OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

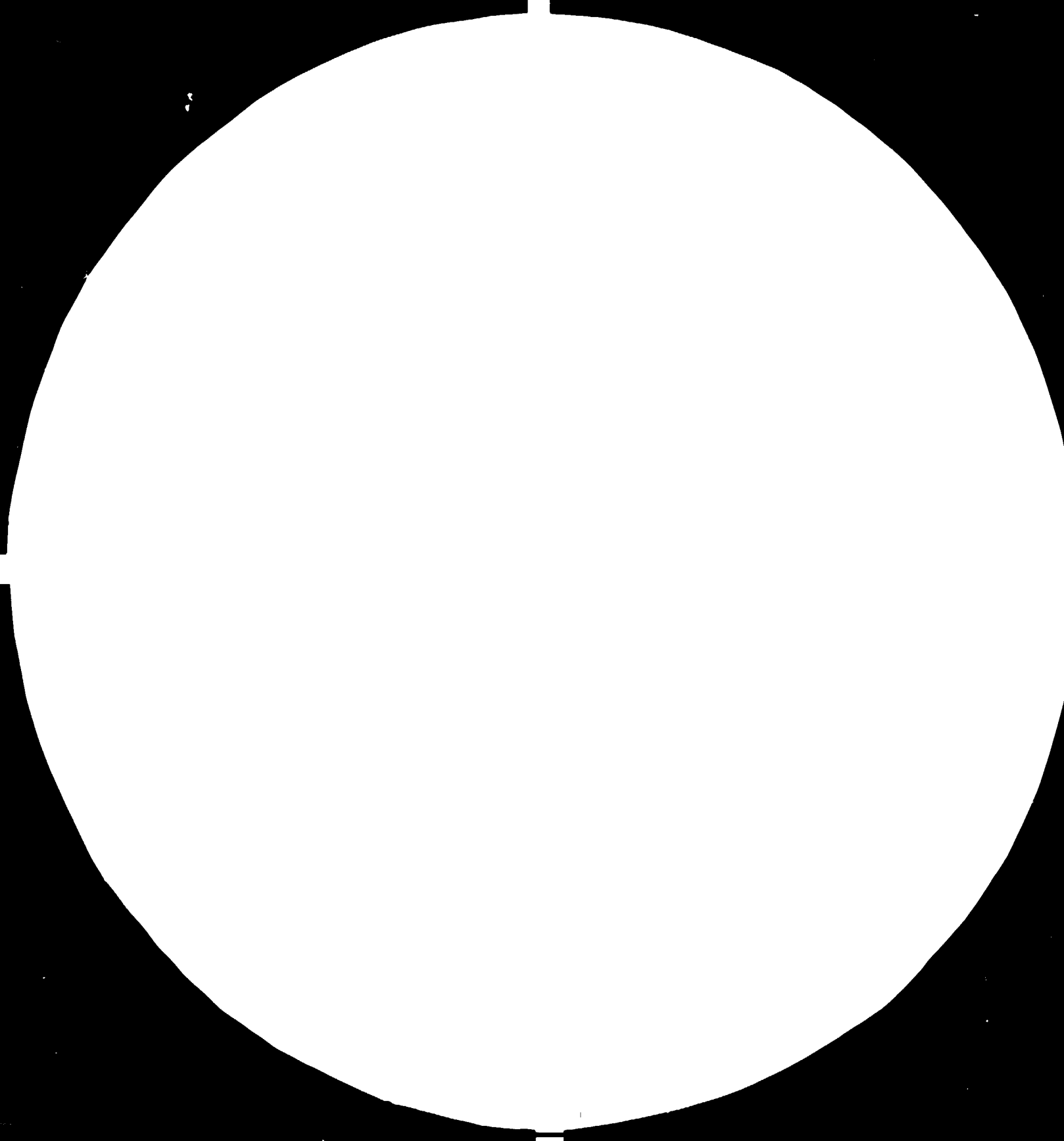
FAIR USE POLICY

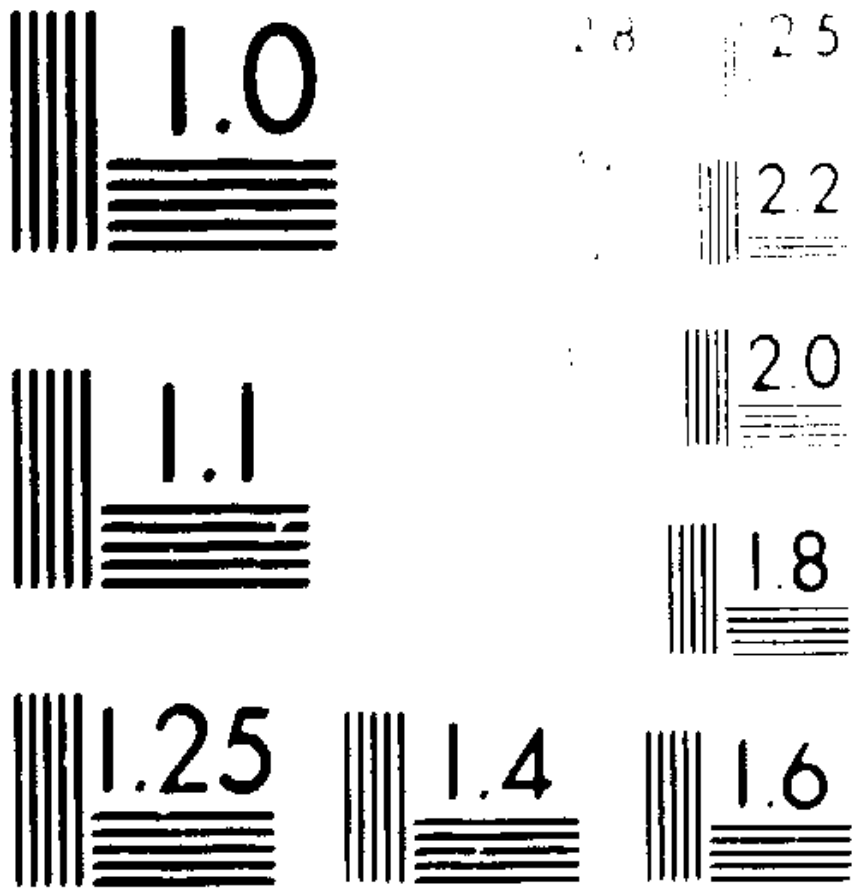
CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org




1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5

12830

Distr.
RESTRICTED

UNIDO/IO/R.96

23 August 1982
ENGLISH

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Lesotho.

EXPERT IN STYLING AND PATTERN MAKING OF SHEEPSKIN GARMENTS

RP/LES/82/001

LESOTHO

Prepared for the Government of Lesotho by
the United Nations Industrial Development Organization

Based on the work of Carlo Palizzotto, expert in styling and pattern making for sheepskin garments

V.82-29722

Explanatory notes

The monetary unit in Lesotho is the maloti (M). During the period covered by the report the value of the maloti in relation to the United States dollar was $1 = M 0.974.

The following acronyms are used in this report:

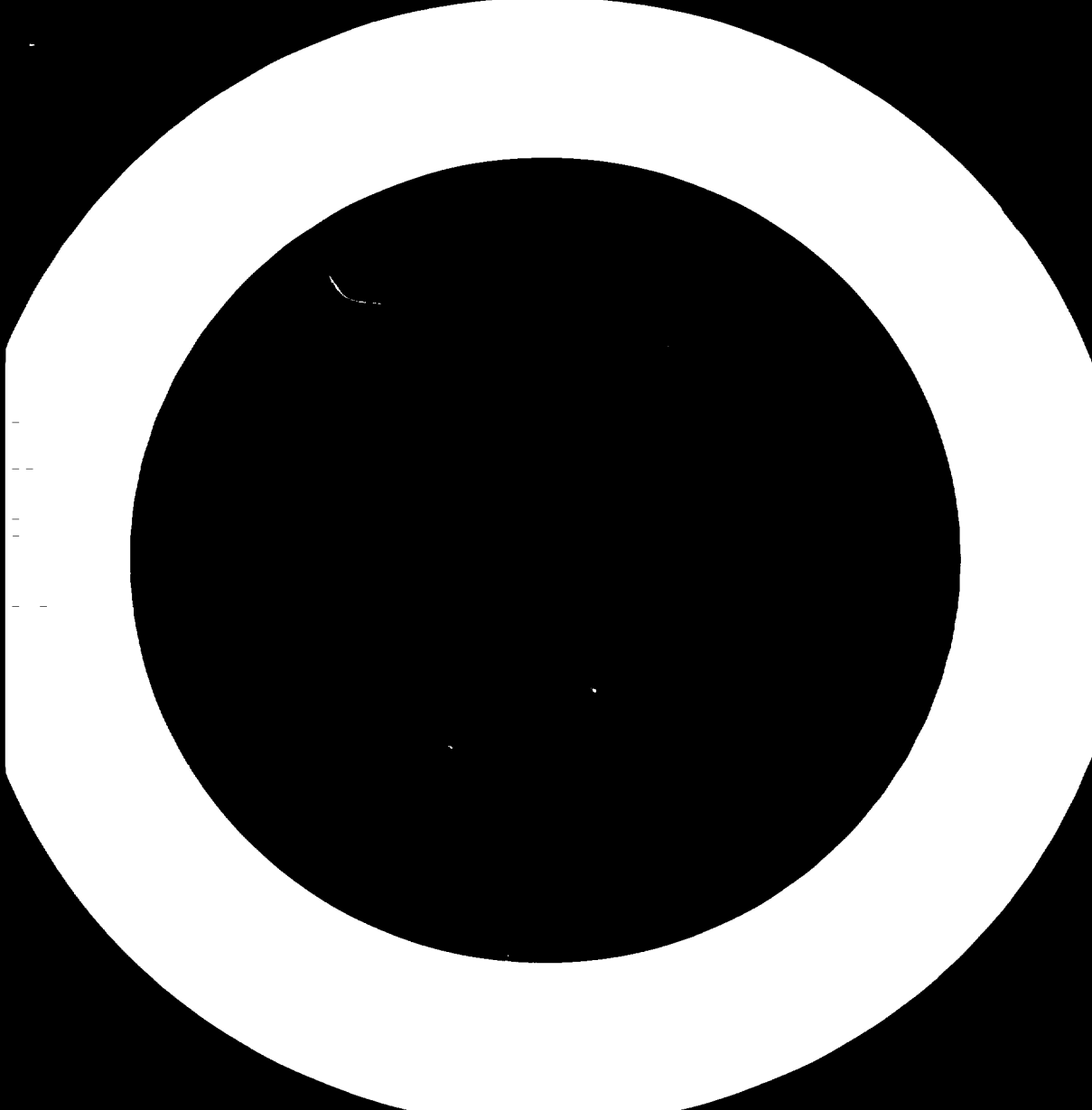
BEDCO	Basotho Enterprise Development Corporation
MSP	Maluti Skin Products, a subsidiary of LNDC
UNDP	United Nations Development Programme

Mention of company names does not imply the endorsement of the United Nations Industrial Development Organization (UNIDO).

ABSTRACT

The project "Expert in styling and pattern making of sheepskin garments" (RP/LES/82/001) was approved by UNIDO on 5 November 1981, and the expert arrived in Lesotho on 30 March 1982 for a three-month assignment to help Maluti Skin Products (Pty.) Limited (MSP) to improve the export potential of sheepskin garments. In the meantime, MSP had been sold to a foreign interest; it was therefore not possible to proceed with the project as planned. It was decided that the expert should spend the time assisting the national garment-making industry in general, particularly BEDCO, a State-owned corporation of small and medium-sized enterprises. However, the expert also spent some time with MSP, analysing the situation and providing advice there. In the report, he proposes a rational reorganization, including the establishment of a design section in MSP. Existing patterns and the size-range in use were corrected.

At BEDCO the expert gave a series of lectures to garment-making operatives and provided a series of specially designed teaching aids for future courses. Also recommended were new development projects within the garment-making sector, a survey to determine potential outlets, and the establishment of a pilot and demonstration centre under government sponsorship.



CONTENTS

INTRODUCTION

The project "Expert in styling and pattern making of sheepskin garments" (RP/LES/82/001) was approved by UNIDO on 5 November 1981, and the expert arrived in Lesotho on 30 March 1982 for a three-month assignment to help Maluti Skin Products (Pty.) Limited (MSP) to improve the export potential of sheepskin garments.

The expert, Carlo Palizzotto, a specialist adviser in the styling and pattern making for sheepskin garments arrived at Maseru on 30 March 1982 but on arrival found that MSP had just been sold to a foreign company. Upon consultation with the Government of Lesotho, the UNDP Resident Representative at Maseru and UNIDO headquarters, it was decided that he should remain in the field as planned but should extend his services generally to giving assistance to the garment-making industry of the country and in particular to BEDCO, a State-owned corporation embracing a range of small and medium-sized enterprises. His terminal date was to be 27 June 1982.

This meant that the original objectives of the mission would now be extended from the sheepskin sector to the textile garment trade which was to benefit from assistance with styling, pattern-making and organization. Modern finishing techniques were to be introduced and explained with a view to improving quality and thus encouraging exports. Small-scale tailoring shops were to be helped to progress into more streamlined manufacturing units.

As a consequence the expert restricted his activities at MSP to providing specialist advice, practical suggestions which would improve working methods, the introduction of training, the creation of new styles, and the recruitment and instruction of an efficient local counterpart. At BEDCO he primarily concentrated upon lecture courses to working personnel, and the planning and preparation of technical education within the garment industry. He introduced original instructions (annex IV), which were left with BEDCO, and he produced a series of 20 demonstration sheets for use in the teaching courses now envisaged for BEDCO.

The popularity of these courses is beyond question, and great enthusiasm was shown locally by both the participants and their employers. Local manufacturers of ready-made clothing, independent tailors and seamstresses independently applied to BEDCO for participation in the expert's programme, and also gave support to the proposal that there should be a training scheme aimed at producing local instructors in garment-making.

This report stresses the need for development of a local garment-making industry as a means of import-substitution; and it suggests that the BEDCO centre, properly developed, could provide the basis for the establishment of a Government-sponsored pilot and demonstration centre, although it comments that as constituted at present BEDCO is too small for such an extension. It is strongly urged that instead of sending raw sheepskins as a primary export to South Africa, this locally produced commodity should be processed and manufactured into garments locally in order to provide both jobs and a new source of income for Lesotho's economy.

CONCLUSIONS AND RECOMMENDATIONS

1. Development programmes in Lesotho should be predominantly directed towards the manufacturing sector. At present in Lesotho almost all manufactured articles are imported, and there are many people jobless, most of them women. Tourism in the country is developing and this will give opportunities for indirect exports.

2. In the country there is availability of raw material and this will increase shortly when the new abattoir comes into production.

3. Development projects, although under government sponsorship, should also be directed towards private enterprises for urgent development action.

4. The supply of technical assistance to private enterprises should be carried out by the creation of a pilot and demonstration centre, under government sponsorship, with the following sections:

Leather garments
Fur garments
Leather articles
Hand-made shoes
Clothing garments
Handcraft articles

5. The existence of specialized labour could attract new investors to the country and also spur the existing enterprises to expand their business.

6. A survey of the manufacturing and handcraft sector is highly recommended in order to quantify the potential for industrial development in Lesotho.

I. FINDINGS

A. Maluti Skin Products

For the past three years MSP has only been able to produce car seat covers for the South African market as its major product line (approximately 80 per cent). This has resulted in nil profitability and a market which is susceptible to change.

The presence in Lesotho of a UNIDO tannery adviser has enabled the company to produce better quality finished skins so that it can now improve its output of garments having a higher value per skin and therefore more profitable.

The South African market, however, is limited to a four month selling season, and in order to make this a viable year-round production unit the company must export to the northern hemisphere for at least eight months each year. At present this is not possible because the styling and quality is not of acceptable international standard, thus necessitating the assistance of an adviser.

At the time of the consultant's arrival the following factors were apparent:

1. Raw material

   Rigidity of coat

   Lack of gloss

   Uneveness

   Spotted surfaces

   Cracked surfaces

   Few skins were of acceptable quality

   Some skins were suitable for fur garments

2. Patterns

   Lack of design section and design technician

   Production based on one style with only 5 sizes

   Designs and patterns not in accordance with human anatomy

   Sizes improperly graded

3. Plant and layout

Improvisation

No production flow

Unsuitable storage near windows

No provision for workers' meals: normal workbenches used

4. Production process

Lack of assembly technology

Shearing carried out by manual shears resulting in uneven clip

No reinforcing strips pasted on edges

No preparation for folding by gluing edges, resulting in stitching problems and twisted edges

Sewing machines are suitable, but the tables are too small for processing sheepskin garments

Buttonholes made without piping

Top-stitching only around normal holes

No final pressing

No production control

No quality control

No final inspection

No output control exists

5. Finished product

Poor fitting owing to poor technical construction of the pattern

Toughness of skins, causing difficulty of movement by the wearer

Style unfashionable

6. Labour force

Willing, with great loyalty to the jobs and factory

Amenable, intelligent, eager to learn and to apply new technologies

Receptive attitude to foreign adviser; of good educational level

In MSP the following activities were carried out:

Establishment of design section

Correction of the existing patterns and development of the entire range of sizes

Creation of eight new styles, namely, prototypes of garments actually made of sheep skins

Training of a counterpart on patterns making

Organization of the assembling section

Refitting of the sewing machines surface for a more comfortable work and more efficient production

Proper distribution of duties at working stations

Doubling of output from two to four garments in eight working hours per sewing machine

The expert visited handcraft and tailoring workshops in order to find a technician suitable for appointment to MSP for training in the technology of sheepskin pattern-making.

The presence of the UNIDO consultant in the country aroused great interest in the activities of the project.

B. BEDCO

Manufacturers of ready-made garments, tailors and seamstresses organized a meeting and applied through BEDCO for technical assistance. The training centre at BEDCO also showed interest in technical assistance as a means of providing up-to-date knowledge for the instructors in charge of the garment training section. The question was discussed between the Lesotho National Development Corporation and the UNIDO consultant, and it was decided to extend the consultant's activities in order to meet the requirements of the manufacturing sector and BEDCO's training centre.

This extension of the project activities provided the consultant with an opportunity to select a suitable technician for the design centre in MSP.

BEDCO is a corporation of small and medium enterprises, among which many are producers of ready-made garments although their technology is only up to tailoring level. Some of the firms are attempting to develop production of leather articles. All these people are in need of assistance, as a survey would certainly show.

Most manufactured goods in Lesotho are imported at present, and the small workshops in the BEDCO centre are attempting to secure for themselves the domestic market. With technical help they will succeed and thus provide a base for the industrial infrastructure of this country.

The BEDCO Training Centre is in fact too small for the needs of the constituent enterprises, and in order to become a guide for handicraft manufacturers it should be developed into a pilot and demonstration centre. In a recent month about 90 bales of sheepskins were sold very cheaply to a company at Cape Town, but had they been processed into finished articles within Lesotho they would have provided jobs and incomes locally. This is given as an example of what a pilot and demonstraction centre could achieve.

At BEDCO the following activities were carried out:

Design of 20 demonstration boards for teaching

Compilation of teaching material for technical lectures on pattern-making

One week technical lectures on pattern-making to a group of six tailors

One week demonstration of the industrial processes of production to tailors at BEDCO's Training Centre

Three weeks technical lectures to seamstresses and garment-makers on pattern-making; 18 attended

The instructors from BEDCO's Training Centre were present at the technical lectures. They were given instruction which will enable them to instruct new workers in the garment industry.

II. SUMMARY OF EXPERT'S ACTIVITIES

A. Maluti Skin Products

A brief outline of the activities of the expert at MSP follows:

Organization of the garments section (annex I)

Establishment of a design section

Introduction of a tailor's dummy

Correction of existing patterns and development of new range of sizes

Refitting of working surfaces for sewing machines

Training of labour, thus increasing output from two to four garments per sewing machine during 8-hour working day

Creation of eight new styles of sheepskin garments, using new technology

Training the counterpart, Makakole Makhabane, in the technology of sheepskin patterns

B. Basotho Enterprise Development Corporation

A brief outline of the activities of the expert at BEDCO follows:

Compiling programme of technical lectures (annex II)

Technical lectures to tailors: 3 weeks (annexes II and III)

Technical lectures to seamstresses: 3 weeks (annexes II and III)

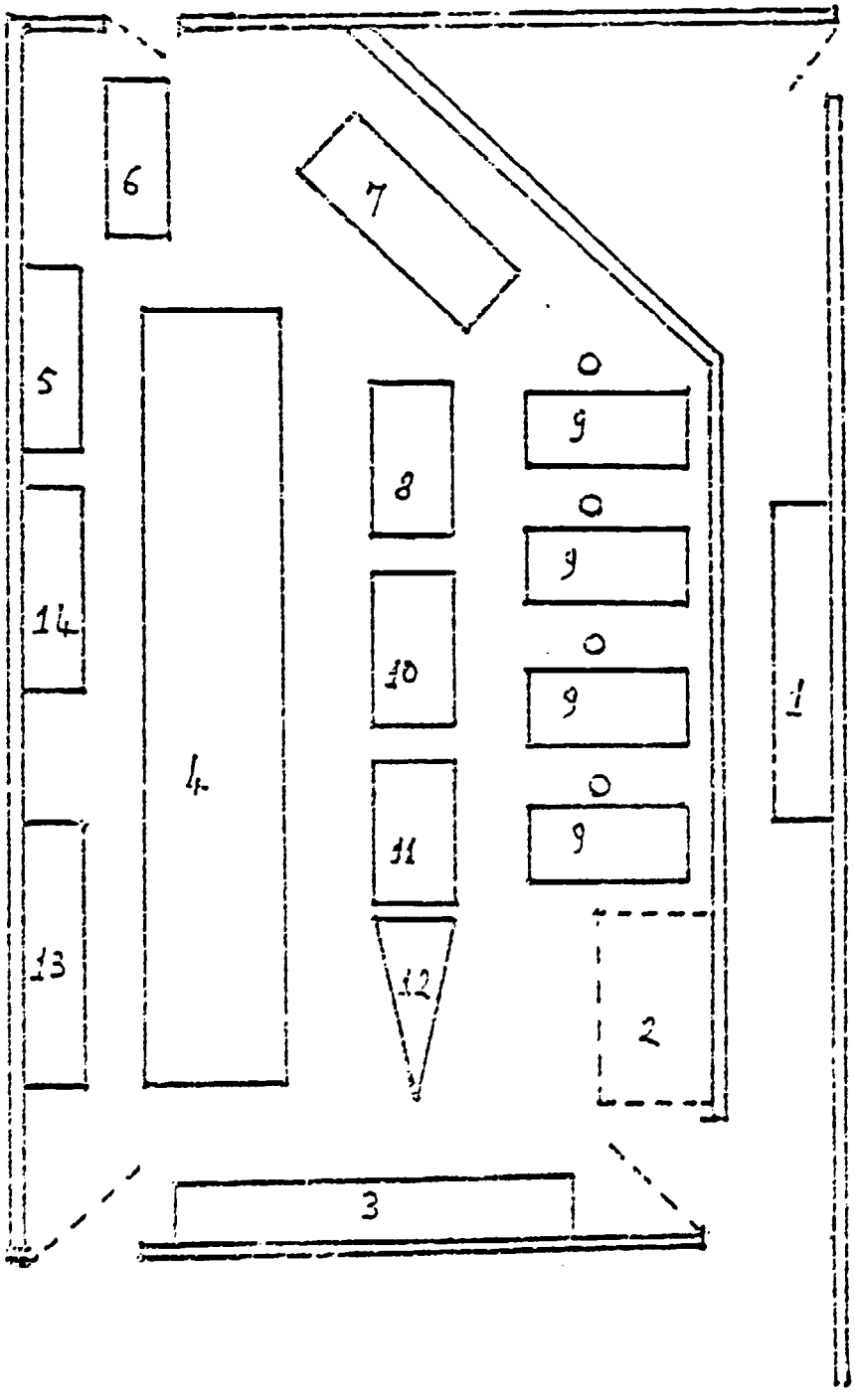
Preparation of teaching material: tailors (annex IV)

Preparation of teaching material: seamstresses (annex IV)

Designing 20 cardboard demonstration sheets for future use at BEDCO courses (annex IV)

Annex I

LAYOUT OF GARMENT SECTION AT MALUTI SKIN PRODUCTS
Scale: 1 cm = 1 m



1. Table for pattern making
2. Store for incoming skins
3. Table for selection of skins
4. Cutting table
5. Store for processing garments
6. Shearing table
7. Preparation table
8. Store for assembling garments
9. Sewing machines
10. Finishing table
11. Final inspection table
12. Stand for finished garments
13. Auxilliary shelf
14. Stand for patterns

Annex II

EXPERT'S WORKING PROGRAMME

1980

4-7 May (9 to 12 a.m.)

The expert alone prepared the teaching material for the technical lectures to the tailors. The teaching material consisted of about 10 demonstration sheets and also written material for the lectures on design.

10-14 May (9 to 12 a.m.)

Lectures to tailors on design of industrial patterns; limited to coat, waist-coat and trousers.

International standards sizes.

Grading of sizes.

17-21 May (9 to 12 a.m.)

Demonstrations on industrial process of production of the above mentioned garments.

24-28 May (9 to 12 a.m.)

The expert alone prepared the teaching material for the lectures to seamstresses, organized by BEDCO. The teaching material comprised about 10 demonstration sheets with written material for future lectures on design.

31 May-4 June (9 to 12 a.m.)

Lectures to seamstresses on patterns for ladies' garments; limited to skirts, dresses and coats.

International standard sizes.

Grading of sizes.

7-11 June (9 to 12 a.m.)

Demonstrations on industrial production processes for the above-mentioned garments.

Annex III

LIST OF ATTENDANCE AT LECTURES

Tailors

Victoria Matela
Technical Adviser
P.O. Box MS 1216
Maseru 100, Lesotho

Nthabiseng Mokhele
Semstress Technician
P.O. Box MS 1216
Maseru 100, Lesotho

Mamatseliso Massa
Lesotho International
P.O. Box MS 4149
Sebaboleng 104
Maseru, Lesotho

'Mantlakala Tsôtetsi
Williams and Sons
P.O. Box MS 1473
Maseru 100, Lesotho

Tabiso Monare
P.O. Box MS 4030
Sebaboleng 104
Maseru, Lesotho

Moliko Mphahama
Lioli Tailors
Teyateyaneng 200, Lesotho

Makhabane Makakole
Maseru Tailors
P.O. Box MS 135
Maseru 100, Lesotho

Seamstresses

Name	Company
Nthabiseng Mokhele	BEDCO Technical Workshop
Justina Lebea	Retselisitsoe Shop
Mookho Makhele	Mookho's Fabric Printers
Mapuleng Makhetla	Khotsong Knitting
Violet Tsôtetsi	Williams and Sons
Bizela Mahlaha	Bizela Enterprises
'Mapelea Mosoeunyane	Ararmilly
Elizabeth Mokoena	Queen's Knitting
'Manako Moabi	Lioli Tailors
Tankiso Koela	Monare Tailors
Agnes Matima	Mejametalana Dresswell
Limakatso Matela	Dresswell Enterprises
Mosa Sefali	City Dressmakers
Florence Mohobo	Mekhabiso
'Masetipa Mathaba	International Tailors
Mary Mohapi	Phuthiatsana Dressmakers

Annex IV

TEACHING MATERIAL

A. Male tailoring

The teaching material for the course in design of industrial patterns consists of 18 numbered pages. The diagrams used in the course are on 12 sheets of white cardboard measuring 65 cm x 100 cm. They have been mounted on a blackboard and remain at the BEDCO Training Centre, Maseru.

The teaching material has been reproduced in English by the expert from originals written by him in Italian and Spanish, and used at his courses at the BEDCO Training Centre.

Anatomical proportion rules

To make a suit, a tailor measures the customer's body; such a suit will therefore be very personal: it will fit the person for whom it was made and fitted, but it will not fit others.

A pattern or a basic pattern for ready-made garments can be constructed according to anatomical proportion rules. The resulting garment will perfectly fit only persons having those anatomical characteristics.

According to anatomical and to anthropometrical studies, subjects of similar height having ideal characteristics, that is of normal build, account for at least 70 per cent of customers. It follows that a pattern constructed according to scientific anatomical rules must fit this high percentage of persons of the same height; height being measured from crown to toe, without shoes.

A range of seven sizes will prove satisfactory, i.e. from 42 to 54 if expressed in centimetres, or from 32 to 44 if expressed in inches. Nevertheless, garments made from any range of sizes, if planned for a particular height, can be worn by people of the chosen height, but people of a different height will be unable to wear them. Consequently, garment[illegible]le accordingly to one height, although in a number of sizes, will sa[illegible] limited number of purchasers. If we want to fulfill the large-s[illegible]et demand, we should produce garments for three height ranges. For [illegible]e, if 1.76 m is chosen as the mean, the others should be 1.68 m and 1.84 m. The scale of sizes should be fully developed in each height range, resulting in a range of 21 sizes. The differences between sizes will be 4 cm (2 in) at each circumference (i.e. chest, waist and hip).

Let us choose one of the three heights, 1.76 m, to work out our study. We divide this height by 7.5 and get 23.4 cm. This measure is a fraction of the height which we shall call the module; it will help us construct our basic pattern.

Diagram 1 shows the division of the body according to anatomical rules; in it we can see how from one main point to another of the body the same module is used. The main points, such as the armhole, neck and shoulder, will be calculated as fractions of the semi-circumference of the chest. The basic pattern constructed by this technology will have ideal anatomical proportions, and a garment made from it will be wearable by at least 90 per cent of people of the approximate height and size for which the pattern was constructed. If we wish to develop basic patterns for different heights, e.g. 1.68 or 1.84 m, we do as we did originally: we divide the height by 7.5 and the result will be the module to be used in constructing the pattern.

The pattern we are now going to develop will be for a height of 1.76 m size 48 metric (European except for the United Kingdom of Great Britain and Northern Ireland, which is equivalent to size 38 in the British and American systems. In the former, the number gives the semi-circumference of the chest in centimetres, while the British or American size is the entire circumference of the chest expressed by inches).

Construction of the basic pattern for a man's jacket

The basic pattern is one from which we can develop all styles of patterns. We shall construct it according to the previously explained theory of anatomical rules. We shall use a height of 1.76 m and a size of 48; all fractions of circumference will be calculated on 48 cm; so that when we say 1/4 or 1/6 of 48 we indicate a fraction of the size which for technological purposes has been reduced to the semi-circumference of the chest.

IMPORTANT NOTE: In all patterns developed below, no allowance has been made for seams. On cutting out the pattern, seam and hem allowances must be added in accordance with the production method.

Jacket

Jacket back (diagram 2)

Point 1	With a square draw a 60-cm horizontal line and, using the other side of the square, a 80-cm vertical line. Mark the corner 1.
Point 2	From point 1, along the horizontal line, 1/6 of 48 = 8 cm.
Point 3	From point 1, along the horizontal line, 1/4 of 48 = 12 cm. Draw a vertical line 80 cm from point 3 downwards.
Point 4	From point 2, 2 cm above the horizontal line.
Point 5	From point 1, along the vertical line, the module measure (23.4 cm). Draw a 60-cm horizontal line from this point in the same direction as the horizontal line from point 1.

Point 6	From point 5, along the vertical line, the module measure (23.4 cm). Draw a 60-cm horizontal line as before.
Point 7	From point 6, along the vertical line, the module measure (23.4 cm). Draw a 60-cm horizontal line as before.
Point 8	From point 7, along the vertical line, 1/3 of the module measure (7.8 cm). Draw a 60-cm horizontal line as before.
Point 9	From point 3, along the vertical line 3 cm. Draw a line joining points 4 and 9.
Points A, B, C, D	Mark with A, B, C and D the intersections of the vertical line from point 3 with the horizontal lines extending from points 5, 6, 7 and 8.
Point 10	From point 9, extend the line joining points 4 and 9 by 2 cm. With a curved line, join points 1 and 4; this is the back neck-line.
Point 11	Mark this point midway between points 1 and 5.
Point 12	Mark this point midway between points 3 and A. Draw a line joining points 11 and 12.
Point 13	From point A, up 1 cm.
Point 14	From point 13, go out 1/24 of 48 = 2 cm.
Point 15	From point 12, go out 1/2 the distance between points 13 and 14 (1 cm). Draw a curved line joining points 10, 15 and 14; this is the back armhole-line.
Point 16	From point D, go out 1/24 of 48 = 2 cm. Join points 14, B and 16 by straight lines.
Point 17	From point 11, go out 0.5 cm.
Point 18	From point 6, go in 2 cm.
Point 19	From point 8, go in 2 cm. Join points 1, 17 and 5 by a curved line. Join points 5, 18 and 19 by straight lines; this is the back centre-line.

Jacket front (single-breasted) (diagram 3)

Point 30	From point 3, along the horizontal line, 8 cm outwards. From this point draw a 80-cm line vertically downwards. Mark the points of intersection of this new vertical line with the horizontal lines extending from points 5, 6, 7 and 8 by E, F, G and H, respectively.

Point 31 — From point 30, outwards along the horizontal line, 1/4 of 48 = 12 cm.

Point 32 — From point 31, outwards along the horizontal line, 1/6 of 48 = 8 cm.

Point 33 — From point 32, outwards along the horizontal line, 1/4 of 48 = 12 cm.

Point 34 — Draw a vertical line joining point 31 to the horizontal line from point 5 and mark the intersection 34.

Point 35 — Run a vertical line joining point 33 to the horizontal line from point 8 and mark the intersection 35. Mark the intersections of this new vertical line with the horizontal lines from 5, 6 and 7 with L, M and N, respectively.

Point 36 — From point 31, down along the vertical 4 cm.

Point I — Place a rule on points 32 and 36 and run an oblique line from point 32 to cross the vertical line extending from point 30; mark the crossing I.

Point 37 — From point E, up 1 cm.

Point 38 — From point E, down 3 cm.

Point 39 — From point 34, down 3 cm. Draw a line joining points 38 and 39; this line is the actual armhole depth. The line obtained from the module measure (line from point 5) gives the body armpit depth; the line joining points 38 and 39 for the jacket armhole gives the required roominess in the garment.

Point 40 — From point 37, horizontally outwards 1/12 of 48 = 4 cm.

Point 41 — From point 32, towards point 36, 0.5 cm less than the distance from point 4 to point 10 on the jacket back outline (if the pattern is for other than leather garments). With a curved line, draw the front armhole-line from point 41, tangent to the vertical through point 34, then tangent to the line joining points 38 and 39 line and back up to point 40.

Point 42 — From point F, horizontally outwards 1/24 of 48 = 2 cm.

Point 43 — From point H horizontally outwards 1/12 of 48 = 4 cm. Join points 40, 42 and 43 with straight lines.

Point 44 — From point 35, down 2 cm. Draw a line from point 43 to point 44.

Point 45 — From point 32, out 2.5 cm along the horizontal line from point 1.

Point 46	From point 33, horizontally outwards 2 cm. From this point run a 80-cm vertical line downwards. This line is the overlap for a single-breasted jacket.
Point 47	Prolong the line from 44, crossing the vertical from 46, and mark the intersection 47.
Point 48	Mark this point 3 cm above point M; it is the centre buttonhole position for a three-button jacket.
Points 49, 50	From point 48, 10.5 cm; up for 49 and down for 50.
Points 51-53	Extend horizontal lines from points 48, 49 and 50 as far as the vertical from 46; mark the intersections 51, 52 and 53, respectively. Run an oblique line from point 45 to point 51. This line is called the roll line: the lapel folds along it.
Point 54	Front point 45, downwards 1/8 of 48 = 6 cm. Using curved lines, draw the front neck-line from point 32 to point 54. From point 54 to 51 draw the gorge-line and the entire lapel, as desired. From point 53 to the line joining points 43 and 44, draw the front line and bottom curve of the jacket, as desired.
Point 55	From point M, horizontally inwards 1/4 of 48, plus 2 cm = 14 cm.
Point 56	From point 55, vertically upwards 2/3 module measure (15.6 cm).
Points 57, 58	From points 55 and 42, respectively, downwards 1/3 module measure (7.8 cm). Run lines joining the points 55, 56 and 57 and points 57 and 58.
Points O, O	On either side of point 55, 1 cm. Join points O, O to points 56 and 57.
Point 59	From point 39, along the horizontal towards point 38, 1/6 of 48 = 8 cm.
Point 60	Mark this point midway between points 57 and 58. Draw a line from point 59 to point 60.
Point 61	Mark this point at the intersection of the line from point 59 to point 60 and the horizontal from point 6.
Points P, P	On either side of point 59, 1 cm.
Points R, R	On either side of point 61, 1 cm. Draw lines joining points P, P and R, R to point 60.
Point 62	Extend the horizontal line from point 57 by 1 cm.

Point 63 — From point 62, back along the horizontal towards point 58, 2/3 module measure (15.6 cm). The line segment from point 62 to point 63 determines the lower pocket width.

Point 64 — From point 39, extend the line from point 38 by 3 cm.

Point 65 — From point 64, measure 10.5 cm away from point 39; on marking point 65, go down 1 cm from point 64. Run an oblique line to join points 64 and 65; this line is the upper pocket line.

Check that the lowest curve of the armhole terminates at the horizontal line between points 38 and 39 (points P, P); if it does not, correct the curve as far as point 40.

Jacket sleeve

Outer part (diagram 4A)

Point 1 — With a square, draw a 30-cm horizontal line and a 70-cm vertical line; mark the intersection 1.

Point 2 — Go down from point 1, along the vertical, the module measure (23.4 cm), less 4 cm (19.4 cm). Trace a 30-cm horizontal line.

Point 3 — Go down from point 2, along the vertical, the module measure (23.4 cm). Trace a 30-cm horizontal line.

Point 4 — Go down from point 3, along the vertical, the module measure (23.4 cm). Trace a 30-cm horizontal line.

Point 5 — From point 1, along the horizontal, 1/4 of 48, less 2 cm, = 10 cm. This point indicates the "hanging point" for the sleeve; it is joined to the shoulder seam.

Point 6 — From point 5, along the horizontal, 1/4 of 48 = 12 cm.

Point 7-9 — From point 6, run a vertical line to the horizontal from point 4; mark the intersections with the horizontals from points 2, 3 and 4 with 7, 8 and 9, respectively.

Point 10 — Go out 2 cm from point 7.

Point 11 — Go out 1 cm from point 8.

Point 12 — Go out 2 cm from point 9. Join points 10, 11 and 12 with a line.

Point 13 — Go up 4 cm from point 7 on the vertical line.

Point 14 — Prolong the line ending at point 10 by 3 cm, following its angle.

Point 15 — From point 1 go down 1/3 of the module measure (7.8 cm).

Point 16 — Run an oblique line from point 6 to point 2; go down from point 6 along the oblique line 1/8 of 48 = 6 cm. Draw the head of the sleeve, starting from point 14 and passing through points 13, 16, 5 and 15 in order.

Point 17 — Go up 2 cm from point 12.

Point 18 — From point 12, horizontallv towards point 4, 1/3 of 48 = 16 cm. Join points 17 and 18 with an oblique line.

Point 19 — From point 3, inwards along the horizontal line, half the distance between points 4 and 18.

Point 20 — From point 2, inwards along the horizontal 1 cm. Starting from point 15, draw the outside line of the upper sleeve, passing through points 20, 19 and 18 in order.

Inner part (diagram 4B)

The outline of the inner part of the sleeve is obtained with the help of the outline of the outer part. On diagram B the outer part previously developed is shown. Unnecessary lines have been removed.

Point 21 — Go in 5 cm from point 14.

Point 22 — Go in 4 cm from point 11.

Point 23 — Go in 4 cm from point 17 along the oblique line between points 17 and 18.

Point 24 — Go in 4 cm parallel from point 15.

Point 25 — Go in 2.5 cm from point 20.

Point 26 — Go in 1 cm from point 19. Run lines joining points 21, 22 and 23 for the inside seam; points 21 and 24 for the top underarm seam; points 24, 25, 26 and 18 for the outside seam; and points 18 and 23 for the hem line.

Jacket front (double-breasted) (diagram 5)

This pattern is developed from the single-breasted basic pattern as follows: Develop the basic pattern according to the instructions previously given, up to point 45. In diagram 5, the development of the outline is shown by unbroken lines up to point 45 and thereafter by dotted lines. (The jacket back outline has not been shown on the diagram as it is identical to the basic one previously developed.)

Point 46 — Go out 10 cm from point M.

Point 47 — Go out 10 cm from point 44. Draw a line between points 46 and 47; this is the front edge. The vertical line between points 33 and 44 is the centre front. The portion between the centre front line and the front edge line is called the overlap.

Point 48 — Go up 1 cm from point 47 and trace an oblique line to join point 48 to 44. On folding the hem, the right front side will be folded along this line and will not project beyond the left part when the garment is overlapped. Draw a line joining points 45 and 46; this oblique line is the roll line where the lapel folds.

Point 54 — Go down from point 45 on the oblique line 1/8 of 48 = 6 cm. From point 32 to point 54 draw the front neck line; from point 54, the gorge line and the entire lapel, ending at point 46. In order to complete the outline (darts, pockets etc.), follow the instructions for the basic pattern.

Jacket front (shirt-collar style) (diagram 6)

To develop this style of garment follow the instructions for the basic pattern except for points 45 to 54, the roll line, the lapel and the roundness on the bottom of the jacket front part. Mark only the buttonhole at point 51.

On the diagram 6 the outline is developed according to the above instructions by unbroken lines, while the parts to be developed have been designed by dotted lines. The back is not shown on the diagram for it is identical to that previously developed.

From point 33 to point 51 trace a curved line; this line is the jacket front edge.

Point S — Go down from point 33 along the curved line 1/6 of 48 = 8 cm.

Point T — Go 2 cm inside from point S; trace a curved line from point 32 to point T for the front neck line.

Point U — 2.5 cm below point S.

Point V — Divide the distance from point U to point 51 by 2. Mark as many buttonholes as required along the lower part of the garment; see points 52 and 53.

Jacket collar

Classical style (diagram 7A)

To develop the pattern for the collar of a single-breasted jacket, place the front part of the pattern on a sheet of paper.

Point S — On the lapel just where the collar starts.

Point T — 15 cm up from point 51.

Point 33 — From point 32 along the shoulder line, take 2 cm.

Point U — Place a ruler on the point T and 33 and, starting from point 33, draw a line outwards a distance equal to the distance from point 1 to point 4 in the back part pattern.

Point V — Place the corner of a square on point U and one side of it on point 33; along the other side, trace a line 8 cm in length from point U.

Point X — From the point S take 4 cm. Trace a line joining points S, X and V. Mark the gorge line from point S to point 54, copying the one in the pattern. Join points 33 and 54 by a curved line.

Point Z — From point U go up 2.5 cm. Draw lines from point Z to points 32 and 54; this is the collar folding line.

The design of the collar for a double-breasted jacket is identical to that for a single-breasted jacket.

Shirt-collar style (diagram 7B)

Points A, B — Trace a horizontal line the same length as the sum of the lengths of the back and the front neck-lines, i.e. the distance between points T and 32 plus the distance between points 1 and 4. Mark the ends A and B.

Points C, D — From points A and B take 3 cm upwards, and trace a line parallel to the line AB. Mark the ends C and D. Join A to C and B to D by vertical lines.

Point E — Trace a 25-cm horizontal line and a 10 cm vertical line. Mark the corner E.

Point F — From point E along the horizontal line take the same distance as between points C and D.

Point G — From point E on the vertical line go 6 cm downwards.

Point H — From point G go the same distance as from E to F, plus 2 cm.

Point I — Place a ruler on points F and H; trace a line from H in the direction away from F, 2 cm long. Join G to I by a curved line.

Trousers

Tight fit (jeans)

For trousers, size 48 corresponds to a hip measurement of 96 cm and a waist measurement of 82 cm.

Front (diagram 8A)

Point 1 — Lay a square on the paper with its right-angle up and to the right. Trace a 40-cm horizontal line and 110-cm vertical line and label the corner 1.

Point 2 — From point 1 along the vertical line take the measure of one module plus 2 cm (25.4 cm).

Point 3 — From point 2 along the vertical line measure one module (23.4 cm).

Point 4 — From point 3 along the vertical line measure one module (23.4 cm).

Point 5 — From point 4 along the vertical line measure one module (23.4 cm).

Point 6 — From point 5 along the vertical line measure one half the module (11.7 cm).

Point 7 — Midway between points 3 and 4. Trace 40-cm horizontal lines from points 2, 3, 4, 5, 6 and 7. The line from point 6 is the ground line. Beyond point 6 we must add on the height of the shoe heel, which changes with fashion.

Point 8 — From point 1 along the horizontal line take half measure of the semi-circumference of hip, namely 24 cm. Draw a vertical line from point 8 to the horizontal line from point 6.

Points 9, 10, 11, 12, 13, 14 — These points are the intersections of the vertical line from 8 with the horizontal lines from 2, 3, 7, 4, 5 and 6, respectively.

Point 15 — 1/12 of 48 = 4 cm outside point 9.

Point 16 — Midway between points 15 and 2.

Point 17 — Midway between points 14 and 6.

Point 18 — Set the rule on points 16 and 17 and trace a line from point 17 up to the horizontal line from point 1. Mark the intersection 18. Trace oblique lines from points 15 and 2 to point 17.

Point 19 — From point 9 go up 1/3 of module (7.8 cm). By a curved line join this point to 15.

Point 20 — From point 1 go left along the horizontal line 1/16 of 48 = 3 cm; trace a curved line joining points 20 and 2.

Points A, B — Respectively 1 cm from points 14 and 6.

Points C, D — Respectively 8 cm from points 15 and 2 along the oblique lines. Trace lines joining points C with A and D with B. Move points 7 and 11 to the new intersections. The trouser front part is now complete, its outline joining points 8, 19, 15, C, A, B, D, 2, 20, and B, consecutively.

The line through points 18, 16 and 17 is the centre of the front part. When the trouser leg is pressed, it is folded along this line.

Back (diagram 8B)

The back part is developed by reference to the front part; it is impossible to complete the back part of the trouser without reference to the front part because the style created from the front part must be repeated on the back part.

Point 22 — From point 20 go outside 2 cm.

Point 23 — From point 2 go outside 1 cm.

Point 24 — From point 7 go inside 1 cm.

Point 25 — From point B go inside 1 cm. Trace the outside line by joining points 22, 23, 24 and 25.

Point 26 — From point 15 go out 1/12 of 48 = 4 cm.

Point 27 — From point 11 go out 2 cm.

Point 28 — From point A go out 2 cm. Draw the outline of the inner leg by joining points 26, 27 and 28.

Point 29 — From point 9 go inside 1 cm.

Point 30 — From point 8 go inside 1/16 of 48 = 3 cm.

Point 31 — From point 30 go up 1 cm. Run oblique lines between points 31 and 22 and between points 31 and 29.

Point 32 — From point 29 go up 5 cm. Draw a crotch line between points 32 and 26.

This style of trouser is very tight; there are no darts on the waistline; another style with more room will be developed below.

Normal fit

The style of trousers outlined above is very tight on the hip. This next example will be moderately roomy having 4 cm slack in each half section. This style will not be very loose but will adapt to the wearer's movements. The construction is identical to that already designed with the following changes.

Front (diagram 9)

Point 8 — From point 1 along the horizontal line by half measure of semi-circumference + 2 cm = 24 + 2 cm = 26 cm.

Point U — 2 cm from point 18; the distance 18-U is a pleat at the waistline.

Back (diagram 10)

Point X — Midway between 22 and 31.

Point Z — From point X go down 10 cm.

Points O, O — 1 cm on either side of point X. Trace lines for a dart by joining points O, O to point Z.

Waistcoat

Back (diagram 11A)

Point 1 — Lay a square on the paper with its right-angle up and to the right. Trace a 30-cm horizontal line and a 65-cm vertical line and label the corner 1.

Point 2 — From point 1, along the horizontal line, go left 1/6 of 48, plus 2 cm = 10 cm.

Point 3 — From point 2 take 1/4 of 48, less 2 cm = 10 cm. Run a 65-cm vertical line downwards.

Point 4 — From point 1 go up 1 cm.

Point 5 — From point 1 along the vertical line go down the measure of module (23.4 cm). Trace a 30-cm horizontal line.

Point 6 — From point 5 go down the measure of one module (23.4 cm). Trace a 30-cm horizontal line.

Point 7 — From point 6 go down the measure of 2/3 module (15.6 cm). Trace a 30-cm horizontal line.

Points A, B, C — Label the intersections between the vertical line from point 3 and the horizontal lines from points 5, 6, 7 with A, B and C, respectively.

Point 8 — Midway between points 1 and 5.

Point 9 — Midway between points 3 and A.

Point 10 — From point A, go left 1/8 of 48 = 6 cm.

Point 11 — From point B, go left 1/8 of 48, less 1 cm = 5 cm.

Point 12 — From point C, go left 1/8 of 48 = 6 cm. Trace straight lines joining points 10, 11 and 12.

Point 13 — From point 3, go down 3 cm. Run an oblique line to join points 4 and 13 and a curved line to join points 1 and 4.

Point 14 — From point 13, go along the oblique line towards point 4 2 cm.

Point 15 — From point 9, go right 2 cm.

Point 16 — From point 10, go down 3 cm. Draw the armhole outline from point 14 through points 15, A and 16.

Point 17 — From point 8, go to the right 1/2 cm.

Point 18 — From point 6, go left 1 cm. Draw the centre-back seam-line, joining the points 1, 17, 5, 18 and 7.

Point 19 — From point 12, go up 4 cm. With a curved line draw the hem line, joining points 7 and 19.

Front (diagram 11B)

Point 30 — Lay a square on the paper with its right-angle up and to the right. Trace a 30-cm horizontal line and a 65-cm vertical line and label the corner 30.

Point 31 — From point 30, along the horizontal line, go left 1/4 of 48, less 2 cm = 10 cm.

Point 32 — From point 31, go left 1/6 of 48, plus 2 cm = 10 cm. Trace a 65-cm vertical line downwards.

Point 33 — From point 30, along the vertical line, go down the measure of one module (23.4). Trace a 30-cm horizontal line to the left.

Point 34 — From point 33, go down the measure of one module (23.4 cm). Trace a 30-cm horizontal line to the left.

Point 35 — From point 34, go down 2/3 of the measure of one module (15.6 cm). Trace a 30-cm horizontal line to the left.

Point E, F, G	Label the intersections of the vertical line from point 32 and the horizontal lines from points 33, 34 and 35 with E, F and G, respectively.
Point 36	From point E, go left 1/8 of 48 = 6 cm.
Point 37	From point F, go left 1/8 of 48, less 1 cm = 5 cm.
Point 38	From point G, go left 1/8 of 48 = 6 cm. Trace lines joining points 36, 37 and 38.
Point 39	From point 32, go down 4 cm. Trace an oblique line from point 31 to point 39.
Point 40	From point 31, along the oblique line, go the same distance as between points 4 and 14 on the back outline.
Point 41	From point E, go right 1.5 cm.
Point 42	From point 36, go down 3 cm. Draw the armhole outline by a curved line starting from point 40 and passing through point 41 to point 42.
Point 43	From point 33, go down 4 cm.
Point 44	From point 43, go right 2 cm for the single-breasted overlap; join points 43 and 44 by a line.
Point 45	From point 34, go down 2 cm.
Point 46	From point 45, go right 2 cm. Join points 45 and 46 by a line.
Point 47	From point 35, go left 4 cm. Join points 31 and 44; 44 and 46; and 46 and 47 by lines.
Point 48	From point 38, go up 4 cm. Trace a curved line joining points 47 and 48.
Point 49	From point F, go right 3 cm.
Point 50	Place a rule along points G and 49 and trace an oblique line from point G upwards, extending it past point 49 by half the module (11.7 cm).
Points X, X	From point 49, go right and left 1 cm. Trace lines joining points G and 50 to points X, X.
Point 51	From point F, trace a 14-cm oblique line sloped 2 cm downwards to the right.
Point 52	From point 41, go down 6 cm.
Point 53	From point 52 trace a 10-cm oblique line sloped 2 cm downwards to the right.

Points 54, 55, 56 — Divide the distance between points 44 and 46 by 4. Trace short lines to indicate the buttonholes.

Grading (diagram 12)

The difference between a full size and the next size, either bigger or smaller, is 4 cm for European sizes, or 2 inches for English/American sizes. Should we develop half-patterns, the difference will be 2 cm European, or 1 inch English/American, for each half-pattern from centre front to centre back. According to international custom a pattern is lengthened for bigger sizes and shortened for smaller sizes. Diagram no. 12 shows the division of the difference in the pattern by millimetres (European sizes), and where and how much the pattern must be shifted upwards and forwards when developing bigger sizes or downwards and backwards when developing a smaller size. When developing sizes in inches the equivalent difference must be calculated.

B. Female tailoring

The teaching material for the course of design of industrial patterns consists of 9 numbered pages. The diagrams used in the course are on five sheets of white cardboard sized 65 cm x 100 cm and have been mounted on a blackboard and left at the BEDCO Training Centre, Maseru.

The teaching material has been translated into English and Spanish by the expert from originals written by him in Italian for the courses in the BEDCO Training Centre.

Measuring for ladies' garments

The female body, in the context of tailor's fitting, has its centre at the waistline. On taking measurements for a garment we proceed either from the waistline downwards or from the waistline upwards.

Our study is centred on the development of a basic pattern, a model constructed according to measurements for a woman 1.58 m tall without shoes; i.e. the equivalent of size 12, which corresponds to English/American size 36 or European size 46. This basic pattern corresponds to the following measurements (diagram 1).

1. Level of armhole: 21 cm from waistline to armpit, just 2 cm below the point where the arm meets the body.

2. Length of the back waistline: 42 cm from the waistline upwards along the centre back to the bone on the neck.

3. Level of bust: 20 cm from the waistline upwards to the nipple.

4. Length of bust: 44 cm from the waistline upwards to the neck.

5. Bust semi-circumference: 46 cm (half the distance around the bust).

6. Waist semi-circumference: 36 cm (half the distance around the waist).

7. Hip semi-circumference: 50 cm (half the distance around the hip).

8. Cross shoulder width: 19 cm (half the distance along the centre back from the extremity of one shoulder to the other).

9. Length of sleeve: 59 cm from the top of the shoulder along the arm to the wrist, with arm bent.

10. Length of skirt: 70 cm from the waistline downwards along one side.

IMPORTANT NOTES:

1. In female tailoring, all measurements and styling adjustments must be worked using the right side of the body. (In male tailoring, all operations are on the left side.)

2. All pattern outlines are seam lines. When cutting out the pattern, add seam and hem allowances to suit the method of production.

Skirt

Basic pattern (diagram 2)

Point 1	Trace a 70-cm vertical line and a 60-cm horizontal line; label the corner 1.
Point 2	From point 1, along the vertical line, go down the length of the skirt = 70 cm. From point 2 trace a 60-cm horizontal line.
Point 3	From point 1, along the horizontal line, go half of the hip semi-circumference, less 1 cm = 24 cm.
Point 4	From point 3 run a vertical line as far as the horizontal from point 2; label the intersection 4.
Point 5	Midway between points 1 and 3.
Point 6	From point 5 run a 16-cm vertical line.
Point 7	From point 3, along the horizontal line, go 5 cm.
Point 8	From point 7 run a vertical line as far as the bottom line; label the intersection 8.
Point 9	From point 7, along the horizontal line, go half the hip semi-circumference, plus 1 cm = 26 cm.
Point 10	From point 9 trace a vertical line as far as the bottom line; label the intersection 10.
Point 11	From point 9, inwards (toward point 7), go 10 cm.
Point 12	From point 11 run a 10-cm vertical line.
Point 13	From point 1 go down 1 cm; join points 13 and 3 with a line.

Point 14	From point 9 go down 1 cm; join points 14 and 7 with a line.
Point 15	From point 3 go down 18 cm.
Point 16	From point 7 go down 18 cm. Check the difference between hip and waist measurements (50 cm - 36 cm = 14 cm). Now we know that we must reduce the length of the waistline by 14 cm.
Points A, B	From point 11, on both sides, go 1 cm and join points A and B to 12 with curved lines for a dart. Now we have 12 cm still to take off the waistline. Divide 12 by 4 = 3.
Point C	From point 7 go 3 cm towards point 9; join points C and 16 with a curved line.
Point D	From point 3 go 3 cm towards point 1; join points D and 15 with a curved line.
Points E, F	From point 5, go 3 cm on both sides; with curved lines join points E and F to 6. The waistline runs from point 13 to D and from point C to 14 because in the female body the waistline is a little sloped.

Grading (diagram 3)

The difference between one size and the next one, either larger or smaller, consists of 4 cm around each circumference. If we develop half-patterns, the difference will be 2 cm at each semi-circumference, namely 20 mm. Also the pattern is lengthened or shortened for larger sizes and smaller sizes. Diagram 3 shows in millimetres the amount to be increased or decreased when grading sizes. To obtain the best results a change of pattern must be done at the place shown in diagram 3.

Blouse, dress, coat and overcoat

Slack allowance

A pattern may be used to process different kinds of fabric, but different materials call for differing measurements of the circumference of the bust to provide comfort. Comfort depends on the looseness of fabric around the bust necessary to give the wearer ease of movement. The necessary amount of slack in centimetres for various fabrics is as follows:

Knits	None
Cottons	2
Silks	2
Light wools	2
Heavy wools	4

The amount of slack will be incorporated proportionately into the pattern, from centre front to centre back. In amending the pattern we add the amount of slack to the semi-circumference of the bust; e.g., 46 + 2 = 48; 46 + 4 = 50. In our calculations we will use the measurements 48 or 50 according to the amount which we add to the measurement of semi-circumference of the bust. When developing a pattern for a dress of knitted fabric, we do not allow for slack, so all fractions will be calculated on the actual measurement of the bust semi-circumference.

Basic pattern (diagram 4)

Place the pattern of the skirt on a sheet of paper, trace its outline and label the following points:

	Intersection of
Point A	Back centre-line and waistline
Points B, C	Back dart-lines and waistline
Point D	Side-line and waistline
Point E	Front centre-line and waistline
Points F, G	Dart-lines and waistline
Point H	Side-line and waistline

Back

Point 1	From A go up to the level of the armhole (21 cm).
Point 2	From A go up the length of the back waistline (42 cm). From points 1 and 2 trace 25-cm horizontal lines.
Point 3	From point 2, along the horizontal, go 1/6 of 48 = 8 cm.
Point 4	From point 3 go up 2 cm; join point 4 to point 2 by a curved line.
Point 5	From point 4 go vertically downwards 8 cm.
Point 6	From point 4 go 1 cm away from point 2; join points 6 and 5.
Point 7	From point 2, along the horizontal, go the cross shoulder width (19 cm).
Point 8	From point 7 run a vertical line to the horizontal from point 1; label the intersection 8.
Point 9	From 7 go down 2 cm.
Point 10	Join points 6 and 9 by a line and extend the line 1 cm from point 9.
Point 11	Along the horizontal from point 1 advance 23 cm, which is half the bust semi-circumference 46 plus 2 cm slack = 48, less 1 cm; join points 11 and D.
Point 12	From point 8 go up 1/3 of the distance between points 8 and 7. Draw the armhole by a curved line through points 10, 12 and 11.
Point 13	From point C and B upwards, trace lines to form the upper part of the dart, which must end 3 cm below the horizontal line from point 1.

Front

Point 14 — From point E go up to the level of the armhole (21 cm).

Point 15 — From point E go up the length of the bust (44 cm). From points 14 and 15 run 30-cm horizontal lines.

Point 16 — From point 15 go out 1/6 of 48 = 8 cm.

Point 17 — From point 15 go down 1/6 of 48 = 8 cm. With a curved line from point 16 to 17, define the neckline.

Point 18 — From point 16 go out 5 cm. Join point 18 to point F by a line.

Point 19 — From point 18 go down 1 cm. Join point 19 to point 16 by a line.

Point 20 — From point F go up to the level of the bust (20 cm).

Point 21 — From point 18 go out 1/10 of 48 = 4.8 cm. Join point 21 to point 20.

Point 22 — From point 20, upwards towards point 21, go the same distance as between points 19 and 20.

Point 23 — From point 14 go out 25 cm, which is half the semi-circumference of 46 plus 2 cm slack = 48 cm, plus 1 cm. Join point 23 to point H on the waistline by a line.

Point 24 — From point 23 advance 1/5 of 48 = 9.6 cm, less the distance between points 8 and 11 (which is 4 cm) = 5.6 cm.

Point 25 — From point 24 run a vertical line to the horizontal from point 15.

Point 26 — From point 23 trace a vertical line to the horizontal from point 15.

Point 27 — From point 26 go down 4 cm Trace a line from point 27 to point 22.

Point 28 — Check the distance between points 6 and 10 along the shoulder of the back pattern and repeat this distance along the line between points 16 and 27.

Point 29 — From point 24 go up 1/4 of the distance between points 24 and 25 = 5.7 cm. Draw the armhole by joining points 28, 29 an 23 with a curved line.

Point 30 — From point 20 go down 3 cm. Join points F and G to point 30 by lines.

Sleeve (diagram 5)

Point 1 — Trace a 40-cm horizontal line, and label its midpoint 1. From the midpoint trace a 60-cm vertical line.

Point 2 — From point 1, along the vertical line, go down the distance from point 28 to 23 on the front part of the dress outline, which is 17 cm less 3 cm = 14 cm. Trace a horizontal line like that from point 1.

Point 3 — From point 1, along the vertical line, go down the length of the sleeve = 59 cm. Trace a horizontal line like that from point 1.

Point 4 — From point 2 go right 1/5 of 48 = 9.6 cm.

Point 5 — From point 2 go left 1/5 of 48 = 9.6 cm.

Point 6 — From point 2 go left 1/3 of 48 = 16 cm.

Point 7 — From point 2 go right 1/3 of 48 = 16 cm.

Point 8 — From point 4 trace a vertical line upwards to the horizontal through 1 and label the intersection 8.

Point 9 — From point 5 trace a vertical line upwards to the horizontal through 1 and label the intersection 9. Trace oblique lines from point 8 and 9 to point 2.

Point 10 — From point 4 go upward 5 cm.

Point 11 — From point 8 go down 5 cm along the oblique line.

Point 12 — From point 9 go down 5 cm along the oblique line.

Point 13 — From point 5 go up 4 cm. Draw the head of the sleeve by a curved line joining points 7, 10, 11, 1, 12, 13 and 6. Point 1 will be joined to the seam at the shoulder. At point 13 trace a diagonal line to indicate that this is the front part of the sleeve.

Point 14 — From point 3 go left 13 cm.

Point 15 — From point 3 go right 13 cm. Join point 6 to 14 and point 7 to 15.

<u>Slacks</u>

	Measurement
Crotch, from waistline	23 cm
Knee, from waistline	52 cm
Hip, semi-circumference	50 cm
Waistline, semi-circumference	36 cm
Outside length	95 cm

Front

Point 1	Trace a 25-cm horizontal line and a 100-cm vertical line; label the corner 1.
Point 2	From point 1, along the vertical, go down to the crotch level = 23 cm. Trace a 25-cm horizontal line.
Point 3	From point 1 along the vertical line, go down to the knee level = 52 cm. Trace a 25-cm horizontal line.
Point 4	From point 1, along the vertical, go down the entire outside length = 95 cm. Trace a 25-cm horizontal line.
Point 5	From point 1, along the horizontal, advance half the semi-circumference of the hip = 25 cm.
Points 6, 7, 8	From point 5 trace a vertical line as far as the horizontal from point 4 and label the intersections 6, 7 and 8.
Point 9	From point 6 go out 1/6 of 50 = 4.2 cm.
Point 10	Midway between points 9 and 2.
Point 11	Midway between points 4 and 8.
Point 12	Place a ruler on points 10 and 11 and extend a line from 11 to the horizontal from point 1; label the intersection 12.
Point 13	From point 6 go up 1/4 of the distance between points 6 and 5 = 5.7 cm.
Point 14	From point 1 along the horizontal line go inside 3 cm. Join point 14 to point 2 by a curved line.
Point 15, 16	From point 12 go 1 cm to both sides.
Point 17	From point 12 go down 10 cm. Join points 15 and 16 to 17. Trace oblique lines from points 2 and 9 to point 11.
Point 18	From point 2 go down 12 cm along the oblique line.
Point 19	From point 9 go down 12 cm along the oblique line.
Point 20	From point 4 go inside 2 cm; trace a line from point 18 to 20, labelling the intersection of this line and the horizontal from 3 with A.
Point 21	From point 8 go inside 2 cm; trace a line fron point 19 to 21, labelling the interesection of this line and the horizontal from point 3 with B.

The front part is complete. The line joining points 12, 10 and 11 is the crease line. When placing the pattern on the fabric this line must follow the straight grain of the fabric.

Back

The back will be designed with reference to the front.

Point 22	From point 14 go out 1 cm.
Point 23	From point 2 go out 1 cm.
Point 24	From point A go inside 1 cm.
Point 25	From point 20 go inside 1 cm. Join points 22 and 23 by a curved line. Join points 23 and 24 by a curved line, convex towards the inside. Join points 24 and 25 by a straight line.
Point 26	From point 9 go out 1/12 of 50 = 4.2 cm.
Point 27	From point B go out 2 cm.
Point 28	From point 21 go out 2 cm. Join by a curved line, convex to the inside, points 26 and 27 and by straight line, points 27 and 28.
Point 29	From point 6 go inside 1 cm.
Point 30	From point 5 go inside 3 cm, join point 29 to 30.
Point 31	Midway between points 29 and 30. Using a curved line, convex towards the inside, draw the crotch line from point 31 to 26.
Point 32	Prolong the line 2 cm from point 30 upwards. Join 32 to 22 by a straight line.
Point 33	Midway between points 32 and 22.
Point 34	From point 33 trace a 16 cm vertical line.
Points O, O	From point 33, 2 cm on both sides. Join points O, O to point 34.