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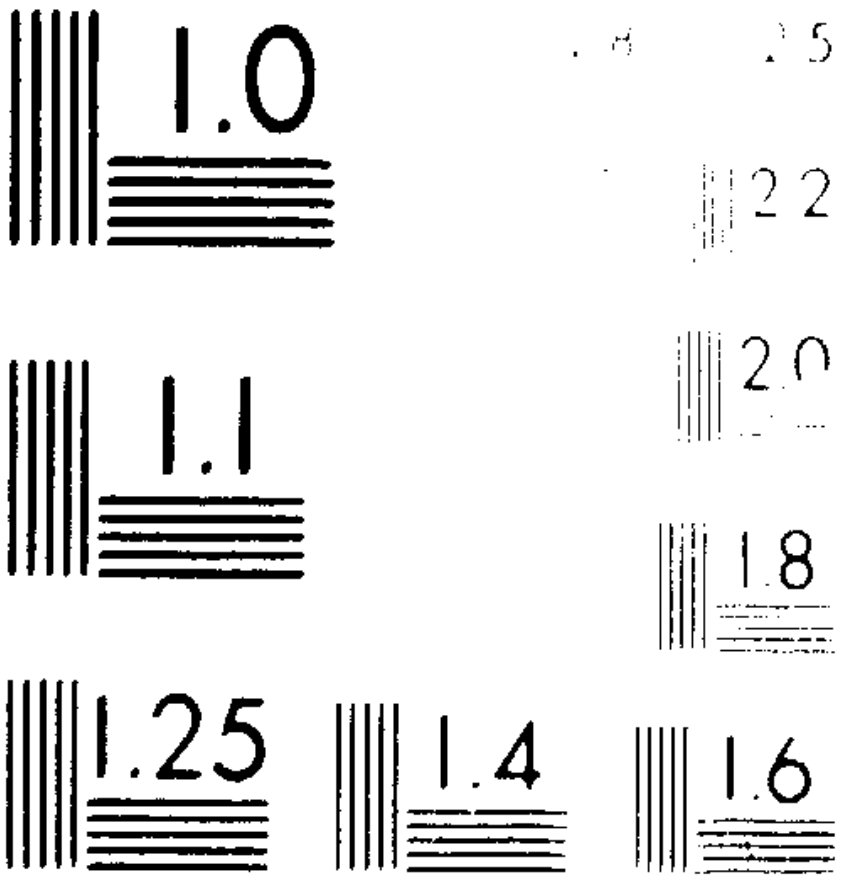
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11808

DP/ID/SER.A/398
8 November 1982
English

China.

ASSISTANCE TO THE ESTABLISHMENT OF A CENTRAL LEATHER LABORATORY IN SHANGHAI

DP/CPR/80/007

CHINA

Technical report*

Prepared for the Government of China
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of Bo Lundén, leather industry expert

United Nations Industrial Development Organization
Vienna

* This report has been reproduced without formal editing.

V.82-33497

Explanatory Notes

During the period of the mission 1 US$ was approximately equivalent to RBM 1.90 Yan.

UNDP - United Nations Development Programme

UNIDO - United Nations Industrial Development Organization

SIDFA - Senior Industrial Development Field Adviser

Acknowledgement

As during the first mission in 1981, the Chief Technical Adviser was again met by an exceptional hospitality and co-operation from all parties concerned. Further to the people mentioned earlier (see previous report DP/TD/SER.A/304) the interest shown by Mr. Yu Liannan, Deputy Director of Foreign Affairs Bureau, Ministry of Light Industry and Mr. Fan of the Department of Relation with International Organizations, Ministry of Foreign Economy and Trade was highly appreciated. In Shanghai the new National Project Director, Mr. Shi Xian Liu and his assistant, Mr. Wei Ching Yuan as well as the four fellowships candidates and among them especially Mr. Yao Pei De really made the work easy and pleasant.

Abstract

A second mission, 4-26 August 1982, by the Chief Technical Adviser for the project "Assistance to the Establishment of Central Leather Laboratory in Shanghai" (DP/CPR/80/007) is reported on. (As to first mission see DP/ID/SER.A/304). The objectives were : 1) to assess the implementation progress of the project and advise on further steps to be taken, 2) to assist in preparing the project document for the next phase, the establishment of the "Leather Technology Centre", and to give advice on the planned tannery estate.

The laboratory instruments and equipment were inspected, their use checked, appropriate steps to correct deficiencies suggested and lists for correcting and supplementary equipment elaborated. Specific study tours, utilizing funds still available from the present project, were recommended to be carried out during the first half of 1983.

The draft project document for the new phase was finalized and annexed to this report.

with
11808

DP/ID/SER.A/398/Corr.1
8 November 1982
English

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IN SHANGHAI
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CHINA

Corrigendum

The cover and page 2 should be replaced by the attached.

Page 4, paragraph 1, line 3

For Annex III read DP/ID/SER.A/304

Page 11, paragraph 2, line 4

For Annex IV read Annex III

V.82-33497

C O N T E N T S

INTRODUCTION

Background and official arrangements

This report, covering the return mission of the Chief Technical Adviser to the People's Republic of China from 4 to 26 August 1982, is supplementing the technical report (DP/ID/SER.A/304) on the first mission in June/July 1981. The background information, findings, recommendations and views expressed in that report were still found to be valid almost in total. They will not be repeated here and only new findings or other pertinent matters will be commented upon.

On his way to China the Chief Technical Adviser made a stop-over in Jakarta, Indonesia, for a briefing by the expert in chemical and physical testing of leather, Mr. A.Lesuisse, who carried out his mission for the project in March/April 1982. This briefing was found very useful, as was the discussion that followed concerning the many delays in the deliveries of the equipment as well as of certain defects in some instruments.

The unfortunate decease of the former National Project Director, Mr. Zhang Xilin, in January 1982, naturally caused some difficulties in the implementation of the project, especially because new contacts for communications between the national and international organizations had to be established. The new National Project Director, Mr. Shi Xian Lin, who also took up the duties of Mr. Zhang in the Shanghai Leather Corporation, has very quickly made himself acquainted with all the details and problems of the project. He also immediately, at the start of this mission, established a very effective and highly appreciated co-operation with the Chief Technical Adviser.

Objectives

The immediate objectives of the project were unchanged, but specifically for this mission they were transformed into the following duties:

1. To assess the progress of the implementation of the present project, and if required, give advice on further steps needed to finalize the first phase successfully;

2. To give advice on and, if required, assist in the finalization of the detailed project document for the second phase of the project concerning the establishment of the planned technical centre for leather;

3. To give advice on the planning of the industrial tanning estate which is under active consideration and on the preparatory work connected with the move of existing tanneries from the centre of Shanghai to the tanning estate.

Training

For family reasons the lady engineer had to abstain from accepting one of the training fellowships offered, but the remaining four engineers and technicians will depart in the first week of September 1982 to participate in their four months training courses:

Mr. Wen Zhu Mou and Mr. Yao Pei De to Budapest, Hungary;
Mr. Zhu Jun and Mr. Xie Hai Bao to Waalwijk, Netherlands.

RECOMMENDATIONS

The recommendations in the earlier report are again strongly advocated. In addition it is recommended that:

1. A study tour to a well-known leather chemicals factory for each of the two groups of trainees in Europe is arranged at the end of their trainfing periods, e.g. the Waalwijk group to Bayerwerk, Leverkusen (FRG), and the Budapest group to BASF, Ludwigshafen (FRG).

2. The study tour mentioned in the earlier recommendation 3a) is organized as a visit to Europe in the first quarter of 1983 to include visits at leather research institutes, shoe and leather fairs, suppliers of machinery and chemicals and, if possible, some modern tanneries. A staff member or leather expert from UNIDO should be attached to the group in Europe to act as travel organizer, interpreter and liaison officer. The total travelling time should be four to six weeks. The cost of the tour can, with all probability, be covered by available funds in the present project.

I. WORK PLAN

At the arrival of the Chief Technical Adviser (CTA) in Beijing it was found that the time alloted for the mission was too short to allow the required work days in Shanghai as well as briefing and debriefing in Beijing and Vienna. By an agreement between UNDP/Beijing and the Government the necessary extension was obtained. In Shanghai a further four days extension was granted since more time than available was clearly needed.

After a preliminary discussion of the work to be carried out the following timetable and work plan was subsequently agreed upon:

2	August	Arrival in Beijing
3	"	Briefing at UNDP
4	"	Departure for and arrival in Shanghai. Preliminary discussions.
5	"	Work in the Central Leather Laboratory (CLL).
6	"	Visit to the factory where a new building is being erected for the Leather Technology Centre. Work at CLL.
9-11	"	Work on the draft project document for the second phase (Leather Technology Centre) and on a R+D programme for the Centre for the time up to the start of the new project.
13-14	"	Work at CLL
15	"	Work on equipment and accessories specification.
16	"	Technical Seminar on the topics:"Quality Control", "Manufacturing processes for Nappa leather" and "Utilization of chrome powder" (morning). Work at CLL (afternoon).
17	"	Preparation of the draft final report.
18	"	Discussing and finalizing the draft report.
20	"	Departure for Beijing. Discussions at UNDP.
23-24	"	Debriefing. Discussions with Government representatives.
26	"	Departure.

II. CENTRAL LEATHER LABORATORY

A. Buildings

The laboratory building at the Hung Wei tannery has now been rebuilt and modernized. The first floor, very little changed, still is housing the small tannery pilot plant. The second floor contains offices, library/conference room and the room for physical testing. The chemical laboratory and the room for weighing and pH measurements are finally found on the third floor. All rooms are well prepared and suited for their purposes and those needing special conditions are suitably air-conditioned.

The present building is still considered as an intermediate solution, but the future plans for the laboratory have been changed because of intervening circumstances, later to be described when discussing the Leather Technology Centre.

B. Equipment

All the equipment received to date has been properly installed and is, with some exceptions, functioning quite well. Unfortunately, some equipment is still missing and the reasons for this must be investigated soonest. According to the shipping advices all equipment ordered has been shipped and should have arrived in Shanghai several months ago.

When going through and checking all the installed equipment and auxiliar materials it was found that some further spare parts, standardized solutions and auxiliar instruments were highly desirable. Taking into account also the report of Mr. Lesui se, the expert on leather testing, a list of additional equipment was elaborated. The list was thoroughly discussed and a final selection to be purchased was agreed upon.

A complete list of equipments and materials, including pertinent comments, is found in Annex I with the following groupings:

Equipment and materials
a) not received (missing)
b) received and functioning properly
c) received, but not as requested
d) received, but with defects
e) to be purchased as auxiliar equipment and materials for use with present equipment, or included in the original list
f) to be purchased as complement to present equipment.

C. Books and journals

Most of the ordered books have not arrived. In case of the journals, some have not arrived at all and the remaining ones most erratically.

In Annex II is found all the details as well as a few additional books and journals which are requested to be bought or subscribed to.

An adequate, small library has been organized and the maintenance and lending-out system were discussed in some detail.

D. Personnel

All the personnel in the laboratory, including the four engineers and technicians approved for the fellowship courses in Europe, were very well acquainted with their respective tasks and the machines or instruments to be used for the testings. All the instructions were also in total translated into Chinese, a work that in itself almost guarantees a thorough understanding of the different machines and instruments. The tests at the machines and instruments were discussed as much as the time allowed and advice as to their use or about the planning of test series were often given. It was highly inspiring to see the interest and seriousness with which the personnel carried out their assigned duties.

E. Work carried out

The laboratory is already engaged in carrying out several test series on leathers produced by Shanghai Leather Corporation tanneries. This work is evidently of a long-range type and results being useful for the leather producers cannot, in general, be expected very quickly. In several cases, however, the work has had immediate and practical results of considerable importance.

In one case, the cause of the yellowing of a certain white shoe upper leather was found, using the fadeometer, to test the light fastness and the tanning/dying machine with 12 small glass drums to produce the small leather pieces of the many tannages needed. Subsequently, a considerable quantity of the lightfast white leather has been produced, the yearly quantity being in the range of 50,000 m^2.

In another case, the problem of too rapid water penetration in a football leather was solved in roughly the same manner, but using the penetrometer for the testing. The successful production of a suitable leather was attested to by all the referees and linesmen at an international football tournament recently held in Beijing and where footballs of different makes were "tested" in practical use.

III. LEATHER TECHNOLOGY CENTRE

A. General information

As recommended in the earlier report, the Government has already decided to establish a leather technology centre within the framework of Shanghai Leather Corporation.

The earlier plans for the centre have, however, been changed. The intended move of the tanneries in Shanghai city proper to the tanning estate close to the Hung Wei tannery in the suburbs of Shanghai has been postponed for an indefinitive period. There are many reasons for this: one of the most important is the requirment by the authorities that the total effluent from all the tanneries at the new site has to be treated properly. This requirement is for the moment very difficult to comply with. The implementation of the tanning estate is, therefore, postponed until the effluent problem has been resolved. Incidently, this also makes a discussion of the tanning estate now pointless, but again makes the solving of the effluent problems a major task for the Leather Technology Centre.

B. Buildings

In the present plans a new six-storey building, now actually being erected close to one of the factories in the city, will house the pilot plants for the production of leather, shoes, leather goods, shoe and leather goods accessories and leather chemicals as well as a small scale effluent treatment unit which is expected to aid in solving these problems.

At a later stage the ball factory opposite the Hung Wei tannery will be moved into the city and the emptied buildings will be rebuilt, modernized and converted to house the leather testing laboratories as well as the tannery pilot plant. Ultimately the intention is still to build a new complex for all the laboratories and pilot plants, i.e. a complete unified leather technology centre, but this will certainly not take place within the present decade.

Taking into account the present situation, necessitating a re-organization of the implementation of the tannery estate, this solution for the rapid establishment of the centre seems very reasonable. The disadvantage of having some units at different places is more than compensated by getting the centre established now. The space provided in this way to the different laboratories and pilot plants will also be more than adequate.

C. Equipment

The centre is already now being supplied with some local surplus machines, for example in the case of the shoe making pilot plant. But many new machines and other equipment have to be bought from abroad and a continued technical assistance to obtain this as well as for the introduction of modern methods and processes is considered to be vital.

D. Personnel

Almost all the personnel needed, staff as well as manual workers, are already assigned to the centre. This makes it imperative that some research work is started as soon as possible in order to utilize available manpower and equipment. The time between now and the start of a possible second phase to the present project should not be allowed to pass without any work being done.

E. R+D Work

Research and Development (R+D) work can certainly be carried out by the available personnel, also with the existing although minimal equipment, which at a later stage is expected to be supplemented with modern, foreign machines through the new project. Such research programmes can try to solve already existing problems confronting the tanners or the leather products factories. Or, they can be of a preliminary type which could be helpful to the implementation of the centre or for its future work. A co-operation between the centre and the different factories in carrying out the research programme could in many cases be extremely valuable.

A few R+D programmes which could be started immediately, are suggested here. Other programmes should not be difficult to find and to organize.

1. The finished pigskin leathers are considered to be of a rather low quality. To obtain a definitive improvement in quality may take a considerable time and effort, including perhaps extensive work in co-operation with the expected new project. Some preliminary work might, however, be very helpful.

Investigate the causes for the low quality, i.e. study the leathers at the different manufacturing stages and try to find out those parameters, which have the greatest influence on the apparent quality.

It is known that a high content and an uneven distribution of the natural fats in the hides and skins, as in pigskins, may be very detrimental to obtaining good quality leathers. Investigate different ways of degreasing the pigskins and in tanning trials to find out whether the quality of the finished leather has improved or not after such an operation.

2. It is important to furnish the centre with the best machines available. Many of the machines in question are also made in China and it would be of great interest to compare these with those of foreign makes. Several factories here have similar machines of Chinese and/or foreign make. Evaluate, by comparative test, i.e. with factory batches between which the only difference is that a particular operation is carried out on a Chines and a foreign machine respectively.

3. The quality of soft leathers is often greatly influenced by the combination of fat-liquors employed. It is understood that the oils produced in China are restricted to fairly few types and that some of them are considered to be of a rather low quality. By comparative fat-liquoring tests investigate whether the use of well-known oils actually does give a decidedly higher quality in the finished leathers.

4. In the international shoe industry the use of prefabricated parts is playing a growing role for the rationalization in shoe factories. Investigate which shoe parts would be best suited for a prefabrication. Start a pilot plant production of one or a few parts to be supplied to all suitable shoe factories in the corporation and evaluate the effect of their use.

5. The metal accessories for shoes and leather goods are often of an inferior quality, a fact which might lower considerably the value of an otherwise good product. Investigate the metal parts and isolate the one which is used in the largest quantity by the combined factories in the corporation. Study suitable foreign makes of similar type, select the best as to design, look and sturdiness and use this as a base for own design. Produce the part and evaluate the effect of tis use in the leather product.

IV. FURTHER ASSISTANCE

A. Project document for new phase

As mentioned earlier the Government has already decided to establish a Leather Technology Centre within the framework of Shanghai Leather Corporation. It is evident from this and earlier reports that a technical assistance to supply 1) further needed machinery, 2) foreign experts to help in organizing the centre, to assist in the training of staff and operators, to advise on modern methods and processes etc. and 3) training abroad of suitable personnel, is very much needed, if the centre shall be able to perform as anticipated. This assistance, as recommended, would be a follow-up of the present project which has assisted in establishing the Central Leather Laboratory. The leather industry in Shanghai is also expecting the Government fairly soon to request UNDP/UNIDO to implement such a project.

Based on an earlier tentative document, a final draft project document has, therefore, bear elaborated in co-operation with the National Project Director of the on-going project. The document is attached to this report as Annex III.

The project document gives all pertinent details on the industry and they will not be repeated here. It should be noted that the background information as to certain statistical figures has been up-dated and represents the latest information available on the subject.

B. Review of the projects

A meeting was organized at the end of the mission in Beijing which was attended by:

Mr. Yu Liannan, Deputy Director of Foreign Affairs Bureau, Ministry of Light Industry,

Mr. Yan Zenglu, Chief of 2nd Division, Foreign Affairs Bureau of the Ministry of Light Industry,

Mr. Xu Lungjiang, Engineer, Leather Division of the 2nd Light Industry Bureau, Ministry of Light Industry,

Mr. Fan, Department of Relation with International Organizations, Ministry of Foreign Economy and Trade,

Mr. Liu Guanglu, Ministry of Light Industry,

Mr. Shi Xian Lin, National Project Director and Technical Director, Shanghai Leather Corporation,

Mr. A.W. Sissingh, UNIDO SIDFA, UNDP BEIJING,

Ms. Li Qiming, Programme Officer, UNDP Beijing,

Mr. Bo Lundén, Chief Technical Adviser, UNIDO Leather Industry Consultant.

The results, status and further activities of the on-going project were discussed in some detail. The descriptions, conclusions and recommendations of this report were subsequently unanimously accepted.

Further assistance was also discussed at length. A complete agreement as to the need for a second phase of the on-going project was clearly evident. It was also indicated that the "Leather Technology Centre" thus established, would be the main leather centre to serve the entire leather industry sector in the whole of China.

List of equipment and materials

The Numbers 1-33 refer to original list - those in brackets indicate some relation to the equipment in question. Brackets on higher numbers only indicate a new number in continuation of original numbers serie.

a) Not yet received by the laboratory

(1) Set Dies for cutting leather test pieces. Note: one die not conforming to IUP norms (larger clamping areas) has been received, unknown from where.

16 Experimental drum, type DOSEMAT VG d800 b300
17 Muffle furnace, type Gallenkamp FSE-250-010F
24 Viscosimeter, type Engler
26 Set Standard sieves
33 Set laboratory water distilling equipment
(35) Photo electronic colorimeter
(36) Rubber abrasion tester DIN 53516
(37) Chromated hide powder, 2kg

b) Received and functioning properly

1 Tensile strength tester, type Instron
2 Flexometer, type Bally
3 Lastometer, handoperated type SATRA
4 Penetrometer with electronic device, type Bally
5 Dome plasticity apparatus, type SATRA
6 Finish rub-fastness tester, type SATRA
7 Apparatus for leather shrinkage temperature determination
8 Sole adhesion tester, type SATRA
9 Adhesion of finish tester, type SATRA
11 Fadeometer
12 Stereozoom microscope
13 Chemical analysis cutting mill
14 Shaking machine for leather analysis
15 Splitting machine
18 Drying oven, type Electrolux
21 pH meter, type Beckman Zeromatic IV
22 Portable pH meter, type Beckman Pistol TM
23 Set Kjeldahl unit, type Gerhardt 1276 50 SI 13/6
25 Ford cups - another, but acceptable type received
27 Set heatable dying drums
30 Soxhlets extraction thimbles
31 Crucibles of porcelain, wide form
32 Set "Lyphan" pH paper - another but acceptable type received.
(34) Copier, type Cannon

c) Received, but not as requested

28 Laboratory spraying guns with overhead cups, 2 units

29 Spraying guns, ordinary, 2 units; the spraying guns received through a misunderstanding at the ordering of the same, are to be used for chromatography. They are a useful addition to the laboratory, are of a relatively low value and will thus be kept at the laboratory. The originally requested spraying guns will have to be ordered again. See e) below.

d) Received but with defects

10 Leather thickness gauge, type Ernst Messner
- the screw keeping the lower platform (ø 10 mm) in place was broken and the platform loose in the box at arrival.
- the thickness gauge does not conform with IUP/4, the table to surround the lower platform non-existent.

19 Manual, high accuracy balance, type Mettler H 80.
- the sensitivity is okay, but the accuracy evidently quite unsatisfactory. Standard weights were weighed with the following results (more than one figure indicating that several standard weights of same weight were checked):

Standard Weight, gr	Weight obtained gr
0.5	0.5004
1	1.0000 (zero check)
2	2.0002
5	5.0031
10	9.9985
20	19.9911
50	50.0119, 50.0115, 50.0116
100	99.9917, 99.9919, 99.9915
150	150.0057, 150.0055

20 Electronic balance, type Mettler PC 180
on switching on the balance,only the lowest horizontal bars of the numbers on the display light up and no weighing can be carried out. Checking according to the instructions were carried out carefully without positive result. (The numbers on the yellow sticker on the "circuit panel" are PRINT 41447 and ES 41446 B).

e) To be purchased as auxiliar equipment or materials for use with present equipment, or included in the original list.

		Estimated cost CIF US $
(1a)	Cells for Instron tensile strength tester: 5-50 kg and 50-500 kg (in addition to the 50-500 gr and 500-5000 gr already delivered with the tester)	3,500
(1b)	4x1 pint oil for compressor to Instron tensile strength tester: type SB 46 Blue Compressor Oil. Comment: the oil put into the compressor in the compressor factory had evidently leaked under the transport - the packaging paper was oily and although the spare oil was filled into the compressor, the required oil level was not attained. The tester is for the time being used with the manual clamps.	25
(4)	Auxiliar apparatus for chosing the amplitude of the crank motion for the Penetrometer, type Bally. Note: instructions should be in English. Please also send instructions in English for the main apparatus (the penetrometer) - those received were in German, which is completely unknown in the laboratory.	1,500
(21)	To be used with pH meter, type Beckman Zeromatic IV: 3 electrodes (spare) 1 bottle, buffer solution "Red - pH 4" 1 " " " "Green-pH 7" 1 " " " pH 9" 5 " (100 ml) Electrode storage solution 5 " Reference Electrode Filling solution	120
(22)	To be used with portable pH meter, type Beckman Pistol TM: 3 electrodes (spare)	30
(23)	Spare parts for Kjeldahl apparatus; type Gerhardt 1276: 12 digestion flasks, 500 ml nr. 1350 6 flasks, 300 ml nr. 1355 6 glass tube parts nr. 1344	100
(24)	To be used with copier type Cannon: 10x4 cartridges Cannon toner NP400	700
28	Laboratory spraying guns with overhead cups, 2 units	100
29	Ordinary spraying guns, 2 units	100
	Subtotal e)	6,175

f) To be purchased as complement to present equipment

		Estimated cost CIF US$
(38)	1 Apparatus for uniform pressure in testing for water fastness according to IUF, type "Hydrotest" (Chemiecolor AG, CH-8802 Kilchberg ZH, Switzerland)	1,500
(39)	1 Set (1-8) number BS 1006 B01:1978 blue wool light-fastness standards (British Standards Institution, 10 Blackfriars Street, Manchester M3 5DT, England)	40
(40)	1 Number BS 1006 B02: 1978 Humidity test control (British Standards Institution, see above)	25
(41)	Adjacent fabrics for IUF tests: 5 m multifibre 1 m cotton lawn (rubbing) 1 m cotton limbric (staining + washing) 1 m wool 1 m viscose rayon 1 m nylon 6.6 (woven) 1 m cotton drill (dry-cleaning) (The Society of Dyers and Colourists, Perkin House, P.O.Box 244, Bradford, West Yorkshire BD1 2JB, England, UK) can also supply (39) + (40) above.	40
(42)	1 rub fastness tester, type "VESLIC" for IUF 450. (W.Kueny, Mechanik und Maschinenbau, St. Jakobstrasse 38, CH-4123 Muttenz, Switzerland)	3,500
(43)	3000 pcs wool felt pads for "VESLIC" tester. (Eidgenössische Materialprüfungs- und Versuchs-anstalt, Hauptabteilung, Abteilung C, Unterstr.11, CH-9001 St.Gallen, Switzerland)	300
(44)	1 Quarzlamp for UV-light, ordinary tabletop model. No mercury lamp.	120
(45)	1 Tensometer for IUP/13, type Bally	2,200
(46)	1 Dynamic waterproofness tester for IUP/11, type Bally	2,800
(47)	1 set for testing water vapour permeability for IUP/15 (H.W.Wallace + CO.Ltd., St.James Road, Croyden, England, UK)	600
(48)	1 glove waterproofness tester for IUP/14, type BLMRA	1,800

			Estimated cost CIF US$
(49)	6	Smooth or embossing plates for hydraulic press. (Preliminary selection: smooth, haircell, kid, shrunken, crocco and lizzard grains pattern - pattern samples from, e.g. "Dornbusch", Krefeld (FRG) or "Hiedemann", Köln (FRG), should be sent to the project which will select suitable pattern and then also give the dimensions of the plates (in all probability, but not with certainty the plates will have common dimensions, i.e. 1320 x 660 mm)	12,000
		Subtotal f)	24,925
		" e)	6,175
		Total e)+f)	31,100

List of Books Numbers refer to original list.

a) received

2 Handbook of chemistry
4 JURAN-GRYNA: Quality Control Handbook
6 GUSTAVSSON, K.H.: The chemistry and reactivity of collagen
9 O'FLAHERTY, F., W.T. RODDY AND R.M. LOLLAR: The chemistry and technology of leather (4 volumes)
14 THORSTENSEN, T.C.: Practical leather technology
22 Oxford Concise Dictionary

b) not received

1** Official Methods of Analysis - J.S.L.T.C.
3* Handbook of chemical Analysis
5**** Colour blindness testing books
7* GUSTAVSSON, K.H.: The chemistry of tanning processes
8* TANCOUS, J.J., W.T. RODDY and R.M.LOLLAR: Skin, hide and leather defects
10* REED, R.: Science for students of leather technology
11* KUENTZEL, A.: Gerbereitechnisches Taschenbuch
12** STATHER, F.: Gerbereichemie und Gerbereitechnologie
13*** OTTO, G.: The dyeing of leather
15* HUMPHREYS, G.H.W. and C.R.JONES: The manufacture of sole and other heavy leather
16**** Dictionary of Leather Technology
17* Hides and Leather and Shoes: Encyclopedia of the Shoe and Leather Industry
18* International Dictionary of Leather and Allied Trades
19**** International Glossary of Leather Terms
20*** Leather Technical Dictionary
21*** Comprehensive German/English Dictionary

* These books are unfortunately out of print and had to be cancelled.

** Complete set out of print. Some individual "methods" available. Since complete set, however, obtained through Mr. Lesuisse, the set can be cancelled.

*** These books have been sent to China and should be searched for there.

**** Have not been delivered and will be claimed.

List of Journals

Numbers refer to original list.

a) not received at all

24 Australian Leather Journal, Boot and Shoe Recorder
26 Leathers: Leather Export Promotion Council, Madras, India

b) partially received - numbers or dates indicate those received.

23 Journal of the Society of the Leather Technologists and Chemists: only 82/1 (Jan-Febr) received
25 Leather Science: 81/1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 (Jan-Nov)
27 Das Leder: 81/10, 11, 12 (Oct-Dec) and 82/2,3 (Febr.-March)
28 Leder und Häutemarkt: 81/29, 31, 32, 33, 34, 35, 36 (last 18.12)
82/1, 2, 4, 5, 6, 7, 8, 9, 13 (last 7.5.82)
29 Leather: 81/Sept., Oct., Nov. 82/Jan, Febr., March
30 Leather and Shoes: 81/11, 12 (last December 81)
82/4 (April 82)
31 Leather Manufacturer: 81/7, 8, 9, 11, 12 (last Dec. 81)
82/1, 2 (last Febr.82)
32 Apparel International (Change of name): 82/2,3,5 (last May 82)
33 Shoe and Leather News: 81/24.9, 22.10, 31.12
82/7.1, 28.1, 11.2, 18.2, 25.2,
4.3, 18.3, 25.3

c) to be added to subscription list

(34) ABC + Schuhtechnik, Germany
(35) Technicuir, C.T.C. Lyon, France
(36) Leather Guide, published by Leather, Nr.29 above
Leather Guide 81/82: Brenn Publications Ltd., Union House
Eridge Road, Tunbridge WElls,
Kent TN4 8HF, England, UK

Annex III

UNITED NATIONS DEVELOPMENT PROGRAMME

Project of the Government of
the People's Republic of China

PROJECT DOCUMENT

Title: Leather Technology Centre

Number: DP/CPR/82/xxx

Duration: Three years

Primary Function: Direct Support

Secondary Function: Institution-Building

Sector (Govt.Class.): Industry (05)

UNDP Class.and Code: Industries (0510)

Sub-sector (Govt.Class.): Leather Industries

UNDP Class.and Code: Establishment and Extension of Manufacturing Industries (0520)

Government Implementing Agency: Ministry of Light Industry through Shanghai Leather Corporation

Executing Agency: United Nations Industrial Development Organization (UNIDO)

Estimated Starting Date: January 1984

Government Inputs: _____ in kind

UNDP Inputs: 1,252,250 (US$)

Signed: _____ Date: _____

On behalf of the Government

_____ Date: _____

On behalf of the Executing Agency

_____ Date: _____

On behalf of the United Nations Development Programme

PART I - LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1, paragraph 1, of the Agreement between the Government of the People's Republic of China and the United Nations Development Programme (UNDP), signed by the parties on 29 June 1979.

The Government Implementing Agency, for the purpose of the Standard Basic Agreement, refers to the Government Co-operating Agency described in the Agreement.

The document setting out additional conditions concerning UNDP assistance to the project - Organization of the Project - is incorporated into this project document as Appendix I.

PART II - THE PROJECT

A. DEVELOPMENT OBJECTIVE

The development objectives of the project are:

1) The development of the leather and leather products industry in the People's Republic of China, capable of processing all locally available raw hides and skins into finished products (leather, footwear, leather goods etc.) in order to increase the subsector's output and satisfy local and international demand.

2) A substantial improvement in quality of leather and all kinds of leather products manufactured in the People's Republic of China.

3) An increase of efficiency and productivity in the leather and leather products subsector in China.

B. IMMEDIATE OBJECTIVES

The immediate objectives of the project are:

1) The establishment of a well-functioning leather technology centre incorporating:

- testing and applied research laboratories;
- a tannery pilot plant;
- pattern-making workshop for footwear, leather goods design;
- a pilot plant and training unit for production of footwear;
- a leather goods pilot plant;
- a laboratory pilot plant for the development of chemicals and other auxiliar materials for use in the tanneries;
- a laboratory pilot plant for the development of materials and prefabricated parts for use in the shoe and leather goods industries;
- an effluent treatment laboratory;
- an information service unit (technical library and documentation service);
- a small maintenance workshop;
- classroom and lecturer rooms for theoretical training.

2) Improvement of the quality of all kinds of leather and leather products, but especially of the pigskin products, through extension services rendered by the Leather Technology Centre in order to ensure:

- more up-to-date chemical and mechanical processing and better organized production in tanneries and leather products manufacturing plants, taking also into consideration the importance of diminishing or solving existing effluent problems;

- improved efficiency and productivity in the leather industry subsector;

- better trained managerial, technical and operating personnel;

- improved communication and faster implementation of scientific and technical achievements through well-organized technical information systems;

- higher quality level of leather and leather products manufactured.

3) Training of a group of technologists, middle-managers, instructors, quality controllers and researchers who will be able to operate efficiently the Leather Technology Centre and carry out the following activities:

- extension services as described in point 2) above;
- elaboration of national specifications for leather and leather products, their quality levels and quality controls, implementation and revision of these specifications;
- implementation of courses, seminars and workshops as required;
- provision of expertize, know-how and advices on technological and quality problems arising in the manufacturing plants;
- rendering information services on development in science, technology, marketing and design of leather and leather products;
- applied research, especially for the adjustments of new processing methods to the local conditions and for development of products and technologies according to the raw materials locally available;
- all other desirable and pertinent services to the Government and industry when required.

4) To elaborate training programmes to be organized by the Leather Technology Centre, the design and syllabi for courses in

- leather technology and production management;
- styling, design, pattern making and range building of leather products;
- footwear technology and production management;
- leather goods technology;
- quality control;
- instructor and operator training

as well as arrangment of specialized seminars and workshops as required by the subsector.

C. SPECIAL CONSIDERATIONS

Not applicable.

D. BACKGROUND AND JUSTIFICATION

1. Background

The People's Republic of China has fairly rich resources of hides and skins and has experienced a long history in the development of the leather industry. The raw hides production is estimated at five million pieces of bovine hides, besides that about 30 million goat and kid skins are produced in the country. The production of sheep skins is somewhat lower than that of goat skins and a great part is processed by the fur industry. (This raw material availability is considered to be a significant amount in world terms, however, it is rather low in comparison to the Chinese population). Today a considerable quantity of cattle hides and wet-blues are imported to satisfy the needs of tanneries; these hides are processed only in tanneries of the coast area.

The production of pigskins reached about 80 million pieces in 1981 which means a very big resource for the leather industry. To promote the pigskin production, modern skinning techniques and machines are required as well as improved tanning technology and that special leather products made out of pigskin are developed.

The leather industry of the People's Republic of China consists of 40-50 important tanneries. The main leather manufacturing centres are in Beijing, Tienjin, Canton, Sechuan and, the most important one, in Shanghai. The tanning of soft leather, mostly by chrome, is acceptable but the dyeing and finishing process should be improved. Vegetable tanning is used for processing of leather for soles and technical purposes. The splits produced are of rather poor quality. Key operations of the leather processing, such as sammying, splitting, shaving and especially retanning and dyeing, as well as finishing, require considerable improvement which involves increased inputs of production machines, chemicals, know-how, better production flow, layout, process control and higher skills of operators and supervisors.

In the Chinese shoe industry manual processes are still prevailing. The total footwear production is estimated at 1 billion pairs, out of which some 300 million pairs (30 %) are made out of leather. The shoe export amounts to about 15 million pairs but the manufacturers experience significant problems because of the rather poor design and finish of their products. More and better pre-fabricated parts and accessories are also needed. The mechanization of the shoe manufacturing is now of great interest with special reference to the closing and making rooms. This mechanization cannot be accomplished without introducing new working methods, technologies, use of pre-fabricated parts and production control techniques.

Both the leather and footwear industry partly lack modern technical know-how, adequately trained personnel - especially in management, technology and product development. Technical information supply, training and retraining of specialists from industrial plants, i.e. transfer of up-to-date know-how would be of great assistance to the Chinese leather and leather products industry and enable it to meet the local and international demand as well as the requirements of the national economy of the People's Republic of China.

The establishment of the Shanghai Leather Laboratory was the first step on the path towards the above outlined long-term objective of the leather subsector development in China. Upon the request of the Government, UNIDO provided funds under the project DP/CPR/80/007 in order to assist in the starting-up of the Centre. As a result, UNIDO fielded for six weeks the Chief Technical Adviser to Shanghai in May 1981 and, according to his recommendations, the delivery of equipment for the testing laboratory was commenced. This project is expected to be completed in 1982; the laboratory established and started up by that time will constitute the initial framework for the planned Leather Technology Centre. As a follow-up or continuation programme of the Shanghai Leather Laboratory, the Government has in the meantime already decided to erect the buildings to house the pilot plants and offices foreseen in this project, to install some available equipment and to start a few R+D programmes, which have been discussed with the CTA of the earlier project. The buildings are actually now being erected. The aim of the new project is to supply further needed equipment and to assist in organizing the centre and its work.

2. Justification

The Government of the People's Republic of China, apart from meeting increasing local demand, strives at extending the export of different leather products. However, in order to realize this objective, several aspects of the leather industry sector have to be considerably improved, such as processing technologies, production methods, design and product development techniques as well as up-grading of the skills of personnel at different levels and trade and export marketing practices etc.

An essential requirement for a reasonably rapid development of the leather industry subsector in China is the extension and development of the Shanghai Leather Laboratory into a leather technology centre, suitably staffed and with well-equipped laboratories, pilot plants and information services, in order to ensure the best possible implementation of the actions needed to achieve the improvement required.

The Leather Technology Centre will conduct training courses and carry out extension services to existing tanneries and leather products factories. It will advise on and assist in the selection of plant equipment, technology and auxiliary materials as required, product development in response to the market requirements and raw materials available, design and pattern making, costing, effluent treatment, quality assessment etc.

Furthermore, China being a large country, this centre will serve as a model for other regional institutes with a similar purpose and as a starting point for the extension of the national research and development in this field. It will also serve to promote international co-operation in the leather industry subsector.

E. OUTPUTS

1. A well established leather technology centre, consisting of pilot plants, laboratories and an information unit, equipped with modern machines and testing equipment, capable of rendering extension services and offering common facilities to the leather industry subsector, serving as a model for other (perhaps smaller) regional institutes and quality control laboratories;

2. A group of trained personnel of all categories, including fully qualified staff to carry out all the activities required from the Leather Technology Centre;

3. Syllabi, elaborated according to the needs of the industry, for practical and theoretical training through specialized courses, seminars and workshops;

4. Product development, processing technologies and national quality specifications, adapted to suit the local raw materials and conditions in the leather and leather products industry;

5. Technical and marketing (including designing) information services for the local manufacturing units;

6. An initial research and development plan for the centre to commence its own R+D activity, utilizing the extremely broad knowledge and the results accumulated in Chinese science which would be a reasonable contribution to the international development in the leather and leather products industry too.

F. ACTIVITIES

	Implementation schedule planned
1. Plan the detailed organization of the Leather Technology Centre, specify suppliers and types of machines and equipment for the laboratories and pilot plants, place orders for those, recommend organizational chart and control system for the centre;	First three months of project's operation.
2. Supervise the installation of equipment, assist in arranging the laboratories and workshops, testing and putting into operation of equipment;	After arrival of equipment.
3. Train the counterpart staff, technologists, instructors and researchers for the leather technology centre;	During entire duration of project.
4. Advise the Government and industrial plants in the leather industry subsector on technical, technological, organizational, economic, managerial and marketing aspects as required;	During entire duration of project.
5. Provide direct technical assistance to existing tanneries and leather products factories on the correct implementation of suitably adapted processing and production techniques, product development and design, process and quality control, production management methods and investment planning;	During entire duration of project.
6. Elaborate syllabi and recommend training techniques, aids and organization of courses for different training activities to be carried out by Leather Technology Centre;	Three first months of the project's operation.
7. Specify the manpower and skill needs of the entire subsector and carry out training programmes at different levels to ensure optimum operation of industrial plants;	From 4th month of project's operation.
8. Establish a technical information unit in the Leather Technology Centre, recommend its organization and duties to be carried out in order to provide the Government, the Centre and the subsector with relevant up-to-date technological, economic and marketing information;	The 2nd half year of project's operation

	Implementation schedule planned
9. Plan in detail and assist in the commencement of the applied research activity of the applied research activity of the Leather Technology Centre;	The 2nd year of operation of the project, then continuously.
10. Assist in organization of marketing services to be rendered to Chinese leather and leather products industries subsector, provide information on export requirements and assist in preparation of suitable marketing arrangements;	During entire duration of project.
11. Undertake opportunity and feasibility studies for new projects within the leather and leather products subsector as required;	During entire duration of project.

G. INPUTS

1. Government inputs

(a) Recurrent and capital expenses

The Government's recurrent and capital budget will provide for counterpart personnel support staff, office supplies, necessary services and suitable premises for the project.

(b) Premises

Appropriate land and buildings for the Leather Technology Centre, furnished and suitably equipped office accomodation for the international team and the local counterpart personnel will be provided by the Government in accordance with the actual needs of the project.

(c) National counterpart staff

The Government will provide national professional and support counterpart staff in accordance with the requirements of the project. The professional counterpart personnel will be from the Leather Technology Centre's staff, later responsible for the running and managing of the Centre's operations. The following minimum professional counterpart personnel is foreseen for the entire duration of the project:

	Initial	+ later	= Total
Director of Leather Technology Centre (National Director of project)	1	-	1
Hides and Skins Specialist	1	-	1
Tannery technologist	1	-	1
Finishing technologist	-	1	1
Shoe Technologist	1	1	2
Leather Goods Technologist	-	1	1
Leather Products Designer	-	2	2
Marketing Specialists	1	1	2
Training Specialist	-	1	1

	Initial	+ later	= Total
Maintenance Engineers	-	2	2
Researcher	-	1	1
Specialist in informatics, statistics and computing	1	-	1
Effluent Treatment Specialist	-	1	1
TOTAL Local Professional Staff	6	11	17

Sufficient office personnel and other support staff will also be provided by the Government.

d) Transportation

The Government will provide in-country transportation for the international experts/consultants and local counterpart staff.

e) Miscellaneous

The Government will provide office equipment and supplies, the necessary in-country cost for transport, storage, installation, operation and maintenance of equipment (including project vehicles provided by UNDP under this project), including insurance cost if necessary, as well as materials and chemicals for the operation of the laboratories and pilot plants.

2) UNDP Inputs

(a) Personnel

The following experts and consultants will be provided with duties as described in their respective job descriptions which are summarized below (the job descriptions for consultants will be drafted by the Chief Technical Adviser in co-operation with National Project Director later):

		Duration
11-01	Leather Industry Expert (Chief Technical Adviser)	3 x 4 = 12 m/m
11-02	Pigskin Leather Expert	2 x 3 = 6 m/m
11-03	Leather Finishing Expert	2 x 2 = 4 m/m
11-04	Footwear Technologist	2 x 2 = 4 m/m
11-05	Leather Goods Expert	2 x 2 = 4 m/m
11-06	Effluent Treatment Expert	2 x 2 = 4 m/m
	Experts Sub-total	34 m/m
11-50	Consultants	18 m/m
	Total International Personnel	52 m/m

Assignment of International Staff	Location	Duration and planned starting date
1. Leather Industry Expert (Chief Technical Adviser), post 11-01. The Chief Technical Adviser should have extensive experience in technical, managerial and economic aspects concerning the leather and leather products industry as well as in the operation of leather technology centres. He will be expected to supervise the activities of the other experts and consultants attached to the project and coordinate the efforts of all concerned towards the implementation of the programme agreed upon. He will advise the centre on all technical aspects and on managerial and economic matters concerning its activities in the field. He will also train national counterparts on these matters together with whom he will provide direct technical assistance to the industrial plants. He will organize training courses and actively participate in them.	Shanghai with travel within the country as required.	12 months, January 1984 (3x4 months split mission)
2. Pigskin Leather Tanning Expert post 11-02. The expert should have a thorough theoretical and practical knowledge of leather tanning in general, and specifically of the production of high quality pigskin leathers. He will advise and assist in chemicals to be used, appropriate manufacturing methods and technological parameters for all the finishing operations concerned, train national counterparts and those in Chinese tanneries on these subjects. He will also advise on process control, laboratory tests and pilot trials, applied research to be carried out with special reference to local conditions. He will further participate in training of technologists, supervisors, quality controllers and laboratory personnel of local tanneries.	Shanghai with travel within the country as required.	6 months, March 1984, (2x3 months split mission).

Assignment of International Staff	Location	Duration and planned starting date
3. Leather Finishing Expert, post 11-03 The expert should have the broadest possible theoretical knowledge and practical experience in leather finishing techniques and processes and particularly in the finishing of high quality pigskin leathers. He will advise and assist in chemicals to be used, appropriate manufacturing methods and technological parameters for all the finishing operations concerned, train national counterparts and those in Chinese tanneries on these subjects. He will also advise on process control, laboratory tests and pilot trials, applied research to be carried out with special reference to local conditions. He will further particpate in training of technologists, supervisors, quality controllers and laboratory personnel of local tanneries.	Shanghai with travel within the country as required.	4 months, November 1984, 2x2 months split mission.
4. Footwear Technologist, post 11-04 The expert should have an extensive practical experience in manufacturing of different types of footwear including pattern making, technologies, production management and quality control as well as selecting appropriate equipment and tools for the production. He will advise and assist in improving manufacturing processes used in Chinese shoe factories, preparation and supervision of production, costing and quality control, increasing capacity utilization. He will further conduct feasibility studies on possible new projects, actively particpate in starting up the pilot plant operation in the centre and training of supervisors, technologists and quality controllers for the existing plants.	Shanghai with travel within the country as required.	4 months, January 1985, 2x2 months split mission.

Assignment of International Staff	Location	Duration and planned starting date
5. Leather Goods Expert, post 11-05 The expert should have the broadest possible practical experience in the manufacture of various leather goods, such as handbags, suitcases, small fancy leather goods, belts.etc. and possibly in the production of gloves, balls and other leather articles. He will advise and assist in starting up the leather goods pilot plant in the centre as well as on product development, appropriate technologies and equipment used in the existing local leather goods manufacturing plants. He will further advise on purchase of auxiliary components and materials used (e.g. frames, metallic fittings etc.) and actively participate in training organized for technologists, supervisors and instructors.	Shanghai with travel within the country as required.	4 months, October 1985, 2x2 months split mission.
6. Effluent Treatment Expert, post 11-06 The expert should have an extensive theoretical knowledge and practical experience of how to treat tannery effluents in order to obtain results satisfying environmental conditions as well as governmental or regional laws or codes. He will advise on and assist in the work of the effluent treatment unit at the centre. He will further advise on the construction of effluent treatment plants as well as on needed chemicals and on the purchasing of relevant equipment. He will finally advise on and actively participate in the training of appropriate technicians, supervisors and operators.	Shanghai with travel within the country as required.	4 months, March 1984, 2x2 months split mission.
7. Other consultants, post 11-50 18 man-month will probably be needed in specific areas during the implementation of the project (e.g. consultants on design of leather products, maintenance, skill analysis operator training, tanning materials and chemicals, standardization, gloves or leather garment manufacturing).	Shanghai with travel within the country as required.	18 months in total; when decided.

(b) Training

The project allocates the following funds for the implementation of a training programme which is considered essential in view of the planned activities of the Leather Technology Centre:

- Individual fellowships	US$ 150,000
- Study tours	US$ 90,000
Total training component	US$ 240,000

This training programme will be decided upon on the basis of the actual needs of the leather subsector and the leather technology centre as well as of knowledge and availability of candidates.

Details of the individual fellowship programme will be elaborated by the Chief Technical Adviser in co-operation with the National Project Director within the first months after the former's arrival.

The study tours will include visits of the Leather Technology Centre's and local industry's representatives to important international fairs and exhibitions of the leather and leather products industries (e.g. Semaine du Cuir in Paris, Lederwoche in Pirmasens (FRG), MICAM in Milan (Italy), Singapore fair etc.). Further study tours should be undertaken to study the operation of existing leather centres in selected developed and developing countries as well as for market surveys (e.g. Reutlingen, Northampton and Lyon).

(c) Equipment

The following machinery and equipment and their estimated cost are planned for the Leather Technology Centre:

	Estimated CIF price in US$
Tannery pilot plant	452,000
Footwear Pilot plant	36,200
Leather goods pilot plant	30,000
Laboratories	5,000
Maintenance equipment	25,000
Subtotal	548,200
Project vehicles, two	18,000
TOTAL	566,200

H. W O R K P L A N

The following bar-chart indicates the workplan of the project implementation.

	1982	1983	JFMAMJJASOND 1984	JFMAMJJASOND 1985	JFMAMJJASOND 1986
1.National Professional Staff					
2.International Team					
Chief Technical Adviser			———	———	———
Pigskin leather tanning expert			———	———	
Leather finishing expert			———	———	
Footwear Technologist				———	———
Leather Goods Technologist				———	———
Effluent Treatment Expert			—	—	
Consultants			------	------	--------
3.Training					
Fellowships					
Study tours			—	—	—
4.Project review				-	-

J. DEVELOPMENT SUPPORT COMMUNICATION

Not applicable.

K. INSTITUTIONAL FRAMEWORK

The Shanghai Leather Corporation, which is the only one in the area producing leather and leather products, is controlled by the Ministry of Light Industry. The corporation supervises eight tanneries, 15 shoe factories and 17 leather goods factories, 2 leather ball factories, furthermore two leather chemical plants, one leather machinery, one shoe last and two metal accessories factories and two storehouses; a shoe and leather goods shop was acquired recently to allow the corporation to be directly in contact with the public.

The Central Leather Laboratory in Shanghai is housed in a newly renovated building at the Hung Wei Tannery as an interim solution. The corporation is building a new plant and will expand the laboratory into a comprehensive leather technology centre, comprising adequate experimental tanning equipment and facilities for shoe and leather goods development as well as for training. The first stage of the decided national project provides some 500 m^2 space (including 140 m^2 for experimental tanning) for the Central Leather Laboratory which is considered sufficient only for the initial stage of development. Upon completion of the new laboratory building, the equipment supplied under project DP/CPR/80/007 will be transferred as a part of the equipment of the future centre, and the HUNG WEI Tannery Laboratory will again be reverted into a one-tannery laboratory.

The Leather Technology Centre will be controlled by the Shanghai Leather Corporation and will render services mainly for its member companies and plants, and will serve as a model for the other regions in People's Republic of China.

Therefore, this project will be attached directly to the Shanghai Leather Corporation under the Ministry of Light Industry.

L. PRIOR OBLIGATIONS AND PREREQUISITES

The project document will be signed by the Resident Representative on behalf of UNIDO, and UNDP assistance to the project will be provided subject to UNDP receiving satisfaction that the prerequisites in this document have been fulfilled, or are likely to be fulfilled. When anticipated fulfillment of one or more prerequisites fails to materialize, UNDP may, at its discretion, either suspend or terminate its assistance.

M. FUTURE UNDP ASSISTANCE

Subject to the outcome of the mid-term and/or final review of the project, a possible extension may be envisaged depending on the assessment of the results obtained through the time of the project activities.

PART III - SCHEDULES OF MONITORING, EVALUATION AND REPORTS

A. TRIPARTITE MONITORING REVIEWS, TECHNICAL REVIEWS

The project will be subject to periodic review in accordance with the policies and procedures established by UNDP for monitoring project and programme implementation.

B. EVALUATION

The project will be subject to evaluation, in accordance with the policies and procedures established for this purpose by UNDP. The organization, terms of reference and timing of the evaluation will be decided by consultation between the Government, UNDP and UNIDO.

C. TERMINAL REPORTS

A draft terminal report will be prepared by the Chief Technical Adviser, in consultation with the National Project Director, approximately four months before the scheduled completion of the project. UNIDO will complete the final version of the terminal report and distribute it to all parties concerned with the project, in accordance with the instructions given in UNDP's Policies and Procedures Manual.

PART IV - PROJECT BUDGET

The project budget covering the UNDP inputs is attached.

The project budget covering the Government counterpart contribution in kind will be elaborated in close co-operation between the Government and the UNDP Resident Representative.

UNIDO

PROJECT BUDGET/REVISION

3 COUNTRY	4. PROJECT NUMBER AND AMEND.	5. SPECIFIC ACTIVITY
CHINA	DP/CPR/xx/	31.7.D

10 PROJECT TITLE
Leather Technology Centre

15 10. 11 PROJECT PERSONNEL EXPERTS / Post title	16. TOTAL		17. 1984		18. 1985		19. 1986		20.	
	m/m	$	m/m	$	m/m	$	m/m	$	m/m	$
11-01 Leather Industry Expert, CTA	12	94,200	4	29,200	4	31,400	4	33,600		
02 Pigskin Leather Tanning Expert	6	45,450	3	21,900	3	23,550				
03 Leather Finishing Expert	4	30,300	2	14,600	2	15,700				
04 Footwear Technologist	4	32,500			2	15,700	2	16,800		
05 Leather Goods Technologist	4	32,500			2	15,700	2	16,800		
06 Effluent Treatment Expert	4	30,300	2	14,600	2	15,700				
50 09 Consultants	18	141,300	6	43,800	6	47,100	6	50,400		
08										
09										
10										
11										
12										
13										
14										
11-99 SUBTOTAL:	52	406,550	17	124,100	21	164,850	14	117,600		

21. REMARKS

UNIDO

PROJECT BUDGET/REVISION

2. PAD NUMBER

4. PROJECT NUMBER DP/CPR/xx	16. TOTAL		17. 1984		18. 1985		19. 1986		20	
	m/m	$	m/m	$	m/m	$	m/m	$	m/m	$
12.01 OPAS Experts										
13.00 Support Personnel										
14.00 Volunteers										
15.00 Experts Travel		7,000		2,000		3,000		2,000		
16.00 Other Personnel Costs		8,000				4,000		4,000		
17.01 Locally hired Experts										
17.02 Locally hired Experts										
19.00 Total Personnel Component	52	421,550	17	126,100	21	171,850	14	123,600		
20. SUBCONTRACTS										
29.00 Total Subcontracts Component										
30. TRAINING										
31.00 Fellowships		150,000		26,400		60,300		63,300		
32.00 Study Tours, UNDP G. Training/Meetings		90,000		30,000		30,000		30,000		
33.00 In-service Training										
34.00 Group Training (non-UNDP)										
35.00 Meetings/Consultations (non-UNDP)										
39.00 Total Training Component		240,000		56,400		90,300		93,300		
40. EQUIPMENT										
49.00 Total Equipment Component		566,200		300,000		210,000		56,200		
50. MISCELLANEOUS										
51.00 Operations — Maintenance		10,000		3,000		4,000		3,000		
52.00 Reports		4,500						4,500		
53.00 Sundries		10,000		3,000		3,000		4,000		
55.00 Hospitality (non-UNDP)										
59.00 Total Miscellaneous Component		24,500		6,000		7,000		11,500		
99. GRAND TOTAL:		1,252,250		488,500		479,150		284,600		

ORGANISATION OF THE PROJECT

1. Pending finalisation of the new consolidated Standard Agreement with Governments, the following standard text is to be appended to all project documents.

General Responsibilities

2. The Government, the UNDP and the Executing Agency shall jointly be responsible for the execution of the project and the realisation of its objectives as described in Part II of this Project Document.

3. The Government shall provide to the project the national project personnel, training facilities, land, building, equipment and other required services and facilities. It will designate the Government Co-operating Agency named in the cover page of this document, which will hereinafter be referred to as the "Co-operating Agency" and which will be directly responsible for the implementation of the Government contribution to the project.

4. The UNDP undertakes to complement and supplement the Government participation and will provide through the Executing Agency the required expert services, training, equipment and other services within the funds available to the project.

5. Upon commencement of the project the Executing Agency may be requested to assume primary responsibility for project execution. However, that primary responsibility shall be exercised in consultation and in agreement with the Co-operating Agency. Arrangements to this effect shall be stipulated in the project Work Plan as well as for the transfer of this responsibility to the Government or to an entity designated by the Government during the execution of the project.

6. Part of the Government's participation may take the form of a cash contribution to UNDP. In such cases, the Executing Agency will provide the related services and facilities and will account annually to the UNDP and to the Government for the expenditure incurred.

Participation of the Government

7. The Government shall provide to the project the services, equipment and facilities in the quantities and at the times specified in the Work

Plan. Budgetary provision - either in kind or in cash - for the Government's participation so specified shall be set forth in the Project Budgets.

8. The Co-operating Agency shall in consultation with the Executing Agency assign a director for the project on a full-time basis. He shall carry out such responsibilities in the project as are assigned to him by the Co-operating Agency.

9. The estimated cost of items included in the Government contribution, as detailed in the Project Budget, shall be based on the best information available at the time of drafting this project proposal. It is understood that price fluctuations during the period of execution of the project may necessitate an adjustment of said contribution in monetary terms; the latter shall at all times be determined by the value of the services, equipment and facilities required for the proper execution of the project.

10. Within the given number of man-months of personnel services described in the Work Plan minor adjustments of individual assignments of project personnel provided by the Government may be made by the Government in consultation with the Executing Agency, if this is found to be in the best interests of the project.

11. The Government shall continue to pay the local salaries and appropriate allowances of national project personnel during the period of their absence from the project while on UNDP fellowships.

12. The Government shall defray any customs duties, and pay other charges related to the clearance of project equipment, its transportation, handling, storage and related expenses within the country. It shall be responsible for safe custody of the equipment, its installation and maintenance, insurance and replacement if necessary, after delivery to the project site.

13. The Government shall make available to the project - subject to existing security provisions - any published and unpublished reports, maps, records and other data which are considered necessary to the implementation of the project.

14. The Government shall assist all project personnel in finding suitable housing accommodation at reasonable rents.

15. The services and facilities specified in the Work Plan which are to be provided to the project by the Government by means of a contribution in cash shall be set forth in the Project Budget. Payment of this amount shall be made in local currency to the UNDP in accordance with the Schedule of Payments by the Government.

16. Payment of the above-mentioned contribution to the UNDP on or before the dates specified in the Schedule of Payments by the Government is a pre-requisite to commencement or continuation of project operation.

Participation of the UNDP and of the Executing Agency

17. The UNDP shall provide to the project through the Executing Agency the services, equipment and facilities described in the Work Plan, Budgetary provision for the UNDP contribution as specified shall be set forth in the Project Budget.

18. The Executing Agency shall consult with the Government on the candidature of the Project Manager[1/] who, under the direction of the Executing Agency, will be responsible in the country for the Executing Agency's participation in the project. The Project Manager shall supervise the experts and other agency personnel assigned to the project, and the on-the-job training of national project personnel. He shall be responsible for the management of all equipment provided to the project from UNDP funds.

19. The Executing Agency, in consultation with the Government, shall assign international staff and other personnel to the project as specified in the Work Plan, select candidates for fellowships and determine standards for the training of national project personnel.

20. Fellowships shall be administered in accordance with the fellowships regulations of the Executing Agency.

21. The Executing Agency may, in agreement with the Government and UNDP, execute part or all of the project by sub-contract. The selection of sub-contractors shall be made, after consultation with the Government, in accordance with the Executing Agency's procedures.

22. All material, equipment and supplies which are purchased from UNDP resources will be used exclusively for the execution of the project, and will remain the property of the UNDP in whose name it will be held by the Executing Agency. Equipment supplied by the UNDP shall be marked with the insignia of the UNDP and of the Executing Agency.

1/ May also be designated Team Leader or Chief Technical Adviser, as appropriate

23. Arrangements may be made, if necessary, for a temporary transfer of custody of equipment to local authorities during the lifetime of the project, without prejudice to the final transfer.

24. Prior to completion of UNDP assistance to the project, the Government, the UNDP and the Executing Agency shall consult as to the disposition of all project equipment provided by the UNDP. Title to such equipment shall normally be transferred to the Government, or to an entity nominated by the Government, when it is required for continued operation of the project or for activities following directly therefrom. The UNDP may, however, at its discretion, retain title to part or all of such equipment.

25. At an agreed time after the completion of UNDP assistance to the project, the Government and the UNDP, and if necessary the Executing Agency, shall review the activities continuing from or consequent upon the project with a view to evaluating its results.

Facilities, privileges and immunities

UNDP and Executing Agency personnel

26. In accordance with the Agreement concluded by UNDP and the Government concerning the provision of assistance, the personnel of UNDP and other United Nations organizations associated with the project, shall be accorded facilities, privileges and immunities specified in the said Agreement.

Sub-contractors and their personnel

27. The Executing Agency's contractors and their personnel (except Government nationals employed locally) shall:

(a) Be immune from legal process in respect of all acts performed by them in their official capacity in the execution of the project;

(b) Be immune from national service obligations;

(c) Be immune, together with their spouses and relatives dependent on them from immigration restrictions;

(d) Be accorded the privileges of bringing into the country reasonable amounts of foreign currency for the purposes of the project or for personal use of such personnel, and of withdrawing any such amounts brought into the country, or in accordance with the relevant foreign exchange regulations, such amounts as may be earned therein by such personnel in the execution of the project.

(e) Be accorded together with their spouses and relatives dependent on them the same repatriation facilities in the event of international crisis as diplomatic envoys.

28. All personnel of the Executing Agency's contractors shall enjoy inviolability for all papers and documents relating to the project.

29. The Government shall either exempt from, or bear the cost of any taxes, duties, fees or levies which it may impose on any foreign firm or organization which may be retained by the Executing Agency and on the foreign personnel of any such firm or organization in respect of:

(a) The salaries or wages earned by such personnel in the execution of the project;

(b) Any equipment, materials and supplies brought into the country for the purposes of the project or which, after having been brought into the country, may be subsequently withdrawn therefrom;

(c) Any substantial quantities of equipment, materials and supplies obtained locally for the execution of the project, such as, for example, petrol and spare parts for the operation and maintenance of equipment mentioned under (b) above, with the provision that the types and approximate quantities to be exempted and relevant procedures to be followed shall be agreed upon with the Government and, as appropriate, recorded in the Work Plan; and

(d) As in the case of concessions currently granted to UNDP and Executing Agency's personnel, any property brought, including one privately owned automobile per employee, by the firm or organization or its personnel for their personal use or consumption or which after having been brought into the country, may subsequently be withdrawn therefrom upon departure of such personnel.

30. The privileges and immunities to which such firm or organization and its personnel may be entitled, referred to in the paragraphs above, may be waived by the Executing Agency where, in its opinion or in the opinion of the UNDP, the immunity would impede the course of justice and can be waived without prejudice to the successful completion of the project or to the interest of the UNDP or the Executing Agency.

31. The Executing Agency shall provide the Government through the Resident Representative with the list of personnel to whom the privileges and immunities enumerated above shall apply.

EQUIPMENT FOR THE LEATHER TECHNOLOGY CENTRE

1. Tannery pilot plant

Type of machinery	Estimated cost CIF, US$
Pigskin flaying machine	18,000
Experimental drums type Dosemat (2)	20,000
Hair pulling machine for pigskin	16,000
Fleshing machine, 1800 mm	32,000
Splitting machine	42,000
Sammying machine, 1200 mm	25,000
Setting-out machine, heated cylinder, 1200 mm	27,000
Shaving machine, open end,smallest	26,000
Drying unit, 12 frames (glass and toggle)	16,500
Vacuum drier, smallest	26,000
Vibrating shaking machine	25,500
Buffing machine, through-going, smallest	13,000
Dusting machine	18,500
Handspraying set and booth	9,000
Air-compressor	1,500
Printing machine, type "Roto-gravure"	18,000
Polishing machine, 3 cylinders	15,000
Glazing machine	5,500
Hydraulic press, movable bed	54,000
Plates for hydraulic press (6)	18,000
Hand tools and small equipment	5,500
Spare parts	30,000
TOTAL	452,000

2. Footwear pilot plant

Last shell vacuum forming machine	1,500
Pattern vice	1,000
Pattern shears	500
Pattern binding machine	1,000
Pattern binding moulding machine	900
Seam rubbing and taping machine	2,000
Integrated reinforcing workplace	5,000
Roughing machine with dust collector, new type	2,800
Combined finishing machine	4,000
Auxiliary equipment	4,500
Hand tools	3,000
Spare parts	10,000
TOTAL	36,200

3. Leather Goods Pilot Plant		Estimated cost in US$
Edge burnishing and creasing machine		1,200
Rivetting machine		6,500
Embossing press		6,000
Fur stitching machine		3,300
Small equipment		3,500
Auxiliary equipment		2,500
Hand tools		2,000
Spare parts		5,000
	TOTAL	30,000

4. Laboratories		
Various laboratory equipment		5,000
	TOTAL	5,000

5. Maintenance Equipment		
Die manufacturing machine		12,000
Maintenance machinery		11,000
Handtools		2,000
	TOTAL	25,000