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Leather Products Industry Panel

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UNIDO TECHNICAL ASSISTANCE ACTIVITIES IN THE FIELD OF
LEATHER AND LEATHER PRODUCTS AS AT END DECEMBER 1990*

Prepared by
the UNIDO Secretariat

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INTRODUCTION

The latest report of UNIDO's previous technical assistance activities was presented at the 9th Leather Panel meeting in Pecs, Hungary, 24-27 October 1988. At that time it was reported that the implementation for 1988 would reach about US\$2.9 million. It was also reported that during 1988 the IO/T/AGRO, Leather Unit had been 1988 very actively working on to develop the large-scale Regional Africa Hides and Skins, Leather and Leather Products Improvement Scheme for East and West Africa. Today we are pleased to confirm that the East Africa programme, financed by six donor countries, began operating in mid-1989. The West Africa scheme had to be shelved because, at present, there is a lack of financing. However, some activities are taking place in this region with French financial assistance. This programme has been the main contributor to the large increase in the Leather Unit's technical assistance. However, increased activities in the environmental sector have also, to great extent, contributed to this increase. As you will learn from the detailed project reports, activities in modern technology through CAD/CAM applications also continues to be an important factor in this increase. As a result of the above activities, the Leather Unit's implementation has increased as follows (more detailed information is presented in Annex 1):

1988	US\$3,200,000
1989	5,580,000
1990	7,840,000
1991	6,000,000 (forecast)

For further information, we have also included our five year forecast.

The project proposed during the 9th Leather Panel on foot measurement has not materialized. After further investigation of the matter, no support has been received for carrying out this survey.

Progress in software development for computerized costing and calculation in the footwear, leather goods and in the tanning sectors has continued. The scheduled computerized maintenance system has been prepared and will be installed in Ethiopia shortly. We are facing some delays in the introduction of a modus operandi to distribute this software on a payment basis.

An interesting development is taking place in the assistance to private factories within the regional East Africa rehabilitation scheme. Assistance in rehabilitating factories has been provided against payment in local, non-convertible currencies and these funds have been deposited in trust funds to be utilized for hides and skins improvement activities.

As requests received through various UNDP field offices for future UNIDO technical assistance activities should be implemented by adopting the programme approach, the leather, footwear, leather and rubber products sector field work is expected to continue to concentrate on the programme approach for activities addressing problems of the entire sub-sector. This means that Project Formulation Framework documents have to reflect the overall development of the leather and leather products industry sub-sector of a given country or (sub) region in its entirety. They should also identify links between UNIDO/UNDP and Government executed technical assistance activities - including international, bilateral and local intervention. As requested by several countries, large

scale programmes are being prepared and work on the Regional Africa Hides and Skins, Leather and Leather Products Improvement Scheme is expected to expand, in response to requests received from several African countries. The programme approach for a project within the leather sector starts with the hides and skins improvement process and ends with the marketing of finished products, thereby covering the whole chain of sub-sectoral activities. Human resources development and support to R&D establishments in several regions also continued to be a significant component of our activities.

Preparatory phases of several large scale environmental projects are being completed. They are expected to lead to large scale programmes within this sub-sector. These programmes not only deal with effluent treatment of tannery waste, but also aim to mitigate effluent through the application of clean technology.

The findings and recommendations of the Expert Group Meeting on tannery effluent problems and particularly on the new programme designed for South East Asia - which took place prior to the Leather Panel meeting - will be presented. The preparatory phase of this programme was presented to the 9th Leather Panel and we hope that the 10th Leather Panel can - after carefully examining this important programme - provide recommendations for its execution.

An overview of on-going and pipeline UNIDO projects is attached to this report as Annex 2.

Presently the main problem facing the Leather Unit's work is that the large programme - due to financial constraints at UNIDO Headquarters - must be administered and managed with very limited resources. In order not to reduce the quality of the projects, we are forced to reduce our ambitious goals and the growth of the programme must be reduced to a more manageable level. This is regrettable, as our pipeline programme is very large and several countries have requested large-scale integrated programmes and it seems that funding, from various sources, could be made available.

The following is a project-by-project account of the UNIDO Leather Unit's technical assistance activities:

AFRICA

1. BURUNDI

SI/BDI/86/906 and
UC/BDI/87/011

Assistance in Operating the Tannery Effluent
Treatment Plant at Bujumbura
US\$56,862

As a part of this project a revised design of the effluent treatment plant for the medium-size tannery, which discharges effluents into the municipal sewage system and ultimately into the lake, was prepared. Essential equipment has been procured and installed and local personnel trained to operate it. The necessary laboratory equipment to control the performance of the plant was also provided. However, due to various constraints, apparently there are frequent interruptions in tannery operations which affect the efficiency of the treatment plant.

2. BURKINA FASO

XA/BKF/89/610 Assistance a la Societe Burkinabe de Manufacture de Cuir (SBMC)
US\$97,050

Originally, this project was designed to address two main issues: the lack of local skills in leather finishing and the treatment of tannery wastes. Comprehensive training in finishing and machinery maintenance was provided abroad and a detailed design of the effluent treatment plant was prepared. However, owing to some administrative constraints, it was not possible to procure the necessary equipment. On the other hand, direct support by an experienced consultant was provided to the leather goods ("pyrogravure") department in styling and in streamlining the production process, costing, etc. Two trainees were also sent for hands-on training to a company in Tunisia, which is managed by the French.

3. ETHIOPIA

SI/ETH/89/801 Assistance in the Installation of Effluent Treatment Plants
US\$64,500

The project was completed in May 1990. Its purpose was to scrutinize and, if needed, revise the existing design (construction work in particular) and subsequently assist in the simultaneous installation of equipment and start running tests in the two effluent treatment plants at the Modjo and Combolcha tanneries. After visiting the two tanneries and collecting all the relevant data on production, effluents, the purchased equipment and the proposed plants, the subcontractor proposed very sound technical solutions to simplify the

original design and developed an entirely new construction method for various tanks and basins for the effluent treatment plants. However, it was not possible to actually setup and start the plants.

4. KENYA

US/KEN/84/163 Leather Development Centre (LDC)
US\$922,895

Under Phase I of this project, a modern, fully equipped and staffed leather quality control laboratory with a small pilot plant to produce hides and skins up to the wet-blue stage was established. The second phase has provided the Kenyan leather industry with a complete, well-equipped tanning and finishing pilot plant for demonstration, product development and training purposes as well as a common facility centre. A small tannery effluent treatment unit, mainly used for demonstrations and training, has also been installed. A computer data base for the leather sector - including the necessary hardware and software - is operational.

The LDC, located at the Kenya Industrial Research and Development Institute (KIRDI) is now the headquarters for the large-scale, regional project in Africa.

The project was financed by the German Government through the Special Purpose Contribution to the UNIDO Industrial Development Fund.

5. MALAWI

DP/MLW/88/029 Liwonde Tannery Project
US\$914,018

As the result of a distinct request by the Government and the UNDP office in Malawi, a medium-scale, mechanized tannery is being set up in Liwonde. A major portion of the machines and equipment - including equipment for the primary effluent treatment system - has been delivered, installed and commissioned; a comprehensive training programme almost completed and test production started. Apart from some problems with infrastructure (steam), which may be resolved soon, there are no major problems. As anticipated, the company is experiencing serious difficulties procuring raw materials and chemicals.

6. MOZAMBIQUE

US/MOZ/86/276 Assistance in the Establishment of a Tannery in Tete
US\$891,350

Under this project a small-scale, semi-mechanized tannery for bovine hides and goat skins, most of them originating from the local slaughterhouse, is being established in the capital of the Tete province with a private entrepreneur as a direct counterpart. Despite extremely difficult conditions - mainly due to security risks - progress is very satisfactory. All tanning machines have been delivered, installed and commissioned; chemicals required for initial production ordered; a full (i.e. primary and biological) effluent treatment plant constructed; the equipment delivered and ready to be installed. The very first

production tests were carried out in December 1990. All the equipment required for the small shoe workshop has been delivered and will be installed as soon as the construction work on the new building is completed.

The project is funded by the Danish Government (DANIDA) through the Special Purpose Contribution to the UNIDO Industrial Development Fund.

7. NIGERIA

DP/NIR/87/022 Assistance to the Leather Research Institute of Nigeria (LERIN)
US\$686,650

The objective of this project is to strengthen the existing capacities, and the technological and research capabilities of LERIN by providing it with a fully upgraded leather technology section; an upgraded, enhanced operational footwear and leather goods design section; a well-functioning laboratory; and an appropriately equipped information and library section. A semi-industrial scale effluent treatment unit is also to be installed.

Training personnel is one of the most important components of the project.

To date, most of the equipment, except that for the effluent treatment plant, has been procured. Regrettably, due to serious delays in the delivery of local inputs (the pilot plant building in Kano is not ready yet), it is not operational. Attempts are being made to resolve this situation as soon as possible.

In the meantime, the fellowship programme abroad has started and international experts are providing whatever services are possible at this stage (computer expert, shoe and leather goods designer, etc.).

8. REGIONAL AFRICA

US/RAF/89/070 Assistance a l'industrie du cuir
US\$150,000

Due to the fact that attempts to secure funds for a large scale programme in selected French speaking countries in Africa (very similar to the project being implemented in English speaking countries) were not successful, this project was originally planned as a "bridging activity", i.e. to ensure that a certain level of activities - primarily in hides and skins improvement - is maintained. A very thorough diagnosis of all industrial tanneries in eight countries (Burundi, Burkina Faso, Cameroon, Mali, Niger, Rwanda and Senegal) has been carried out. Training in flaying and leather processing up to the wet blue stage was also provided in France.

At present the possibility of implementing a follow-up project (Phase II) is being considered.

US/RAF/88/100
REGIONAL AFRICA HIDES AND SKINS, LEATHER AND LEATHER PRODUCTS
IMPROVEMENT SCHEME
and
ASSOCIATED PROJECTS
US/ETH/88/100, US/KEN/88/100, US/MLW/88/100, US/SOM/88/100
US/SUD/88/100, US/ZAM/88/100, US/ZIM/88/100

GENERAL

The large-scale Regional Africa Hides and Skins, Leather and Leather Products Improvement Scheme, US/RAF/88/100 is the largest IDF programme and incorporates several new elements in the so-called "programme approach". The programme is a joint effort of three agencies, namely UNIDO, FAO and ITC. It has been structured to consist of one umbrella project (containing the regional aspects, the central management of the associated project and the international personnel) and eight associated country projects (containing the individual national needs, inputs and personnel).

(a) Development Objectives: The development objective is to contribute to the improvement of the region's and the participating countries' economy, create new employment opportunities, improve export performance, increase the income of primary producers, and provide the international leather and leather products market with additional semi-processed raw materials and finished products.

(b) Immediate Objectives: i) to establish a regional pilot scheme and to demonstrate, in practical terms, the process of hides and skins improvement from butchering and flaying to conservation, grading and collection; ii) to act as a catalyst to national authorities to introduce incentives for improved quality performance; iii) to rehabilitate existing infrastructures and selected leather tanning and processing plants by increasing their efficiency and capacity utilization, upgrading technical standards, operational methods and skills, product quality and marketing performance, as well as knowledge of those attached to these industries at various levels, starting from primary producers.

IMPLEMENTATION

(a) Financial: UNIDO is the executing agency and provides the total funding through IDF special purpose contributions. The financing of the \$4,261,000 input for the umbrella project US/RAF/88/100 is shared by five donors, namely, Austria, the Federal Republic of Germany, France, Italy and Switzerland.

The following projects were financially approved in March 1989: US/RAF/88/100, US/ETH/88/100, US/KEN/88/100, US/SOM/88/100 (partly), US/SUD/88/100, US/URT/88/100, and US/ZIM/88/100 which is funded by the Netherlands. US/ZAM/88/100 received financing from Switzerland in May 1989. US/MLW/88/100 was financially approved by the Federal Republic of Germany in December 1989.

Implementation, from a financial point of view, is as follows:

Project No.	TOTAL BUDGET	1989 EXPEND.	1990 PRASING	END NOV. EXP.	% IMP.
US/RAF/88/100	4,261,000	727,656	1,813,630	1,512,335	53
US/RAF/88/102	3 982,301	1,012,771	2,072,093	1,937,695	74
US/ETH/88/100	922,480	542,172	253,806	236,621	84
US/KEN/88/100	443,800	56,315	322,484	101,769	36
US/MLW/88/100	476,000	---	303,000	245,636	52
US/SOM/88/100	249,325	34,703	214,623	102,395	55
US/SUD/88/100	355,600	36,105	217,395	101,532	39
US/URT/88/100	605,400	164,305	283,094	124,787	48
US/ZAM/88/100	568,000	47,220	393,400	165,893	67
US/ZIM/88/100	278,000	88,203	105,107	66,941	56
Total	12,141,906	2,709,450	5,978,632	4,595,604	60

All the above figures exclude 13% support cost

(b) Substantive: The programme is well under way and, from the implementation point of view, performing efficiently. Over 80 per cent implementation for this year by end November 1990 is good by any standards and it must be remembered that the programme includes several countries under most difficult political and economic conditions and where UN operations are practically at a standstill. Also, the quality of the services delivered in most cases much above average and highly appreciated by the recipients.

An in-depth evaluation of the programme is scheduled to take place in April 1991 with participation of donor countries' representatives. The terms of reference have been prepared accordingly and will be distributed shortly.

Several requests from other (mainly PTA) African countries to join the programme have been received and the TPR recommended that project proposals be prepared for two additional countries - Uganda and Namibia - and, if approved by the UNIDO Project Review Committee, presented for financial consideration to a suitable donor country.

US/ETH/88/100

This Swiss financed project has run very smoothly and the results obtained - judged by the Ethiopian recipient factories and the NLSC - are very good. The rehabilitation of the Anbessa shoe factory and the Awash tannery are the main achievements.

The respectable results gained by the project are, to a great extent, due to the Ethiopian counterpart's efficient work and the fact that the NLSC had prepared a very clear concept as to how the assistance should be applied.

The project's TPR meeting was held in January 1991 and additional assistance needs have been identified. It should be noted that the Ethiopian project is the largest of the associated national projects and shows implementation of 84% by end November 1990.

US/KEN/88/100

The Italian financed Kenya project, although housing the regional office, has experienced some delays in implementation. The project document was formally signed about one year later than those of the other projects and the implementation committee (instead of the national expert as in other countries) seems to be a source of further delays. It has not been possible to identify a suitable medium-scale shoe factory for rehabilitation, but on the tannery side work has proceeded according to plan. The hides and skins improvement activities are progressing well and results are forthcoming.

US/MLW/88/100

The Malawi project, financed by Germany, started somewhat later than the other associated national projects. The initial efforts are concentrating on providing support to the project DP/MLW/88/029 and the establishment of the Liwonde Tannery. The TPR meeting for both projects is scheduled for the end of January 1991.

A leather goods training centre is intended to be started within this project and the initial efforts of the Women Development Expert are expected to concentrate on this activity.

The hides and skins improvement activities have started and the international and the national expert are active in this area.

US/SOM/88/100

Due to the unfortunate political situation, the project is presently at a standstill. At the TPR meeting it was agreed that the Leather Sector needs complete restructuring and it has been planned that the Director of Industry of Somalia should visit UNIDO as soon as possible to work out, together with an international drafting group, a new integrated project approach with inputs from UNIDO, EEC and the World Bank. A telex request from Somalia has been received to organize this activity.

US/SUD/88/100

The situation of the leather industry in the Sudan is presently in a difficult situation and state-owned tanneries are being offered for sale or for joint venture objects. It is, therefore, not possible to provide any direct assistance to the tanneries before the situation is cleared.

Most of the activities carried out in the Sudan are in the hides and skins improvement sector. Good results have been achieved at the target area in Kassala in the assistance to a slaughterhouse and starting new collection points. The feedback from the tanneries is very positive and the hides and skins are improved and bringing higher prices.

US/URT/88/100

The leather sector in Tanzania is in a similar situation as in the Sudan. Para-statal factories are being offered for sale or for joint venture partnerships. Therefore, no direct assistance is presently possible.

The activities in the hides and skins improvement area, Shinyanga, are working out very well and many improvements have been achieved.

Assistance is also being provided to a private tannery in effluent treatment and in improvement of production capacity. This tannery is paying for the assistance in local currency. Agreements to formalize these payments are under way. The funds thus created are to be used for further hides and skins improvement.

US/ZAM/88/100

The Zambia national project is funded through the Swiss Government and it started its operations very efficiently in hides and skins improvement activities. Assistance is also being provided to the Bata Zambia and the project is furnishing machinery and equipment for the rehabilitation of the tannery's finishing plant. The equipment is financed under US/RAF/88/102 against payment in local currency to be used for further hides and skins improvement activities.

The rehabilitation of the skin tannery, as originally proposed, has been canceled because of a change in circumstances. It is intended that these funds be used for Bata spares and the rehabilitation of a small, local shoe factory. These activities are also under the pay back scheme in local currency to the revolving fund.

US/ZIM/88/100

The Zimbabwe project is providing assistance through the Leather Institute of Zimbabwe (LIZ). This project, financed by the Netherlands, is obtaining very good results. The design of the Zimbabwe national project is rather small when compared to some of the other national projects. Zimbabwe has, however, been one of the main beneficiaries of the rehabilitation project and - as far as we can judge - this assistance is presently being utilized efficiently. Initially, great difficulties were faced because of delays of shipment clearances. This seems to have been the result of the land locked position of the country and non-existing UN infrastructure in the South African ports.

US/RAF/88/102

REGIONAL TANNERY REHABILITATION SCHEME

GENERAL

This complementary project was added to the East Africa Programme during programme negotiations with the Italian authorities and is mainly composed of the equipment component for the physical upgrading and rehabilitation of production units.

(a) Immediate Objectives: The project's immediate objective is to rehabilitate selected leather tanning and processing plants by increasing their efficiency and capacity utilization, upgrading technical standards, operational methods and skills, product quality and marketing performance, as well as the knowledge of those attached to these industries at various levels.

(b) Substantive: The first preliminary studies have been concluded. The machinery for the 1989 portion has been purchased and in many cases delivered. Additional studies to select further rehabilitation objects were conducted in early 1990 and their results have been evaluated. Requisitions for the purchase of machinery for selected factories have been prepared and the purchasing action for the 1990 portion was completed in September 1990 during the Semaine du Cuir.

Especially at the Awash Tannery in Ethiopia, where the rehabilitation process is practically completed, exceptional results have been obtained. The plant is now able to produce all its materials in crust (production presently 10,000 skins and 1,000 hides per day). The quality is vastly improved and the crust produced has received most favourable comments from the customers.

Agreement for assistance to the private industry under US/RAF/88/102

Under the tannery rehabilitation project, financed through an Italian special purpose contribution to IDF, assistance is also given to selected private companies. It has been agreed in principle between the government authorities concerned, UNDP and the project management that such assistance can be provided if these companies pay the value of the machinery concerned in local currency to a fund or a suitable non-profit organization which will use these funds for further work in hides and skins improvement and/or similar activities in the interest of the country's leather and allied industry sector.

In the case of Zimbabwe, the assistance is being provided to the Belmont, Eagle and Imponente tanneries and it has been agreed that these tanneries will pay the cost of transport and that the value of the machinery will be paid in Zimbabwe dollars to the Leather Institute of Zimbabwe (LIZ). The payment terms are ten equal payments within a period of ten years.

At the end of the project, UNIDO will transfer the title of the machinery to LIZ which will make an agreement with the tanneries that they are authorized to continue to use the equipment. After full payment, LIZ will transfer the title to the tanneries. LIZ is a non-profit organization founded by the leather and leather products industry of Zimbabwe and has been operating successful extension service, training and development activities for about ten years.

The special fund, thus created, is to be used for further hides and skins improvement activities in Zimbabwe. Such activities may include organization of hides and skins improvement seminars, starting up new collection points, purchase of improved flaying tools and equipment, as well as remuneration of international and local experts on special short-term improvement activities. The fund is to be under the joint control of the director of LIZ, the president of the Tanners Association, and the Permanent Secretary of the Ministry of Industry.

A similar approach is being pursued in the other countries and is under active negotiation in Kenya, Tanzania and Zambia.

It is believed that the creation of this type of revolving fund for hides and skins improvement will multiply the effects of the programme.

ARAB STATES

9. EGYPT

SI/EGY/90/802 Assistance to El Nasr Tannery
US\$39,700

The objective of this project is to assist the El Nasr Tanning Company to improve the quality of finished upper leathers based on domestic cow and buffalo calf hides and skins - primarily of full grain aniline and semi-aniline type.

The first consultant, a specialist in leather finishing, has completed his assignment. During this assignment a wide range of fashion leathers was developed, some to be introduced into regular production shortly. Another consultant should help in up-grading the technical level of the wet departments.

US/EGY/88/044 Upgrading of Technical Capabilities of Selected Shoe Factories
US\$406,800

The project is based on the findings and recommendations of US/EGY/87/084 "Survey of Selected Shoe Factories", which was conducted jointly by a UNIDO staff member and a Swiss shoe industry expert.

The project furnished the assistance through two UNIDO experts and a renowned footwear manufacturer, Bally International, as sub-contractor. The progress of the project was closely monitored by regular visits of the UNIDO technical backstopping officer.

Because of the limited funds on hand, only one shoe factory could be considered for the upgrading process to produce export footwear. The Abbouda Shoe Factory had the most potential for quickly assimilating the direct assistance in its men's footwear production and was therefore selected. However, benefits were also obtained by four other Egyptian shoe factories through a study tour made by their representatives to learn about the operations at the Bally factory. Furthermore, the whole sector profits from the improvement in the tanneries and a better retailing concept.

As a follow-up to a seminar and at the request of the Egyptian Government, the last activity of the project was a mission of the UNIDO backstopping officer and a representative of the sub-contractor to Cairo and Alexandria to look into the possibilities of providing, inter alia, the same type of technical assistance to a ladies' shoe factory.

The Abbouda factory is now capable of producing high quality men's footwear, and the export orders and great interest shown by several buyers confirm that the project has succeeded in upgrading the product quality of an Egyptian shoe factory to a level where the shoes can be called "exportable to any destination".

It is felt that the project's success is to a large part attributable to the keen engagement of the recipient factory to learn and absorb the new technology, and to the excellent co-operation between the Egyptian partner, the sub-contractor and the UNIDO specialists.

The success and recognition of the project can be measured on the fact that the Egyptian Government has requested assistance in upgrading a ladies' shoe factory on the same pattern.

The project is operationally completed.

10. TUNISIA

SI/TUN/90/801 Assistance to the Centre National du Cuir et de la Chaussure (CNCC) in Treatment of Tannery Effluents
US\$84,500

The expanding tanning industry in Tunisia has major difficulties coping with the ensuing environmental problems, whereby the Government has taken serious steps to enforce environmental legislation which includes the tanning industry. The CNCC, which has been entrusted with the task of assisting the industry in solving this problem, does not have sufficient practical experience to tackle the situation and therefore urgently needs advice and guidance to find a way to provide the assistance required. If an urgent solution is not found, several of the tanneries will probably have to be closed down. As a consequence, the purpose of the project is to assist the Tunisian leather and allied industry sector and the Centre National du Cuir et de la Chaussure in drafting a plan of action for solving the effluent treatment problems in the tanning industry. Establishment of a small pilot effluent treatment unit and a pollution control laboratory at CNCC is also envisaged. The implementation of the project will start shortly.

ASIA AND THE PACIFIC

11. CHINA

SI/CPR/90/801 Assistance to Shanghai Leather Corporation in Effluent Treatment
US\$24,500

There are eight tanneries under the Shanghai Leather Corporation, of which six are located in the city proper. These tanneries are housed in old buildings with a restricted working area and limited facilities for the treatment of effluents. After primary treatment, the effluents - resulting from the degreasing process, unhairing and liming, chrome tanning and vegetable tanning - are discharged directly into the sewerage system of the city.

Therefore, the objective of the project is to assist in containing pollution emanating from the tanning operations in the city of Shanghai. More specifically, the purpose is to assess the present situation concerning the effluent treatment plant being erected in the Da Chang Tannery Complex, check on the technology proposed to be used in the new tanneries and to advise and

assist the Shanghai Leather Corporation in modifying the plant so that local effluent treatment standards can be met.

A high-level consultant was fielded in December 1990 to appraise the situation at the site, suggest some modifications and improvements, as applicable and prepare a specification for monitoring equipment. The consultant in low waste technology will be recruited shortly.

US/CFR/85/130 Assistance to the Leather Technology Centre
US\$933,747

The purpose of this project was to develop the Leather Technology Centre established within the Shanghai Leather Corporation into a centre capable of fulfilling the important role in the planned regional network of leather and leather products centres in the South-East Asia and Pacific region. The Centre will be capable of offering and carrying out services in the following areas:

- systematization and supply of information concerned with fashion, design, marketing, R+D, manufacturing methods, plant organization and management, work studies, problems of environmental protection, application of micro-electronics, economic aspects and trends of development in the leather, footwear, leather goods, gloves, leather garments and sports goods industries;
- training of managers, supervisors, instructors and technical staff (e.g. time study engineers, quality controllers);
- quality control (extended laboratory experiments, sample checks, assessment of product or material quality) and elaboration of guidelines and standards for quality control and for contracting the supply of leather and leather products (including substitutes);
- applied R+D assignments focussed on specific problems related to the uniqueness of raw materials available, working conditions and the techno-economic infrastructure of the region;
- extension services to companies and/or governments upon request through contractual agreements.

The project is operationally completed and the terminal report has been prepared. The project is, however, still active in the preparation of the third issue of the magazine "Progress" to be published this year. The terminal tripartite review report stated that the project has reached its immediate objectives.

12. INDIA

DP/IND/84/009 Process-cum-Product Development Centre for Sports Goods, Meerut
(U.P.)
US\$373,177

Under this project, a Centre was set up with the task of up-grading present technology, training of entrepreneurs, technicians and foremen, disseminating

technical and commercial information, development of prototypes and offering common facilities and laboratory testing services mainly to the medium- and small-scale manufacturers. Imported and local equipment for leather and rubber based sports goods was procured, installed and made operational and know-how was provided by international consultants including a specialist in wood based sports goods. However, due to staffing problems the project had a rather limited impact.

US/IND/90/244 Assistance in Treatment of Tannery Effluents
US\$1,357,965

The objective of this recently approved project is to assist in the containment of environmental degradation emanating from a selected cluster of tanneries in Tamil Nadu. Specifically, it is envisaged to advise on the design of a common effluent treatment plant (CET) as well as on a low-cost treatment system for a small- to medium-scale isolated tannery. Together with local establishments like the Tamil Nadu Pollution Control Board, CLRI, TALCO, etc. advice will also be provided on realistic low-waste technologies, chrome recycling and/or recovery, etc.

The initial step will be the selection of the cluster of tanneries most suitable for the project (i.e. land and local funds already available, the company to set-up and later operate the plant established, etc.).

The project is funded by the Government of Switzerland through the Special Purpose Contribution to the UNIDO Industrial Development Fund.

DP/IND/82/025 Strengthening the College of Leather Technology, Calcutta (CLTC)
US\$708,611

The aim of the project was to upgrade the training potential of CLTC. A master plan was prepared for reorganizing the College. Equipment was supplied for the tannery and shoe manufacturing pilot plant. Four staff members received comprehensive retraining in footwear technology in the UK. Experts and consultants in the field of hides and skins improvement, tannery processes, shoe technology, laboratory testing and effluent treatment were field for a duration of two to twelve months. An important output of the project, jointly implemented by UNIDO, FAO and UNESCO, was a textbook on shoe technology which can be used for training by other project as well. In spite of all the efforts made by the international agencies and experts, the final results of this project, in terms of local personnel trained by the College, remained below expectations.

DU/IND/88/A80 Assistance to Footwear Industry
US\$299,280

As part of ITC's export promotion programme, this project was oriented toward shoe technology aspects as a component of the scheme implemented in the North Arcot and Madras area. Training was provided to small-scale entrepreneurs in footwear technology at the Central Leather Research Institute (CLRI), with special reference to processes, design and quality control. An international expert in marketing and factory management also carried out field work and provided extension services to several medium-sized shoe companies. As ITC has

revised the programme, the shoe industry assistance component is operationally completed. Further assistance will be included in the large-scale technical development programme under negotiation with the Indian Government and UNDP.

13. INDONESIA

DP/INS/85/016 Assistance in the Development of New Activities at the Institute for Research and Development of Leather and Allied Industries (IRDLAI)
US\$975,384

The purpose of this project was to strengthen the capability of IRDLAI, Yogyakarta, to carry out product development work in the field of finished leather and to assist small-scale industry in improving its leather finishing methods; to create a nucleus of local experts capable of dealing with environmental problems related to the leather sector, including designing of effluent treatment plants suitable for small tanning units.

A new finishing department was constructed and supplied with the necessary equipment together with a fully equipped pollution control laboratory. A very comprehensive training programme, both abroad (for IRDLAI personnel) and at the Institute (mainly for local entrepreneurs), has been organized in such areas as finishing, machinery maintenance, pollution control, process and quality control, etc. The international experts made a special effort to encourage closer links between IRDLAI and the industry.

14. MYANMAR

DP/MYA/86/002 Development Centre for Rubber Technology (DCRT)
US\$2,215,034

The immediate objective of the project is to establish DCRT as a technical capacity that will enable the manufacture of consumer rubber products in Myanmar (formerly Burma) at internationally acceptable standards of price and quality. The functional responsibilities of the Centre will include the following:

- a) to provide regular testing and quality control services on raw and auxiliary materials, semi-finished and finished products;
- b) to service the local industry in product and process development, waste recycling;
- c) to train plant personnel at managerial and technical supervisory levels.

Implementation commenced in 1987; however, due to internal problems, it was suspended for more than a year. Project operations were resumed at the end of 1988, at which time the Government made a special effort to supply buildings and the premises. With UNIDO's active contribution, three buildings - the physical and analytical laboratory, the compounding pilot plant (including the workshop) and the material store - have been completed. The latex pilot plant and a training building with offices are under construction. UNIDO has supplied all the technical and laboratory equipment as well as site equipment and material which is not available in the country (the total value was' proximately US\$1.4

million). Eight fellows have received (re)training in up-to-date latex/rubber technology in the UK for three months each. This personnel is now working at the DCRT.

1991 is a very busy year for the project. Not only will the CTA and the site engineer be at the DCRT, but also six other experts - in the fields of physical and analytical testing, compounding, latex technology, rubber footwear manufacture and mould designing - will spend three to six months there. The official opening of the Centre is scheduled for November 1991.

Contacts are being established with institutes in the sub-region, i.e. in India and Malaysia. DCRT will be very well-equipped and the local personnel will be well-educated. All this makes the Centre a very unique institute with future potential. It is hoped that upon completion of the present project, at the end of 1992, DCRT will also be available for services and training for the rubber-related industry of the South-East Asia and Pacific region.

15. NEPAL

**SI/NEP/88/801 Effluent Control in Leather Tanning Industry
US\$66,800**

This project attempted to assist the Bansbari Leather and Shoe Factory (BLSF) in setting up an effluent treatment plant in order to minimize the negative environmental impact of the tannery operations. The plant would also serve as a demonstration facility for the entire leather sector. Two consultants - one in cleaner technology and one in treatment of effluents - were fielded. Recommendations, including a detailed design of the treatment unit and equipment specifications, were prepared. Unfortunately, due to some local constraints and apparent changes in the concept of the development of the tanning industry, the project was not implemented.

16. PAKISTAN

**DP/PAK/89/025 Treatment of Tannery Wastes in Kasur
US\$10,000**

During this preparatory mission, the situation pertaining to the discharge of untreated tannery effluents emanating from the Kasur tannery cluster was appraised and a concept on how to address the problem developed. In the mean time, it was felt that a more comprehensive assessment of local conditions, including a socio-economic impact study, was needed. A proposal to that effect has been prepared and submitted to UNDP and the Government of Pakistan.

**DP/PAK/89/027 Facility-cum-Training Centre for Leather Finishing in Kasur
US\$676,050**

The aim of this recently approved project is to provide the small- and medium-size tanneries in Kasur with suitable facilities and equipment for the proper finishing of various types of leather, including essential quality control. The plant is to also serve as a model to be duplicated by propulsive medium-scale tanners.

Following the initial mission of the Chief Technical Adviser, the building design has been prepared, equipment specifications have been reviewed and are in the process of finalization. Project implementation may be delayed because of unexpected difficulties in securing local funds for construction work.

**DP/PAK/84/010 Assistance to the Leather and Footwear Centre in Hyderabad (LFCH)
US\$927,653**

This technical assistance project aims at establishing LFCH under the Sind Small Industries Corporation. The Centre should assist the shoe maker community, consisting of several thousand small-scale manufacturers, in upgrading their technology, in introducing semi-mechanized manufacturing processes and in improving their product range.

All the pilot plant equipment has been installed in the Centre. Training courses have been and are being conducted in pattern making, grading and upper making. LFCH is providing common facility services by offering the use of its technological equipment for various operations. The up-to-date PVC/TR injection-moulding machine is used for the production of men's unit soles. The sale of these components helps to cover part of the running costs of the Centre.

The international project personnel include a CTA, a shoe pattern making expert, a maintenance engineer, a shoe upper stitching expert and a quality control expert as well as consultants in upper manufacturing and lasting operations. The fellowship programme will begin in 1991.

It is planned that the project will be completed in 1992.

17. PHILIPPINES

**US/PHI/85/109 Upgrading of the Footwear and Leather Goods Industry Centre (FLIC) to an Internationally Acceptable Level
US\$1,157,342**

The project is based on the findings and recommendations of the previous project US/PHI/79/109-"Establishment of a Footwear and Leather Goods Training and Demonstration Centre", financed by Germany, and is considered to be the second phase of this project.

The aim of the project is to upgrade the centre and its staff to an internationally acceptable level of professional competence in order to provide training; bring product development up to an exportable level; quality control; and applied research and extension services to the Philippines and South-East Asia/Pacific countries. This has been achieved and adequately tested. Although the project took longer than originally intended, partially due to political unrest in Manila, the extended time schedule improved the thoroughness with which improvements were implemented. The Centre is now in a position to conduct its affairs effectively to meet the needs of the industry in the region. Steps have been taken to establish permanent liaison with CFI, London, so that the FLIC can seek updating and the CFI can monitor the standards of teaching and examination in line with the CFI qualifications.

Nevertheless, there is still a need for support assistance, both from CFI and international experts on an intermittent basis in specific technical areas, and the possibilities for conducting a Phase III are being examined.

18. REGIONAL ASIA

DP/RAS/89/074 Workshop on Pollution Control/Low-waste Technologies in Agro-based Industries in Selected Countries from the Asia and the Pacific Region
Approximately US\$125,000

This Workshop, organized by UNIDO in co-operation with the United Nations Development Programme (UNDP) Regional Bureau for Asia and the Pacific, resulted from UNIDO/UNDP discussions on joint environmental programmes. A programme devoted to environmental concerns of the agro-based industries and the building of environmental awareness is planned.

Participants from the following developing countries of the region attended the Workshop: Bangladesh, China, India, Indonesia, Mongolia, Nepal, Pakistan, Philippines, Republic of Korea, Sri Lanka and Viet Nam.

Held in Beijing from 24-28 September 1990, the objective of the Workshop was to promote awareness in the region of the status and potential for future growth of agro-based industries, with the goal of sustainable development; to promote and transfer low-waste and no-waste, energy efficient technologies, prevention and minimization of pollution, including training in these areas, and the encouragement of investment; to promote institutional structures, policies, legislation and awareness-building means of the media, educational institutions and programmes.

Four industrial sectors were under review: tanning, oils and fats, sugar and breweries and soft beverages. Specific recommendations to the industry, government institutions, R & D as well as international organizations have been elaborated.

US/RAS/89/246 Preparatory Assistance in the Treatment of Tannery Effluents in Selected Countries of South-East Asia
US\$189,500

The purpose of the project is to conduct a detailed appraisal of the situation in the 8 participating countries (Bangladesh, China, India, Indonesia, Nepal, Pakistan, Sri Lanka and Thailand) regarding pollution caused by the tanning industry in the region with a view to recommending optimum mitigation measures that might be taken and to provide participating governments with documentation for requesting technical assistance in the form of a large-scale regional project; to select the most suitable sites for the establishment of the regional central laboratory and full-scale "model" effluent treatment plants in each country. These model plants will serve as training and demonstration centres for the national leather industry as well as for environmental protection agencies.

Following a fact finding mission by two consultants in treatment of tannery wastes from September - November 1990, an expert group meeting is to be held in

Madras, India, 15-17 February 1991 to review their findings and consider the overall concept of the large scale sectoral programme of technical assistance to the region. Various low waste, environment friendly technologies as well as different effluent treatment systems will also be considered.

The project is funded by the Government of Germany through the Special Purpose Contribution to the UNIDO Industrial Development Fund.

19. SRI LANKA

SI/SRL/88/801 Assistance to the Ceylon Leather Products Corporation (CLPC) in Shoe Machinery Maintenance
US\$27,918

Direct assistance was provided in maintaining essential equipment, including vulcanizing presses. Spare parts were supplied and a shoe machinery engineer trained local personnel in maintenance techniques and the implementation of the preventive maintenance system in the shoe factory.

20. VIET NAM

DP/VIE/85/013 Assistance to Applied Research in Leather Industry
US\$1,605,488

The aim of this project is to strengthen the Leather Research Centre (LIRC) in:

- a) carrying out an applied research programme in improving the technology used in the existing tanneries; improving the quality and developing new types of leathers produced; designing tanning and manufacturing equipment; manufacturing a number of specialized chemicals from indigenous materials
- b) transfer of technical know-how to tanning plants through direct support/advisory services in the areas mentioned above
- c) training of technical personnel from LIRC and from tanning plants within the areas of LIRC's competence.

Hides and skins improvement (using an FAO expert) and assistance to small scale private tanneries are important components of the project.

The project implementation started end 1989/early 1990 and to date virtually all tanning machines and the equipment for the pilot plant and two laboratories - one in Hanoi and one in Ho Shi Min City - have been delivered and installation work has begun. The industrial-scale effluent treatment plant has been designed and equipment is in the process of being procured. An FAO hides and skins expert has been fielded.

A very comprehensive training programme in Europe in leather technology, quality control, machinery maintenance and effluent treatment has been completed.

THE AMERICAS

21. ARGENTINA

SI/ARG/89/045 Assistance to the Leather and Footwear Development Centres
US\$56,050

The goal of this project was to identify the main problems in raw hide flaying, collection, curing and leather processing, as well as to determine the bottleneck in shoe product development. A hides and skins improvement expert and a footwear technologist were in the field (two months each) and assisted the industrial units directly. Substantial improvements were achieved in leather processing, quality control, product development, production preparation and plant management in several (private) shoe factories in Buenos Aires and Cordoba. The project identified serious problems concerning training designers, operators and factory supervisory staff. This can only be solved by (re)starting appropriate training institutes in the country. Future UNIDO assistance would be available upon receipt of specific Government requests.

22. BRAZIL

SI/BRA/90/805 Assistance in the Operation of a Joint Tannery Effluent Treatment Plant in the Franca Region - Sao Paulo State
US\$62,000

Franca is the major footwear (especially men's shoes) producer and export centre in Brazil and the second most important centre of leather production in the country. Due to its high degree of industrialization, Franca witnessed a considerably high population growth in the past few years. Consequently, the tanneries which were initially located outside town suddenly became surrounded by residential areas.

Therefore, the purpose of the project is to assist in improving the efficiency of the joint effluent treatment system being established in the industrial zone of Franca, including the primary systems installed at individual tanneries.

Financial approval of the project is expected shortly.

23. COSTA RICA

US/COS/85/038 Asistencia al Centro de Tecnologia del Cuero, CETEC, Fase II
US\$740,600

The objective of the project is to strengthen the Centro de Tecnologia del Cuero (CETEC) to enable it to consolidate and increase its technical services and transfer technology for the benefit of tanneries in the country and in the region. This includes:

- (a) training of technical staff in charge of supervision and operation of tanneries through technical courses and seminars;
- (b) introduction of process and quality control;

(c) improving the capacity of the pilot plant enabling it to carry out a wider range of processes.

In particular, the pilot plant will render services to small tanneries which lack specific machinery.

The major part of additional tanning equipment for the pilot plant as well as rather sophisticated laboratory equipment and a PC with accessories and software have been procured and installed. Recently, the design of a mobile effluent treatment plant was prepared and the order for equipment will be placed shortly.

To date, several short and one long training courses have been conducted at CETEC, San Jose, such as in computer applications in the shoe industry, chrome tanning, basic leather technology, etc. with a total of 146 trainees. Five trainees have been on fellowship training in Mexico, one in Italy and one is currently in Spain. Five study tours to Europe, Asia and Latin America have also been undertaken.

With UNIDO's support, a footwear consultant at CETEC has prepared a special study on the leather and shoe industry in Central America, which was requested and financed by CEPAL.

The project is funded by the Government of Italy through the Special Purpose Contribution to the UNIDO Industrial Development Fund.

THE PIPELINE

As can be seen in Annex 2, the Five Year Plan for the Leather Unit, our pipeline programme is very strong. In addition to the large increase expected in the environmental sector, we have many enquiries from countries interested in large, integrated programme approach projects. Such programmes are in the advance stage of planning in Egypt, Ethiopia, India and Pakistan.

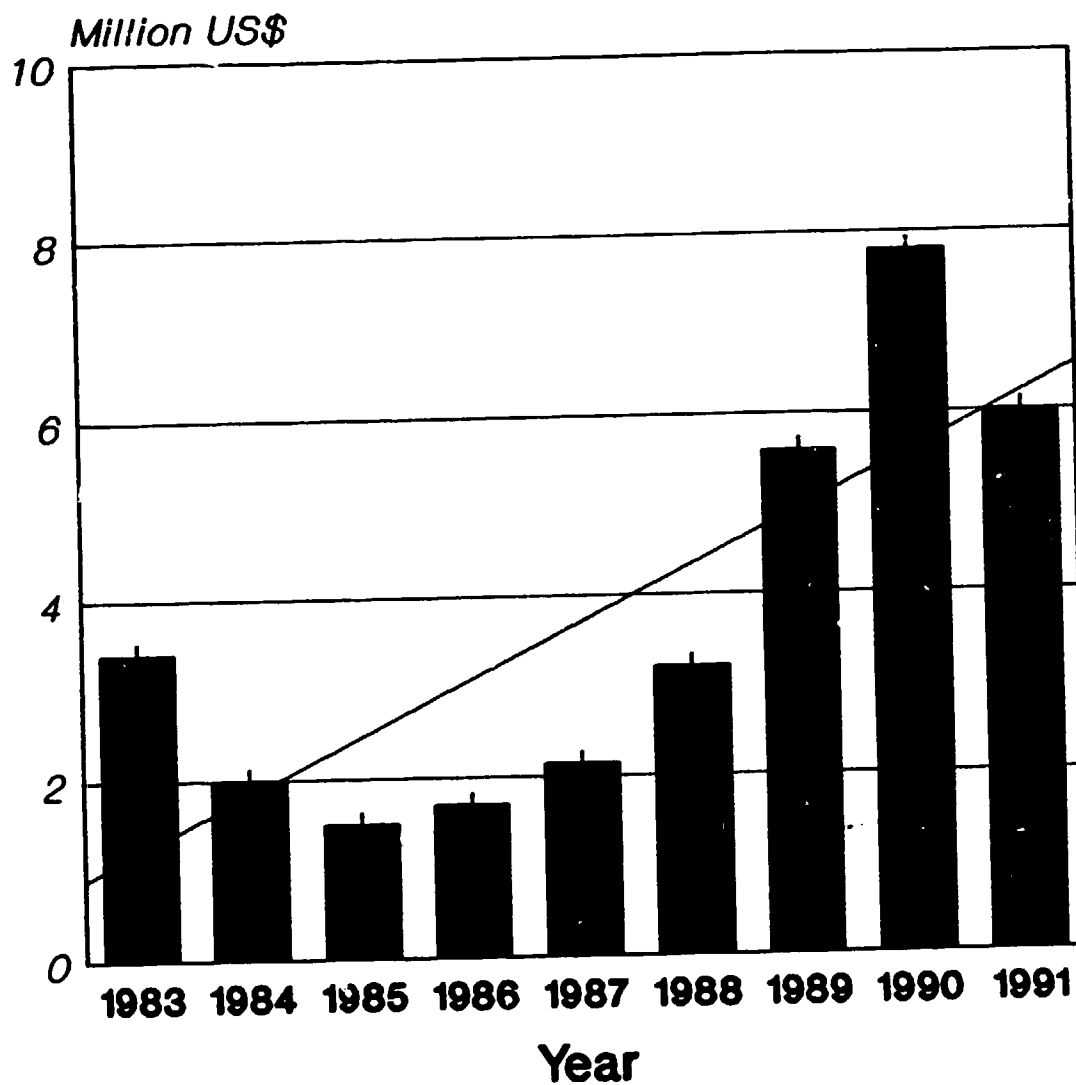
All these programmes are expected to be financed mainly by UNDP with certain components financed by special purpose donations through IDF. Execution of these projects is foreseen during the next cycle - 1992-1996.

A large project for the PTA leather institute has been developed and this project is divided into two separate phases. The large-scale Regional Africa programme has been so successful that the rest of the PTA countries are interested in joining and the eight countries presently being assisted have requested second phases of the programmes. Detailed project proposals have already been presented at the TPR meetings held in the various countries. These proposals are not included in our five year pipeline programme.

ANNEX 1

IMPLEMENTATION

Leather and Rubber Related Projects

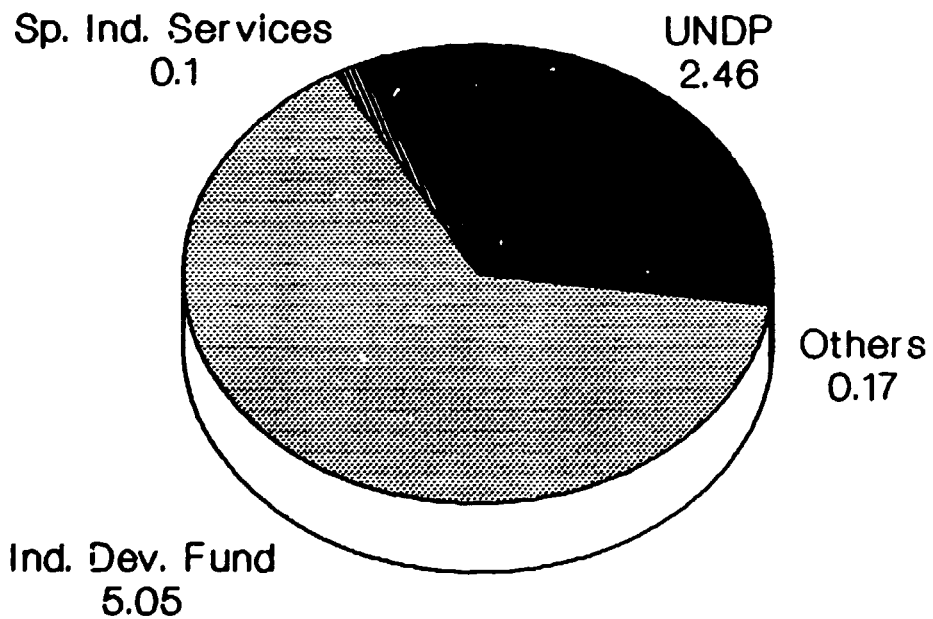


■ Implementation + Trend

UNIDO - IO/T/AGRO/Leather Unit

SOURCES OF FUNDS

Leather Unit - IO/T/AGRO



Million US\$

PROJECT IMPLEMENTATION FORECAST

IO/T/AGRO/Leather Unit

No.	Project No.	Rev	Project description	Prior years	Coming years	1991	1992	1993	1994	1995	1996
			PAD on hand	13,568,232	10,359,757	7,691,970	2,291,640	319,147	57,000	0	0
			Firm pipeline	0	18,456,600	1,305,650	3,565,800	4,425,750	4,191,000	4,968,400	0
			Sub-total	13,568,232	28,816,357	8,997,620	5,857,440	4,744,897	4,248,000	4,968,400	0
			Project proposals	0	33,126,800	2,746,450	12,967,950	10,469,250	4,977,050	1,966,100	0
			TOTAL	13,568,232	61,943,157	11,744,070	18,825,390	15,214,147	9,225,050	6,934,500	0
1	UC/BRA/91/012	A	Tannery Eff.Treat.Plant in Franca Region		62,000	62,000					
2	SI/BRA/90/801	B	CAD/CAM Techniques in Shoe Ind.		15,640	15,640					
3	US/COS/85/038	C*	Centro de Tecnologia del Cuero, CETEC	611,019	129,581	80,200	49,381				
4	SI/CPR/90/801	B*	Eff.Treatment Shanghai Leather Corp	11,000	13,500	13,500					
5	SI/EGY/90/802	B*	Assistance to El Nasr Tannery	17,723	21,977	21,977					
6	SI/ETH/89/801	B	Install.of Effl.Treatment Plants	26,484	31,840	31,840					
7	US/ETH/88/100	C	Nat'l Hides + Skins, Leather + L.P.	779,428	143,052	124,076	18,976				
8	TF/GLO/88/013	C	Associate Exp. A. Calabro	86,397	15,417	15,417					
9	UC/GLO/87/268	C	Dev. CAD/CAM Software	77,741	2,459	2,459					
10	US/IND/90/244	A	Treatment of Tannery Effluents		1,357,965	30,500	1,018,500	251,965	57,000		
11	US/KEN/88/100	C	Nat'l Hides + Skins, Leather + L.P.	90,247	122,157	122,157					
12	DP/MLW/88/029	E	Assistance to Liwonde Tannery	745,737	190,018	184,638	5,380				
13	US/MLW/88/100	C	Nat'l Hides + Skins, Leather + L.P.	245,931	230,069	163,532	66,537				
14	US/MOZ/86/276	C*	Establ. of a Tannery in Tete	682,538	208,812	208,812					
15	DP/MYA/86/002	F	Development Centre for Rubber Technology	1,547,091	667,943	485,629	182,314				
16	DP/NIR/87/022	F	Leather Research Institute of Nigeria	439,293	293,073	293,073					
17	DP/PAK/84/010	L	Hyderabad Leather Footwear Centre	533,911	402,056	374,746	27,310				
18	DP/PAK/89/027	C	Centre for Leather Finishing in Kasur	15,768	660,282	77,900	115,200	67,182			
19	DP/PAK/89/025	C	Treat. of Tannery Wastes in Kasur	10,000	400,800	400,800					
20	DG/PAR/87/009	D*	Industrialization of Shoe Ind. Sector	0	312,186	312,186					
21	DP/POR/90/001	A	Assist. to the Shoe Industry		7,800	7,800					
22	US/RAF/88/100	E	Reg'l Hides + Skins Improvement Scheme	2,559,286	1,976,367	1,481,508	494,859				
23	TF/RAF/88/001	E	Associate Exp. M. Beci	81,089	21,462	21,462					
24	US/RAF/89/070	C*	Assist. a l'industrie du cuir	84,708	3,492	3,492					
25	US/RAF/88/102	D	Tannery Rehabilitation Scheme	2,961,989	1,018,813	1,018,813					
26	US/RAS/89/246	B*	Prep.Ass.Tannery Effl.in South-East Asia	65,725	108,000	108,000					
27	US/SOM/88/100	C	Nat'l Hides + Skins, Leather + L.P.	124,273	125,052	125,052	0				
28	US/SUD/88/100	C	Nat'l Hides + Skins, Leather + L.P.	118,090	237,510	200,409	37,101				

ANNEX 2

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No.	Project No.	Rev	Project description	Prior years	Coming years	1991	1992	1993	1994	1995	1996
29	SI/TUN/90/801	A	Ass. to CMCC in Tannery Effl. Treat.		84,500	84,500					
30	SI/TUR/90/802	A	AYKOSAN Relocation of Shoe Industry		62,000	62,000					
31	US/URT/88/100	C	Nat'l Hides + Skins, Leather + L.P.	260,389	345,011	277,989	67,022				
32	DP/VIE/85/013	K*	Applied Research in Leather Industry	1,042,317	592,981	470,057	122,924	0	0		
33	US/ZAM/88/100	C	Nat'l Hides + Skins, Leather + L.P.	200,224	367,776	303,286	64,490				
34	US/ZIN/88/100	C	Nat'l Hides + Skins, Leather + L.P.	149,834	128,166	106,520	21,646				
35	US/EGY/90/253	0	Ass. to a Ladies' Shoe Factory		509,000	344,500	164,500				
36	UC/GLO/91/XX1	0	"		66,000	66,000					
37	UD/GLO/91/XX1	0	Seminar Low Waste Food Ind. Technologies		70,000	70,000					
38	DP/IND/90/040	0	Leather Ind. Programme - Umbrella		14,968,400	0	2,000,000	4,000,000	4,000,000	4,968,400	
39	DP/IND/91/XXX	0	Common Eff. Treat. Plant in Calcutta Ph. I		475,200	343,650	131,550				
40	DP/MEX/90/XXX	0	Reduccion Contaminacion - Region de Leon		1,123,750		619,750	313,000	191,000		
41	US/RAF/91/057	0	Ass. a l'industrie du cuir: Ph. 1.1/070		420,000	120,000	300,000				
42	US/TUN/90/143	0	CAD/CAM Workshop Footwear + Leather. Ind.		61,500	61,500					
43	US/URT/91/FIN	0	Extension Nat'l H+S project (URT/88/100)		762,750	300,000	350,000	112,750			
44	US/BGD/91/RAS	1	Nat'l Eff. Treat. Plant Hazaribagh Area		2,172,100			1,271,500	694,300	206,300	
45	US/CPR/91/RAS	1	Nat'l Poll. Control + Eff. Treatment		2,428,000		1,531,000	897,000			
46	US/EGY/91/XXX	1	El Nasr Training Centre		1,843,050	426,500	1,069,500	347,050			
47	US/INS/91/RAS	1	Nat'l Poll. Control + Eff. Treatment		691,000		515,000	176,000			
48	US/NEP/91/RAS	1	Nat'l Poll. Control + Eff. Treatment		617,000		449,500	167,500			
49	DP/PAK/86/009	1	Integrated Dev. Leather Prod. Ind.		1,869,100	301,000	773,300	607,800	187,000		
50	US/PAK/91/RAS	1	Nat'l Eff. Treat. Plant at Korangi		2,474,500		1,371,500	868,500	234,500		
51	US/RAF/91/033	1	Leath.+L.P. Institute in PTA - Ph. I		3,303,800	1,284,000	944,600	792,800	222,400	60,000	
52	US/RLA/90/XXX	1	Foot Measurement + Shoe Component		860,000	515,000	345,000				
53	US/SRL/91/RAS	1	Nat'l Fac. Centre Tanning Op.+Eff. Treat.		1,241,000		823,000	418,000			
54	US/THA/91/RAS	1	Nat'l Common Fac. at Samut Prakarn		993,000		760,000	233,000			
55	DP/TUR/88/041	1	Leath.+L.P. Industry		574,500	134,250	197,750	162,900	79,600		
56	US/TUR/90/XXX	1	IKITELLI Footwear Fac. Centre		2,180,000		900,000	750,000	530,000		
57	DP/BOL/90/009	2	Asist. a la industria de Cuero		650,000		314,000	232,000	104,000		
58	DP/BRA/91/XXX	2	Ass. to Footwear Ind. in Franca		1,047,000		740,000	307,000			
59	US/COS/91/XXX	2	Eff. Treatment + Poli. Reduc. Technologies		430,000		277,000	153,000			
60	SI/CZE/91/XXX	2	Product Dev. at SVIT Shoe Factory		85,700	85,700					
61	US/BCU/91/XXX	2	Ass. to ANCE		500,000		300,000	200,000			
62	DP/ETH/91/XXX	2	Prog. f. Leather+Allied Ind. Dev.		0						
63	DP/PAK/89/025	2	Treat. Tannery Wastes in Kasur		1,188,200		250,000	640,400	297,800		
64	US/RAF/91/033	2	Leath.+L.P. Institute in PTA - Ph. II		2,053,850			991,050	1,062,800		
65	US/RAS/91/XXX	2	Reg'l Poll. Control South-East Asia		2,200,000		750,000	1,000,000	450,000		

ANNEX 2 continued

No.	Project No.	Rev	Project description	Prior years	Coming years	1991	1992	1993	1994	1995	1996
66	DP/RAS/91/XXX	2	Reg.Co-op.Network of Institutions.		3,725,000		656,800	1,244,800	1,186,400	637,000	
67		222			0						
68		222			0						
69		222			0						
70		222			0						
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ANNEX 2 continued

ANNEX 3

PIPELINE PORTFOLIO

Million US\$

