can be due to
- difference in mentality and or conflict in interests.
- Difficulties in transfer of profits due to currency regulations in the country.
- Conflict of interests which might arise in questions of supply or export or some other financial problems.

However these difficulties can be lined out and, normally, become smaller as more confidence is created between the partners with time and proper fulfillment of each other's obligations. The advantages remain on the other side, obvious, as long as the original agreement is taking into consideration the interests of both Parties on fair basis.

The next question that arises is how to promote joint ventures and attract foreign capital. The main burden in that respect lies on the shoulders of the national goverment. They must guarantee by law the freedom of movement of the transfered investments as well as guarantee the transfer of profits. They must offer certain advantages to the joint ventures much as tax-exemptions for a certain period, reduced customs on equipment, incentives on exports and so on. They should make it possible to the venture to secure the necessary land for the project at suitable prices and conditions. They should induce local bankes to offer the necessary financing and loans with the best possible interests.

Most important of all they should offer the investor the proper stable economic environment and gain his confidence in the economic future of the country. It is only then that the investor will be attracted to invest into joint ventures in that country.

Now, talking about conditions in Egypt, Joint Ventures became a main goal in developing the country's economy after the Open Door Policy was put into effect by our late President Sadat. Law 43 of the year 1974 modified by law 32 of the year 1977 were

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#### A D D E N D U M

A insérer entre les 3ème et 4ème paragraphes de la page 4 du texte français intitulé: "Les coentreprises comme moyen de coopération industrielle" du Dr. Adel GAZARINE, portant la cote IRI/REG.CONF.II/CAIRO 87/PL/16.

Il existe une autre forme de coentreprises de nature triangulaire cette fois. Le premier partenaire d'un tel projet est généralement le bailleur de licence ou en d'autres termes, le producteur original du produit, le deuxième un investisseur dans un deuxième pays qui cherche une bonne possibilité d'investissement et le troisième un partenaire national dans un troisième pays où le projet doit être établi. Ce pays doit être capable d'attirer les investissements et offrir certains avantages tels qu'une main-d'oeuvre peu coûteuse, un bon marché ou de bonnes possibilités d'exportation.

L'on trouve des exemples typiques de ce type de projets dans des pays méditerranéens tels que le Maroc, la Tunisie et l'Egypte. Ils consistent en des projets financés conjointement par des fabriquants européens, des capitaux arabes et des investisseurs nationaux.

En Egypte, le capital arabe a joué un rôle actif en matière de coentreprises, soit avec des investisseurs égyptiens, soit avec des bailleurs de licence européens ou américains.

Ce type de projet offre des avantages aux trois partenaires impliqués. L'exemple du village touristique construit sur le littoral de la Mer rouge à l'aide d'un capital arabe et égyptien et de savoir-faire et de gestion européens est un bon exemple de ce type de projet. Il existe un grand potentiel de projets de ce genre entre l'Italie et les pays méditerranéens, profitables à tous les pays concernés.

Ces projets ont aussi un impact positif sur le commerce des pays concernés.

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issued to attract Foreign Capital and offer forign investors the required incentives to invest in Egypt. These Laws guaranteed the free transfer of capital and offered several advantages to foreign investors such as tax exemptions for up to 10 years. The private sector became active again and egyptian investors started looking around for forign partners to form J.V. in different economical fields mainly industry. The government on its side started planning and building of several new industrial cities such as 10th of Ramadan, 6th. of October, Sadat City and others. Land was offered to the investors complete with the necessary infram - structure at relatively good conditions.

We should add to this the advantages of investing in Egypt which I can summ arise as follows :

- 1- A big market offered by a population of about 50 Millions and are increasing purchase power.
- 2- Availability of relatively cheap labour in all required categories and skills. This applies also to highly qualified technicians and managers.
- 3- Presence of basic industries such as foundries, forges and production of most of the raw materials such as iron and steel, Alm., chemicals ..
- 4- A very appropriate geographical situation in the middle of Arab countries and Africe makingit advantageous to export to such countries :

5- A nice climate all year round, as well as political stability.

The results of the above factors and government policy are beginning to show up. In industrial projects above 581 projects recieved approval till the end of 1966 with total investments of about 6.3 Billions E.L. offering work apportunities to about 123 000 workers, 307 projects started already production and their new products are already invading the local market as well as contributing aggressivly in export.

The lest of products is quite deversified and includes : Food products

> Textilts and ready made gorments Leather products and shoes

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House ware and electrical appliances Construction material Pachaging material Wood - products Chemical and paints

In 10th. of Ramadan alone there is more that 300 private factories already in production mostly in form of J.V. In 6th. of October more than 470 ventures received approval and either started production or building.

Thus the picture is quickly changing. The Public Sector which was at a time completely dominating, is now representling only 70 % of the total industrial output and is expected to go down to 50 % by the end of the coming five year plan by 1992.

The chances for J.V. are still wide open in different industrial sectors. We are very much looking to Italy and to the Italian industry to come and help us. Small and medium scale industries represent the core of the Italian industry and to them I would like to enderse an open invitation .. Come and form J.V. with us .. within the traditional Italian-Egyptian Friendly Relations, and within the historical bonds an Italian Egyptian J.V. has all the promises of success. An arabic word can express what we feel for them

Ahla wa Sehla in Egypt, Bienvenuto in Egitto Thank you for your good listening ..
# THE COUNTRIES OF MEDITERRANEAN AFRICA, AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

Ind Regional Conference for Participants In IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) - 12/16 april 1987

IRI/REG.CONF.IF/CAIRO 87/PL/12

#### ENGLISH Original:

#### JOINT VENTURES AND INDUSTRIAL COOPERATION

#### Dr. GIOVANNI BISIGNANI By: Foreign Director IRI

## JOINT VENTURES AND INDUSTRIAL COOPERATION

#### INTERVENTION BY DR. BISIGNANI - FOREIGN DIRECTOR IRI

#### FOREWORD

I HAVE LISTENED TO MR. GAZARINE'S TALK WITH GREAT INTEREST AND, FOR MY OWN PART, I WILL ENDEAVOUR TO OUTLINE OUR POSITION WITH REGARD TO JOINT VENTURES, A SUBJECT WHICH IS RICH IN COMPLEX IMPLICATIONS, BOTH AT THE INTERNATIONAL LEVEL AND AT THE LEVEL OF THE MICROECONOMICS OF ENTREPRENEURIAL CHOICE.

### FORMS OF INTERNATIONALIZATION

ALLOW ME, FIRST OF ALL, TO GO OVER THE MAIN CONCEPTS OF OUR STANDPOINT,

INTERNATIONALIZATION IS A INCUMBENT PROCESS OF A COUNTRY'S CULTURAL AND ECONOMIC GROWTH.

I SAY INCUMBENT BECAUSE IT IS ACCOMPANIED BY, AND AT TIMES PRECEEDS, THE FUNDAMENTAL CONCEPTS AT THE BASIS OF DEVELOPMENT, AS FREEDOM AND PROGRESS.

IN FACT, INTERNATIONALIZATION SIGNALS THE PROGRESS OF AN ECONOMIC STRUCTURE, ITS DEGREE OF OPENNESS TO CIRCULATION OF IDEAS AND ITS CAPACITY TO ACCEPT THE ELEMENTS OF DIVERISITY IN INTERNATIONAL MARKETS.

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I DEEMED APPROPRIATE TO RECALL THESE BASIC FACTORS ABOUT INTERNATIONALIZATION, IN ORDER TO UNDERLINE THE METAECONOMIC VALUE OF THIS EXTRAORDINARY INSTRUMENT FOR BALANCED GROWTH OF DIFFERENT ECONOMIC SYSTEMS.

INDEED, I CONSIDER IT SOMEWHAT LIMITED TO INTERPRET THE PROCESS OF INTERNATIONALIZATION IN PURELY INDUSTRIAL OR MARKET TERMS, WITHOUT RECOGNIZING ITS BASIC PROPERTIES TO HELP INTERNATIONAL RELATIONS.

THIS IS SO PARTICULARLY IN THE CURRENT STAGE OF HISTORY MARKED BY ENORMOUS AND INCREASING IMBALANCES AMONG WORLD ECONOMIC SYSTEMS THAT MAKE IT NECESSARY A COMMON AND CONSTRUCTIVE WILLINGNESS TO FIND THE RIGHT ANSWERS TO THE PROBLEMS WE FACE,

INDEED, IT IS NOT SIMPLY BY CHANCE THAT WE ARE DISCUSSING, ALTHOUGH FROM AN INDUSTRIAL POINT OF WIEW, INTERNATIONAL COOPERATION WHICH - AS WE ALL KNOW - HAS AND MUST HAVE A FAR WIDER MEANING.

DEVELOPING THIS PROCESS OF INTERNATIONALIZATION MEANS SEEKING TO ESTABLISH, SOUND BUSINESS RELATIONS THROUGH THE FAMILIAR INSTRUMENTS OF INDUSTRIAL COOPERATION - JOINT VENTURES AND NON-EQUITY CONTRACTUAL AGREEMENTS - AND THROUGH THE MORE TRADITIONAL FORM OF DIRECT FOREIGN INVESTMENT.

AND SOUND RELATIONS MEANS BALANCED GOALS THAT TAKE INTO CONSIDERATION THE DIFFERENT NEEDS OF ALL PARTNERS, UNITED IN THE COMMON STRATEGY TO FIND REASONS FOR SATISFACTION AND MUTUAL INTEREST IN THE RELATIONS ESTABLISHED,

THE IRI SYSTEM, AS A WIDELY DIVERSIFIED ENTREPRENEURIAL GROUP WHICH OPERATES WITHIN THE STATE SHAREHOLDING SYSTEM, IS AWARE OF THESE NEEDS AND IT IS THEREFORE GREATLY INVOLVED IN THE DEVELOPMENT OF THE INTERNATIONAL MARKET, SEEKING TO FOLLOW ITS CLUES AND TEST NEW APPROACHES,

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FOR THE PURPOSE OF OUR DISCUSSION, ONE MAY ASK WHAT WEIGHT AND SIGNIFICANCE SHOULD BE ASSIGNED TO JOINT-VENTURES AND OTHER FORMS OF PARTNERSHIP WITHIN THE OVERALL PROCESS OF INDUSTRIAL INTERNATIONALIZATION.

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OUR DIRECT EXPERIENCE - WHICH IS, BROADLY SPEAKING, THE ITALIAN EXPERIENCE - LEADS US TO GIVE THEM A GROWING ROLE.

IN PRACTICE, WE LEAN TOWARD A NOTION OF "TOTAL FOREIGN INVOLVEMENT" OF THE FIRM.

THIS MEANS OPERATING WITH A WIDE RANGE OF STRATEGIES, FROM EXPORTS TO FOREIGN BRANCHES, FROM MINORITHY PARTNERSHIP TO CONTROL ONOVERSHIP, INCLUDING ALL INTERMIDIARY FORMS.

### THE INTERNATIONAL SCENARIO

THIS INTERPRETATION OF THE PROCESS OF INDÚSTRIAL INTERNATIONALIZATION IS IN AGREEMENT WITH THE EVOLUTION OF THE WORLD PRODUCTIVE CONTEXT.

THE GEOGRAPHIC DIFFUSION OF ACTIVITIES AND THE INCREASING DIFFERENCES OF DEVELOPMENT AMONG THE VARIOUS ECONOMIC AREAS, HAS BEEN ACCOMPANIED BY A GROWING INTERDIPENDENCE OF THE MARKETS, WITH INTEGRATION PROCESSES, HOMOGENIZATION OF CONSUMPTION MODELS AND INCREASED COMMUNALITY OF PRODUCTS AND TECHNOLOGIES.

THE "CLUB OF INVESTOR COUNTRIES" HAS REMAINED SOMEWHAT RESTRICTED, EVEN IF POSITIONS HAVE CHANGED: GERMANY AND JAPAN HAVE ACQUIRED WEIGHT, THE USA AND UNITED KINGDOM HAVE RELATIVELY DECLINED AND OTHER TRADITIONAL INVESTORS HAVE FINALLY EMERGED AS NEW LEADERS, AMONG WHOM THE MULTINATIONALS BASED IN THE NEWLY-INDUSTRIALIZED COUNTRIES.

AND WE ALSO KNOW THAT <u>FLOWS OF INVESTMENT TOWARD DEVELOPING COUNTRIES</u> <u>HAVE INCREASED</u>, EVEN THOUGH TO A LESSER EXTENT THAN THOSE DIRECTED TO INDUSTRIAL COUNTRIES.

BUT THE MOST SIGNIFICANT FEATURE IS PERHAPS THE <u>EXPANSION AND</u> DIFFERENTIATION IN THE FORMS OF INVESTMENT.

ALONGSIDE THE TRADITIONAL CONTROL INVESTMENTS, INTERMEDIARY FORMS OF FOREIGN INVOLVEMENT ARE NOW SPREADING.

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I AM REFERRING TO THE "COOPERATIVE FORMS" WHICH I MENTIONED EARLIER ON: MINORITY OR PARITY SHAREHOLDINGS AND NON-EQUITY AGREEMENTS.

WITHIN THIS SCENARIO, THERE ARE MANY DETERMINANTS IN CONSTANT EVOLUTION:

- THE WEIGHT ASSUMED BY COUNTRIES WITH AN INDUSTRIAL ORGANIZATION AND CULTURE DIFFERENT FROM THE TRADITIONAL WESTERN MODEL;
- THE INCREASED CONTRACTUAL FORCE OF THE HOST COUNTRIES (AND THIS IS THE CASE OF THE DEVELOPING COUNTRIES);
- THE NEED EXPERIENCED BY FIRMS TO DIVIDE RISKS THROUGH PARTNERSHIP BONDS;
- THE NEW INTERNATIONAL ACTIVISM OF SMALL AND MEDIUM-SIZED FIRMS,

#### THE ITALIAN POSITION

THE ITALIAN POSITION HAS ITS OWN SPECIFIC FEATURES WITHIN THIS FRAMEWORK, WHIC DIRECTLY CONCERN OUR DISCUSSION.

IF, GENERALLY SPEAKING, IT IS TRUE THAT ITALY'S DEGREE OF INTERNATIONALIZATION IS LOWER THAN THAT IN THE MAJOR INDUSTRIAL COUNTRIES, IT IS ALSO TRUE, ON THE OTHER HAND, THAT OVER RECENT YEARS THE PROCESS HAS ACCELERATED.

ACCORDING TO OFFICIAL STATISTICS, <u>ITALY HAS IN FACT CHANGED FROM, A NET</u> <u>IMPORTER TO A NET EXPORTER OF CAPITAL EMPLOYED IN PRODUCTIVE ACTIVITIES</u>.

IN THIS EVOLUTION, ITALIAN STAND ABROAD IS CHARACTERIZED BY A FAR GREATER SHARE - WITH RESPECT TO OTHER INVESTOR COUNTRIES - OF MINORITY OR EQUAL SHAREHOLDING.

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IN THIS REGARD, IN A COMPARISON BASED ON DATA REFERRING TO THE PERIOD FROM THE END OF THE '70S TO THE BEGINNING OF THE '80S, ITALY IS LISTED LAST IN TERMS OF PERCENTAGE DISTRIBUTION (33%) OF TOTAL-OWNERSHIP INVESTMENTS.

IN FIRST PLACE ARE USA (91%) AND GREAT BRITAIN (74%).

IN A SIMILAR CLASSIFICATION, WITH REFERENCE TO SHAREHOLDINGS OF LESS THAN 50%, ITALY IS IN FIRST PLACE (38%), WITH USA AND GERMANY COMING LAST (9% AND 8% RESPECTIVELY).

EVEN IF WE MUST BE WARY IN INTERPRETING STATISTICAL EVIDENCE, THESE FIGURES SHOW A CLEAR OPTION FOR PARTNERSHIP BY OUR COUNTRY AND A CHOICE FOR A MODEL OF INTERNATIONALIZATION OPEN TO ADJUSTMENT.

THIS SPECIFIC PATTERN OF THE ITALIAN INTERNATIONALIZATION PROCESS IS ACCOMPANIED BY THE GEOGRAPHIC DIRECTION OF THE FLOWS.

ITALIAN INVESTMENTS ABROAD ARE HISTORICALLY GEARED TOWARD COUNTRIES AT AN INTERMEDIATE OF LESS-ADVANCED STAGE OF DEVELOPMENT.

HOWEVER, MORE RECENT TRENDS SHOW A FASTER INCREASE IN THE INVESTMENTS IN INDUSTRIALIZED COUNTRIES (EUROPEAN COUNTRIES AND THE USA) AND A CERTAIN DECREASE OF INVESTMENTS IN LATIN AMERICA AND SOUTHERN EUROPE.

ALONGSIDE THESE DEVELOPMENTS THE INCREASED INTEREST IN ASIAN AND NORTH AFRICAN COUNTRIES IS ALSO WORTHY OF MENTION, EVEN IF FOR THE MOMENT AT LIMITED ABSOLUTE LEVELS.

PROPOSING A SECTORIAL ANALYSIS OF ITALIAN PRESENCE ABROAD WOULD BE EXTREMELY COMPLEX.

HOWEVER, WE CAN POINT OUT THAT DURING THE '80S, ITALY EXPERIENCED A TENFOLD INCREASE IN TOTAL INVESTMENTS ABROAD, 45% BEING ENGAGED IN THE SERVICES, 32% IN INDUSTRY AND 22% IN ENERGY.

STRUCTURAL PROBLEMS HAVE DELAYED THE PROCESS OF INTERNATIONALIZATION OF THE ITALIAN ECONOMY IN RECENT YEARS VIS-A'-VIS OTHER ADVANCED COUNTRIES,

AND THIS IS ESSENTIALLY BECAUSE, AS WE KNOW, THE ITALIAN INDUSTRIAL STRUCTURE HAS FOR A LONG TIME BEEN POOR IN LARGE COMPANIES AND VERY RICH IN SMALL AND MEDIUM-SIZED FIRMS,

THE EXTENSIVE DEVELOPMENT OF THE INTERNATIONALIZATION PROCESS DURING THE '60'S AND '70'S SAW THE LARGE COMPANIES AS LEADING FIGURES FOSTERED BY A SERIES OF FACTORS DETERMINED BY THEIR VERY DIMENSIONS.

HOWEVER, THE INCREASED AND RECENT GROWTH OF ITALY IN FOREIGN MARKETS AT THE END OF THE '70s AND DURING THE '80s, WITNESSED, ON THE CONTRARY, THE SMALL-MEDIUM SIZED FIRMS COMING TO THE FORE.

THE STRUCTURE OF OUR EXTREMELY VARIED SYSTEM HAS LENT THE PROCESS OF INTERNATIONALIZATION GREAT VITALITY AND ADAPTABILITY, WHICH TODAY HAS ENABLED ITALY TO BECOME THE COUNTRY WHICH HAS BEST OVERCOME THE YEARS OF NEGATIVE ECONOMIC TRENDS, AND HAS BEST AND MOST RAPIDLY BEEN ABLE TO TURN TO A RECOVERY PHASE.

THUS, A STRUCTURAL WIKNESS THAT APPEARED, FOR A LONG TIME, TO BE A DELAYING FACTOR, OVER RECENT YEARS PROVED TO BE A VALUABLE DRIVING FORCE.

#### THE IRI POSITION

THE IRI POSITION, WITHIN THE FRAMEWORK I HAVE OUTLINED SO FAR, HAS MARKEDLY EVOLUTIVE CHARACTERISTICS.

FIRST OF ALL, ONE SHOULD NOTE THAT LITTLE LESS THAN 60% OF THE GROUP'S INTERNATIONAL ACQUISITIONS ARE CONCENTRATED IN THE SIXTIES, AND DURING THE FIRST HALF OF THE SEVENTIES.

THIS MEANS THAT, TO A LARGE EXTENT, IRI ANTICIPATED THE FLOW OF INVESTMENTS ABROAD BY ITALIAN INDUSTRY.

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NEVERTHELESS, IT IS DURING THE LAS FIVE YEARS THAT THE INTERNATIONALIZATION PROCESS OF THE GROUP HAS RECORDED A SHARP ACCELERATION.

VERY BRIEFLY, AT THE END OF 1985 - ACCORDING TO THE LATEST CONSOLIDATED FIGURES - THIS WAS THE SITUATION FOR FOUR OF THE SECTOR HOLDING COMPANIES FINSIDER, FINMECCANICA, STET, AND SME:

DIRECTLY OR INDIRECTLY, THEY HELD SHARES IN 24 FOREIGN UNDERTAKINGS, LOCATED IN 15 COUNTRIES;

THEY EMPLOYED OVER 25,000 PEOPLE;

THE RELATIVE OVERALL ANNUAL TURNOVER AMOUNTED TO OVER LIT. 4,000 BILLION.

A FURTHER FEATURE IS THE <u>PREVALENCE OF MINORITY SHAREHOLDINGS</u>, IN LINE WITH THE NATIONAL TREND.

IN PART, THIS IS TO BE ATTRIBUTED TO THE NATURE OF FINSIDER'S INVESTMENTS IN THE MINERAL SECTOR (EQUITY STAKES GEARED TO THE PURCHASES OF MINERALS OR COAL); OR TO FINSIDER'S INVOLVEMENT IN PROJECT WORK ABROAD (FOR INSTANCE, IN LATIN AMERICA: C.S. TUBARAO AND SIDERCA).

IN THIS REGARD - AS WILL BE INDICATED IN FURTHER SESSIONS DURING THIS MEETING - IT OUGHT TO BE STRESSED THAT, LIKE OTHER LARGE INTERNATIONAL GROUPS, FINSIDER HAS PUT TO USE ITS LONG EXPERIENCE IN PLANT CONSTRUCTION AND OPERATION, ACTING AS A SUPPLIER OF TECHNOLOGY AND TECHNICAL ASSISTANCE (INCLUDING MANPOWER TRAINING) FOR THE IMPLEMENTATION OF INVESTMENTS IN THE STEEL SECTOR IN THE NEWLY INDUSTRIALIZED COUNTRIES,

THIS WAS A RESPONSE TO THE REQUEST FOR SUPPLIER INVOLVEMENT, AS AN ADDITIONAL GUARANTEE FOR PROJECT RENTABILITY.

THE <u>GEOGRAPHIC DISTRIBUTION</u> INDICATES, ON THE WHOLE, A NET PREVALENCE OF INITIATIVES IN DEVELOPING COUNTRIES, AMOUNTING TO 75% IN TERMS OF TURNOVER AND 80% IN TERMS OF EMPLOYEES.

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FOR THE MANUFACTURING SECTOR THIS GEOGRAPHIC CHARACTERIZATION IS EVEN MORE MARKED.

FROM THE <u>SECTORIAL POINT OF WIEW</u>, THERE IS A CONSIDERABLE CONCENTRATION WICH SEES THE FIRST 3 SECTORS - METALMECHANIC INDUSTRIES, ELECTRONICS AND MINES - COVERING MORE THAN 95% OF THE TOTAL IN TERMS OF EMPLOYEES AND TURNOVER.

THE FINSIDER GROUP STILL HAS AN PREVAILING SHARE, THE DETERMINANT FACTORS BEING THE LINES OF INTERVENTION ALREADY CITED (EQUITY SHARES IN PLANT VENTURES, STRATEGIC INVESTMENTS IN IRON AND COAL MINES) AND MINOR VENTURES IN SECONDARY PROCESSING (HELLENIC STEEL) AND IN MECHANICS (INNOBRA).

THE OTHER MAJOR GROUP OF FOREIGN SHAREHOLDINGS IS HEADED BY STET AND CONCERNS TECHNOLOGICALLY ADVANCED ELECTRONICS PRODUCTION, FOR A LARGE PART TOTALLY CONTROLLED.

THE STET GROUP HAS MANY ENGINEERING ACTIVITIES IN THE TELECOMMUNICATIONS AREA (SIRTI BRANCHES), OF A JOINT OR MINORITY TYPE.

OF IMPORTANCE, IN THE IRI CASE, IS THE CHAPTER OF THE <u>COOPERATIVE FORMS</u> OF INTERNATIONALIZATION.

IF THE DEGREE OF INTERNATIONALIZATION IN TERMS OF DIRECT INVESTMENTS ABROAD IS STILL RELATIVELY LIMITED, THE PROCESS HAS BEEN CARRIED ON, TO A GROWING EXTENT, THROUGH FORMS OF COLLABORATION WHICH HAVE NOT ENTAILED EQUITY LINKS.

THIS GOES BEYOND THE CLASSIC FORMS OF EXCHANGE OF LICENCES, PATENTS, TECHNICAL ASSISTANCE, AND INCLUDES, ALSO IN THE IRI CASE, COMPLEX STRUCTURED COLLABORATION AGREEMENTS (FREQUENTLY WITH MORE THAN TWO PARTICIPANTS) ON PROGRAMMES, LARGE ORDERS, RESEARCH PROJECTS, COMMERCIAL PLANS.

BEYOND WHAT HAS BEEN DONE AT SECTOR-HOLDING AND COMPANY LEVEL - AND IN SUPPORT OF THEIR ACTIVITIES - EMPHASIS SHOULD BE GIVEN TO THE <u>GROWING</u> <u>ROLE OF THE INSTITUTE</u> IN THE PROCESS OF INTERNATIONALIZATION OF THE GROUP; ALREADY BORNE OUT DURING THIS MEETING BY PRESIDENT PRODI.

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THIS IS A MATTER OF COORDINATION AND GUIDANCE WITH A VIEW TO ATTAINING INTERSECTORAL SYNERGIES, ALONG WITH LINK-UP AND PROMOTION INITIATIVES VIS-A'-VIS ITALIAN AND FOREIGN GOVERNMENT BODIES.

### JOINT VENTURES AND INDUSTRIAL COOPERATION

THE ABOVE DESCRIPTION LEADS ME TO INDICATE OUR POSITION REGARDING JOINT VENTURES AND THEIR ROLE IN INDUSTRIAL COOPERATION.

AS ALREADY STATED DURING THIS MEETING, IRI'S INTERNATIONAL ACTIVITIES ARE LARGE AND GROWING.

WHILE, OVER THE YEARS, WE HAD UNINTERRUPTED EXPANSION IN WESTERN EUROPE AND NORTH AMERICA (AND RELATIVELY STEADY FLOWS TOWARD EASTERN COUNTRIES), WE EXPERIENCED - OWING TO EXTERNAL FACTORS - A CONSIDERABLE DECLINE IN ACTIVITIES IN LATIN AMERICA AND THE MIDDLE EASTERN AREA,

DUE TO SIMILAR FACTORS, THE AFRICAN AREA IS CURRENTLY ON A DOWNWARD TREND.

AS A HIGHLY DIVERSIFIED ENTREPRENEURIAL BODY, IRI FINDS ITSELF DIRECTLY TESTING THE CONTRADICTIONS AND UNCERTAINTIES OF THE GLOBAL ECONOMIC CONTEXT.

I HAVE SOUGHT TO BRING TO LIGHT THE <u>COMPLEXITY OF THE INDUSTRIAL</u> <u>INTERNATIONALIZATION PROCESS</u>, WHICH, BEYOND THE FINANCIAL DIMENSION, IS THE STAGE FOR MULTIPLE TRANSFERS OF TECHNOLOGICAL AND MANAGERIAL KNOWLEDGE, EXCHANGES OF BEHAVIOURAL MODELS, RECIPROCAL INFLUENCES OF A CULTURAL ORDER.

AND THOSE WHICH I FIRST INDICATED AS "COOPERATIVE FORMS" OF INTERNATIONALIZATION, FOR INSTANCE THE JOINT VENTURES AND OTHER TYPES OF AGREEMENT, BASED UPON THE <u>PARTNERSHIP CRITERIUM</u>, PERHAPS CONSTITUTE THE MOST REPRESENTATIVE AND DYNAMIC DIMENSION OF THE PROCESS OF INTERNATIONAL INTEGRATION OF PRODUCTIVE ACTIVITIES.

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WE KNOW THAT THE "MICROSYSTEM" OF ENTREPRENEURIAL CHOICES IS EXPOSED TO THE "MACROSYSTEM" OF EXTERNAL FACTORS WHICH GREATLY INTERFERES WITH THOSE CHOICES.

IT IS, IN OUR OPINION, PRECISELY THIS INTRICATE SET-UP WHICH GIVES RISE TO THE NOTION OF INDUSTRIAL COOPERATION, WHICH MUST, THEREFORE, BE FOUNDED ON THE <u>COMPLEMENTARITY - OR MUTUAL BACKING - BETWEEN THE PUBLIC</u> <u>SPHERE AND THE PRIVATE SPHERE</u>,

THANKS TO THE STRONG COMMITTMENT ON THE PART OF THE ITALIAN GOVERNMENT, AND PRIMARILY OF THE MINISTRY OF FOREIGN AFFAIRS, IN THE SPACE OF JUST A FEW YEARS ITALY HAS BEEN ABLE TO IMPLEMENT A POLICY FOR COOPERATION IN DEVELOPMENT ON A PAR WITH THOSE OF THE MAIN, LONG-STANDING DONOR COUNTRIES AND, INDEED, TODAY ITALY IS AT THE FOREFRONT IN MANY WAYS.

AS BORNE OUT BY THIS MEETING, IRI HAS BEEN A PIONEER OF THIS POLICY IN ONE OF THE SECTORS OF GREATER STRATEGIC IMPORTANCE: TRAINING.

THE CORRESPONDENCE BETWEEN ITS OPERATIONAL CAPABILITIES AND THE INVESTMENT PRIORITIES OF THE DEVELOPING COUNTRIES HAS ENSURED THAT THE IRI GROUP HAS, OVER THE YEARS, LENT A NOTEWORTHY CONTRIBUTION IN THE FRAMEWORK OF ITALIAN COOPERATION PROGRAMMES.

AND THIS IS BOTH IN THE FIELD OF TECHNICAL COOPERATION (CONSULTANCY, STUDY AND ENGINEERING WORK, TECHNICAL ASSISTANCE) AND IN THE FIELD OF THE LARGE INFRASTRUCTURAL AND INDUSTRIAL PROJECTS.

IN THIS SITUATION, IRI HAS CONSTANTLY INSISTED FOR AN INCREASED INVOLVMENT IN AN INDUSTRIAL COOPERATION POLICY.

IF THE MAJOR GOAL IS - AS WE BELIEVE - THE BUILDING OF LASTING PARTNERSHIP RELATIONS WITH FELLOW COUNTRIES, IT SEEMS TO US MOST APPROPRIATE TO INCLUDE THE JOINT VENTURES BETWEEN THE INSTRUMENTS UPON WHICH THIS STRATEGIC GOAL SHOULD BE BASED.

THE WIDE-RANGING RELATIONS BETWEEN THE IRI GROUP AND EGYPT IS AN EXCELLENT EXAMPLE OF THE VAST OPPORTUNITIES FOR INDUSTRIAL COOPERATION BETWEEN OUR TWO COUNTRIES.

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IN OUR VIEW, IT IS A QUESTION OF SETTING UP - AT INTERGOVERNMENTAL LEVEL - <u>MEDIUM-TERM REFERENCE FRAMEWORKS</u>, BASED UPON A SYSTEM OF FINANCIAL CONSISTENCY WITHIN WHICH THE INDUSTRIAL PARTNERS OF THE TWO COUNTRIES MAY PLAN VENTURES OF COMMON INTEREST IN ACCEPTABLE CONDITIONS OF RISK,

OUR SUGGESTION, WITHIN A CONTEXT OF RELATIONS THUS CONCEIVED, IS THAT MAXIMUM IMPORTANCE BE GIVEN TO <u>COOPERATIVE FORMS OF TRANSNATIONAL</u> <u>RELATIONS</u> AMONG FIRMS.

THE NEW LAW FOR COOPERATION IN DEVELOPMENT - WHICH CAME INTO FORCE IN ITALY ON 1 MARCH OF THIS YEAR AND WAS CLEARLY ILLUSTRATED ON THE INAUGURATION DAY BY AMB. SCHMIDLIN - CONTAINS, AS YOU ARE AWARE, AN IMPORTANT INNOVATION ON THIS VERY MATTER, INTRODUCING FINANCIAL INCENTIVES TO PROMOTE JOINT-VENTURES,

WE BELIEVE THAT THIS NEW INSTRUMENT IS TO PLAY A SIGNIFICANT ROLE IN THE ENDEAVOUR TO CONSOLIDATE COOPERATION IN THE INDUSTRIAL FIELD.

WE HAVE SEEN THAT EGYPT HAS PROVIDED ITSELF WITH JURIDICAL INSTRUMENTS PERFECTLY IN LINE WITH MODERN NEEDS IN THIS FIELD, THUS FAVOURING CONCRETE PROSPECTS FOR COOPERATION.

ON A BASIS OF MUTUAL INTEREST, WHICH HAS ALREADY BEEN WIDELY TESTED BY IRI IN ITS PROCESS OF INTERNATIONALIZATION, WE ARE THEREFORE OPEN TO A FURTHER ENRICHMENT OF OUR RELATIONS WITH COUNTRIES IN THE AFRICAN CONTINENT.

I AM SURE THAT, IN THE DIFFICULT INTERNATIONAL FINANCIAL CONTEXT MARKING THE SECOND HALF OF THIS DECADE, THE CHANNEL OF JOINT VENTURES, DIRECT INVESTMENT AND OTHER COOPERATIVE FORMS OF AGREEMENT, MAY SMOOTH THE WAY IN OUR STRIDE FOR GROWTH, EMPLOYMENT AND CIVIL PROGRESS, WHICH LINK THE ENTIRE INTERNATIONAL COMMUNITY.

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# THE COUNTRIES OF MEDITERRANEAN AFRICA, AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

ilind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) — 12/16 april 1987

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Original : ITALIAN

FOSTERING TRADE: THE ROLE, SCOPE

AND PROSPECTS FOR COUNTER-TRADE

#### By: Giancarlo VENTURINI

"COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION IN DEVELOPMENT"

Regional Meeting of Participants in IRI-MAE Programmes for Technical Cooperation

(14/4/1987, 12.00 a.m.)

#### Fostering trade: the role, scope and prospects for counter-trade

Speaker: Giancarlo VENTURINI

The large structural changes occurred in the last few years in the world economy have attracted new attention to countertrade. Beside the Countries with centrally-planned economy - that have been practising this method of international trade since the 50's - and those, mainly industrialized, that have made use of that special type of transaction - relating to military sectors - known as "offset", since 1980 also many developing countries have - somehow - shown an interest in countertrade.

It was very clearly shown during this meeting that countertrade is seen as a way to reduce deficit of trade balance and a possibility to favour export through an increase of the products' competitivness on the international markets.

I wish to briefly examine the increasing importance of countertrade in international trade as a whole.

In fact, for developing country governments in the 1980's, countertrade is playing a new role.

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These countries have been badly affected by the fall of primary products' prices, the overall slowdown in trade growth and the consequential lack of the necessary funds to meet the payment deadlines. Because of the sharp decline of net capital flows to developing countries these have been forced to enact laws reducing imports and to implement strict priority limits.

Countertrade is looked at as an alternative or at least a supplemental method to find a way to import goods essential to their industries and to obtain new technologies during a period of global tight money that makes it difficult to find new financial sources.

According to some recent data collected by OECD in 1984 a little less than 100 countries, half of which developing countries, have been somehow involved with countertrade.

Much more difficult is to attempt to quantify the share of countertrade transactions in international trade. The International Monetary Fund and GATT put forward a figure not higher than 8% of world trade, while others state that 20% and even as high as 40% of the international trade is carried out through bilateral countertrade agreements. With such a wide range of estimates the figures are neither reliable, nor of real interest.

However, nearly everybody agrees on a basic assumption: the demand for countertrade is bound to increase.

Let's see then its factors of growth, on which appropriate national strategies have to be based.

The first growth factor, the one that seems the easiest to demonstrate, is the lack of liquidity triggered by external macroeconomic imbalance. Temporal correlation can be observed

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between the worsening of liquidity crises and the emergence of proposal for commercial compensation.

Governments in many developing countries have to face similar economic difficulties primed by the increasing imbalance of trade that have compelled them to take measures to cut imports and in some cases even to suspend projects already approved and under execution.

These measures generate disruptions of greater or lesser severity depending on the degree of rigidity of the system for rationing means of payment and the adaptibility of the domestic economy.

In such circumstances countertrade may be perceived as a way of giving flexibility to a partly inflexible system, that is by increasing imports necessary to keep going the industrial production and the development process beyond the ceiling set by the authorities in accordance with the availability of currency reserves.

A second motivation for countertrade constitutes another face of the liquidity problem and it is due to the fact that in many developing countries the national currency is either non-convertible or is mantained at an exchange rate which does not correspond to its market value.

In addition to these factors, that can be defined financial motivations, there are others of a more commercial nature.

Among these the main one - and the one that has often raised the most bitter complaints at international level - is the instability of the markets.

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Developing countries depend chiefly on earnings from sales of primary products but their market price is by and large indipendent from that of industrial products. Since up to now there have been no positive results in their efforts to have measures adopted by the international community to limit fluctuations in prices of primary products, countertrade transactions, which enable developing countries to exchange their primary products for essential imports, are perceived as a means of imparting greater stability to their trade.

As a result, for example, transactions have been signed aimed at jointly exploiting mineral resources. Here the task of countertrade is not only to secure stable outlets for producing countries but also to counterbalance and guarantee the heavy investment with long ammortization periods required to open mines.

A different and quite common form is the buy-back agreement.

Another general aim common to most countertrade transactions undertaken by developing countries is to increase exports of the so called non traditional products and, more in general, those difficult to sell for cyclical or structural reasons.

This factor is one of the most critized and it may be asked whether the "positive" effect is not in part illusory.

Actually, it has been up to now virtually impossible to measure the extent to which countertrade has succeeded to generate new exports - how much has been the so called "additionality" to foreign trade, in particular of the "non traditional" products.

It must furthermore be remembered a final important factor of increase of countertrade due to a specific choice of this way to trade as a development policy.

Some countries have requested compensation in spite of the fact that they have not been affected by serious economic problems. Their foreign payments' position has not deteriorated to a point where a shortage of currency holdings has forced them to cut back heavily on imports. Cyclical movements in primary products have not dramatically influenced their exports. Nevertheless - it applies for instance to Malaysia - they have shown interest for countertrade.

It is believed that this is due to a definite choice of economic policy aimed at saving resources that may alternatively be assigned to major public industrial projects or to obtain transfer of technologies from industrialized countries.

From what it has been said it can be seen the large number of reasons that drive many countries to get involved in countertrade.

Less numerous perhaps, but neverthless important are the reasons for the potential exporters to be interested in countertrade.

To critics of countertrade and to those worried about the new increase of bilateralism a businessman stated with great pragmatism: "countertrade is not a block to trade, it may be the only way to make trade". To accept countertrade is often actually the only way to enter some markets that have enacted import control or suspended payments.

The lack of new financing, the weakness of world trade, the limitations to non-essential imports, the decreasing number of

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international bids and the increasing competition. (I know of a bid issued a few years ago for a thermal power plant that saw 32 competitors and one this year for a motorway for which were received not less tha 100 offers) make countertrade not only - as somebody says - a necessary evil but also an important marketing tool. For this reason Western exporters have been increasingly involved in such a method. They have become aware that, in many cases - despite the increased cost and the higher complexity of this kind of transactions in comparison with the traditional ones - countertrade is necessary if they wish to pursue their development targets or at least to mantain their market shares.

From what has been said it is evident that there are valid reasons for an increase in demand for countertrade just as there is an international market willing to accept such a demand.

But countertrade is not a magic word. The increasing number of countries interested in it has - I believe - developed a competitive market also for countertrade, a market in which the best wins.

Up to now the request for countertrade by a limited number of countries, in a buyer's market, would put the total responsibility to organize the compensation purchases - if not the cost - on the shoulders of the exporter. He used to spend sleepless nights in the effort to organize countertrade buys in countries that, once launched and imposed the request, would leave him totally to himself.

The largest part of companies had to face a number of problems that went from the fading of a counterpart to burocratic delays from the inability to define non-traditional products to a lack of definite laws or rules to apply them.

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Today things are changing. All countries that intend to succeed must accept the new situation and realize that the national economic policies - including those regarding countertrade - will have beneficial effects only if they strengthen their competitivness at world level.

The authorities of some countries have already realized such a need and are organizing themselves to face competition also in countertrade demand.

It's clear that, other conditions being equal, the exporter will be more willing to engage himself in countries with adequate legislation, an efficient burocracy, a well defined availability of products, a counterpart easy to identify.

The development of world countertrade demand will - I believe - bring to a darwinian survival of the best, of the most organized, of the one that "simplifies" the reaching of an agreement.

I wish to conclude saying that the Companies of the IRI Group are ready whenever necessary to take into consideration countertrade but I believe above all that the IRI Group has the skill and the willingness to collaborate also to the development of the ability to seek countertrade and to help putting up the necessary organization in view of the increasing competition to which I made reference.

IRI has carried out many countertrade agreements with East European Countries, offset agreements in military sectors and, more recently, has had the opportunity to deal with problems concerning countertrade in developing countries worldwide from Latin America to South East Asia.

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IRI has, in fact, by now developed a countertrade expertise available to partners interestes in making their ways in this highly competitive field.

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# THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY:

IInd Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) - 12/16 april 1987

IRI/Conf.II/Cairo 87/PL 02

Original/English

ECONOMIC COOPERATION

#### Fostering Trade: The Role, Scope and

Prospects for Countertrade

By Giacomo De Gennaro Director of the Italian Trade Centre (ICE office) in Cairo

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#### ECONOMIC COOPERATION

#### Fostering Trade: The Role, Scope and

#### Prospects for Countertrade

 First of all, I would like to extend to you the greetings of Mr. Inghilesi, President of ICE, who due to previous engagements could not attend this conference.

The changing conditions in International trade have led to a growing practice of countertrade and increased interest of authorities in many countries to give attention to such a phenomenon.

The main reason behind such a trend is the lack of hard currency that is forcing the authorities to establish systems aiming at limiting transactions in foreign exchange in order to maintain imports at a level sufficient to keep the industrial development process going and increasing local production.

In addition to the above, developing countries are pressing for more countertrade agreements for the following reasons:

- a) Easier access to new markets through the distribution channels of the Western partners.
- b) The possibility of obtaining new technology and technical assistance in the case of "buy-back" agreements that would motivate the western partner to have direct interest in quality control of the products made by the exported plants.

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The attitude of developing countries towards countertrade has varying degrees of legislation intensity. In some countries like Indonesia this practice is a must, while in other countries there is no regulation at all.

For the industrialized countries, countertrade agreeements are considered as the only choice to get a share in some markets.

Besides the cost and complexity of such transactions, compared with the traditional form of trade, the main difficulty lies in finding products that could be available in the local market and at the same time easily marketable by the foreign partner.

2. The marked increase of countertrade deals internationally has forced ICE to consider with more attention than in the past the different forms of trade, and to arrange for a specific project of countertrade. The involvement of ICE was primarily established in order to support Italian trading companies with the necessary assistance in such areas as: basic information, indication on available opportunities, and preliminary contacts.

In the area of the Mediterranean-African countries, a preliminary study about <u>Morocco</u>, in fact revealed that there is little possibility to have it interested in such kind of deals.

The delegation of ICE that had visited <u>Algeria</u> at the end of last February reported that the local authorities showed positive attitude towards countertrade. There is no law regulating such deals and it is not expected that any would be introduced in the near future.

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In that country, countertrade takes the form of "Counterpurchase" through international tenders and who wins the bid will be paid in goods instead of money. The list of goods does not include oil or gas.

Concerning <u>Tunisia</u>, the preliminary contacts established by --- ICE concluded that the current policy adopted according to the guidelines of their development plan 1987/1991 favors the traditional way of trade. Countertrade deals will be limited to very particular cases.

3. As far as <u>Egypt</u> is concerned, and according to local sources of information, the countertrade deals are estimated to reach US\$ 1 billion out of an expected foreign trade of about US\$ 15 billion.

The Italian delegation that visited Egypt from 2 - 4 February this year was the first mission of the countertrade project sponsored by ICE.

The fruitful experience gained by that mission will have an impact on other similar future missions to other selected countries.

The main task of the mission was to verify the existence of real opportunities available in Egypt in order to put into action some countertrade agreement with Italy.

The mission reflected ICE's policy to have full coverage of the needs of the countries in this region concerning such transactions. At the same time, these needs were expressed by Egyptian officials at different levels. Above all, the Egypt-Italo High Joint Committee that was held in Rome at the end of last year and chaired by the Italian and Egyptian

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ministers of foreign affairs. Chairmen of various public sector trading compagnies also had stressed on the importance of developing such transactions between the two countries.

The official members of the above mentioned mission represented: Italian Ministry for Foreign Trade, ICE, Central Institute for Medium-Term Credits (Mediocredito Centrale), Public Agency for Export-Credit Insurance (SACE), National Association of Trading Companies (ANCE), Federation of Consortia for the Exportation (FEDEREXPORT), and other unofficial members from Fiat Corporate, ITS of Banca Nazionale Del Lavoro, and IOC of ENI Group.

The members of the mission had meetings with the countertrade Interministerial Committee and officials from the Ministry of Industry, Central Bank of Egypt, and Misr Foreign Trade Co., one of the nine public sector trading companies, selected by Egyptian Authorities to handle countertrade deals with Italy.

Positive results were achieved because the Italian members got deep insight into the mechanism of carrying out such agreements and started the first steps necessary to put such agreements into action.

The concerned Italian organizations are following up on both technical and operational aspects:

- Regulatory : (i.e. currency, banking, insurance)
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Operational: From the side of trading companies and consortia that are examining the commercial feasibility

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Finally, I would like to thank you very much for inviting ICE to attend this panel that has been full of interesting cues. Hoping the results of the Italian countertrade mission could soon materialize into sound and concrete agreements which would contribute to increasing trade between Italy and Egypt

THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

Ind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) — 12/16 april 1987

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# "MEDITERRANEAN AFRICAN COUNTRIES AND ITALY: INTERDEPENDENCE

#### AND COOPERATION DEVELOPMENT"

COOPERATION DEVELOPMENT PERSPECTIVES IN THE TRANSPORT AND

# INFRASTRUCTURE SECTOR

ITALSTAT (SANTONASTASO)

# COOPERATION DEVELOPMENT PERSPECTIVES IN THE TRANSPORT AND INFRASTRUCTURE SECTOR

 The initiatives sustained by Italy to expand the radius of the community action mainly in favour of the countries of the southern Mediterranean shore fall within the perspective of the economic progress and political stability of this region.

The United Nations have characterized their action in the African continent in the nineteen eighties in indicating two stategic, as well as ambitious, objectives: that of transport, and that of water. (see United Nations Transport and Communications Decade in Africa - UNCTADA).

Thus, also the orientations of the maximum world organization confirm that the long-pursued, anticipated growth of the African continent must necessarily pass through the development of transport and infrastructures as well as the best exploitation of the available water resources.

In fact, no economic development is possible and no

survival is guaranteed unless in any land area inhabited by man provisions are made for a rational utilization of the land resources, water in particular, and for the establishment of a transport system which guarantees the mobility of persons and goods with the least possible constraint from morphological and climatic factors.

In the past, the creation of poles of large economic interest led to the growth of urban centres towards which were oriented the trade and the transport network creating, all over the continent, vast areas of difficult access, thus, withdrawn, from a balanced utilization.

This state of facts led to development asymmetries and infrastructural deficits which the African states have been confronted with since the onset of their political independence.

What I have commented so far represents - even though in a very synthetic way - the scenario which helps us to comprehend the primary needs which the political authorities of the African countries have identified and, in recent times, classified as fundamental for the socio-economic progress of the continent.

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A central role in this progress undoutedly rests on the development of transport and infrastructure, the latter meaning the whole of the works, supplies and services which enable man to make full utilization of the land resources.

To delineate the cooperation development perspectives in the transport and infrastructure sector it is useful to indicate, as briefly as possible, the needs and programmes on the one hand and, on the other hand, the financial resources available for implementation of these programmes.

1. Satisfaction of the needs in the transport and infrastructure sector has, for many years, been one of the top priorities in the development plans of the African countries and it is towards these needs that large amounts of the economic aid funds of the most important national and international cooperation bodies were oriented.

What must be emphasized, today, is that such planning can finally be dealt with in a unitarian view of the economic development of all Africa.

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3. At the 1979 Monrovia Summit, the O.U.A. (African Unity Organization) adopted, to represent the new economic strategy, the term "<u>self-reliance</u>". In this respect, the programme for social-economic development of Africa was defined by O.U.A. with E.C.A. (Economic Commission of the United Nations for Africa).

Its final approval by all the African countries took place on April 29,1980 at Lagos and it is therefore known as the Lagos Plan .

Aimed at designing a strategy for the year 2000, the Plan embraces a scheme which, in principle, commits the whole continent, starting from agriculture and the food demand, as a <u>fundamental reference point in planning</u> the infrastructures of the territory.

While inviting each country to adopt a policy of self-reliance (similar to that already adopted autonomously by Egypt for many years), the Plan recommends, among other things: the best utilization of water in the framework of the irrigation projects already underway, and the launching of new programmes; soil and water conservation interventions; drainage and flood control works; the strengthening of physical

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infrastructures such as access roads, bridges, etc.

Concerning specifically water resources, the Plan recommeds the formulation of national water programmes, with particular regard for multi-purpose use (agriculture/power production) and potable water supply.

This planning can be beneficial also in the implementation phase of the works, designed to attain the most possible benefits with the funds available.

4. Concurrently with this fundamental programme, the observance of acceptale environmental conditions, and <u>biosphere degradation control</u> are qualifying elements of any economic development plan.

In this regard, the Plan indicates two other very important sectors of activity:

a) Development, at national, sub-regional and regional levels, of networks to monitor and provide earliest possible forecasts of calamities. natural An efficient system of inter-connected and multi-national networks could accentuate the

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capacity of response - in technological as well as civil defence terms - to the mentioned natural calamities such as drought and desertification; epidemiologic crisis, the levelling invasions of insects (locust) or crop pests, etc.;

- b) Strengthening of the institutions for scientific and technological development, to increase operational capacities in the more decisive sectors of national economies.
- 5. To all the programmes mentioned, IRI and for the sectors of its competence - ITALSTAT, can contribute with know-how and human and financial resources, both in the phase of preparation, as well as in the phase of programme implementation and management.

Concerning more specifically the transport sector, the main objectives of the UNTACDA strategy can be summarized as follows:

. promote the integration of infrastructure in the field of transport and communications, with a view to increasing inter-African trade;

favour co-ordination between the various transport

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systems to increase their efficiency;

- provide accesses to the countries devoid of coasts, and to the isolated regions;
- foster the circulation of persons and goods, harmonizing national regulations and minimizing material and non-material impediments;
- encourage , in the construction of transport infrastructures, the standardization of networks and equipment;
- promote African industry in the field of transport and communications equipment.
- 6. The emphasis placed on the above points stems from the situation of the continent with its general conditions of stagnation and difficulties for further progress, deriving, to a large extent, from lack of the necessary financial resources. According to data of the Economic Commission for Africa (ECA) the programmes of the transport sector, which should be completed within the 1980 decade, amount totally to about 8.34 billion

(1) dollars, mostly of extra-African financial sources.

In this sector the Italian contribution and, in particular the contribution of the IRI-ITALSTAT Group (thanks to the new law 49/87), can have decisive effects if dimensioned and concentrated on particulr areas in order to avoid "sprinkler" interventions.

1)	Roads and road transport	1,796 M\$
	Railways and railway transport	3,224 M\$
	Sea transport	320 M\$
	Sea ports	2,240 M\$
• •	Air transport	632 M\$
	Internal waters transport	87. M\$
	Mixed transport	43 M\$
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Total

8,342 M\$

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noteworthy to recall that the adequacy It is and efficiency of the transport system produces beneficial on the agricultural and agro-industrial effects activities: >>> the manufacturing industries - and the productive activities consenting better utilization of human and natural resources; whe inter-trade among the various production basins. One example in this regard is the frequent case, in several African countries, of the need to import certain food products which, though produced in inland areas, cannot reach the major national and African markets in the required time.

From the existence of good roads, thus, arise the pre-conditions for any whatsoever socio-economic development and improvement of populations.

7. Excluding rare cases (Mediterranean basin countries and some countries of the sub-Saharian region such as Senegal and Kenya), in general the <u>problem of roads in</u> <u>Africa</u> involves two main topics: the routes, no longer adequate to the present national needs and, the state of maintenance, often incompatible with the fast and heavy modern transport means.

Routing of the road networks derives from the colonial

period according to the military, administrative and commercial strategies which responded essentially to principle of providing connections the between production centres (agricultural or mining) undland between the capital loading ports, or (often decentralized) and the localities where administrative or military units were based.

Aside from these routes, secondary roads were provided, transitable only during the dry season and almost exclusively by animal-drawn means of transport.

As a result, the road system was poorly disposed to provide integration between adjacent and complementary areas, of costly maintenance, and today is in generally degraded and abandoned conditions.

It is therefore necessary to plan a new road network, commensurate with the needs of a balanced economic development: the leading concept must be that of interconnecting economically complementary areas, such as agricultural or mining areas (producers of natural resources) and processing or consumer areas (industrial and commercial centres), at national and extra national levels.

This means placing the construction (sometimes more emphasized) of "trunk roads", on a secondary level, and <u>granting priority to "feeder roads"</u> and "rural roads" (to use an internationally accepted terminology), which offer a more decisive equilibrating effect for the area.

And now, for these reasons, a large sector is opened where also the African firms can candidate themselves for the implementation phase: this auspicable growth of the local construction section, favoured by wise collaborations with the best qualified international construction firms, facilitates the acquisition not only of construction know-how, but, above all, of the know-why of the various techniques on the part of the African workers.

However, it is necessary to emphasize, that, if on the one hand, forms of self financing and self management of some routes, selected through toll-payment systems, are possible, on the other hand, achieving road system adequacy, in general, and maintaining the new system at a good level of efficiency, do not seem to be within the self-financing possibilities of the greater part of the African countries and in particular, of the Mediterranean basin countries.

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8. Concerning the sector of international financing, widespread perplexities have been aroused by the positions assumed in these last years by the World Bank and the European Economic community itself, which caused a reduction of the credit resources for investment in all the infrastructural sector and the road sector in particular.

Also regarding <u>railway transport</u>, the greater part of the present problems derives from the narrow views with which - during the colonial period - the network of nearly all the African countries was organized.

The situation of the railway network is claerly visible on any geographical map: it is a whole of lines or sections of isolated lines not always susceptible for transformation into network or grid and, even more rare, to acquire an international character.

An exception to this is Egypt where the traffic unit and network values are so high as to be comparable with those of the most advanced nations.

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**9.** The vastness of the railway problems and the importance of their solution have long been evident: since the 70's Africa has endeavoured to start a process of rationalization and modernization of railway transport by creating the African Railway Union.

The action of this institution has gradually developed in the field of construction, technical standardization and training, with the creation of four training centres in Nigeria, Congo, Zambia and Egypt (Warden).

In the Blantyre meeting, Malawi, in 1981, the railway Plan was launched; based on the technical Master standardization of the railway networks and the gradual construction of new lines to maximize integration existing networks to favour the and between the trasversal (overland) communications between the Atlantic and the Indian Ocean; between the Atlantic Ocean and the Red Sea, and between Cairo and Capetown.

The Plan envisages also the improvement of the Magreb lines for railway connection with Europe across the Gibraltar Straights.

There is no doubt that development of railway transport con be facilitated if it is integrated in the general economic development plans; this must be undertaken

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with converging measures of modernization of the lines, renewal existing of rolling stock and installations, use of advanced techniques to meet the existing traffic requirements, construction of new lines adequate to satisfy the evolving inter-state trade.

10. Concerning <u>sea transport</u>, the situation does not appear to be particularly favourable for the African countries: in fact, according to recent evaluations by the UNCTAD (United Nations Conference on Trade and Development), 95% of the international trade is by sea and only 2,5% of this by African vessels.

The causes of this situation in such an important transport sector are, above all, of a structural nature, that is, connected with the inadequacy of the greater part of the African ports to handle large volumes of traffic. The major deficits, aside from the water depths, are reported to concern the equipment (obsolete and in unsatisfactory maintenance conditions), the cargo warehouses, and the accessory and assistance services required for the cargoes.

In actual fact, the efficiency of a port depends also on the efficiency of the land transport to which the

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port is connected for the inevitable modal integration of the cargo transport.

In the short term, the interventions in the port sector should be concentrated on the best utilization of the existing structures: this objective can be attained mainly through professional training and improvement of maintenance works for the installations.

In both cases, the possibilities of cooperation with countries of strong marine tradition - such as Italy appear to be very convenient and fruitful and the structures of IRI and ITALSTAT can offer advantageous proposals.

In the medium term, interventions could be undertaken aimed at improving both sea and land port infrastructures and equipment.

This objective will be represented not only by the attainment of a greater transport efficiency, but also by, incresead employment, productivity and income.

Lastly, in the long term, the programmes must be implemented for improvement of the land transport network, including the necessary links with the port

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14. In actual fact, the attainment of these objectives requires (however), an extensive cooperation activity with the more industrialized countries. Action could be taken - mainly by the Mediterranean African countries to establish fleets for intertrade between themselves and the more industrialized countries, establishing privileged relationships on a joint and equal basis.

Moreover, joint-ventures with the more advanced countries could be favoured for the management of common interest sea services or for the setting up of "vertical type" agreements between large productive enterprises (in the industrial, extraction and agricultural sectors) and shipping companies, to ensure good-quality transport at favourable and constant prices.

12. Not to be ranked last are the services and facilities in the fields of health, education and communications, aimed at improving local living conditions and to promote the development necessary towards a general increase in literacy, and cultural growth.

Similarly, the problems must be studied and faced

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concerning spontaneous urbanization in the large centres with all the consequent economic and social problems, through planning which takes into account future developments and optimization of the services, utilities and equipment for upgrading the quality of life of the more depressed urban residential classes.

As can be seen, the plans drawn up by the African 43. international organizations furnish guidelines of an almost continental or regional validity; these guidelines are then punctually confirmed, a s .to priority and operational modes, in the decisions of African country, even if with the each logical exceptions due to local circumstances. From this study necessities, a vast of panorama opens up of the concrete possibilities for international cooperation, in particular with Italy which - in the field of international cooperation - can rely upon the attentive extensively experimented) structure (and of the IRI-ITALSTAT Group.

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14. The DPA (Development Public Aid) in favour of the less economically favoured countries has become an ever present component of the financial plans of the more industrialized countries.

As known, in 1970 the United Nations fixed the quantitative DPA objective, indicating as optimal threshold 0.70% of the GNP (Gross National Product), a value which was reconfirmed by the strategic resolution of the Assembly itself in 1980, at the outset of the third Development decade.

According to the data of the 1985 report of the Organization for Economic Development and Cooperation (OECD) the present value of the financial resources made available to the DCs (Developing Countries) is 28 billion dollars a year.

Such financial resources are mobilized through different structures and forms: from International Organizations to bilateral cooperations; from donations to soft loans; from commodity aid to export credit lines, etc.

The present evolutionary phase, in general, does not yet offer a unitarian view on the subject: for

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example, the purely merchant element appears still too frequently, a characteristic peculiar of the first two decades of North-South cooperation.

This element is, in my opinion, the principal cause for the huge international debt of the DCs (about 800 billion dollars) which, aside from strangling the debtor countries, risks to compromise the regular development of the creditor countries.

In this respect, I believe it is indispensable that beneficiaries of the countries, cooperation interventions (both multilateral - and bilateral) eanalyze their problems with utmost severity, and that they themselves propose the most appropriate forms of collaboration with the industrialized countries tending, on the one hand, to guarantee an effective transfer of technology and, on the other hand, to preserve the basic elements of a possible endogenous development.

It is precisely through a careful analysis of the multipurpose programmes I have mentioned before that it will be possible to utilize to the best the non-negligible international financial resources available, reaching those development targets the

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transport and infrastructure sector has long pursued.

The DPA optimal threshold, that is, 0.70% of the GNP, has been achieved only by five countries: Sweden, Norway, Denmark, the Netherlands and France; the average of the contributions from the OECD countries is at present on the order of 0.38%.

In 1985, the Italian DPA was slightly higher than 0.30%, still far from the OECD average, but already significantly higher than the similar value of many industrialized countries such as, for example, the United States of America, which remains at 0.24%.

The Italian DPA trend is so particular, also because of its evolution over time, that it requires some clarifications and timely comment.

The Italian DPA of today is the result of a long process of maturation which, starting from the limited technical assistance approach, has arrived at the present phase of complex policy of aid to the most needy countries.

During the '50s the Italian activity in favour of the DCs was limited to a few modest technical assistance

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programmes, of amount of which did not exceed 270 million collars, almost entirely devolved to the International Organizations.

In the early eventies, under the impulse of the strategy delineated by the United Nations with the proclamation of "the second decade for development", Italy began to formulate its autonomous international intervention in favour of the DCs. The technical cooperation, however, is still undertaken in a · subordinate manner with respect to the multilateral cooperation, considering that, between 1971 and 1978, as much as 600 million dollars out of an allocated million dollars were destined for total 808 of multilateral cooperation.

In 1979 Italy still ranked last in the list of the OECD donor countries, allocating only 0.08% of the GNP in favour of the DCs; in the same year, however, Law no. 38 on development cooperation was issued, thereby defining objectives, criteria and procedures for a global strategy against underdevelopment of the less favoured countries, based, on the short term, on the and contrast of its most immediate dramatic consequences and, for the médium term, on promotion of the endogenous economic factors.

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This law delineated the role of the Italian international cooperation which - two years later received also the full support of adequate financial resources. During the three-year period from 1981 to 1983 3.7 dollars were allocated billion for intervention and programmes of for multilateral financings, together with the engagement to reach the 0.70% of the GNP target in 1990.

Sensitive to the dramatic events which struck especially sub-Saharian Africa, and supported by a fully responsible public opinion, Italy accelerated supply of financial resources. In 1985. the in addition to the ordinary resources, further resources ' were made available, for about 1.4 billion dollars, for emergency and extraordinary interventions in favour óf the populations struck by endemic calamities.

In about 18 months the allocated funds had been entirely committed, also with the intervention of ITALSTAT structures traditionally present in emergency and civil defence programmes in Italy and abroad.

In 1986 the Italian financial resources available for the DPA amounted to approximately 4.3 billion dollars, and there are reasons to believe that the trend will

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continue to be positive and on the increasing side in the future.

Two criteria appear to be orienting the Italian aid, today: on the one hand, the structural interventions in favour of the weaker economies based, thus, on the assessment of the economic feasibility of the programmes and works and, on the other hand, the prompt interventions in emergency situations to face the effects of calamities and, if possible, to remove the causes.

These two criteria have been fully acknowledged in the discipline of Italian cooperation with developing countries, a state law since February, 1987.

This law represents, without any doubt, the most strategic design for international cooperation that Italy has ever had.

The Italian DPA, based on the principles of the United Nations and the EEC-ACP (Africa, Caraibi and Pacific) conventions, is priority-oriented towards bilaterally agreed multi-sectoral programmes as well as towards extraordinary interventions for fighting calamities, undernourishment and hygienic-sanitary

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deficiencies which threaten the life of populations.

Priority financing is thus available for all the interventions those connected with economic development as well as those of an extraordinary nature, aimed at implementing the basic infrastructures which are indispensable for the survival and the socio-economic development of the less favoured populations.

Such infrastructures are those I have indicated earlier, including obviously the most important components of the transport sector, with particular regard to the road systems and the railway networks.

One final comment: the new law favours the formation of mixed firms in the DCs, with the very clear intent of stimulating Italian contractors and providing for permanent transfer of technology when implementing particular bilateral aid programmes.

It is a new and ambitious target, with rich prospects for the future: it certainly deserves being considered with maximum attention, also by public holding Companies.

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15. On the average, around 20-25% of the Italian cooperation fund resources have been destined for high priority interventions in the Mediterranean basin countries, namely: Egypt, Jordan, Morocco, Tunis and North Yemen. There are reasons to believe that also in the future the attention of Italy will be directed towards these countries in the framework of the inter-governmental development agreements.

It is indispensable that this propensity is best possibly utilized by the countries concerned, both through identification of appropriate integrated multi-sectoral programmes and by adopting the necessary measures for undelayed utilization of the allocated financial resources.

<u>Regarding the first point</u>, the major part of the Mediterranean countries among which - in particular -Morocco, Tunis, Egypt and Jordan, are implementing programmes oriented towards self-sufficiency. These programmes must be extended - through efficient planning - to include multipurpose exploitation of the water resources to guarantee good sanitary-health conditions for the populations.

Agricultural

cooperation can

contribute

to

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diversification of production and to improve exports: this, however, requires the implementation of structures to increase the domestic offer of some commodities which at present are nearly totally imported.

To this end, of paramount importance are the interventions for exploitation of new lands for cultivation of the continental type of crops and other interventions for increasing the too-low similar yields in the areas already devoted to the agricultural sector.

In planning these interventions, it is necessary to identify all the possible complementary requests of national and communitarian markets, to avoid tension at European inter-trade level.

In this framework the role of transport is essential to improve the mobility of persons and goods, and to allow the recovery of areas which, because isolated, were excluded from any new productive cycle.

It is necessary therefore, in my opinion, that the countries of the Mediterranean basin should press Italian and international cooperation towards new and

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more important investments; since this would represent an inversion of trend, such objective can only be attained through integrated plans where the sectors find their proper function, as well as by studying initiatives of a regional nature, overcoming the limited national ambits.

<u>Regarding the second point</u>, i.e., the necessity for undelayed utilization of the allocated financial resources: it is to be noted that the operational systems followed by the greater part of the Mediterranean basin countries cause investments to be delayed, reducing or compromising their positive effects.

This is due, on the one hand, to the rather dissected planning among the various sectors and over the territory, to the point that the finacing bodies are obliged to carry out lengthy examinations of the initiatives to verify - even though on a preliminary basis - their feasibility, and, on the other hand, to a state bureaucracy which, already in itself complex, is confronted with greater difficulties derived from the amount of technical-programmatic documentation usually required by the major national and international financing bodies.

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The ITALTSTAT group - through the most appropriate ways and in joint-venture with the responsible state or public organizations; could usefully contribute to the technical planning phase of the interventions, facilitating also the preparation of the appropriate documentation so as to readily obtain the economic aid from the other international cooperation bodies.

The European countries rightfully consider as vital the preservation of political stability in the Mediterranean basin through the progress and economic development of the coastal countries; because of geographical and cultural reasons, Italy <u>is in</u> <u>complete agreement with</u> this orientation, assuming an increasingly active role.

At the outset of 2000 the southern countries of the Mediterranean basin will be confronted with: the problems of labour surplus which will press on the European continent to find job opportunities; large population classes searching for satisfactory life conditions; ethnic and religious frictions which can be settled only within socio-economic structures in favourable evolution.

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The problems are very complex, but our disposition is great: all together we must make the last effort to cancel completely the distances represented by this small and restless sea.

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# THE COUNTRIES OF MEDITERRANEAN AFRICA, AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

lind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) — 12/16 april 1987

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#### ORIGINAL: ENGLISH

# TRANSPORT, ENERGY AND ECONOMIC DEVELOPMENT

BY DR. ENG. MARAINI

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VICE-PRESIDENT AND MANAGING DIRECTOR

ANSALDO

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TRANSPORT, ENERGY AND ECONOMIC DEVELOPMENT

Transport is a basic and essential function in any economy or society. It is a very energy-intensive activity, particularly dependent on petroleum as its source of energy. In almost all countries, over 95% and in many cases virtually 100% of all motorized transport propulsion energy comes from petroleum.

These preliminary considerations combine to produce what is often perceived as a dilemma, especially by policy makers and planners in many developing countries. More and better transport is necessary to support the economic growth and development which is so vital in these areas. Yet more and better transport requires more oil imports (or less oil exports) which are a burden to the local economy which is the object of the improvement effort.

The transport intensity of any society (usually measured as the ratio between the transport physical output and the GDP) is clearly related with several factors and determinants. One is the physical dimension of the country. Countries that span vast areas tend to be more transport intensive. Another factor may be the structure of the economy. Countries that have a larger share of total output in such sectors as heavy industry, mining and export oriented agriculture, tend to be more transport intensive.

Underlying these economic structural effects is the level of national per capita income which affects demand for both freight and passenger transport. In most lower and middle-income countries demand for freight transport is income elastic and the income elasticity of demand for passenger transport may be even higher in many nations at the early stage of economic development.

Mobility requirements are also heavily influenced by demographic development patterns such as rural to urban migration and urban concentration. Increasing level of urbanisation as well as the growth of

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large urban conglomerates will probably imply higher traffic loads and call for greater per capita investment requirements for fixed infrastructures. Transport, but also energy demand originating through the demand for products and services set in motion by 18 million people concentrated in say 2 or 3 large congested cities is quite different from that set in motion by the same 18 million people spread out over 200 medium small settlements.

The final factor affecting linkages between transport, energy and development is the modal market share distribution of both freight and passenger traffic. These mode shares, such as percentage of traffic moving by automobile, bus, rail and truck show considerable differences as a function of both personal per capita income and the stage of economic and industrial development. Thus in freight transport, higher income countries tend to have a larger share of rail traffic (with some notable exceptions, such as India or China). In passenger transport, higher income tends to be associated with greater market share for the private automobile. The overall result is that, as far as the mode share term is concerned, developing countries tend to be less energy intensive in passenger transport but more energy intensive in freight transport.

#### TRANSPORT POLICIES: AN INTEGRATED APPROACH

The development and the optimization of the transport network at a national level is a rather complex matter. As already oulined, mobility requirements are the result of a wide range of factors and investment policies and programmes have to be evaluated within the overall Government strategies considering several constraints determined by the availability of financial, economic and technological resources.

The simple objective of minimizing capital and operating cost should be obviously compared with other variables such as the quality and rapidity of the service and its capability in meeting both passenger and freight average and peak traffic requirements. The objective

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function changes appreciably if the focus is brought, for example, to bear on the broader problem of minimising the oil component of the country's balance of payments. Such a revised objective could significantly alter the overall optimal solution, though clearly in the direction of increasing the total operating costs of the system for equivalent throughput levels.

Irrespective of the broad set of general priorities, what seems to emerge today is the greater and greater attention paid to the development of integrated transport systems, that is the optimisation of combined transport modes considering the whole system as a single unit rather than relying on the independent optimisation of the existing or costituent transport networks.

Moreover, rapid technological progress above all in electronics has recently come back into the limelight market opportunities in upgrading and optimising the conventional transport technologies like in the case of safety devices fitted into railway cabs for repetition of line signals and the improvement in speed and comfort of various types of transport systems. The continuing evolution in electronics and computer techniques brings into the market new equipment which combines ever more sophisticated technologies and a broader range of performances with a reduction in cost and size.

A corresponding evolution is taking place in centralized traffic control systems both for railways and rapid transit networks. These systems can now perform new important functions in addition to the conventional remote control of stations interlocking, leading to the concept of a railway traffic automation system. Clear advantages are a better utilization of railway networks, a higher degree of efficiency in traffic handling, lower operating costs. A side benefit, particularly important for the developing countries, is the fact that much higher investment requirements for additional tracks and other layout enlargements can quite often be avoided or substantially reduced.

An integrated multi-modal approach to the development of suitable and adequate transport systems has become particularly important in the

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#### Page 4

case of urban mass transit networks. Developing countries have experienced in the last two decades the rapid growth of urban population as well as the demographic explosion of their most important cities. Transport network and public transport facilities have developed in a somewhat casual fashion with supply systems lagging frequently many years behind effective demand.

The rapid deterioration of essential urban transport services may induce potential negative effects on the quality and quantity of economic and social growth of the urban activities even considering that the increase of population is likely to continue in the next years and better economic conditions will have positive impacts on mobility requirements.

A wide range of technology options are today available to address the problem, from the traditional road based systems (buses and taxis) and the conventional electric traction options such as the trolley-buses and the tramways, to the rapid transit technologies like the underground transport systems and the light rail transit (LTR). More andvanced or prototype options are under way (moving way transit, light guideway transit, personal rapid transit etc.) even though their application seems to be currently restricted to the most industrialized nations.

A quick glance of the world market, witnesses the relevant effort carried out by developing countries in the field of public urban transport systems. Out of a total of about 100 underground systems scattered in different parts of the world almost 20 subways are located in developing areas in the most important and congested cities.

Market potential seems to be quite consistent: with an estimated 3000 km of new metro track almost certainly due to be completed by the end of the century, city authorities worlwide are shaping out to invest a large amount of money on line construction works over the next 15 years. Something less than 50 projects are under construction or planned and almost 15 of these metro systems are in developing areas, from Bogota to Cairo, from Taipei to Algiers. Also the Light Rail Transit can be considered a fast growing technology: at present there are 97

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operating systems around the world and a total of about 30 systems totalling 900 km are under construction or planned worldwide. Compared with underground systems and even assuming significant traffic loads (between 7000 and 15000 passenger per hour) light rail networks are particularly convenient, allowing by far the lowest unit transport costs. Moreover, surface systems imply clearly lower investment requirements even though the question of externalities connected with the occupation of urban land and with competing activities should be taken into account.

To sum up, despite the high and severe competition from leading firms in North America, Japan and Europe world transport market potential offers good opportunities, even though some mixed trends not always positive can be identified in the specific business segments. Above all, significant demand potential can be expected to continue in most developing areas which will cover sizeable fractions of the overall world market. A growing number of developing countries are in fact investing in the electrification and construction of railways as well as in upgrading and optimising the existing facilities. This situation, along with the expansion of mass transit systems in growing urban areas, favours development strategies and innovation programmes of the transport industry.

# CAPABILITIES, COMPETITIVENESS AND STRATEGIES OF THE ITALIAN INDUSTRY

Equipment Italian manufacturers are today facing a major challenge, both in term of organization and product development and planning. In contrast to most other industrialized nations, the Italian market for electric rail equipment has achieved considerable growth rates and substantial increases are expected for the coming future. According with the General Transport Plan, major capital spending programmes are scheduled for the next several years by the National State Railways Corporation and a strong financial support has become available under a specific law promoting the expansion of underground and mass transit projects in the most important cities of the country.

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With more than 3,000 locomotives, 600 vehicles for underground and regional railways, over 700 tramways and light rail vehicles and about 3,000 trolleybuses manufactured in the latest period, ANSALDO is the leading industrial group of the Italian transport sector. During the last years, ANSALDO has consolidated its position as manufacturer of electrical equipment for both light and heavy rail vehicles and in the power supply and signalling fields as well as in the automation systems. Its role as main contractor for metro and suburban rail projects has been growing in importance with the recent "contracts acquired for the two metro systems of Genoa and Naples.

Moreover, the Company has played an important and active role in the preparation and definition of the General Transport Plan in close relation with the railways company and the technical office of the Ministry of Transport, strengthening its capability in the integrated analysis of demand/supply planning options. This role was recognized by the State Railways in a further contract for a wide national survey of lines with light traffic loads aimed at identifying and reccomending the most appropriate technology options.

As a consequent follow-up, relevant consultancy commitments in the field of transport systems planning have been acquired in the international market. Several feasibility studies have been carried out in different developing countries such as Mexico, Venezuela and Colombia in South America, Egypt, Ethiopia Tunisia and Angola in Africa, Pakistan and Thailand in the Far East. With specific reference to the African region it is worth remembering:

- the development plan for the public and private transport network of the city of Alexandria under the agreement between the Italian Agency for Development Cooperation and the Governorate of Alexandria for the urban transport plan;
- the transport and mobility requirements study for the city of Addis Ababa under a wide cooperation agreement in the energy sector between the Italian Government and the Ethiopian counterpart.

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Both these studies have been carried out at a high degree of analytical and spatial resolution, including extensive surveys on mobility requirements, the use of sophisticated model techniques for identyfing the optimal trasport network, the analysis and comparison of capital and operating costs of the different alternatives and the identification of supply options for the short-term as well as suitable long-term perspectives.

The Company's effort to strengthen its position in the interantional transport market is concentrated in the signalling fields and automation systems. Satisfactorily results have been achieved in the latest years such as:

- the complete signalling system for the 890 Km of Sao Luis Sierra do Carajas line in Brazil and the automatic block
  signalling system for the Akashat line in Irak;
- the electrification (25 Kv 60 Hz) of both the 400 Km Mexico
  City Queretaro Irapuato line in Mexico and the 25 Km
  Mêtro' Leger du Sahel line (25 Kv 50 Hz) in Tunisia.

International cooperation, as well as technology transfer and acquisition concepts are growing in importance also in the transportation sector. Increasing mobility demand implies significant financial and economic problems in terms of investment requirements and foreign capital needs together with the development technical skills and organizational effort. A process of technolgy transfer aimed to support local manufacturing facilities should be considered as 'a part of more general import substitution policies to build up efficient capabilities which eventually may become completely independent.

Like in the case of the energy sector, ANSALDO policy is oriented in promoting industrial agreements, aimed at increasing the local participation in the implementation of projects, including manufacturing of systems, electric and mechanical components, engineering and design needed to guarantee quality and performance, project management, know-how and techniques.

THE COUNTRIES OF MEDITERRANEAN AFRICA, AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

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# THE TRANSFER OF TECHNOLOGY

#### by G. Peterlongo

#### 1. General considerations

The purpose of this brief survey is to examine, without any claim to exhaustiveness, the problems of the transfer of technology from its original environment to different environmental situations and to discuss the role of management activities in this process.

If we define <u>technology</u> as the <u>set of products, means of pro-</u><u>duction</u> (plants, machines, etc.) <u>and production methods in which</u> <u>scientific and technical knowledge find an economic use</u>, then a transfer of technology occurs whenever industrial products, or productive processes, or methods of production - and therefore management methods - are transferred from the environment in which they originated to a different environment. A transfer of technology as defined above may thus take place from one country to another or within the same country. What we consider here in more detail is the transfer of technology between countries with different levels of industrial development.

Before discussing the actual transfer process, and the main management problems related to it, it may be useful to set out, through some simplified schemes, the framework in which it takes place.

Fig. 1 gives a list of the principal <u>channels</u> through which technology is transferred.

\* MATERIAL OBJECTS PRODUCTS (finished - components) MACHINES, PLANTS (turnkey - components) \* INFORMATION FREE (books - journals - fairs, ...) RESTRICTED (patents - fairs, ...) RESTRICTED (patents - drawings - manuals ...) \* MEN STUDY CONSULTANCY EMPLOYMENT

Fig.1 - Principal channels of technology transfer

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Men as channels of technology transfer have a very essential, although not always clearly acknowledged role. Typical cases, such as those of students taking their university grades abroad (in countries like USA, URSS, Germany), and coming back home to work in very different environments, with all the problems of psychological and social shock and adaptation, or of technicians migrating from non-oil countries to neighbouring oil countries with cultural similarities (like Venezuela, Saudi Arabia and surrounding contries), have an indirect, but relevant impact in the transfer process.

Fig. 2...shows the main agents implementing a transfer of technology; these may be considered as the driving forces, or the decision makers, acting in the process.

- INDIVIDUALS FAMILIES
- COMMERCIAL ORGANIZATIONS (e.g. "TRADING" WHOLESALE)
- INDUSTRIAL ORGANIZATIONS
- MULTINATIONAL COMPANIES
- GOVERNMENTS
- INTERNATIONAL AGENCIES

Fig. 2 - Principal agents of technology transfer

In fig. 3 the prevailing forms of technology transfer contracts are listed. Any of these may, in turn, be part of bilateral or multilateral international agreements. The "quality" (completeness, clarity, etc.) of the initial transfer agreeement, including legal aspects, is very important for a higher probability of success.

• •		
-	TRADITIONAL TRADE	(e.g. PURCHASE - RENT)
··· •	COMPENSATION (e.g.	"COUNTERTRADE" - "BUYBACK")
. 🕳	LICENSING (TECHNIC	AL - "TRADEMARKS")
-	KNOW-HOW, TRAINING	CONTRACTS
-	INDUSTRIAL OPERATI SUBSIDIARIES)	ONS (e.g. INDUSTRIAL/COMMERCIAL
-	"JOINT VENTURES"	

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It may be useful to remark that some of these forms, like compensation, tend to be preferred in periods of economical crises, while others, like traditional trade and industrial operations, are typical of economic expansion years.

Finally, in fig. 4 the stage on which technology transfer takes place is sketched, indicating the main parties participating to it; North - South or East - West relations are only a partial description of a more complex and structured set of relationships.



### INDUSTRIALIZING COUNTRIES

Fig. 4 - The stage of technology transfer transactions

We now consider in more detail the actual transfer process. To become master of a new technology, an organization has to go through a learning process, illustrated in fig. 5 (\*) as a set of steps of growing difficulty. Progression along the scale is laborious and time consuming, and involves experience and training. Any step is largely based on the previous one.

The figure applies to the case of either new products or new production plants; the sequence of activities will, at the end, lead the "receiver" to fully master the new technology.

(\*) S. Seurat: "Réalités du transfert de technologie" - Masson, Paris, 1976 (chapter 3)

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Fig. 5 - The learning scale for technology acquisition

The analysis of the position along the scale of technologygiving and -receiving environments is essential to understand the transfer and all the related implementation problems; for instance, the intervention of an intermediate organization, acting as a transducer between "giver" and "receiver" may be useful when these are far away from each other.

The evidence of several development cases indicates that a less gradual development, than the one indicated in the scale, frequently leads to difficulties and failures: in other words, "jumps" along the scale are difficult and risky.

One of the main problems of industrialization lies in the need to balance, or compromise between the intrinsic slowness of the learning scale and the urgency of the needs which industrialization itself is called to fulfill.

#### 2. Phases and activities of the technology transfer process

The logical sequence of activities of the technology transfer process starts from the set of <u>needs</u> to be satisfied, the identification and the selection of which is one of the main sociopolitical problems of industrializing countries.

A decision concerning the priorities of needs to be satisfied, directly involves a choice concerning the <u>products</u> to be transferred, or produced by transferred equipments.

Once the product to be imported or manufactured is identified, a second level of decision refers to the production and utilization technologies. From the strictly technical point of view, the problem may have a single solution (e.g. an airline system, in case air transportation is the object of the transfer) or exhibit a whole range of alternatives (e.g. agricultural technologies, when the transfer concerns food production).

The transfer process may be outlined (with a drastic simplification of the reality) as a succession of different phases or activities. Fig. 6 shows the activities always performed; this scheme prevailed in the past. The first phases are usually: forecasting of future situation in which transfer will be carried out; individuation, study and planning of the possible alternatives to reach the transfer objectives; technical and economic evaluation of these alternatives. The economic study takes into account, for example, factors such as the cost and availability of raw materials, the cost and availability of manpower, the size and dynamics of the market, the cost of the technology to be transferred, the time required for the transfer and the possiblity of financing.



Fig. 6 - Phases of technology transfer. Situation which

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The results of the evaluation normally become the main elements which determine the choice of the technology to be transferred.

The subsequent transfer includes, in the more usual cases, an actual physical transfer of machinery, equipment, and in the case of a new industrial plant, the start-up of the plant itself.

Normally a transfer of technology also involves a transfer of organizational and training methods. This is one aspect which tends to be rather left aside at the beginning of a project, but which today has a growing importance. If one takes the case of a new production plant, in addition to the transfer of equipment and machinery, there is often a transfer of management methods, related to production organization, to stock purchase and control, to personnel training, etc.

It is generally recognized that a transfer of technology that follows the pattern briefly described above frequently leads to difficulties which may be very serious and may even cause non reversible damage to the economic and social structures of the recipient environment.

One of the main causes of such difficulties stems from the too limited and restrictive criteria used during the initial evaluation. The so-called "secondary" or "external" effects of the new technology, such as typically environmental or social changes, tend to be left out of the investment evaluation. Very frequently, a short-term economic-only optimization is made, also due to the influence, deriving from its privileged position, that the technological-industrial system has in industrialized countries.

In other words, it is technology, rather than human needs, that influences other areas of human activity. A new industrial plant, for example, changes the society and the environment in which it is placed, and frequently the organizational-educational structures too. Examples of influences in the opposite direction are very limited.
### 3. Need assessment

To overcome the above discussed difficulties, the set of activities which are performed in a technology transfer process, as listed in fig. 6, should be integrated and completed as proposed in fig. 7.

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MUTUAL INFLUENCES

Fig. 7 - Phases of technology transfer: possible improved model

A better start of the transfer process should include since the beginning need assessment activities.

Need assessment consists basically in retrieval, selection and use of information on user needs. Experimental studies on several innovation projects have confirmed the following intuitive proposition: successful innovations differ from unsuccesful ones for a better understanding of user needs.

Technology transfer, for the receiving environment, very frequently involves innovation in products, processes or production methods, and therefore might get advantage from a thorough need assessment study carried out in parallel, and with mutual influences, to forecasting studies

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# 4. Social and environmental evaluation of technology

### ("technology assessment")

The quality of transfer projects might also be improved by extending the area of optimization on the basis of which the technology to be transferred is evaluated. It must be remembered that the ultimate aim of technology - and today this is admitted and recognized by all currents of opinion - is to improve the social and environmental system, giving an answer to real human needs.

The technical and economic evaluation has therefore to be sided by an enlarged evaluation of technology. This social and environmental evaluation of technology (also called "technology assessment" or "impact assessment") may be considered as an optimization extended to the largest possible area of human activities over which the influence of the new technology is felt, and with a longer time horizon than standard economic evaluation. Socialenvironmental evaluation and economic evaluation are kept distinct, on account of the fact that one cannot always give a money value to social or environmental costs and benefits. The practical impossibility of using the classic methods of economic evaluation for technology assessment involves the use of methodologies that underline the political aspect of the possible choices.



A very schematic presentation of these concepts is given in fig. 8.

In the scheme, a separation line is drawn between the so-called "monetary" and "non-monetary" fields in which the broad set of human activities may be divided (\*). Non-monetary activities cover all sides of human life, such as culture, social relations, "quality of life" aspects, etc. to which it is not possible to give a money value. The historical trend of the separation line, with an increasing share of monetary economy, is due to the influence of industrialization; an extrapolation of this trend probably brought to the short sighted, fully materialistic approach which considers the non-monetary field of activity non-existing or at least non-relevant.

# 5. Adaptation of technology

Another essential aspect of technology transfer activities, which must be taken into account in order to improve the process as a whole, is the need to revise and even to redesign technology so that it will be better adapted to local conditions and better satisfy local needs. This adaptation, which may be more or less creative, requires the contribution of the country receiving the technology; indeed, the abilities and competence of the giving country can be no more than helpful in this phase; in no case they replace the efforts of the receiving country. Technical research in industrializing countries could usefully be orientated in this direction.

An obvious example is the approach to be followed to improve the maintenance of new products and of new industrial plants, an essential element for the conservation of the resources invested. For countries in the process of industrialization, frequently quite distant from the sources of spare parts, it may be reasonable to reduce complexity and automation of plants in order to increase their reliability.

Again, in fig. 9 these concepts are illustrated by a schematic graphical presentation. In the figure the evolution in time of a given technology is represented as a continuous balance, or compromise, between two of the several influencing parameters, called for simplicity sake "automation, sophistication, etc." and "lifespan, maintainability, etc.". Of course, other examples with other parameters are possible.

(\*) O. Giarini, H. Loubergé: "La delusione tecnologica" - EST Mondadori, Milano, 1978 (Chapter VI)

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Fig. 9 - Some parameters typical of technology selection

Some alternatives for technologies to be transferred are indicated: the figure gives some insight to the problem of the so-called "appropriate", "intermediate" or "soft" technologies.

If other relevant parameters, such as "capital" and "labour intensity" of some production technology are considered, other important aspects for its selection and adaptation appear.

In fig. 10, derived from (\*), available technologies for the production of a given quantity of an industrial product are plotted as function of the two basic production variables: work and capital; economic theorists suggest that these technologies fall around an "isoquantity" line having the trend illustrated in the figure. As industrialized and industrializing countries have different work/capital cost rations, different economic optima result. In the figure some indications on past and future trends of economic optima are also given.

(\*) F. Stewart: "Choice of technique in developing countries". From "Science, Technology and Development". Frank Cass, London, 1973.

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Fig. 10 - Work and capital intensity in different production technologies

These considerations suggest that work-intensive, low automation technology seems to be better for industrializing countries. Automation, however, should not be rejected in full: whenever it improves the safety of work environment or the quality of products its use must be seriously examined.

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## 6. Adaptation of organization and training methods

As technology transfer is very frequently accompanied by a transfer or organization and training methods, the adaptation phase has to be completed by the redesign of these methods. In many instances it is easier here, than in the case of technological "hardware", to take into account the requirements and the general situation of the country receiving the technology. The two adaptation activities, as shown in fig. 7, should be performed contemporaneously and not, as often happens at present, one after the other. Here too, the aim is to have reciprocal influences, taking into account the needs of all concerned in order to prevent the technical side of the transfer from assuming once again a position of privilege.

# .7. Conclusions

It is clear that the model proposed for the transfer or technology costs more in the short term. Nevertheless, it is more than probable that it will cost substantially less in the long term. A technology chosen on a more need-related basis and suitably adapted will very probably be more appropriate to an original development of the receiving country.

Today, industrializing countries have a great opportunity. They can profit from the experience of the industrialized countries, but critically, without repeating their mistakes and with a proper assessment of needs. To be able to do this, the most important resources required are creativeness and reflection, resources which by their nature are much more evenly distributed among the nations than others such as raw materials and capital.

# PAYS DE L'AFRIQUE MEDITERRANEENNE ET ITALIE: INTERDEPENDANCE ET COOPERATION AU DEVELOPPEMENT

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PROBLEMES SE RATTACHANT AU TRANSFERT DE

# TECHNOLOGIE

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## PROBLEMES SE RATTACHANT AU TRANSFERT DE TECHNOLOGIE

### Introduction :

Le transfert de technologie a été longtemps un leitmotiv aussi bien chez les représentants des pays développés que chez ceux des pays en développement, à tel point qu'il est considéré comme la panacée universelle pour maintenir la prédominance des uns et le développement des autres.

Plusieurs études et recherches, faites par des organismes nationaux et internationaux (ONU, UNESCO, PNUD etc...) publics et privés (universités, entreprises) ont été consacrées à ce sujet démontrant ainsi son importance.

Cependant cette importance ne relève pas de la même nature en effet le sens du terme transfert de technologie varie selon qu'il a lieu entre différents secteurs d'un même pays développé (recherche spaciale transfert des retombées du secteur militaire vers le secteur civil) ou entre pays pays d'un niveau technologique comparable (Europe - USA) ou qu'il a lieu entre deux pays de culture et de niveau de développement inégal d'un pays développé vers un pays en développement par exemple. Ainsi dans le premier cas il peut revêtir à la limite l'aspect d'une simple transaction commerciale, dans le deuxième cas, des difficultés considérables surgissent. Dans ce deuxième cas, le processus met en jeu deux partenaires inégaux l'un ayant un tissu industriel dense l'autre un cissu industriel lâche, l'une tradi-. tion manufacturière séculaire l'autre sans tradition industrielle.

Ainsi la technologie transférée quand elle n'est pas maitrisée ne peut pas donner les résultats escomptés du fait de la non préparation du milieu récepteur ou de son rejet par ce même milieu et de sa non intégration au tissu économique.

Par ailleurs même lorsque le choix (de la technologie) est correctement fait se pose le problème de son assimilation, de sa maitrise (fonctionnement correct selon les normes et maintenance assurée convenablement par du personnel national) et de son adaptation à l'environnement récepteur.

Nous remarquons ainsi le danger qu'il y a à baser le développement économique d'un pays sur l'importation rapide de technologie sans s'assurer de son assimilation et sa maitrise par le milieu récepteur, parce qu'elle accroît la dépendance technologique, économique et politique du donneur de technologie.

De ce qui précède deux notions apparaissent très importantes dans la quête de développement, c'est de réussir le transfert de technologie (préparation du milieu récepteur et la maitrise de la technologie (fonctionnement de maintenance, par le personnel local).

Cette dernière notion génère l'idée d'un transfert du "savoir-faire" qui doit compléter le "transfert de technologie".

En effet, réussir le transfert de technologie c'est réaliser une unité qui est acceptéepar le milieu et assimiléepar le tissu socio-économique, mais aussi réussir un transfert de savoir-faire qui est la résultante d'un processus intellectuel (savoir) et manuel (faire)/permettra au personnel local d'exploiter l'outil correctement.

Ne constitue pas un transfert de technologie le transfert d'un équipement d'un pays développé vers un autre en développement s'il ne s'intègre pas dans le tissu industriel du pays, s'il n'est pas assimilé par le milieu récepteur.

Ne constitue pas non plus un transfert de savoir-faire si l'équipement nécessite pour être exploité du personnel étranger.

Ne constitue pas également un transfert de technologie le système qui reste fermé sur lui-même c'est-à-dire un cas isolé.

Ainsi le phénomène de transfert de technologie pour être réussi nécessite la réalisation des quatres étapes suivantes :

1) Maitrise de la production ou du système :

Il s'agit de faire fonctionner le système fourni au moins selon les normes et les standards du concepteur. Ainsi chaque entreprise réceptrice d'une technologie ne la maitrise pas quand elle rencontre des problèmes de mise en route qui empêchent la montée en cadence de l'unité ou des problèmes d'adaptation à son environnement.

2) Reproduction du système : Ne maitrise pas la technologie l'enteprise qui ne peut pas reproduire le système acquis, voire le copier (extension réalisée sans recourir au concepteur, formation assurée par des gens déjà formés).

3) Adaptation du système acquis

Il s'agit dans cette phase de modification que le recepteur peut apporter pour résoudres des problèmes d'inadéquation entre l'unité et son environnement, ou de définir un produit propre à lui pour échapper à l'espace de contrôle de l'émetteur.

4) Innovation.

Il s'agit de la mise en application d'une invention fruit de la recherche et développement au sein de l'entreprise soit pour modifier le processus soit pour créer un autre plus performant.

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## II. Difficultés de transfert de technologie

La technologie n'est pas un facteur de production comme les autres : (travail, capital, matières premières etc...) en ce sens qu'il ne peut pas être souvent isolé et traité séparement des autres facteurs de production. De ce fait, le développement technologique nécessite au préalable des conditions favorables à créer ou à intensifier au sein du pays, de ses institutions et de sa politique de développement économique et social.

Les difficultés de transfert et de maitrise de la technologie varient évidemment d'un pays à l'autre selon l'état de son développement, sa structure économique et sociale et disponibilités en ressources humaines et matérielles, Cependant nous pouvons en citer les facteurs les plus importants les uns propres aux pays donneur de technologie les autres aux pays récepteurs.

1 - facteurs psychologiques

Transférer un savoir-faire c'est créer une situation nouvelle par rapport à un système existant. Cette opération est complexe et met en jeu un nombre important de facteurs dont les interactions sont déterminantes quant à son succès ou son échec.

Déjà dans un pays développé, un changement (introduction d'une nouvelle procédure, etc...) est abordé avec beaucoup d'appréhension, de préparation, de méthode d'approche afin de limiter les réactions de rejets et garantir le succès, à fortiori, quand le transfert de technologie met en jou deux pays au développement inégal, de civilisations et de culture différentes, une attention particulière doit être accordée au processus de changement.

2. Les problèmes de langue et de culture

Les problèmes deviennent évidemment plus aigus lorsque le pays acquéreur est d'une autre culture ou d'une autre langue parce qu'à la résistance au changement s'ajoutent les problèmes de communication.

3. Les problèmes inhérents au faible niveau de développement des pays récepteurs.

Le degré d'assimulation et de maitrise de technologie dépendant étroitement du degré de développement et d'intégration du tissu industriel du pays récepteur et de la disponibilité des ressources humaines.

En effet l'absence de relations horizontales entre les entreprises et le cloissonnement du tissu industriel empêchera toute capitalisation du savoir-faire et partant de tout transfert de technologie.

4. Faiblesse des ressources humaines et contenu technique de l'enseignant.

Il n'est point nécessaire d'insister sur le rôle central des ressources humaines dans le processus de création, de transfert et de diffusion de la technologie.

A ce titre il convient de noter dans nos pays en développement le caractère marginal de l'enseignement technique et le peu d'attention qui lui est manifesté par les agents économiques et sociaux, d'ailleurs ce n'est pas seulement l'enseignement technique qui est marginalisé mais toute la culture technologique (club scientifiques et techniques, matériel adéquat, cité des sciences et des techniques, diffusion dans le mass media etc...).

D'autre part, l'aspect quantitatif est aussi important tant au niveau du personnel formateur dans l'anseignement technique qu'à celui des cadres moyens techniques qui constituent un rouage fondamental de l'entreprise.

Malgré les progrès réalisé, le chemin qui reste à parcourir est important ainsi à titre d'exemple le taux d'alphabétisation des adultes proche de 99% pour des pays comme l'Italie, la Yougoslavie et l'Espagne et qu'il est de 62% pour la Tunisie.

Le taux de scolarisation est voisin de 88% dans ces mêmes pays pour le secondaire contre 30% en Tunisie, celui du supérieur est voisin de 23% en Espagne et en Corée contre 5% en Tunisie.

C'est dire le long chemin qui reste à faire et les efforts et moyens humains et matériels à consentir.

5. Absence ou faiblesse d'un effort de Recherche et développement

La Recherche et développement constitue une étape fondamentale et obligatoire dans le processus de maitrise de la Technologie. En effet et tant pour développer le potentiel technologique local que pour assimiler et adapter les technologies importées, la R - D joue un rôle essentiel qui se manifeste par les moyens humains et matériels que lui consacrent les pays développés c'est ainsi que la part consacrée à la R - D dans les pays développés s'élève à 20% du PNB contre 0,2% en Tunisie, soit un rapport de 10 à l, ce même rapport semble se retrouver dans les effectifs qui se consacre à la R - D par rapport à la population active qui est de l'ordre de 5 pour mille dans les pays développés.

A cet effet, il convient de signaler dans les pays en développement l'absence , à quelques exception près de R - D dans le secteur industriel et la quasi marginalisation de la recherche et développement en milieu universitaire pour de nombreuses raisons (manques de moyens humains et matériel, absence.de. documentation etc...) et d'autre\_part\_l'inexistance. de lien entre l'université qui se consacre essentiellement à l'enseignement et une industrie préoccupée par les problèmes de producteur et commerciaux.

Voilà deux mondes qui s'ignorent et dont la rencontre constitue un facteur indispensable de maitrise et diffusion de la technologie.

6. Absence d'engineering nationaux

Il n'en est point nécessaire de noter que l'engineering industriel national constitue un point de passage obligatoire pour la maitrise et le transfert de technologie, la mise en valeur du potentiel technologique national, le renforcement et l'intégration du tissu industriel.

7. Absence ou faiblesse de l'information technologique

L'information est une matière première indispensable à toute action humaine réfléchie et spécialement au domaine de la maitrise et de promotion et de transfert de la technologie.

Le secteur de la collecte, du traitement, du stockage et de diffusion de l'information a connu ces dernières années des transformations technologiques telle que les vocables "mutations" et "révolution" sont devenus plus appropriés pour qualifier le secteur en particulier depuis l'usage de l'informatique, la télématique et d'autres technologies qui sont venu@srenforcer l'efficacité de l'information.

Or, dans les pays en développement ce secteur est resté lié dans le subsconscient collectif où la paperasserie aux rapports qui donnent dans les tiroirs bref le parent pauvre de l'activité économique pour lequel les budgets les plus faibles sont consacrés et les premiers à être rognés en cas de restriction.

A titre d'exemple la faculté des sciences de Tunis dispose de 37.000 volumes alors que les normes admises lui donnerait 230.000 ouvrages ! Aspects réglementaires et incitatifs

Pour faciliter les transferts et la maitrise de la technologie,les aspects purement scientifiques et techniques ne suffisent pas, ils doivent être appuyés par des supports réglementaires incitatifs et institutionnels indispensables.

C'est ainsi que dans les pays en développement, la normalisation fait généralement défaut ainsi que le contrôle de la qualité outils indispensables pour intégrer la dimension technique dans le processus industriel.

Les laboratoires et les centres techniques nécessaires pour développer un environnement technique adéquat font que la réglementation n'est pas un simple cadre juridique et sont inexistants ou embryonnaires.

Par ailleurs une réglementation protégeant la propriété intellectuelle et industrielle doit exister pour inciter à l'innovation.

Enfin, l'inexistence de moyens financiers et d'avantages fiscaux constitue un frein au développement de la technologie, son transfert et sa maitrise.

III. Recommandations pour une maitrise de la technologie.

A travers l'énumération rapide des entraves au développement et au transfert de la technologie, les éléments suivants se dégagent pour former un noyau autour duquel une politique de maitrise, de développement et de transfert de technologie pourrait s'articuler,il s'agit de :

- L'assimilation et l'adaptation des importations de technologie.
- Le développement d'un potentiel technologique national.
- La diffusion de la technologie

- La mise en place d'un cadre législatif, règlementaire institutionnel fiscal et financier.
- L'identification des moyens humains et matériels nécessaires.

A cet effet, les actions minimales suivantes devront être réalisées :

- Le développement des ressources humaines, avec notamment la revalorisation de l'enseignement technique et la diffusion de la culture et de l'information technologique et le renforcement qualitatif et quantitatif de la formation professionnelle tant dans les instituts de formation que dans les entreprises.

- L'intensification de l'effort national en matière de recherche développement, avec la nécessité d'ouverture de l'université sur son environnement et l'instauration de liens organiques entre l'entreprise et l'université.

- Le développement d'une capacité nationale d'études et d'ingénierie industrielle et d'une façon générale des industries du savoir, centres de recherches, laboratoires et les centres d'information.

- Le développement du secteur de la production et de la diffusion de l'information technologique qui est devenue une matière première stratégique indispensable à tout effort de développement technologique.

- Le développement de l'effort de normalisation et de contrôle qualité et d'amélioration de la compétitivité.

- L'adoption de modèle de gestion de projet permettant l'accumulation du savoir-faire avec l'abandon des projets clés en main le recours à des multi lots...

- réforme fiscale incitant les opérateurs à la transparence des transferts technologiques et exonération et avantages des industries du savoir.

- renforcement et développement de centres techniques sectoriels pour améliorer la qualité des produits et la compétitivité des entreprises industriclles.

### IV. Conclusion

Ces considérations n'ont pas la prétention d'épuisser un sujet aussi vaste et complexe de par ses multiples implications dans tous les domaines de la vie économique et sociale d'un pays, elles tentent d'engager la réflexion sur un sujet essentiel.

Cependant, je ne voudrai pas terminer sans dire que le processus de transfert et de maitrise de la technologie est un processus de longue haleine, et bien que la dépendance technologique de nos pays quoique instituant une réalité quotidienne elle n'est pas une fatalité inéluctable.

En effet, une analyse historique du développement économique des pays développés montre qu'ils ont été pratiquement tous, à un moment donné de leur histoire, technologiquement dépendants de certains pays relativement plus avancés qu'eux.

En outre et à l'intérieur même de certains pays en voie de développement, des réussites spectaculaires de développement technologique sont enregistrés dans certains secteurs économiques et notamment dans l'ingénierie, la production de biens de consommation durables et le développement autonome de filières technologique

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# THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

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TECHNICAL COOPERATION

# PROBLEMS CONNECTED WITH TECHNOLOGY TRANSFERS

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### PROBLEMS CONNECTED WITH

## TECHNOLOGY TRANSFER

Technology transfer is a valuable means of increasing societal utilization and gain from the products of human thought and effort.

At the beginning it is useful to define both technology and technology transfer.

#### What is Technology? and

### What is Technology Transfer

Technology transfer means different things to different people. First, to an engineer the term <u>technology</u> does not refer to a "thing". Try as we may, we cannot point to an animate or inanimate object and call it technology. knowledge is the state of knowing through study or experience. Therefore, when we talk about the transfer of technology we really mean the transfer of <u>knowledge</u>. Knowledge can be stored and conveyed in many ways: The written word is knowledge; the spoken word is knowledge; computerized data banks are knowledge.

Second, the term <u>transfer</u> does not mean movement or delivery. Transfer, as we define it, means the <u>use</u> of technology. The fact that a technical book is written does not mean that a contents have been or will be read. If its contents are read, it does not mean the author's words were understood. If the words were understood, it does not mean that knowledge has been transferred unless, and until, that knowledge has been applied or used.

Therefore, our definition of technology trnasfer is the use of knowledge. The argument has been made that if technical knowledge is sent and the receiver acknowledges that it ans been received, then technology has been transferred. What is really meant by the argument is that something has been <u>delivered</u>. If this something is never used, then, by our <u>definition</u>, nothing has been transferred. We repeat: There is no trnasfer of technology unless, and until, the technical knowledge has been put to use. Even if the use does not meet the expectations of the user, technology transfer has still occurred.

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# Figure 1 Bridging agencies.



Figure

2 Research and development diffusion model.





TECHNOLOGY TRANSFER SUMMARY MODEL



Figure 4 Technology transfer summary model.

The success or failure of its use does not determine the state of transfer- its use does!

There are many examples of the spin-offs of technology from the space program. Among these examples of interest to engineers and others are the benefits from use of space satellites for communication. e.g., cutting the cost of international telephone calls by 50 percent since 1965; transmitting drawings around the world at the speed of light; consummating commercial transactions between continents by punching a few keys; holding meetings to worldwide audiences: . and locating precisely the position of ships and planes in transit. Other space satellites locate earth resources, monitor crop growth, locate sources of atmospheric contamination, and perform surveys with previousbly unattainable precision. Other spin-offs include integrated electronic circuitry, crybgenic insulation, and computer programs for structural analysis. A' recent count showed more than 625 examples of National Aeronautics and Space Administration (NASA) technology being put to practical use by public and private organizations. In four melected areas alone (integrated circuits, gas turbines, cryogenic insulation, and computer programs,) the economic benefit is in excess of # 7 billion.!

Technology means specialized knowledge applied to achieving a practical purpose. In current parlance, we use the term <u>know-how</u>. <u>Know-how</u> is defined by Webster (Seventh Collegiate) as the knowldge of how to do something smoothly and efficiently. That "something" is the practical purpose that we indentify with technology. Figure 1 through 4 illustrate models for technology trnasfer and are self-explanatory.

Yet, technology transfer is not the mere transfer of knowhow from one person to another, although know-how transfer is a very important step in the technology transfer process. And, in a very real Commission on Sociotechnical Systems, is quoted: "Technology transfer is the process by which science and technology are diffused through human activity. Whatever systematic rational knowledge developed by one group or institution is embodied in a way of doing things by other institutions or groups, we have technology transfer."

There are several key factors in the technology transfer : (1) Transplantation of technology from within one set of well-defined conditions to another set in which at least one key variable may differ and how the recipient applies the technology may vary greatly from the donor's mode:

(2) A sense of opportunism prevails in technology transfer. Whether justified or not.

(3) The transfer process embraces a rich variety mechanisms and relationships between recipient and donor. The process can vary from a routine, peopleless passive transfer to a turnkey contract where the donor takes full responssibility for all phases of the contract. The more active and usually more successful instances call for frequent and intense personal interactions between both parties.

(4). It follows that the nature of the transferred technology and how it is trnasferred are critical to the success of the technology transfer process.

Technology transfer may begin as a solution to someone else's problems. Adaptation of such "outside" solutions to solve "inside" problems is technology transfer. The advantage lies in avoiding "reinventing the wheel."

### WHY SHOULD TECHNOLOGY BE TRANSFERRED:

We indicated earlier that the hope of gain motivates technology transfer. But gain is only a societal reward for a societally valuable good or service. We rephrase the question to ask what other societally valuable good or service is rendered by technology transfer?

"It appears that economic growth is due largely to increased productivity (output per unit of input) and that the rate of productivity growth depends heavily on the rate of technological change. However informal or structured it may be, research and development produces that change."

To promote United States trechnological innovation for the achievement of national economic, environmental, and social goals, and for other purposes; the Congress found and declared that:

(1) Technology and industrial innovation are central to the economic, environmental, and social well-being of citizens of the United States.

(2) Technology and industrial innovating offer an improved standard of living, increased public and private sector productivity. creation of new industries and employment opportunities, improved public services, and enchanced competitiveness of United States products in world markets.

(3) Increased industrial innovation would reduce trade deficits, stabilize the dollar, increase productivity gains. increase employment, and stablize prices.

Since we characterize successful technology transfer by success in the marketplace, it seems apparent that technology transfer' achieves a transfer of know-how by means of a product--or-e service for which others are willing to trade ' the fruits of their labor (i.e., to pay for it). If follows that technology transfer is service to one's fellow human. And, by transfereing the technology, one has added to the capabilities of humankind.

In December 1977, the Denever Research Institute completed an important cost-benefit analysis of the National Aeronautics and Space Administration Technology Utilization Program. A11 elements of this program were investigated in depth. The Denver Research Institute concluded that the ratio of program benefit to cost was at least 6:1. The report stated : "This indicates that the Technology Utilization Program is providing at least six dollars in net economic return for each one dollar invested in the program." This study not only quantitatively supports the economic value of a disciplined technology transfer activity, but the also report significantly contributed to an understanding of the relative effectiveness among the various transfer modes for specific applications. It should be clear that the selection of the transfer mode is a function of the end use to which technology will be applied.

United States Senator Harrison H. Schmitt said it is through technology that the world will survive; but, it particularly is our obligation to our particular civilization to ensure that we do not fail. It has nothing to do with survival. And if our economy doesn't survive, we won't survive. If we don't have a technology base from which to deal from strength with the rest of the world on whatever issue happens to come up internationally, then we won't survive. That is the issue, and that is why it is so fundemental and so critical that we trust it in an urgent way, but also in a way that takes common sense into account.

### TECHNOLOGY TRANSFER TO DEVELOPING COUNTRIES

### NATURE OF TECHNOLOGY TRANSFER

Technology transfer is generally defined as the transfer and use of knowledge relating to scientific and technological developments. These developments are not necessarily new, but include the application of already existent technology to new uses or, for that matter, to nations, areas, or useres where the particular technology had not been previously known or utilized. New technologies for developing countries may have their main sources in adaptation of existing technologies to new circumstances, in transfer of technology from more advanced countries, or from research and development results within their own countries.

Technology transfer should be considered as an integral, overall innovation process which comprises everything from the conception of an idea to the final market penetration.

There are great difficulties in defining significant parameters' which, could give a relative measure as to the effectiveness of any particular mechanism of technology transfer. This is only one of the reasons for the difficulties encountered in attempts to organize and manage this activity. There are a vast number of different situations and conditins in which this process has to take place, varying from intracorporate communications as, for example, technology transfer from a company's research laboratories to its production and marketing organizations to the transfer of existing technologies to a newly developing country. A body of literature has started to accumulate on this subject. but there is still little factual feedback from the wide variety of field conditions encountered. There are, however, several general impressions and observations on the nature of technology transfer which could have important bearing on any attempt to organize the transfer of technology to developing countries. Ferhaps the most prevalent impression is that technology transfer is dependent on people and far less on agencies, committies, and so on. Not only that, but it needs the right type of people, i.e., those who are communicative, receptive to new ideas, and who have effective interpersonal relationships. These persons must bring together suitable technologies coinciding with market needs at the appropriate time. For technology transfer to succeed, it must be problem or market oriented. Attempts to establish more genaralized technologies in developing countries will likely end in failure and in the final analysis are pointless. It seems that most significant technology transfer occurs by the integration or recombination of small bits of information obtianed from diverse sources and put to new uses. However, this latter impression would not seem to apply to newly developing countries where large integrated packages of technologies have been fostered, often resulting in failures of catastrophic proportions. Failure such as the groundnut scheme in Africa is a prime example of inappropriate technology transfer. Hence, one must look for appropriate texhnology, i.e. appropriate to the circumstances of the developing country that is the intended recipient.

## MECANISMS FOR TECHNOLOGY TRANSFER

There are a large number and variety of mechanisms for the transfer of technology. Generally, a combination of several of these mechanisms is needed for successful technology transfer. Among those finding more frequent practic in developing countries are the following :

1. Knowledge transfer in the form of books, periodicals, self- teaching manuals, educational programs (video tapes, computer tutorial programs) ....etc., which sometimes called "Passive Technology Transfer Mode".

2. Database and data banks searching for information.

3. Purchase or licensing of already developed technology in the form of patents, products, or know-how packages.

4. Direct purchase of specilaized machinary embodying needed technologies.

5. Use of foreign experts as technology transfer agent.

6. The training of personnel abroad. (training may include visits to industries, fairs and shows, ...etc.)

7. Holding international fairs and technical conferences locally.

8. Establishment of foreign industrial enterprises in a developing country, often a multinational corporation or a joint venture. This is bodily technology transfer.

9. Establishment of institutions of eductation, research and development, and agricultural extension services in the developing country.

10. Establishment of specilaized centers for technology transfer mainly for the training of personnel (this technique has been used effectively in Taiwan and in Mexico).

11. The maintenance of a suitable economic and social climate for innovation and change (Korea, Taiwan, and so on.)

# UBSTACLES TO TECHNOLOGY TRANSFER

There are a large number of obstacles to technology transfer in developing countries: as in developed countries. The universal resistance to change, both rational and irrational, restrictive patent and trade policies, and many others are common to advanced industrialized nations, as well as to the recently developing countries. These latter countries have additional and more serious barriers to technology transfer such as :

1. Importance of technology transfer is not quitely appreciated. Devloping countries are burdened with many different problems; few of them need technological solutions.

2. Difficulty in identifying technological problems and the kind of technology to be transferred.

3. Lack of information about different sources of technology, e.g. suppliers of know-how or equipment, training institutions and programs, specilaized foreign consultants, investors who are ready to participate in a joint venture corporation and so on.

Local sources of technology are even difficult to locate because information about them are not available in one place.

4. Inadequate experience to evaluate technological offers and select the more relevant and appropriate . For example, selecting the best lisencor or know-how supplier.

The developing country sometimes requests the help of a third party for evaluation purpose but it has to pay for such service.

Another similar problem arises when using foreign expert. There is no means to interview him in his country before signing a contract for his service. On the other hand, some C.Vs or resumes are deceitful.

5. Lack of capital and incentives for investment and to finance technology transfer procedures. Money is required for all technology transfer mechanisms. Aids and loans have conditions which control technology transfers in certain directions. As a result for that, a factory or a power station in the developing country may include equipment from different origins.

6. Problems of absorbing and making use of transferred technology. For example, getting knowledge from experts is not easy and require a certain level of skill. Other examples are : licensor or know-how supplier does not give all ideas and developments to the licencee, technology embodied in specialized machinary is hard to be extracted, patents are not clear, trainees may leave their job after training or work is another field, the gap between research institutes and the technology user is still unbridged, and so on. Lack of money also affects the using of technology e.g.

development may need new equipment and naw materials which again need meney.

7. Market demand for a new product is sometimes not sufficient for economic production, while at the same time there is no chance for exportation because of product low quality and high price. Another problem is inadequate producer-consumer relationships.

8. Concentration of resource ownership in a minute sector of the population .

9. Inadequate physical, social, and economic infrastructure . While possibly not inadequate in the local culture. it is often not structured for new technologies.

10. Lack of existent appropriate technologies for local conditions. As an example, advanced industrial nations normally develop technologies that trade off relatively large amounts of capital to reduce labor requirements. Such technologies may not be appropriate to conditions found in developing countries.

#### ROLE OF THE RESEARCH INSTITUTE IN TECHNOLOGY TRANSFER

In view of the factors involved in the technology transfer process and the need to overcome the aforementioned barriers, the establishment of independent, goal-oriented applied research institutions should be considered as one of the measures undertaken for promoting technology transfer. The primary task of these research and development institutions is not the transfer of any one specific scientific or technical development into a field of application, but rather for the development of a multidisciplinary capability to act as an agent to absorb, modify, and diffuse technologies and innovations from both external and internal sources. Such research and development organizations should be considered first and foremost as vehicles to foster apprecipiate technology transfer concepts. In the

early development of such institutions, highly original research would play a role secondary to those functions. The institutions should be field oriented and organized in such a manner as to ensure the necessary contact between the scienbtists and the farmers or the industries within their field of competence. Applied research institutions, if they are to function, must rely almost entirely on the ability and skills of their staff to deal with the problems of the developing society.

we review the stages of the technology transfer Τf process can charge such an institute with the responsibility to MP define the problems and the needs of its clients. Its staff can search out the relavant technologies, screen them for appropraiteness, and modify and test for local conditions. If associated with agricultural or industrial extension services, they aslo could participate in the diffusion of these modified technologies. Hence, research and development institutes could fulfill several of those functions which are vital for technology transfer.

If one now examines the role of the goal-oriented research devlopment institute in relation to the and special obstacles in developing countries to technology transfer, an opportunity to <u>mitigate</u> the strength of these barriers can be seen. The institute can participate in training needed personnel. It can provide a two-way channel for the ideas and information from the field to interchange of government ministries and in the opposite direction. It can supply new information on local resources and evaluate and improve local technologies. It can provide information onlocal conditions and needs to foreign agencies and economic groups interested in advancing the economy of that country or joint interested in establishing commercial enterprises or ventures. In the long range, it can reduce the dependence of the developing countries upon a continued supply of technology from foreign sources.

Certainly, none of these benefits will accure automatically. There is a grave danger that the research and development institute staff will involve itself in those academic activities consonant to their training in Western Western . universities and become a drain on scarce capital and human resources. This seems to be the case with a large number of research institutions in devloping countries which have contributed little towards improving the level of technology of local industry and agriculture. In many developing bevelopment is not constrained by lack countries, σf knowledge but in the organization of scientific that knowledge incluseful form so that it can be adapted to looal

conditions and term a basis for technological development. The research and development institute can contribute to such an activity only if it is properly oriented, motivated, and structed for this purpose.

A cursury e amination of successful research institutes in developing countries will show one salient common feature, and that is a strong international input in funding and especially in manpower. These institutions are strongly goal oriented and are kept that way by continuous review and budget allocation processes. The successes of International Rice Research Institute and Centro Internacional de Majormaiento de MAizy Trigo (International Center, for Corn Wheat Improvement)are undeniable. Even though there and is not complete agreement concerning the conditions which permitted their achievements. they can serve as - a demonstration of the inherent potential which could also be shared by other research institutions. These two institutions, as well as others in this category, have a wide international orientation of their research projects. There is some evidence that their cost/benefit ratios have been decreasing after their initial successes, and what is needed now are national research institutions of a high quality and oriented towards local problems. Such institutions could be founded as a joint venture with a more developed' country. These institutions should have a binational directorship and a suitable participation of scientific personnel from the associated country or countries. An ample but closely controlled funding by the associated country or countries could help to attract good scientists and maintain the institution's goal-oriented approach. A suitable system of incentives, must be worked out whereby the researcher obtains tanglable rewards for success in the field or in the factory.

There are some good examples of this type of organization. The association of the of University of Arizona with the University of Forteleza has resulted in valuable results in the pasture management for norhteast Brazil. Similar successes have been cited for South Korea, Taiwan, and many other developing nations where they have become an integral part of the generally stimulating national economic and social climate for innovation.

14.5

There are many different pathways for technology transfer to developing countries; assessing their effectiveness is difficult. Establishment of applied research and development institutions is certainly no panacea for the backwardness of a nation, and certainly there will be failures. However, examination of the activities common to technology transfer and the attendant obstacles to technology transfer indicate that a properly constructed and directed goal-priented research institution can be an effective pathway having longrange socially and economically desirable results.

### EXAMPLE OF AN EGYPTIAN PROJECT FOR TECHNOLOGY TRANSFER

A project was designed within the Egyptian Government to provide technical assistance to insdustry. It was partially funded by international agency and was a joint project of an Egyptian Engineering Center and Foreign Technology Institute.

The goal of the project was to increase industrial productivity in Egypt and had two major objectives :

- To assist Egyptian industrial firms in:
- Making more productive use of available technology.
- Identifying, assessing and introducting suitable new technologies.

To institutionalize Egyptian capacity to provide such assistance through increasing reliance on Egyptian experties.

### SERVICES OFFERED:

The project offered Egyptian industry a variety of services. Regardless of the size or type of manufacturing firm:

- Solutins to specific technical problems.
- Identification of productivity improvement opportunities.
- \* Development of new ventures.
- Implementation of new technologies.

The assistance was reached through the provision of a variety of services to industry, including:

# 1. ACCESS TO TECHNICAL INFORMATION:

The project extensive industrial information extensive was available to answer technoial inquiries. In addition to reference manuals, technical books and periodicals: access to foreign engineering literature, product information and equipment specifications is available.

The project also provided access to worldwide computerized data banks through on-line search of specialized databases.

### 2. ACCESS TO CONSULTANTS:

In those cases where highly specialized knowledge is required, the project field engineers were assisted by Egyptian and foreign consultants.

# 3. ASSISTANCE IN SOLVING TECHNICAL PROBLEMS:

Through a series of visits to the manufacturing facilities. The project engineers conducted diagnostic plant surveys . Working with the company management, the project developed solutions to specific technical probelms or made a variety of recommendations for increasing productivity.

### 4. TRAINING PERSONNEL:

The project undertaken an existance program to develop and train a second generation of qualified staff to ensure that high quality services will continue to be available to Eyptian industry locally and abroad.

# 5. SYMPOSIUMS AND SEMIMARS:

The project has helped to organize mahy specialized meetings of top industrialists in different fields. These seminars were a good means for technology transfer to industrial people in Egypt.

# 6. TOURS OF FOREIGN INDUSTRIES:

Actually seeing advanced production methods at work, is one of the most efficient ways of increasing awareness of their value. The project planned and organized industrial study tours to foreign countries. They aimed at giving a select group of managers from a specific field industry an opportunity to meet their foreign counterparts and study the techniques they employ.

# THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

Ind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) — 12/16 april 1987

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THE ROLE OF PRODUCTIVITY AND VOCATIONAL TRAINING IN THE PROMOTION OF INDUSTRY AND THE TRANSFER OF KNOW-HOW

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THE ROLE OF PRODUCTIVITY AND VOCATIONAL TRAINING IN THE PROMOTION OF INDUSTRY AND THE TRANSFER OF KNOW-HOW

By

Engineer Abdel Latif Ibrahim Ahmad Director of the Productivity and Vocational Training Department Ministry of Industry

### I. INTRODUCTION:

1/1 The progress of peoples is assessed by the extent of their economic development which totally changes the whole structure of society, and secures their well-being and prosperity. Economic development relates to production rates and the growth rate of such production, which is incident not so much to the size of the productive manpower as it is incident to the average productivity increase of that manpower. In this connection there is no alternative other than laying stress on the importance of developing human resources, which constitute the major factor in productive endeavours.

1/2 Development of human resources is impossible unless it rests on education and training, so as to teach that manpower the rudiements of their work and the basics of their profession, then upgrade such education and training so that they may acquire further skills and keep pace with the technological developments in their field of work and master them.

1/3 Education and training have scientific bases; the greater interest taken in them, the greater guarantee that the manpower will be able to discharge their work at best within the set schedule and in the required quantities, without loss of time and money, and with the best utilization of machinery, equipment and tools.

1/4 In the time allowed us, we shall focus on productivity and vocational training, given the fact that they are the objective and policy of any economic unit, as well as the strategy of any society wishing to implement its socio-economic development plans. From the premise of realities in Egypt,we shall lay stress on the inception of vocational training in the country, its systems and methods, the impact of management programmes on the improvement of productivity, and outline training requirements and available facilities to meet such requirements as well as refer to international cooperation, in particular with the Italian training organs, IRI, the difficulties posed to us and our hopes in overcoming such difficulties.

### II. INCEPTION OF VOCATIONAL TRAINING IN EGYPT:

2/1 Vocational Training in Egypt is as old as the civilization established by the ancient Egyptians, to which bear witness the construction engineering: pyramids and temples, devotion and montheism .. agriculture and industry .. medicine and medication .. planning and building, etc.. The west was inspired by it, benefitted from this civilization and transferred it, thereby laying the first foundations of cooperation and transfer of the technology used at that time. We firmly believe that, had it not been for the sound training of the manpower which erected the edifice of this civilization, that reflects great artistry in all fields of culture and science, Egypt could not have been able to draw upon its knowledge.

the lad would be sent to the workshop, and learn at the hands of its owner the skill and expertise needed by his profession. Although it was neither organized nor official, this form of training did shape cadres of skilled manpower each, in his field of specialization, which enabled them to meet and satisfy the objectives of said workshops.
2/3 Over the years, the apprenticeship system came to underline what has later become vocational training or vocational upbringing, which also includes the training of drop-outs from the various educational levels.

2/4 The 23 July 1952 revolution realized the imperative need for a skilled manpower base to implement its national socio-economic development plans. It therefore set up the permanent productivity and vocational training Council, attached to the Ministry of Social Affairs, and drew up its terms of reference, which was to work out technical educational and vocational training policies, and make proposals whereby to introduce the most modern systems in this field, In 1954, an experimental vocational programme was implemented in cooperation with the International Labour Organization.

2/5 The Ministry of Industry was set up in 1956, to implement an ambitious industrialization policy, which is that a mainstay of national economy, and gradually turn an agricultural society into an industrial one. The public sector base was set up covering light medium and heavy industries, to which was attached the Productivity and Vocational Training Centre, which was detached from the Ministry of Social Affairs.

2/6 Through sincere efforts and effective cooperation in transferring expertise from its sources, the first 4 vocational training centres were established in 1958 at the Cairo and Alexandria Governorates, with an enrolment capacity of 90 trainees in each centre, in accordance with the industrial schooling system.

2/7 The average employment potentials per year, from 1960 through 1965, was about 135,000 at the various manpower levels. The Organ pursued its policy of setting up training centres, and did operate 10 training centres over 1960 and 1961.

2/8 As a result of the growing number of new training centres, attached to the Department and to industrial firms, and in order to carry out practical training programmes and theoretical studies plans, included in these programmes, the first Agreement between the Egyptian Government and the United Nations Special Fund was concluded, entitling to an assistance from the ILO for technical expertise to set up a training centre for instructors needed by centres and firms as well as by Arab and African countries, in the various specializations related to industrial sectors. It started operating on the basis of some experimental programmes and tests. Since 1966, 8000 instructors and technical inspectors have hitherto graduated from this Institute.

2/9 The implementation of socio-economic development plans led to the establishment of further vocational training centres.

From 1961 through 1970, 28 new centres were set up; and from 1971 through 1979, ten new centres were set up, bringing their number to 38 centres. Ten centres were attached to other ministries and institutions, and ten to firms affiliated to the Ministry of Industry.

2/10 In order to keep pace with the growing number of firms and plants, affiliated to both the public and private sectors, the plan which was implemented from 1982 through 1986, comprised 17 training projects, which are being implemented, according to the appropriations made in the Department's budget, or through facilities, such as non-reimbursable donations and bequests from other countries, such as Japan, Germany, Italy, EEC countries, US AID or through loans from the IBRD or the African Development Bank. The Department has plans for new projects or enlargement of existing centres, to meet new training requirements, as well as for replacement or rehabilitation of machinery, equipment or tools of centres which have become obsolete.

2/11 Training the manpower needed by industry calls for systems and methods that build up cadres at various levels of skills, such methods are available at these Centres.

#### III. VOCATIONAL TRAINING SYSTEMS

Industrial schooling system: a mixed system of 3/1 theoretical and practical studies, according to programmes, that enable the trainee to acquire practical skills, expertise and the knowledge needed for his profession or craft. After 9 years of basic schooling, the graduate undergoes basic training at one of the training centres for a whole year for practical training in workshops and theoretical studies in classes. The trainee is then moved to one of the work sites where he undergoes for two years a more advanced practical training and acquires greater skills than those taught him during his basic training. During his training at the training centres the trainee attends theoretical courses twice a week, in his second year, and once a week in his third year, following which he is granted a diploma of industrial studies equivalent to the diploma of the secondary technical schools.

3/2 <u>Crash training course</u>: the first stage of vocational upgrading, which admits literate youth for a period of 4 to 6 months according to the profession. The trainee graduates at the end of the training period as semi-skilled labour.

3/3 <u>Skill upgrading system</u>: it is a programme intended for inspectors, foreign and skilled labour employed by the industrial sector, to raise their efficiency and help them acquire higher expertise in order to keep pace with technological development.

3/4 These centres are established throughout the country, and their graduates are greatly sought not only by public and private industrial firms, but also by various ministries, because of the great need for such skilled labou at all production sectors:

A skilled manpower amounting to 106,000 have graduated from these centres since their establishment. About 32,000 schoolchildren have been admitted this year to the 3-year industrial study course, to be trained in 72 various professions needed by these sectors. It is noteworthy that such centres do not bind themselves to their basic working hours, but sometimes apply a three-shift system.

#### IV. PRODUCTIVITY/VOCATIONAL TRAINING PROGRAMMES (MANAGEMENT)

4/1 In order to train cadres capable to assume responsibility programmes for productivity management at the variuos levels: inspectors, technicians, foremen, specialists and an intermediate management category, the training facilities of the Department are the following:

- <u>The Consultative Management Institute</u> which trains highly-skilled experts for management consultancy provided technical advice to economic units as well as training programmes for specialized consultants to whom it provides practical training within economic units;
- Productivity programmes for instructors and training cadres at industrial firms in the fields of production engineering and economic research (financial management costs - marketing) industrial security, behavioural and supervisory skills for all management levels; these services are provided by the Department at its main centre or at the various productivity centres established at some training locations.

4/2 In order to consolidate the role of management in the public and private sectors, great importance was attached to these courses which, if well understood and exploited, will greatly improve productivity and reduce waste, toil and the disbursement of funds. We succeeded in providing programmes that met the needs of all productivity sectors. Some 3000 trainees are admitted annually to these courses to acquire higher skills. About 26,000 trainees from industrial firms, attached to the industrial or other sectors, have already attended such courses.

#### V. TRAINING REQUIREMENTS

5/1 The numerous statistical studies undertaken by the Department, the latest being a study on the training requirements of the industrial and other sectors undertaken in cooperation with the ILO, have indicated that the new labour force required for new projects in 1985-1986, was 160,000 at various skilled levels, 60,000 of whom are skilled and intermediate level labour force. These requirements will rise annually to arrive at an annual average of 174,000 from 1986 through 1990, rising to 220,000.5 from 1991 through 1995 to reach 278,000 from 1996 to the year 2000.

5/2 On the basis of 20% at all manpower levels which have to undergo refresher courses annually, the average number of trainees would be about 480,000 from 1986 through 1990, rising to 618,000.5 from 1991 through 1995, reaching 840,000 from 1996 through the year 2000.

5/3 Vocational training basically meets the needs in skilled labour that may be provided at the above-mentioned training centres, on the basis of the industrial schooling system. The new requirements are annually 43,000 from 1986 through 1990, about 55,000 from 1991 through 1995, and about 96,000 from 1996 through the year 2000.

5/4 Vocational training also covers limited skilled labour in which may participate all the training organs of the sector. Average annual new requirements are about 52,000 from 1986 through 1990, about 67,000 from 1991 through 1995 and about 84,000 from 1996 to the year 2000.

#### VI. ORGANS OPERATION IN THE VOCATIONAL TRAINING FIELD

6/1 Is it possible to meet such requirements given the available training facilities?

The facilities provided by the Department for training management experts and cadres, let alone the establishment of productivity training centres, in addition to other organs devoted to the private sector, in the training and the consutlancy fields, enable it to meet such requirements. However, as regards vocational training, there are other bodies which provide manpower training at all the levels needed by the employment market, such as:

6/2 The Ministry of Education provides technical education, with emphasis on industrial technical education.

6/3 Other Ministries such as the Ministry of Social Affairs to which is attached the Environmental Industrial and Craft Training Centre. The Ministry of Housing and Reconstruction provides crash training courses for the professions it needs. Volunteers training centres are attached to the Ministry of War, and the Ministry of Local Administration establishes and operates maintenance training centres in Governorates.

6/4 Among the functions of the Ministry of Manpower and Training is that of drawing up the employment policy and organization, conciliating between the specifications and of description of available employment opportunities and production requirements. The framework of the policy and implementation follow up was completed with the establishment in 1976, of the Manpower and Training Supreme Council, which set up a Joint Committee, composed of the Under Secretaries at Ministers. involved in training, to draw up the necessary plans.

 a training programme for training planners and programme specialists for 15 candidates from the
 Department and industrial firms for 16 weeks in Italy,
 preceded by 8 weeks to learn the Italian language in
 Cairo and Alexandria, and followed by 4 follow up weeks
 in Cairo, of returning trainees;

b) a training programme for technical instructors in industrial firms and vocational training centres of the Department for 15 candidates in the field of thermal treatment of mineral resoruces for 16 weeks in Italy, preceded by 8 weeks to learn the Italian language in Cairo and Alexandria, and followed by 4 follow up weeks in Cairo, of returning trainees;

c) a training programme to upgrade technicians of industrial firms, for 15 candidates from the Department and from firms for 14 weeks in Italy to be preceded by 8 weeks to learn the Italian language at the Italian Cultural Centre in Cairo and Alexandria, and followed by 4 follow up weeks in Cairo, of returning trainees;

d) a vocational orientation programme for 10 weeks in Italy, as of March, 1984 to the end of May, 1984, for 15 candidates from the Department and from firms to be followed by 4 follow up weeks in Cairo of the returning trainees;

e) a programme for supervisors of theoretical studies and Directors of Centres for 15 candidates for 7 weeks in Italy, as of September, 1984, to be followed by 2 follow up weeks upon the return of trainees during the last week of November, 1984.

#### VII. COOPERATION WITH THE ITALIAN GOVERNMENT

7/1 This cooperation started in 1975, when the Cultural and Technical Cooperation Agreement in the training field was concluded between the Italian and Egyptian Governments.

This agreement provides for training programmes by the Italian side to be implemented in Egypt and Italy, in the fields of maintenance and training of instructors, and provides as well as for scholarships in various industrial domains. The assistance provided by Italy stood at US\$400,000 in 1976 and 1977.

The IRI Group implemented these programmes over two years in the field of air conditioning and humidifying systems for 70 people, engineers and staff members of the Departments and of the industrial sector, 48 of whom were Department employees.

7/2 A two-year cooperation protocol was signed on 15/12/1979 by virtue of which 146 engineers, from 43 firms specialists and instructors were trained in the various disciplines at a cost of LI.2 billion 250,000 and LE.105,000 borne by the Egyptian side.

7/3 In 1983, the Italian Government accepted to finance a technical assistance programme for specialized training to upgrade vocational training, within the technical cooperation context between the Egyptian Government (Productivity Department) and the Italian Government, represented by the Cooperation Department, in collaboration with ANCIFAP. The Italian Government allocated as a donation LI.2105 million to the Egyptian Government (Productivity Department); LE.1000 million in 1983, and LI.1105 in 1984, to implement this Protocol which covered the following:

Thus the number of trainees totals 84:55 from the Department, 29 from industrial firms. The total number of trainees under all the above-mentioned programmes is 343 divided as follows:

From the	<u> Department</u>	From Firms
48	3	22
146	5	43
5 5		29
240	)	94

in addition to the scholarships granted by the Italian IRI Group, according to its annual programme plans.

7/4 On 25 NOvember, 1986, a Cooperation Agreement was concluded between the two Governments at the Third session of the High Joint Committee. By virtue of the Agreement, US\$ 6 million will be disbursed to finance vocational training projects, including 2 pilot training projects and training in the field of electronics, information and teaching aids.

#### VII. PROBLEMS AT NATIONAL LEVEL AND EXPECTATIONS

8/1 What really affects the identification of the real demand in manpower, is the lack of national skill standards and related standard tests, by virtue of which the present labour force could be classified, the training requirements determined and the appropriate programmes drawn up, in terms of content and duration, let alone rationalization of training costs. The determination of such categories at national level would facilitate the task of training organs as it clarifies the real requirements in terms of the components of training programmes.

8/2 The industrial sector affects and is affected by the employment market which, in turn, is reflected in the ability of the sector to train the needed manpower, and the ability to keep that manpower in order to implement the production plans, quantitatively and well as qualitatively. The sector and its training organs have therefore to bear the responsibility of meeting directly and indirectly, the needs of other sectors, as well as to face the problem of a migrating manpower to other countries, where it will be employed in activities requiring great skills and high technology.

8/3 Industry, one of the production sectors, basically linked to the increase of national income, is in constant development to keep pace with technological progress. It must always renew and replace its machinery, its equipment and its tools, as well as change its production methods so that productive activities may contribute to development. Hence training develops at the same rate as that of the industrial sector, and transfer of technology then becomes the ongoing duty of those involved in that sector. The development of training to cope with the new technology, becomes one of the imperative needs, and training research becomes a continuing exercise, in terms of programmes, systems and methods, there is also the vital need for an exchange of information between training organs at regional and international levels, dictated by the wery mature of that propertial development. Thus, the Department maintains strong relations with local training organs, and world training organs and consultancy bureaus.

8/4 We must have at our disposal training organs capable of bearing their responsibilities and discharging their duties, whether they are attached to the Productivity/Vocational Training Department or to industrial firms. This was the responsibility

of the Department, which trained its own cadres, specialists and instructors at best, comparable with the best methods used within or without the country. It established strong and close relations with foreign consultancy bureaus and with local industrial firms. It provided scholarships to its own specialists and to those of said firms, and laid strong foundations for a close and effective cooperation between the foreign bureaus and industry, as a whole.

8/5 The development of human resources mainly rests on training and the promotion of a training awareness; this is one of our major concern. Investments in the training field yields returns in the long term. A number of studies are being undertaken to assess the benefits of training or technical education; experience acquired in this field indicates the need for focusing on such studies, financing and following them up.

8/6 If available facilities cannot meet the needed requirements, it is opportune to widen the scope of the inservice training system, under sound technical supervision, to ensure the quality of such training. Instructors, inspectors and foremen must also be provided with a sound training, to enable them to implement training programmes and raise the efficiency of the labour force, thus increasing such facilities horizontally as well as vertically.

8/7 There might be need to implement ambitious plans to work out new training and specialization programmes, dictated by real requirements and technological development. All studies that were undertaken point at requirements for specialization in the following fields:

- spinning, weaving, dyeing, finishing and ready
  made clothing;
- electronics, measuring and monitoring instruments;
- computers and maintenance of computers, programming and handling of modern equipment;
- mechanical shoe-making;
- chemical production and fertilizer industry;
- mechanical maintenance and diezel machinery maintenance;
- mining industries and related maintenance;
- workshop equipment and all forms of welding.

The Department has therefore the intention to set up such projects whether through the setting up of new centres, or enlargments of existing centres in its next 5-year plan.

8/8 The Department also intends to develop its methods as well as its training equipment to keep pace with the requirements of modern evolution and better assimilate the new technologies. The Department is convinced of the importance of audio-visual means, and has set up a centre for the production of such aids, which calls for a technical and material support from all quarters participating in the training process.

8/9 We hope to be provided with local and foreign financing in order to implement our expected training plans, in particular as regards setting up new projects. Undoubtedly, local financing could enable us to overcome our present shortages, if we took into account the absolute cooperation of both public and private firms in sharing in training costs. As for

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foreign financing, it means further scholarships from foreign nations and organizations, or loans at low interest rates, in particular if we deal with investments in human resources.

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### TECHNOLOGY TRANSFERS AND MANAGEMENT TRAINING

#### BY IFAP-IRI

INSTITUTE FOR MANAGEMENT RESEARCH & DEVELOPMENT

#### ROME, ITALY

87/29

ORIGINAL: ENGLI,SH

# TECHNOLOGY TRANSFER AND MANAGEMENT TRAINING

This brief presentation will concentrate on the subject of technology transfer from the viewpoint of training. Since this is a partial viewpoint. It will only be possible to deal with some of the problems raised by the transfer of technology between countries at different level of industrial development.

We are convinced that the problems to be dealt with by training have and in the future will continue to have a central role to play in the establishment of more balanced relations between countries.

Let us try to answer a few questions such as:

- what needs does training seek to satisfy in the ambit of technology transfer?
- at which levels and with which measures are these needs tackled?
- what are the specific contents of training in a transfer operation?
- how are these contents linked to the various stages in a transfer operation?
- what are the conditions behind a successful training activity?

Our point of departure is a statement of fact: over the past few years it has become customary to distinguish between trade and the transfer of technology. In practical terms, however, it is difficult to apply such a distinction since the dividing line between trade in semifinished products, consumer goods, and services on one hand, and technology on the other hand is vague to say the least.

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Most certain, however, is the fact that world trade has witnessed a constant growth in the transfer of the technologies incorporated in plants and facilities when sold under "turnkey" conditions. No longer is this to be described as a "key in hand" operation. It is now a "product in hand" phenomenon marked by the transfer of an entire production process. This means that in addition to the machinery and equipment, also transferred is the technical and management expertise enabling the purchaser countries to make effective use of the "imported" plants.

This is the reason why the importing countries need qualified human resources on all levels (workers, and especially supervisors and managers) to run the new plants and ensure the maintenance necessary to achieve top performance levels.

Training assumes a strategic role since its task is to ensure knowledge acquisition. In effect, training is a shortcut in the sense of being the fastest way to acquire that "knowledge" and especially that "know-how" which constitute the basis of any modern production activity.

Training, however, is not only the fastest way to satisfy the knowledge requirement, but at the same time it is a very concrete structural necessity. Proof of this resides in the fact that the entire technological development process of the western world has been characterized down through history by the passage from simple to more complex forms of technology.

During the initial phase of development the production process as such was the essential source of technology. The key point in the industrialization process was the ease with which it was possible to train new specialists rapidly, and especially to do so by integrating traditional technical skill with new knowledge. In this sense, the diffusion of western technology in the past can be summarized as follows:

- advanced production process

- technological innovation

- diffusion through information

- adaptation of a backward production process

The normal circulation of information sufficed to ensure the adequate training of workers and technicians. Secondly, the simplicity of the technology meant that imitation, adaptation, and innovation were readily feasible.

Today the systematic recourse to science as the source of technological innovation has triggered a process of growing complexity in the technical-productive process which could be presented in the following summary form:

- science
- technological innovation
- training as a diffusion instrument
- production process
- management system

Therefore, information walone does not suffice for the use of a new technical instruments. What is required is a systematic learning process. Nowadays the principal method used in rendering readily feasible the diffusion of a new technology is to separate the equipment (hardware) from the command process (software) and to make sure that the more complex the equipment becomes, all the simpler is the command process.

On the other hand, increased machine complexity entails a high degree of specialization for maintenance personnel.

Present technology has increasingly assumed the features of a process divided into three phases; design, maintenance, and use. The transfer of technology between countries can concern one, two, or all three phases of the technological process.

The demand of the countries importing technology was first expressed in form of a need to acquire the skills inherent in the use of production processes, and immediately developed into a request for the skills required to design those plants and handle the necessary maintenance.

This request emerges out of the will on the part of the less industrialized countries to begin a process geared to create the cognitive conditions necessary to reinforce their own autonomy by learning how to design and develop new technologies or adapt imported ones to local needs. During this phase, therefore, training is expected not only to foster the use of the imported technology but also branch out in the direction of actual design.

However, an analysis of the way training has replied to the less advanced structural and socio-political needs shows how the tendency is ordinarily to stress two of the levels in the transfer demand: the acquisition of knowkedge and know-how.

There is a third level of demand which runs the risk of never being satisfied: the request on the part of the economically poorer countries to acquire the capabilities necessary to manage their own development. This requirement underlies the need to acquire the knowledge demanded for the definition of targets often different from the ones adopted by the industrialized western world as well as the need to have the human resources able to make use of that knowledge within their own social system.

Indipendently from the context in which it takes place and the related targets, training expedites its appointed task by advancing professional figures structured around:

- 1. a core of specialized knowledge;
- duties and tasks defined within the ambit of a production-oriented organization;
- 3. a role linked to the social division of labour specific to a given social system.

As a part of the transfer of technology, training inevitably diffuses knowledge and behavior patterns developed in a different economic and social context. Introduced into a new environment, however, this way of conceiving training collides with the lack of support in the form of institutions and professional groups.

Training is faced more with the problem of introducing individual and group behavior patterns than with the difficulty of transferring specialized knowledge.

Ordinarily, training takes place in two typical situations. In the first one it is part of a specific project and performs an integrative function, and in the second case it is distinct from any specific project and therefore constitutes technology transfer as such.

These various functions of training bring us to a selection process with four distinct stages:

- 1. increased awareness on the part of top managament;
- sectorial initiatives where the essential needs are adopted as selection guidelines and criteria;
- 3. project implementation where the selection of a specific production process entails the adaptation of the human resources involved in the project;
- 4. the choice of a management system and of a management "style".

During the awareness building stage, training can only make a direct contribution in the sense of generating discussion on the development methods traditionally adopted. Training here acts as a vehicle of diffusion.

Training has a more specific function in the stage relative to the choice of technologies in a given sector.

During the implementation of a given production process, training really comes to the forefront because it can act in helping to determine the organization formula and the tasks most suitable for the introduction of the project into the local environment.

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The choice of a management system is both the premise and the result with respect to the first three stages and represents the key behind the operational feasibility of the entire production, human, and economic system.

In the future, therefore, increased awareness of the importance of environmental factors should have an influence on training activities conducted in developing countries. In a progressive way, this should also make it possible to satisfy the increasingly frequent request advanced by the economically poorer countries to receive technologies, training, and instructors truly adapted to their local environments and not just delivered from on high as in the past.

Since the target is to transfer an organic professional figure to the context on the receiving end, the training activity has to be positioned with respect to three dimensions:

- the phase of technological choice in which the training takes place;
- 2. the type of technology transfer to be stressed;
- 3. the professional figure related to the production process transferred.

The stress must be placed on the concept of guided training as a multiple pathway and two way process of communication.

Also to be underscored is the need to ensure the continuity of training in time through some sort of training organization which can be either the training division of the company in which the transfer takes place or an external training organization (e.g. university or training institute) already operational or to be established.

By way of conclusion we would like to list a series of conditions which, in our opinion, consitute the fundamental premises behind the success of a training andeavor.

Firstly, we consider it essential for training to define its own strategy with respect to the dimensions of the intervention. The problem evidently arises in the area of training activities related to development. In any case, it will be necessary to train technicians and trainers, and it is therefore necessary to define the tasks to be assigned to foreign and to local trainers, specifying when and how responsibilities are to be transferred.

Secondly, the problem of replacement highlights the need to create a support structure able to provide the local

counterparts with the cognitive and operational tools necessary for professional growth and for keeping up to date.

Thirdly, the local trainers destined to take over from the foreign personnel must be inovolved in the definition of training programmes from the very outset.

We would aldo like to refer to some of the onganizational and apparently secondary motives which can give rise to contrasts within a training activity.

The first thing to do is make, sure thet training has a separate budget, a budget distinct from the global budget of the project to be trasferred.

This also applies to the training activity implementation schedule. In brief, the lack of clarity with respect to available resources and timing is a consequence of an inaccurate definition of the targets to be achieved through training. The yardsticks for the assessment of a specific training activity are not very tangible and easily become the source of controversies which often expand to the problem of control over training, especially when this interferes with the choice of those to be used in the project or touches upon aspects which are not specifically technical in nature.

Therefore, the trainers must define the targets, the schedule, and the necessary resources on the basis of an assessment, as accurate as possible, of the initial characteristics of those to be trained. In general terms, it is necessary for those in charge of training to draw up clear and exact 'terms of reference' equal in contractual terms to what is set down for the other sectors involved in the transfer.

THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

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Ind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) ---- 12/16 april 1987

IRI/REG.CONF.II/CAIRO 87/PL/18

#### Original : ENGLISH

#### PAPER PRESENTED BY

#### ·PROF. GIORGIO BRANCA

# PROF. GIORGIO BRANCA

Since you received material describing the his tory and the present role of ANCIFAP in the IRI Group, I will not take up your time by explaining what ANCIFAP is.

But I wish to draw your attention to two particularly interesting aspects of the relationship between IRI and ANCIFAP.

First the IRI Group has always devoted substantial efforts not only to the initial and the continuing training of management but also to the quality and the technical development of human resources in general.

This has always been and still is a strategic policy of the IRI Group.

In addition, the instrument<sup>S</sup> for implementing this policy are constantly reviewed and renewed. ANCIFAP, for ex ample, a year ago modified its legal make-up and renewed its operational structure.

The second aspect is the policy according to which ANCIFAP, which is a company within the IRI Group, may perform its services also for entities that are not part of the IRI Group, such as public authorities, comp<u>a</u> nies, training schools and centers, and foreign countries.

This policy was adopted for two reasons. First: to enrich ourselves with knowledge obtained from

experiences outside the IRI Group. Second: to transfer our wealth of expertise wherever it may be needed.

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The training methods that ANCIFAP has adopted reflect the new reality that must be taken into account, not only in Italy but also in all the countries of the world. Two aspects continually present themselves for consideration and result in new operating criteria. One concerns training methods. The other concerns identifying those professions for which there is a demand in the job market and which require training. This second aspect is most important for ANCIFAP since it is directly concerned with technical and professional training - not with management training in general.

This search for ever better adaptation to reality is important for both the basic and the traditional professions and also the new ones.

I will later say a few words about the significance which these efforts at renewal and adaptations to new realities have for the basic and traditional professions in the case of training accompanied by transfer of know-how.

Understanding the needs of the new professions -those of the future-is a delicate task that corresponds to a definite policy choice of ANCIFAP. One often speaks of professions "of the future" without realizing that in these are included those professions which already today are found to be needed. The policy of ANCIFAP is to attempt to analyze the needs of the future.

ANCIFAP also attempts to promote the growth of the training aspect in know-how transfer projects performed abroad by IRI Group companies.

This training aspect has a very precise purpose. It is well known that know-how transfer is a process that affects the future of the country to which it is directed and involves the country's human resources.

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The organizational aspects consequently should be joined by activities of selection and training that en able the human resources to control this entry of know-how.

The purpose of training in know-how transfer contexts is to adapt the know-how itself to the needs of every single country to which it is transferred. And in this process it is necessary to take into account the men who will manage the technological progress.

If one takes as an example a new industrial installation, there are both political and economic problems tied to the special needs that are behind a request for technical assistance. The project naturally is precise in its technical terms. It must be also precise in describing the tasks required for its implementation and in grouping these tasks in jobs that are compatible with the native culture and the motivations of the future employees.

The purpose is to train men so that in the future they will be the masters of the situation and feel secure about their role, their professional identities and their capability to manage the newly born plant.

This is why I pointed out the importance of the constant effort to refine training methods. This is a con sequence of ever changing realities, and it is true also with regard to training that is tied to know-how transfer.

Indeed, for this reason it is essential to unde<u>r</u> stand in its entirety the reality in which one will operate. And case by case it will be necessary to adapt our methods for achieving our purpose in the know-how transfer context.

In the installation of a new industrial plant, training - provided it is effectively utilized - may reduce to a few years an otherwise very lengthy process. Its purpose is to provide information and professional expertise capable of ensuring the complete mastery of an industrial process in as short a time as possible.

A factory under construction is a useful educational opportunity. It provides a natural synergy and inter action between training and industrial activity.

At times, however, newly industrializing countries may ask ANCIFAP for a variety of services concerning the acquisition of information and capabilities for the purpose of ensuring, over time, total mastery of an existing and functioning plant.

This requires facing the organizational, management and development aspects of the different functions of the venture: technical, plant maintenance and production.

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At the same time a training system will be needed to achieve not only mastery over the process but also high levels of production. Such a system should progressively address the different functions and expressions of the business venture - organizational, managerial and developmental.

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The system therefore will consist of a series of activities that go beyond training in the classical sense. This is because training is supplemented by a planning and consulting activity in the human resources field comparable to technical assistance.

In the know-how transfer process, professional training must take into account variables which, although not strictly technical in nature, are nonetheless influential in the choice of operational approaches. In the case of newly industrializing countries, to avoid the risk of failure of the entire initiative an even greater care must be devoted to respect for the local culture and its values. Technology, productivity and professionalism must appear in and coexist with a recently modified agricultural and pastoral environ ment with values tied to the land, family and religion.

The venture affected by know-how transfer involves all its personnel in a continuing dialectic between information and business activity.

As you can see from the materials distributed to you, ANCIFAP has benefitted from experiences especially

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concerned with know-how transfers and which have been characterized by the ideas and approaches I have mentioned.

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It is undeniable that an investment in human resources, and thus in training, is always without doubt an aid to introducing the transferred know-how into environments which are totally foreign and to preparing men to master and use the technology.

#### THE COUNTRIES OF MEDITERRANEAN AFRICA, AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

Ind<sup>9</sup>Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) -- 12/16 april 1987

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Original/English

### PLANT ENGINEERING

By Eng. Aly Fahmy El Sawah Chairman El Nasr Engineering & Refrigeration Co.

87/7 :

#### PLANT ENGINEERING

#### Factory layout

The layout of a factory, workshop or working area, means the position of departments or shops in the factory and of machines and storage facilities in the working area, including, if available, offices and related facilities.

#### Factory layout: Characteristics of different industries

It is sometimes desirable to know about movement of men and materials through the factory or working area during the manufacturing process or in the course of other activities. As the flow process chart does not give this information, a different type of chart, known as the flow diagram, has been developed. This is a scale diagram of the area, where activities are carried out, on which the location of the various areas and movement between them are indicated.

Improving factory layout is part of the job of the work-study man, but since changes of layout usually involve moving plant, equipment and even pipes and cables, he must work in close collaboration with the factory manager and plant engineer.

The extent to which the layout of the factory or working area is important, as regards productivity or activities undertaken, varies greatly from industry to industry. Equally variable is the extent to which it is possible to alter the layout once it has been established. These two factors must be kept in mind by all work-study men who study the flow of materials or the movements of workers about the plant.

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The importance of layout in various industries means that the importance of working out the best possible layout is directly proportional to the following:

# 1. The weight, size or mobility of the product

If the product is very heavy or difficult to handle, involving expensive equipment or is labour intensive, it is most important to move it as little as possible between operations.

Examples: Heavy castings in a locomotive diesel engine construction plant.

Conversely, if the product or its component are very small and light, so that hundreds or even thousands, perhaps, several days supplies, can be moved at one time, layout is comparatively unimportant.

Examples: Watch parts - radio valve parts.

#### 2. The complexity of the product

If the product consists of a very large number of parts, so that a great many people are likely to be moving them from shop to shop, or between operations in the same shop, especially in batches.

Examples: Aircraft manufacture Assembly of motor cars

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# 3, The lenght of the process time in relation to the handling time

If moving and handling are consuming time, any reduction in movement or handling of the product or its components will have a very marked effect on the productivity of the factory, especially if the product, though possibly light, is bulky, so that only a few units can be transported at a time.

Examples: Press work in metal industries Carton manufacture Wood working

Conversely, if the process time is very long, as in certain machining operations in heavy engineering, which may last for days, layout becomes less important.

#### 4. The extent to which the process lends itself to mass production

Mass production lends itself to high productivity because of the possibility of using high performance machines and in view of the volume of output from each unit. This will mean that a high percentage of labour will be transporting the output, unless the layout is good.

Examples: Canned food manufacture

Cotton spinning

Glass bottle making

#### Possibility of altering layout once established

The layout of manufacturing processes often depends to a great extent on technical considerations and can only be altered when

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a new plant is built. Examples are numerous in this regard: processes, such as fertiliser manufacture, heavy chemicals and the manufacture of synthetic fibres. In others, the machinery is very heavy and may be impossible to move once it has been installed. Drop hammers and heavy presses come into this group. It is usually difficult and time consuming to move textile machinery. On the other hand, most of the machines used in semi heavy industries, lathes, drills, milling machines and the like can be moved without too much trouble and expense. In several plants in the United States and in some in the United Kingdom, machine tools are not bolted down and are moved around at frequent intervals to form various production lines as new products go into production.

In light industries, such as clothing, radio assembly and paper bag making, changing the layout of shops is a relatively simple matter. Where changes in layout involve any considerable work however, the management and the factory engineers will have to be convinced that real savings will be realized before they will accept such changes

#### Some notes on factory layout

The layout of a factory should be such as to ensure that the flow of work is as easy as possible. In a single factory product it is simple to arrange the equipment so that operations follow each other in the manufacturing sequence, and the product goes from one process to another without having to cover again the same course. In ideal conditions raw materials come in at one end of the factory, move through it in a straight line and come out at the other end as a finished product ready for delivery.

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Ideal conditions are not often possible in real life. There is no harm in operations moving round the factory, provided they follow a fixed course, that the distance between each operation is kept as short as possible and that the manufacturing process moves steadily forward.

In factories where several products are manufactured or where the products are made up of many different part, a good layout is much more difficult, especially where batch quantities are small and there is no choice of processes. This situation is at its worst in the engineering industry. A decision may have to be taken between having "Process Layout" or "Product Layout".

A "Process Layout" is one in which all machines or processes of the same type are grouped together.

A "Product Layout" is one in which all machines or processes concerned in the manufacture of the same product or range of products are grouped together.

#### Principles of handling materials

A great deal of publicity has been given in recent years to the handling of materials, especially in Europe, as a result of visits made by several groups concerned with productivity to the United States. The subject is in fact extremely important since handling may take up as much of 85% of the total process time.

So much emphasis has been placed on it, sometimes as a result of advertising by manufacturers of handling equipments, who are naturally anxious to increase their sales, that it is coming to be thought of as a new technique, which is not the case.

Method study has always been very largely concerned with the handling of materials, and the principles involved are only those of motion study, originally developed for the worker at his workplace, and applied to the working area as a whole. Material handling is therefore a part of method study and cannot be dissociated therefrom. To attempt to deal with it separately is likely to be expensive, since equipment may be purchased wich may prove useless after method study has been applied to the purpose for which it was purchased. For instance, a student at one of the principal work-study schools in Great Britain, on returning to his firm at the end of his training, was able to eliminate 8 out 17 elevating fork trucks by the application of the method study? If method study had been applied before the fork trucks had been purchased a very heavy outlay of money would have been avoided, and the money saved could have been used more productively elsewhere.

Handling adds to the cost of manufacture but adds nothing to the value of the product.

The study of handling problems should always be carried out along orthodox method-study lines, using operations and flow process charts and flow diagrams, so as to ensure that the layout of the working area is as good as it can be, taking into account all circumstances, and that movement in any plane whether horizontal or vertical, since a change in layout will often alters not only the quantity, but the type of equipment needed.

#### I. What is time study?

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Time study is a technique for determining as accurately as possible from a limited number of observations the time necessary to carry out a given activity at a specific standard of performance.

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#### II. Time study equipment

In order to make time studies, certain equipment is essential. Basic time-study equipment consists of:

- A stopwatch
- A study board
- Pencils
- A slide rule
- Measuring instruments for distance and speed such as steel rule, tape measure, micrometer and tachometer (revolution counter).

#### III. Time study forms

In order to ensure that time studies are always made in a standard manner and that no essential data are omitted, it is usual to use pre-printed forms. This also saves having to rule up new sheets every time a study is made. These forms generally consist of:

- Time study sheet: The top sheet on which is recorded all essential informations relevant to the study as well as the first cycles of the study itself.

Continuation sheet: For further cycles

- Analysis sheet: For analysing the readings obtained and obtaining representative times for each element of the operation.

Summary sheet: For the compilation of the allowed time

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# IV. Selecting the job to be studied

As in method study, the first step in applying time study is to select the job to be studied. Generally speaking, there are few occasions when a work-study man can go into a factory or a department and select a job at random. There is nearly always a reason why a particular job requires attention, some possible reasons are:

- The job in question is a new one, not previously carried out (new product, component, operation or set of activities).
- 2. A change in method has been made and a new time standard is required.
- 3. A complaint has been received from a worker or workers' representative about the time allowed for an operation.
- 4. A particular operation appears to be a "bottleneck" holding up subsequent operations and possibly, through accumulation of work in processes behind it, requires a "production study".
- 5. A change has occured in management policy, such as the introduction of an incentive plan.
## THE COUNTRIES OF MEDITERRANEAN AFRICA AND ITALY: INTERDEPENDENCE AND COOPERATION FOR DEVELOPMENT

Ind Regional Conference for Participants in IRI - MAE International Technical Cooperation Programmes Cairo (Egypt) - 12/16 april 1987

> IRI/REG.CONF.II/CAIRO 87/PN/9 Original : ENGLISH

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ADDRESS BY BRUNO MUSSO

# CO-GENERAL MANAGER OF FINMECCANICA

# ADDRESS BY BRUNO MUSSO CO-GENERAL MANAGER OF FINMECCANICA

The actual title of this session requires some preli-1. minary observations.

In the course of this seminar IRI will be presenting a number of papers illustrating its plant engineering capabilities in various sectors such as telecommunications, transportation, energy and, in this session, industrial plant engineering.

Industrial plant engineering means essentially all the activities, taken as a whole, that are involved in creating systems for transforming raw materials and producing finished products.

The sectors in which these design and constructional capabilities have proved to be necessary from the very beginning are those where integrated production processes must be created: iron and steel, metallurgy, chemicals, the so-called basic industrial sectors.

Subsequently, under the impetus of motives that we shall examine later on, plant engineering assumed a role of increasing importance in sectors such as territorial infrastructures (harbours, motorways, hospitals, schools, public works, etc., manufacturing industries with discontinuous processes, services concerning the so-called advanced tertiary sector, the processing of agricultural produce and ecology.

2.

From what does this steady extension of the "plant engineering" approach derive?

Page 2.

In the basic industries the determining factor is an awareness that the methods and technologies used for transforming raw materials into partly finished products must be viewed as a whole. With the demand for higher productivity, with automation, with higher performance, safety and quality or equirements the plant engineering approach has been steadily expanding into industrial and service sectors in which individual companies had previously been able to decide independently on the size, the quality, the quantity and the machines and characteristics of the equipment to acquire and the works to be carried out. To set up plants of this kind today, however, the large number of sub-contractors involved must be coordinated and equipment that has to interface, frequently in a complex way, must be installed. In other words, what is needed is the systems or plant engineering approach.

- 3. Today an industrial plant engineer must command a wide range of skills, including:
  - the ability to integrate the functioning of different technologies and a variety of specialist contractors and sub-contractors;
  - a mastery of key process and product technologies;
  - organizational and entrepreneurial skills;
  - the ability to organize and manage complex financial packages.

In addition, two other skills have been assuming growing importance:

- firstly, the ability to work with local partners and optimize their contribution;
- secondly, the ability to transfer technologies and methodologies for both the construction and running of a plant.

Page 3.

4. The two major IRI Group enterprises in the industrial plant engineering sector as I have just defined it are Italimpianti and Ansaldo. The role, the capabilities and the experience of Italimpianti are described in the address by the Managing Director of that company; I shall therefore concentra-

te on describing the role of Ansaldo.

Apart from their both being members of the IRI Group, these two enterprises are also closely linked by the fact that Finmeccanica, Ansaldo's majority shareholder, is also an important minority shareholder of Italimpianti.

As you have already heard, Ansaldo is an important industrial enterprise with three large divisions: transport and industry. The first two are energy, the dealt with elsewhere, but some of concepts connected with them must be mentioned if we are to fully understand why and how the company also operates in the plant engineering field.

In common with other electrical engineering companies, Ansaldo's original province was the manufacture of what we might call "driving machinery", in other words motors, electrical equipment and systems for regulating and controlling complex industrial equipment such as rolling-mills, machinery for paper-mills, chemical plants and so on.

Clearly, this involves plant design and engineering technologies that are made available to other plant engineering firms as end users but that also require a growing knowledge of how to automize if they are to reach the requisite levels of efficiency.

Page 4.

The adoption of electronic technologies and the extension of the systems and plant engineering approach to other industrial sectors have given Ansaldo the opportunity to offer its services to a steadily-growing number of clients.

The experience it has acquired is one of the reasons why Ansaldo is today asked to cover a role that in the past was usually assigned to independent consultants. This reflects, amongst other things, the client's need to make the plant supplier more responsible not only for building it but also for operating it.

- 5. On the basis of its notable experience in realizing large-scale energy, transportation and industrial plants Ansaldo is able today to offer:
  - advanced technical and organizational capabilities and an articulated knowledge of continuous and discontinuous industrial processes;
  - specific expertise in assessing the environmental impact (ecological and socio-economic) of plants to be constructed;
  - the ability to aggregate local resources and the readiness to transfer all the technologies involved;
  - project financing, including the most advanced forms of shasing in the management of the enterprise (BOT);

the aggregation, on multinational bases, of various resources (technological, productive, engineering and financial).

Page 5.

6. Ansaldo's capabilities in this sector are mainly concentrated in a company created specially for this purpose, Ansaldo Sistemi Industriali. We shall come back to the capabilities and references of this company later. Side by side with this, however, there are other specialized structures including two operating units - CESEN and Transystem - that can provide support for governments, local authorities, national and international public agencies and industrialists in defining their requirements, evaluating alternative solutions, optimizing projects and organizing procurements.

A third operating unit that should also be remembered is Ansaldo Ricerche, the technical and scientific spearhead of the whole Ansaldo system, which is available for studying and finding solutions to particularly complex technical problems.

Another vital component of Ansaldo's plant engineering capabilities is the Group's manufacturing activities, which include the production of electronic power components, regulating systems, drives of all types, large equipment and electric motors. We are dealing with a group numbering some thousands of people, all highly qualified and with considerable international experience.

7. It may be useful on an occasion like this, when cooperation and development receive particular attention, to mention some aspects of the way Ansaldo approaches plant engineering problems.

Page 6.

- The first step is to make a careful assessment of the problems regarding the technological, economic and social development of the context in which a specific industrial plant is to be constructed. Particular attention is given to planning professional resources and to training the personnel who will take part in designing and building the plant and ensuring that it operates efficiently. In this first phase the most appropriate technologies are selected and the client's real requirements are individuated, apart from those specified in his initial request.
  - The second step is to arrange the financial package, in agreement with the international finance agencies, the client country and the Italian government, within the framework of those governmentto-government bi-lateral agreements that are indispensible for the project appraisal and the subsequent project financing package. This is a subject that is dealt with by other speakers, so we shall not go further into it here. Mention should be made, however, of the great importance and the efficacy of the work performed in recent years by the Department for Cooperation and Development of our Ministry for Foreign Affairs.

The third step is to analyze the technical and industrial capabilities of the client country so that the local component can play as great a role as possible and special programmes can be prepared for the transfer and, where possible, the joint development of new technologies.

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- These three steps form the basis on which a concrete proposal can be drauwn up.
- 8. To give some operative content to these notes I should like to mention some of the projects carried out by Ansaldo, with special attention to the countries that are represented today in this seminar. As you will see, for some of the plants mentioned Ansaldo worked in close collaboration with large international plant engineering companies with proven capabilities in the management of continuous industrial processes. The first of these is, of course, Italimpianti.

The list attached to this paper gives more details; for the moment I should like to point out that in recent years Ansaldo has executed the following orders:

- in the iron and steel industry: 500 electrical and automation systems;
  - in the harbour sector: more than 400 hoisting and container handling systems (nearly 60% abroad);

in the material handling sector : 13 complete coal handling systems;

electrical substations and electrical energy transmission and distribution systems: around 200 systems;

in the hydraulic sector: over 100 systems, including pumping stations, desalination plants, land reclamation, acqueducts and mini-hydro power plants.

Page 8.

Lastly, collaboration and assistance has been provided in non-energy sectors, mainly through CESEN, to various governments, including those of Ethiopia, Tanzania, Uganda, Peru and Jamaica.

9. Before concluding I think I should draw your attention to one particular field and one way of operating that in our opinion is destined to play a role of increasing importance in the future.

This is in fact a group of capabilities and operations that are grouped together under the general term "service", and includes maintaining, revamping, modernizing and increasing the capacity of existing industrial plants.

Recourse to this approach, which is to be considered complementary to the creation of new plants, enables a company or a country to raise its productive capacity or to improve its efficiency while allowing it at the same time to spread its financial resources over a number of projects and, therefore, over a number of sectors.

From the supplier's point of view the provision of such a service entails great flexibility and wide experience. At times he must put his hands on plants built many years before by other companies using technologies and in market situations that have since undergone profound transformations.

And it is precisely because of these inherent peculiarities that service may well serve as the acid test

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for verifying just how willing a supplier and a client really are to collaborate actively with one another.

10. These brief notes naturally make no claim to deal exhaustively with such a complex subject; they are only a starting point for an exchange of ideas in which three different elements may be combined:

 the direct knowledge that many of these here today possess of the present state of Italian industry, of IRI and, in this specific case, cf Ansaldo and Italimpianti;

- the knowledge each one possesses of his or her own countries and industries and the experience gained through collaborating with our and other groups;

 our will and our readiness to multiply examples of positive collaboration and to try out new and innovative ones.

It is the wish of all of us that such an exchange of ideas, taking place within the framework of open and friendly international relations and dominated by a common desire for economic and social progress, may lead to further fruitful cooperation. This would be the best demonstration of the success of this important initiative by IRI and our Ministry of Foreign Affairs.

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ANNEX

### REFERENCES ON MAIN INDUSTRIAL SYSTEMS AND PLANTS

#### IRON AND STEEL INDUSTRY

In the last years ANSALDO has realized more than 500 electrical and automation systems all over the world. In the last 3 years:

- N. Italsider Bagnoli (2 for slabs) - """ Taranto (2 for slabs) - Cogea Cornigliano (2 for billets and blooms) - Dalmine Siderca -Argentina (1 for rods)

- Continuous hot strip mills - N. Italsider Bagnoli (56", 6 stands) - Terni (66", 7 stands)

- Tube mills

- Dalmine Siderca - Argentina ( 24500KW aggregate rating for drives) - Volzskj - URSS (39300KW aggregate rating for drives)

- <u>Processing lines</u> C.R.M.I. Indonesia ( 9 lines) SYSTEM FOR HARBOURS AND CONTAINER HANDLING

ANSALDO has supplied systems all over the world, with more than 400 hoisting equipment of which:

20%	instailed	in Latin Ame	rica
13%	11	in Africa	
10%	14	in Europe	
9%	18	in USA and A	SIA
43%	\$1	in Italy	

The main orders of the last 3 years are:

- CAP Genoa : Container handling system with 4 rubber tyred stocking yard gantry cranes

- CAP Genoa: Calata Sanità Container handling systems with 3 unloaders, 6 stocking yard gantry cranes on rails, 1 rubber tyred

-2-

#### atocking yard gantry crane.

- STE-FA ENERJI Turkey : 13 Jib harbour cranes

- FINCANTIERI Sestri P. e Castellamare di Stabia: 5 x 200 ton. jib harbour cranes;

## COAL AND MATERIAL HANDLING SYSTEMS

13 complete systems realized. In the last 3 years:

- -P.W.D.- Port Kemble (Australia) System for coal with 3 stocker and 2 shipboarders machines
- NISIC Esfahan (Iran): System for raw material with 3 stocker-reclaimers on 3 stockers machines.

- HIPDC- China: 2 coal handling systems for Nantong and Shang-an power stations.

## SUBSTATIONS AND BLECTRIC ENERGY TRANSMISSION AND DISTRIBUTION OFF-SHORE AND DIVERSIFIED SYSTEMS

About 200 systems carried out. In the last 3 years:

- N.C.P.E - California (USA) - Middletown 230/13.8KV substation -E.G.A.T. Bangkok (Thailand)- Chiew-Larn 230/115/33Kv substation

- S.C.O.P. Baghdad (Irak)-Zubair 2x 132/11Kv substations

METALLURGIMPORT- URSS-Volzski- 220/33KV substation

- ANSALDO GENOA - Electric and security systems for data processing center

- ENEL Rome - SACOI High Voltage Direct Current (HVDC) electric trasmission systems, between the mainland and Sardinia (200 KV DC, 300 MW)

- MICOPERI OFFSE Milan - Automation, propulsion, dynamic positioning and electric systems for M-7000 semi-submergible crane-ship

- SAIPEM Milan- sutomation, propulsion and electric system for SCARABEO V semi-submergible rig.

- MINISTRY OF EL CTRICITY AND WATER - Kiwait Doha desalination plant

- DALMINE SIDERC: Argentina - 60MVAR-334V static var control for steel-works

-CHINA WATER ELE TRICITY China - Zhuzhon 120MVAR- 20KV static VAR control for voltage-support

- METALLURGIMPOR - URSS - Volzskj 160 M/AR 33KV Static VAR control for steel-works

- GOVERNMENT OF GANDA- Fishing gathering, processing and distribution centers.

## PUMPING STATIONS - LAND RECLANATION PLANTS - DRY DOCKE WATER TREATMEN : PLANTS, WATER SUPPLY PLANTS, NINI-HYDRO POWER PLANTS

Over 100 systems realized.

- Rehabilitation for 80 pumping stations in Jamaica.

- S.O.W.S. Baghdei (Iraq) 270 cu.m/h treatment plant for Kirkuk water supply scheme

--NATIONAL WATER COMMISSION Jamaica -Spenish Town and Guy's Hill water treatment plant

- Lionel Town, Alexandria Cave Valley, Mocho, Pembroke Hall, Yallash Diversion water supply plants.

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- ICEL - Colombia Modoa, Altaquer, Yopal, Tame mini-hydro power plants.

-PCJ- Jamaica - YS River mini-hydro power plant

-ELECTROPERU Peru : 5 mini-hydro power plants and Machu Picchu Quillabamba transmissionline

## STRATEGIC PLANNING AND DEMONSTRATION PLANTS

In the field of Strategic Planning ANSALDO has realized through CESEN, the following main activities and plants in the last 3 years:

- GOVERNMENT OF ETHIOPIA: Integrated multisectorial project and MITO photovoltaic power plant Transmission line and substations (GIE)

- GOVERNMENT OF TANZANIA-Implementation of an irrigation project for agricultural development

-ELECTROPERU- Peru -Charcoal degasification power plants

-GOVERNMENT OF JAMAICA-Photovoltaic deselination plant.

The overall activity in program (1987) is totalling more than 700 MUS\$.