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STRENGTHENING OF THE CHINA RAMIE TECHNOLOGY DEVELOPMENT CENTRE

DG/CPR/85/057/11-01

PEOPLE'S REPUBLIC OF CHINA

Technical report: Fourth mission*

Prepared for the Government
of the People's Republic of China
by the United Nations Industrial Development Organization

Based on the work of Mortimer O'Shea, senior technical adviser

Backstopping officer: J.P. Moll, Agro-based Industries Branch

5/79

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ABSTRACT

Objectives

The objectives of this report are to record:

- the discussions at Changsha between the CTA and the NPD and his Counterpart Staff concerning subcontract tenders received for the various technological outputs.
- the further discussions at CICETE head office in Beijing between UNDP, CTA, CICETE, MTI and RTDC
- discussions at the RTDC with NPD and staff in order to clarify matters to be reported in the PPER with advice on how to complete the forms
- the progress made in the nine outputs as per the PRODOC.

Major recommendations

Following certain clarifications to award subcontracts as follows:

- Degumming.....Novo Nordisk A/S
- Spinning..... within PRC
- Dyeing/Finishing.... University of Leeds
- Weaving..... University of Leeds
- Knitting..... within PRC

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SUMMARY

The report deals with the discussions between the CTA, UNDP, RTDC, CICETE and MTI key staff concerning the subcontract offers received up to June 19 and the decisions reached, including further approaches to be made by the CTA to the University of Leeds in order to clarify and/or modify their tenders. Also dealt with are the preparation of the PPER and the progress made in all nine outputs as per the PRODOC.

RATE OF EXCHANGE: One US Dollar equals 4.71 Yuan

1.00 Discussion of subcontract tenders

1.01 at RTDC- The tenders discussed were as follows:

- degumming from LIRA, University of Leeds, Novo Nordisk
- spinning from LIRA, University of Leeds
- dyeing/finishing from LIRA, University of Leeds
- weaving from University of Leeds
- knitting from University of Leeds

All offers were discussed fully and it was felt that the offer on degumming by Novo Nordisk A/S was more attractive than either that from LIRA or the University of Leeds. It was felt that although Lira had an excellent reputation in the Linen industry, they lacked experience in the Ramie industry. The offer from the University of Leeds on degumming indicated that they intended experimenting with chemical agents that had already been fully explored by RTDC and rejected as not leading to any worthwhile improvements in processing.

It was felt that the University of Leeds had an excellent reputation in weaving technology and that, therefore, they should be considered for that subcontract. Similarly, it was felt that the University of Leeds would have superior facilities and personnel to deal with dyeing and finishing than those at LIRA.

The financial or budgeting constraints were fully discussed and it was clear that there would be a substantial shortfall if all five areas of technology were to be subcontracted to foreign organizations. Consideration was, therefore, given to having the subcontracts for :

- spinning
- knitting

undertaken by PRC institutions

1.02 at CICETE, Beijing- the following is a summary of the alternatives proposed by the NPD with the financial requirements:

The total available budget from UNIDO now stands at \$264,000. This figure is arrived at by cancelling and reallocation of certain Budget Lines.

Proposal A

output	money allocation in US \$
degumming	50,000
dyeing/finishing	70,000
weaving	50,000
travel	54,000
PRC technicians' travel	40,000
spinning and knitting	60,000
<u>total</u>	<u>324,000</u>

Total available monies are made up as follows:

activity	US \$
commercial training	80,000
experts	60,000
subcontracts	206,000
<u>Total</u>	<u>346,000</u>
'surplus'	22,000

Proposal B

output/activity	money allocation in US \$
degumming	70,000
dyeing/finishing	100,000
weaving	cancel
travel for foreign experts	36,000 (two m/m)
travel for PRC technicians	40,000
spinning and knitting	60,000
<u>Total</u>	<u>306,000</u>
'surplus'	40,000

Note: The foregoing figures are quoted verbatim as given by NPD and are different from those arrived at during the discussions at RTDC. The CTA was not provided with a pre meeting translation of the fresh proposals.

Decisions - the following decisions were made, subject to approval by UNIDO:

- 'base lines' for measuring progress by subcontractors. These to be set by the NPD as soon as possible. They will summarize the present status of the technologies .
- the subcontracts to be allocated as follows with the original terms of reference unchanged:
 - the NPD to prepare a degumming specification for UNIDO, contact Novo Nordisk A/S and request them to visit PRC in July. It is hoped to have a contract signed by October. This to be processed by UNIDO.
 - the CTA to get approval from UNIDO to visit the University of Leeds towards end July and negotiate and clarify certain aspects of their original tenders such as the excessive number of visits by their experts to PRC as well as the proposed duration of such visits; the 'technology base lines' which will have been provided by the NPD.
- tenders involved are:
 - dyeing/finishing
 - weaving

- the remaining two subcontracts for:

- spinning
- knitting

to be awarded to PRC institutions following the submission of tenders by three candidates for each of the technologies. These also to be subject to the original terms of reference as well as the 'base lines'

The NPD has undertaken to provide the 'base line' specifications before 15 July so that the contracts can be signed before October. It is proposed to use the 'Government Executed' Commercial Training Fund of \$80,000 for this purpose.

- an offer by an Italian Textile Research organization- CERIT SpA- was rejected. They would undertake all the subcontracts for \$2M with the proviso that machinery would have to be purchased from them.
- the NPD feels it essential in the case of the University of Leeds, that their senior expert should visit Changsha and become familiar with the RTDC facilities and that he should also visit a number of Ramie mills before commencing any work on subcontracts; also, that some of the RTDC senior technical staff should visit Leeds following the return of the Leeds expert. The cost of the Leeds expert's visit to be borne by the University initially. The cost of the RTDC technicians is not to be part of the subcontract but Leeds would be expected to find accommodation.

Monitoring of progress- the subcontractor will be expected to furnish regular progress reports to the NPD to enable him to closely monitor whether the conditions of contract are being met and report any failures or unsatisfactory work to UNDP.

2.00 Discussion on progress of outputs

2.01 Degumming- a degumming research division was established in the new Centre. The staff includes one senior researcher and three assistants. They have been studying ways of greatly improving the efficiency of degumming and the optimum use of oiling agents and auxiliaries.

They have published the following research reports:

- Studying and producing new Ramie degumming oiling agents
- Modification of Cobalt 60r radiation with degummed Ramie fineness
- Comments on the main target of Ramie Degumming
- Studies of Danish enzymes in Ramie Degumming
- Quantitative analysis of main chemical compositions in Ramie fibre

Research reports in course of preparation are:

- Tests on cut staple Ramie degumming and Ramie modification
- Tests on fast Ramie degumming under normal pressure

Technical services for the Ramie mills have been provided as follows:

- For Zilang Degummed Ramie Mill in Shimen County, advice on the setting-up of the mill and on the installation and adjustment of machines.
- For a degummed Ramie mill in Nangao County, Shanxi Province, advice on setting-up of the mill, the installation and adjustment of machines.
- For a degummed Ramie mill in Su Xiang County, the examination of products for quality standards.
- For a Ramie Spinning and Weaving mill in Zhi Jiang County and Zhimucheng Ramie Spinning and Weaving mill in Yuan Jiang County, providing Ramie modification technical services.
- Generally in Hunan Province, providing an assessment of a proposed importation of a Taiwan degumming technique.

2.02 Spinning- the new Pilot Production Plant machinery will be installed very soon. The range will include:

- A set of 1200 spindles for mid length spinning
- " " " 1600 " " long staple spinning
- A Walker-6000 Parallel Spinning Frame
- A MK 3 Fancy Spinning machine

2.02.1 Technical Papers and Test Reports on Spinning have been published on the following topics:

- Studies on middle length Ramie/Polyester spinning process and equipment
- Studies on self-twist spinning and products
- Studies on new middle length Ramie products
- The prospects for reaearch on middle length combed pure Ramie yarn
- The use of vortex spinning in Ramie yarn production
- The study and production of middle length Ramie/Cotton blended yarns
- The study and production of cut staple Ramie/Cotton blended wrap-spun yarn
- Tests on Ramie parallel yarn spinning
- Tests of Ramie fancy yarns
- Study and production of Ramie/Cotton flecked yarn
- Study and production of combed and blended Ramie/Cotton yarns

2.02.2 The Spinning Laboratory is being established and will include:

- A small-scale cotton picking, carding, etc. machine set

-All essential test instruments for yarn quality

2.02.3 Technical services for mills include:

-Product development and assistance with quality problems for mills in the Provinces of:

Hunan
Jiangxi
Hubei
Henan
Liao Ling
Shan Dong

-The holding of a Training Course for spinning technicians

2.03 Weaving- a weaving research division is operational within the textile research department of the new centre. Staff includes one senior engineer and four assistants. Equipment includes a set of sample weaving looms and essential test equipment.

2.03.1 The pilot plant, soon to be operational will include:

- Four 140cm wide 1515 looms
- Four 187cm wide " "
- One Somet SM93-1900 Rapier loom (now landed PRC)
- Appropriate ancilliary equipment for winding, sizing, warping, etc.

2.03.2 The following papers and reports have been published:

- The production of Polyester/Ramie blended (fibre/fibre) fabrics
- The production of Ramie/Polyester fibre/fibre blended Jacquard fabrics
- The production of Ramie/Polyester fibre/fibre blended yarn-dyed fabrics
- The production of Cotton/Polyester and Ramie/Polyester blended yarn-dyed fabrics
- The production of Wool, Ramie and Acrylic-blended yarn-dyed check fabrics
- The production of Ramie/Cotton fibre/fibre blended Denim
- The production of pure Ramie and cotton mixture fabrics
- The production of fancy yarn and Ramie/Cotton yarn cross-dyed fabrics
- The production of pure Ramie dyed check fabrics
- The production of pure Ramie dyed stripe fabrics
- Report on experiments to determine appropriate after treatments for newly-developed Ramie products
- Report on experiments with the weaving of newly-developed yarns

2.03.3 Technical services have been provided as follows:

- New product development
- Adjusting and testing of equipment
- Improving quality control

Clients include the mills of:

Yichun City- Jiangxi Province
Yuan Jiang - Hunan Province

2.04 Knitting- A knitting research division has been set up within the textile research department of the new centre. Staff includes one engineer and four assistants. The objective is to provide an ongoing new product development service.

2.04.1 The following pilot plant machines are either already available or will shortly be delivered:

- One domestic circular knitting machine 75cm, 18 gauge
- " " " " " " " 24 "
- " loop wheel knitting machine
- Two flat-bed " "
- One imported Jacquard circular knitting machine
- One non-needle knitting machine

2.04.2 The following papers and reports have been published:

- Experiments on the development of knitted outerwear fabrics of Ramie/Polyester medium length staple
- The development of T-shirts of pure Ramie
- A study of organosilicon softener treatment for Ramie
- Production of a vest made from pure Ramie staple yarn
- Development of cut pile round neck shirts and children's wear from Ramie tow and cotton blended yarn
- The production on a flat-bed knitting machine of a pure Ramie yarn dyed sweater
- The production on a flat-bed knitting machine of Ramie/Cotton blended yarn dyed sweaters
- The production of womenswear from Ramie/Cotton blended slub yarns
- The production of pure Ramie knitted suitings
- The production of knitted underwear from worsted-spun Ramie tow and cotton blended yarns
- The production of furnishing fabrics from oe spun yarns on bearded needle warp knitting machine
- The production of round necked shirts from worsted spun Ramie tow and cotton blended yarns

2.04.3 Technical services were provided for the adjustment of testing equipment and to improve quality control and develop new products for :

- A knitting mill in (Wingxiang) in Hunan Province
- Mills in HengYang, Changsha, etc.

2.05 Dyeing and Finishing- A Dyeing and Finishing research division is operational and staffing includes one engineer and three assistants.

2.05.1 The laboratory has the following equipment:

- A small-scale steamer, dryer and padder
- Sample dyeing
- Hank and Cone dyeing equipment (awaiting delivery)
- Small-scale continuous baking equipment (awaiting delivery)
- Various items of ancilliary equipment

2.05.2 Papers and reports have been published on the following:

- The study of organosilicon softening treatment
- Softening treatment for Ramie fabrics
- A preliminary study on "hygienic" finishing of Ramie fabrics

2.05.3 The division is actively involved with other divisions in the pursuit of quality control improvements

2.06 Automation- An automation research group including mechanical and automotive technicians is operational.

2.06.1 Recent work includes:

- Cooperation with a Hunan textile machinery manufacturer in the assessment of a new machine for opening and drawing
- Computer applications in management
- Preliminary testing of automatic control of oil concentration in the continuous oiling of Ramie
- Preliminary study of analysis and forecasting system for Ramie textiles product quality

2.07 Textile Testing- This division is operational and has a staff of 32 and is well equipped. The main function is to test in the pursuance of quality control for the mills in Hunan Province but they regularly undertake tests on Ramie textiles for the whole country. This service is made available through the MTI. Test methods and quality standards currently used for Ramie and Cotton are to AATCC standards. Various National standard tests are also undertaken. Among their achievements have been:

- The training of 259 workers in chemical examination and testing since 1985
- Re-testing of high grade products.....57 samples
- Testing of high grade products.....1394 "
- Export testing.....81 "
- Control-testing.....449 "
- Routine testing.....3669 "

2.08 Training- Already a training course for 25 spinning technicians has been held. Training courses for the other technological areas will follow over the next two years.

2.09 Information Department- The Science Association and the Textile Engineering Association are in charge of consultancy. 19 consultations have been undertaken since 1988. There is a staff of 12 comprising a Technical Information Group, an Editorial Group and an Interpreter Group.

2.09.1 Their work includes:

- The editing of the magazine "Ramie News"
- The provision of an interpreting service for the mills in Japanese, English and Russian
- The provision of information services in:

technology
statistics
general

- The establishment of an indexing system for quick retrieval of information such as articles of specific interest to the Ramie industry.

2.10 General-

- The RTDC sponsored the first international symposium on Ramie
- The Ramie branch of the China Bast and Leaf fibres Textile Association is located at the centre, the NPD is its president
- Communications on technology are being pursued with foreign countries and recently they have accepted study groups from:

Japan
Brazil
Zimbabwe
Thailand
Indonesia
Romania
Philippines
Denmark
Switzerland

- The major Hong Kong fabric trader maintains contact with the centre
- Close collaboration is maintained with the Hong Kong Tian-Xiang Testing Centre with which data and test results criteria are exchanged. There has also been an exchange of visits.

2.10.1 Government coordinated work:

- Draft programme for the development, use and implementation of the Ramie fibre (MTI)
- The process line for Ramie textile technology (MTI)
- The statistical and economic investigation and analysis of Ramie resources (Hunan Province)
- The revision of the standards for Ramie textile products (MTI)
- Standards for Ramie tops (Hunan Huasheng Ramie Textile Enterprise Group Corporation)

3.00 Progress on buildings- there has been considerable progress since my previous mission report. The Pilot Production building is now nearing completion and machinery as well as services should all be operational before October next. There are a number of reasons for the delays including:

- Weather.....more than half a year is a 'rainy season'
- Employees... construction companies employed farmers who were obliged to return twice a year to do farm work
- Concrete.... is difficult to set during winter

Installation of machinery can now commence on the second floor which is ready; the first floor will be ready early July. Lifts are ready for installation.

The high rise building is largely operational already although certain vital equipment is still not available. The second floor of this building is to be dedicated to an Exhibition area. They could now provide full laboratory facilities for a Degumming expert who should be able to carry out large scale experiments at the mills.

The project is still short of money. 19M ¥ is required and they have got 16M ¥. The government have promised to support them. Permanent connections to services such as electricity and steam have not yet been made.

All staff and equipment have been removed from the old centre and installed in the new one.

All PRC-purchased machinery has been delivered.

The balance of foreign machinery is due for delivery in the next two months.

4.00 Fellowships- Of the five Fellows sent abroad, two have returned. They are:

- Huang Shao Shi (from USA)
- Chen Xiu Ying (from Japan)

Zhou Wei who is in USA is expected to return soon: however, Zhong Xiang Yuan should have returned last April and is now pursuing a PhD course at the University of Maryland against the wishes of the NPD. Similarly, Liu Jiyin should have returned

last December but is also pursuing further studies for MSc. The NPD would appreciate any assistance that UNIDO may be able to offer in the matter of Fellows failing to return as their loss to the project will be severely felt.

5.00 Study Tour- The second Study Tour of this project took place since my last mission. Countries visited were:

Japan
Philippines
Hong Kong

The tour is considered to have been a success but with some reservations.

5.00.1 Japan- the participants looked at machinery manufacture and marketing but were not allowed visit any of the Ramie factories. The NPD cannot understand why this was the situation as they at the RTDC are always very open and cooperative towards visitors.

5.00.2 Philippines- here they looked at agricultural developments but again were not allowed inside a Ramie mill.

5.00.3 Hong Kong- they studied some Ramie marketing projects

5.00.4 Further Study Tour- the RTDC feel that it would be futile to undertake any similar future study tour whilst the attitude to factory visits remains.

6.00 Talk by CTA for RTDC staff and mill representatives
The talk on the importance of other than technical parameters such as the aesthetics of product development, suitability for the market, packaging and promotion and other aspects of marketing was given to approximately 50 people. It was well received.

7.00 PPER- The CTA assisted the NPD in the preparation of the PPER which was slightly overdue. This report is more positive than previous PPERs.

ANNEX I NOVO NORDISK A/S OFFER

The China International Centre for
Economic and Technical Exchanges

May 11, 1990

Beijing
CHINA

Invitation No. : ICE-B8800705
Project Title : Ramie Development Centre
Project No : CPR/85/057

As per your invitation we hereby return our bid related to above mentioned tender.

Reference is made to intermediate correspondence between ICETE and Novo Nordisk Malaysia.

1. Conditions for the Development Project

Novo Nordisk Malaysia's participation in above mentioned tender is subject to conditions stated in "Enclosure No. 1 - Conditions for the Development Project".

2. Results of the Development Project

The Development Projects objective is to improve the quality of finished raw ramie (pure and blends) fabric.

To evaluate the results at the end of the Development Project period, "Enclosure No.2 - Results of the Development Project" will be the basis.

Swatch A as an untreated reference.

Swatch B as an enzyme treated reference. The degree of finishing (handle and appearance) will at least be as good as per swatch B.

3. Timeframe

The preliminary work with respect to the Development Project has already been initiated via contacts to Ramie Technology Development Centre of China and YiYang Ramie Textile Printing and Dyeing Mill.

The obligations (see para 2) with respect to the Development Project will be fulfilled no later than by the end of 1991.

4. Payment and Terms

The payment for the Development Project will be effectuated via the sales of Novo Nordisk enzymes for degumming, desizing and bio-polishing to the China Ramie Industry as per following :

- a 5 year exclusivity period for Novo Nordisk enzymes to the PRC Ramie Textile Industry.
- the exclusivity to commence at the date of accepting bid.
- the enzymes to be supplied throughout the exclusivity period to be priced 20% higher than documented average South East Asia market prices for the same Novo Nordisk enzymes.

5. Bidder's name and address

Novo Nordisk A/S
Suite 7.4-5 7th Floor See Hoy Chan Plaza
Jalan Raja Chulan
50200 Kuala Lumpur

Tei : 60-3-2303267/68 Fax # 60-3-230943
Tlx : 31287

Signed on behalf of Novo Nordisk A/S, Malaysia

(signed)
Flemming Soderquist
Area Manager

Encl.

Enclosure No. 1

Conditions for the Development Project

Re : Invitation No. ICE-B8800705, Ramie Development
Centre, Project No. CPR/85/057

Novo Nordisk A/S, Malaysia can offer their participation in above mentioned tender on the following basis.

1. The Objective

To assist in developing an improved quality of finished ramie and ramie blend fabric.

2. The Development Project

To achieve the under paragraph 1 stated objective by the use of biotechnological enzymes within the following process steps:

A) Finishing

a) Bio-Polishing of Fabric

Latest technology to enhance the fabric handle (softness and smoothness of surface) and appearance (elimination of hairiness).

b) De-sizing of Grey Fabric

Complete removal of starch based sizes in shortest possible time without damaging the fibers to ensure the integrity of the fabric.

B) De-gumming

A bio-assisted or bio-only process resulting in acceptable fiber quality parameters, reduced processing time, cost-effectiveness (reduced energy consumption), less pollution and thus environmental load.

3. The Scope of Work

To effectuate the under paragraph 2 stated development project following activities will be part of the work :

- produce new and necessary process specifications containing standards, which can act as basis for the development of a Technology Package and an effective industrial implementation of the optimal process in the whole of China.
- necessary laboratory work at Novo Nordisk's premises supported by laboratory reports and samples.
- a close cooperation with the clients textile experts and trials at the clients premises to ensure best possible industrial reproducibility of laboratory scale results.
- at all time ensure that the process development is based on up-to-date selection of enzymes from Novo Nordisk Research and Development.
- integrate the clients textile experts in the development work in such a way, that necessary training and basis for continuing the work by the client is accomplished.

4. The Reservations

Novo Nordisk's participation in the tender is subject to the following :

- Novo Nordisk does only take part in the actual development work and can thus not submit any hardware (machinery, pilot plant, etc) plus be responsible for future process installations based on future technology packages.

- The basis for the Development Project is a cooperation between the client and Novo Nordisk.
- Novo Nordisk takes the right to use any non confidential results from the Development Project commercially.

Enclosure No. 2 - Results

RE : ENZYMATIC TREATMENT OF RAMIE FABRIC

Swatch A :

Untreated
Ramie/Cotton Blend : 55/45

Swatch B :

Enzyme Treated
Ramie/Cotton Blend: 55/45
Cellusoft to 3.3% weight loss

ANNEX II RAMIE FASHION SHOW (as reported in 'China Daily'
Business Weekly of June 3 1990)

Ramie fashions for the natural look

by our staff reporter

Once again last week, the eyes of fashion-conscious domestic consumers were focused on Beijing.

The occasion was the week-long ramie garment fashion show which ended on Monday.

With contributions from 325 enterprises and the China Garment Research and Design Centre, the fashion show has established itself as a glamorous showcase for the country's finest ramie garments — as well as

the prime spot from which to tap into the booming international market.

The eight fashion shows were also accompanied by a sales exhibition, which has matched the excitement of the shows by its ability to generate business.

Thousands of buyers converged under one big roof at Longfu Department Store, one of the city's biggest shops, to satisfy their eyes as well as loosen their purse strings.

The current "back to nature" trend

in the world textiles market is boosting the status of ramie and raising the demand for ramie products from the domestic consumers.

This tendency coincides with the Textile Industry Ministry's drive to develop ramie products in order to make up for the shortage of cotton, which has seriously hindered the development of the textile industry.

Ramie cloth, with a coarse and loose texture, looks casual and in good taste. It is mainly made into such clothes as shirts, T-shirts, skirts,

trousers and underwear, because it is cool. And it can also be made into Western-styled suits, and processed into articles for decoration, such as curtains, bedcovers and table clothes.

China produces 300,000 tons of ramie every year, amounting to four-fifths of the world total.

However, limited by processing techniques and the high price of ramie products (ramie cost three times as much as cotton in 1986), China's ramie products used to be neglected by consumers at home and abroad and there was a large surplus of ramie every year.

In order to encourage the use of more ramie, the State Council formulated a policy in December 1988, that there would be a refund of 25 yuan in taxes for every 50 kilograms of ramie used by an enterprise.

The State Science and Technology Commission earmarked two million yuan (\$424,000) for developing seven series of ramie products in 1989, including pure ramie products; ramie, cotton and chemical fibre blends: warp-knitted, warp-knitted and crochet ramie products.

Accordingly, the Textile Industry Ministry proposed that 1989 was the year for exploiting ramie products and organized technical forces to tackle problems.

By the end of last year, China already had a ramie production capacity of 640,000 spindles, consuming 200,000 tons of ramie every year.

China produced 150 million metres of ramie cloth and exported 41,614 tons of ramie yarn and 88.37 million metres of ramie cloth last year, worth \$136 million.

Ramie products are in good demand in Hong Kong, Japan, the United States, South Korea and Southeast Asia.



Models ambling in bright summer designs at the ramie fashion show held last week in Beijing. Xinhua photo by Zhang Ruiqi

ANNEX III - LETTER FROM UNIVERSITY OF LEEDS RE FELLOWSHIP

12 July

Mr. Director
Ramie Technology Development Centre
Chigangchong, Changsha, China

Dear Sir,

Re: Xiang-yuan, Zhong

Now that Ms. Zhong has been working at the University of Leeds for nine months. I am writing to give you a brief report. I am very happy to say that Ms. Zhong is doing extremely well here. She is an outstanding student and a credit to your Centre. The research that Ms. Zhong has carried out concerns the investigation of modern looms and sizing technology. Among which she devoted most of the time on rapier construction of new models, weft inserting principles and selvage. She looked into the substantial US, EP and BP Patents of recent years. Moreover she looked back the history of rapier looms including the first single and double rapier looms. During past 9-months, Ms. Zhong went to several textile companies for visits and practice. She is so anxious to learn up to date technology. She, therefore, has taken full advantage of the limited time. All in all she is a flexible, adaptable and diligent lady, gives me a deep impression.

As the continuation of her studies, I contacted a former student of mine, Dr. White, now associate professor in Cornell State University, has specialized in computer-aided-design of shuttleless looms and woven fabrics, and he agreed to receive her.

I thank you very much for allowing Ms. Zhong to work with Dr. White; It will be a fruitful collaboration.

为了她的进一步学习, 我与以前的学生, 现在美国康耐尔大学任教, white 博士联系, 她将在
下暑假赴美国康耐尔大学。我非常感谢你们的同意让中女士与 white 博士一起工作。此致

Sincerely yours,

是. 张有成 敬上

(Signed)
Dr. K. Hepworth
Lecturer in Textile Engineering

ANNEX IV - The National Project Director's reply to
University of Leeds letter

CHINA RAMIE TECHNOLOGY DEVELOPMENT CENTRE

Sept. 2, 1989

Dr. K. Hepworth
Department of Textile Industries
University of Leeds
U.K.

Dear Dr. K. Hepworth:

I am grateful to you for your industrious training Miss Zhong Xiangyuan and your praise of her hard working. You and the University of Leeds have made great contributions to training technician for us. And also this was an effective mutual cooperation of us.

According to the Plan of UN Project, Miss Zhong Xiangyuan should return to her native country on the 4th of April in 1989. And because of the demand of cur work, I wanted her to come back to carry out assignment, she also should return to China immediately. Once I had to agree to extend a little time of her study because I wish that she would perfectly complete her training task in factory.

Now that I can not agree that Miss Zhong Xiangyuan went to the United States of America at her own expense, I will obliged to for your supervising and urging her to return to her native country.

Best Wishes.

Sincerely,

(Signed)
Xu Kui
Director of RTDC

RUN-DATE 1990-05-07
UNTD0 - UMAP02/B

DETAIL REPORT ON PROJECTS AS AT 1990-04-30
BY PROGRAM ELEMENT AND COUNTRY

PROJECT NUMBER: DG/CPR/86/067

PAGE 1127

PROJECT TITLE STRENGTHENING OF THE CHINA RAMIE TECHNOLOGY DEVELOPMENT CENTRE

BACK STOPPING OFFICER: MR. MOLL
PROJECT REVISION: E
PROJECT STATUS: O - ONGOING
PGM-ELEMENT CODE: J13102
FIRST ISSUED: 86-08-02

LAST UPDATED: 89-10-12

BUDGET LINE	DESCRIPT	TOTAL ALLOTMENT		CURR YR PHASING		PRIOR YEAR EXP.		CURR YR DISB.		BAL. CURR YR OBL.		COMMITTED FUTURE YEARS (11)	BALANCE CURR YR (12)	UNCOMMITTED BALANCE (13)	YTD IMPL VERSUS PHASING (14)
		M/M (1)	DOLLARS (2)	M/M (3)	DOLLARS (4)	M/M (5)	DOLLARS (6)	M/M (7)	DOLLARS (8)	M/M (9)	DOLLARS (10)				
11-01		4.5	49,500	0.5	4,224	3.8	51,434	0.0	0	0.0	9630	0	(4-8-10)	(2-8-8-10-11)	
11-02		2.8	19,314	0.0	0	1.2	10,314	0.0	0	0.0	0	0	5,408-	11,964-	
11-03		1.0	9,000	1.0	0	0.0	0	0.0	0	0.0	0	0	0	9,000	9,000
11-04		1.0	9,000	1.0	0	0.0	0	0.0	0	0.0	0	0	0	9,000	9,000
11-05		1.0	9,000	1.0	0	0.0	0	0.0	0	0.0	0	0	0	9,000	9,000
11-06		2.0	18,000	1.0	0	0.0	0	0.0	0	0.0	0	0	0	9,000	9,000
11-07		1.0	9,000	1.0	0	0.0	0	0.0	0	0.0	0	0	0	9,000	9,000
11-08		1.0	9,000	0.0	0	0.0	0	0.0	0	0.0	0	0	0	9,000	9,000
11-50		3.0	29,803	3.0	29,803	0.0	0	0.0	0	0.0	0	0	29,803	29,803	
11-99	INTEPERT	17.3	181,817	7.8	70,027	8.0	81,748	0.0	0	0.0	9630	0	80,397	90,238	
18-00		0.0	22,000	0.0	8,483	0.0	0	0.0	0	0.0	0	0	8,483	22,000	
18-12		0.0	0	0.0	0	0.0	9028	0.0	1248	0.0	853	0	1,898-	10,824-	
18-99	OTHERPERS	0.0	22,000	0.0	8,483	0.0	9028	0.0	1248	0.0	853	0	4,884-	11,078-	28 %
18-01		0.0	0	0.0	0	0.0	1500-	0.0	0	0.0	0	0	0	1,500	
18-99	SUR PY OB	0.0	0	0.0	0	0.0	1500-	0.0	0	0.0	0	0	0	1,500	
19-99	PERSONNEL	17.3	183,817	7.5	78,490	8.0	89,273	0.0	1248	0.0	10283	0	84,981	102,818	15 %
21-00		0.0	208,978	0.0	140,000	0.0	0	0.0	0	0.0	0	0	140,000	208,978	
21-99	SUBCONTR	0.0	208,978	0.0	140,000	0.0	0	0.0	0	0.0	0	0	140,000	208,978	
29-99	CONTRACTS	0.0	208,978	0.0	140,000	0.0	0	0.0	0	0.0	0	0	140,000	208,978	
31-00		0.0	129,590	0.0	80,882	0.0	0	0.0	0	0.0	0	0	80,882	129,590	
31-01		0.0	0	0.0	0	0.0	11209	0.0	0	0.0	0	0	0	11,209-	
31-02		0.0	0	0.0	0	0.0	25450	0.0	0	0.0	0	0	0	25,450-	
31-03		0.0	0	0.0	0	0.0	15708	0.0	0	0.0	0	0	0	15,708-	
31-04		0.0	0	0.0	0	0.0	17081	0.0	0	0.0	0	0	0	17,081-	
31-05		0.0	0	0.0	0	0.0	9232	0.0	70	0.0	8448	0	5,518-	14,748-	
31-99	FELLOWS	0.0	129,590	0.0	80,882	0.0	78878	0.0	70	0.0	8448	0	55,188	45,395	9 %
32-00		0.0	88,814	0.0	0	0.0	0	0.0	0	0.0	0	0	0	88,814	
32-01		0.0	0	0.0	0	0.0	49314	0.0	0	0.0	0	0	0	49,314-	
32-02		0.0	0	0.0	0	0.0	0	0.0	105	0.0	32480	0	32,585-	32,585-	
32-99	STUDYTOUR	0.0	88,814	0.0	0	0.0	49314	0.0	105	0.0	32480	0	32,585-	4,908-	
38-99	TRAINING	0.0	218,404	0.0	80,882	0.0	127892	0.0	178	0.0	37938	0	22,571	80,301	82 %
51-00		0.0	9,000	0.0	2,184	0.0	0	0.0	0	0.0	0	0	2,184	9,000	
51-21		0.0	0	0.0	0	0.0	285	0.0	0	0.0	0	0	0	285-	
51-40		0.0	0	0.0	0	0.0	2889	0.0	0	0.0	0	0	0	2,889-	
51-99	SUNDRIES	0.0	9,000	0.0	2,184	0.0	3154	0.0	0	0.0	0	0	2,184	5,816-	
58-01		0.0	0	0.0	0	0.0	58-	0.0	0	0.0	0	0	0	58	
58-99	SUR PY OB	0.0	0	0.0	0	0.0	58-	0.0	0	0.0	0	0	0	58	
59-99	MISC.COST	0.0	9,000	0.0	2,184	0.0	3098	0.0	0	0.0	0	0	2,184	5,804	
99-99	PROJ TOT.	17.3	616,000	7.8	278,388	8.0	200381	0.0	1421	0.0	48218	0	278,728	385,999	17 %

ANNEX VI

TC/TA/85/057 - Comparative Schedule of Tenders for Technology Subcontracting

		DATE	NUMBER OF PERSONNEL	MAN MONTHS	COST IN US \$ PER MAN MONTH	TOTAL COST IN US \$	INFLATION RATE	MAN DAYS	RATE PER DAY IN US \$	TOTAL IN US \$	NUMBER OF REPORTS	RATE PER REPORT	RATING OF PERSONNEL ON A 1-10 SCALE	NUMBER OF TECHNICAL TICKETS HOME/CHINA	NUMBER OF TECHNICAL TICKETS HOME/VIETNAM	NUMBER OF TRAINING	OVERALL RATING ON A 1-10 SCALE
1. PROFESSIONAL SERVICES	LIRA	13-34	04	7.15	287.00	28,700					03	2500	08				
	LEEDS	N/A	02	3.00	19,000	38,000					05	1000	07				
DYE/PRINT/FINISH	LIRA		03	9.69	2907.00	290,700					01	2500	07				
	LEEDS		02	3.00	10,000	20,000					05	1000	07				
SPINNING	LIRA		02	8.54	2250.00	225,000					03	2500	07				
	LEEDS		02	3.00	10,000	20,000					05	1000	07				
WEAVING	LIRA		00	N/T	N/T	N/T					00	-	N/A				
	LEEDS		02	3.00	10,000	20,000					05	1000	10				
KNITTING	LIRA		00	N/T	N/T	N/T					00	-	N/A				
	LEEDS		02	3.00	10,000	20,000					05	1000	07				
RESEARCH OFFICER	LIRA		03	4000	12000	120,000							07				
	LEEDS		01	2400	2400	24,000								07			
TECHNICIANS	LIRA		00	-	-	-							08				
	LEEDS		01	2400	2400	24,000								07			
TOTAL HOME OFFICE	LIRA		05	364		30,860											
LEEDS			08	66.00		308,600											
2. SUBSISTENCE																	
A. PROJECT AREA	LIRA							10%	83	15687			07				
	LEEDS							422	83	35856			06				
B. BREWING/DEBREWING	LIRA							18	129	2322			04				
	LEEDS							26	129	3366			07				
C. OTHER	LIRA							NONE	-	-							
	LEEDS							NONE	-	-							
TOTAL SUBSISTENCE	LIRA									18009			07				
LEEDS										36372			06				
3. TRAVEL/TRANSPORTATION																	
LIRA										34500			06				
LEEDS										94600			05				
4. REPORTS/MANUALS																	
LIRA										22500	07		05				
LEEDS										25000	25		10				
5. OTHER DIRECT COSTS																	
LIRA										NONE							
LEEDS										NONE							
6. EQUIP., PAT., SUPP.																	
LIRA										1600							
LEEDS										NONE							
7. SUBCONTRACTS																	
LIRA										NONE							
LEEDS										NONE							
8. GRAND TOTAL (1-7) +																	
LIRA							10%			34029							6.15
LEEDS						46950	7%			44043							8.00
PART II.																	
A. CURRENCY REQUIREMENTS																	
a) Contractor's																	
LIRA										302362							
LEEDS										400433							
b) Local																	
LIRA										15727							
LEEDS										NONE							
c) Other																	
LIRA										NONE							
LEEDS										NONE							
B. TRAVEL & TRANSPORT																	
LIRA										34560			08	07	06		
LEEDS										94600			06	23	03		
TRAINING																	
LIRA							NOT										NOT
LEEDS						24150	7%			114047							13

* followed by "EXTRA" COST ABOVE
 ** STAYING NUMBER
 *** CORRECT VERIFICATION
 N/T=no tender
 N/A=not available

ANNEX VII PERSONS MET

Name	Organization and Title
Ms Wang Wei Li	The China International Centre for Economic and Technical Exchanges (CICETE) - Programme Officer
Mr. Zhong Changsheng	Department of International Cooperation Ministry of Textile Industry (MTI)-Deputy Division Chief-International Organization Division
Mr. Chen Rong	MTI-Programme Officer, International Organization Division
Mr. Xu Kui	Ramie Technology Development Centre of China- (RTDC) - Director and National Project Director
Mr. Zhang Jian Wu	RTDC-Vice Chief Economist and Assistant NPD
Mr. Mao De He	RTDC- Senior Engineer
Mr. Huang Xiang Si	RTDC- Senior Engineer
Mr. Huang Shao Shi	RTDC- Knitting Technologist
Ms Li Mei	RTDC- Interpreter/Designer
Mr. Xiang Ce Xuan	Former Assistant NPD now in new post working for government of Hunan
Ms Zhang Xi Wei	UNDP- Programme Officer (Senior Engineer)

ANNEX VIII

Itinerery and work schedule

Date	Activity
31.5.90	Travel Kilkenny to Dublin; to Vienna via London
01.6.90	at UNIDO, Vienna
02.6.90	Travel Vienna to London: London Hong Kong
03.6.	Hong Kong Beijing
04.6.	in Beijing c/o MTI
05.6	in Beijing c/o UNDP and MTI
06.6	to Changsha with Mr. Chen Rong of MTI
07-16.6	in Changsha, mainly at RTDC
17.6	to Beijing
18-19.6	in Beijing, meetings with UNDP, MTI and CICETE
20.6	to Copenhagen and Vienna
21.6	at UNIDO for debriefing
22.6	to Dublin and return Kilkenny

ANNEX IX Explanation of abbreviations used

RTDC	Ramie Technology Development Centre
CTA	Chief Technical Adviser
NPD	National Project Director
PRC	People's Republic of China
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
PPER	Project Performance Evaluation Report
AATCC	American Association of Textile Chemists & Colourists
PRODOC	Project Document
CICETE	China International Centre for Economic and Technical Exchanges
MTI	Ministry of Textile Industry
LIRA	Linen Industry Research Association
CERIT	Centro Ricerche Per L'Innovazione Tecnologica
oe	Open-end (spinning system)