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ASSISTANCE IN THE START-UP OF A SMALL-SCALE GARMENT INDUSTRY

SI/SOI/89/801/11-01

SOLOMON ISLANDS

Technical report: Garment manufacture\*

Prepared for the Government of Solomon Islands  
by the United Nations Industrial Development Organization

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\* This document has not been edited.

TABLE OF CONTENTS

- 1. SUMMARY
- 11. INTRODUCTION
- 111. RE-ORGANISATION OF FACTORY AND TRAINING
  - A. Introduction
  - B. Cutting Room
  - C. Pattern Library
  - D. Styling
  - E. Lay Planning and Cutting
  - F. Pattern Making & Grading
  - G. Machine Maintenance
  - H. Machinist Training
  - I. Production Lines
  - J. Training of Supervisors
  - K. Production Planning and Controls
  - L. Finishing and Quality Control
  - M. Costing
- IV. RESULTS
  - a. Cutting Section
  - b. Pattern-making & Grading
  - c. Machining Section
  - d. Finishing Section
  - e. Production Control
  - f. Machine Maintenance
  - g. Costing
  - h. Management.

V. FINDINGS

- A. Learning & Retention Ability
- B. Quality
- C. Maintenance
- D. Raw Materials
- E. Export Potential
- F. Management
- G. Costing.

1. SUMMARY

The project was of 6 months duration to assist in the establishment of the first locally owned garment factory in the Solomons. Second-hand equipment had been purchased, a building acquired and a staff of 40 with basic sewing skills employed.

(a) Project Objective

The objective of the project is to assist in the establishment and initial operation of a garment factory - the first in this sector in the Solomon Islands.

(b) The outputs as stated were to achieve:

Output 1

Three production lines laid out for the production of T-shirts, shirts and shorts/trousers.

Output 2

Two persons trained in pattern drafting, cutting and lay planning.

Output 3

Twenty six persons trained in the operation of industrial sewing machines.

Output 4

Two persons trained in production planning and control, quality control and costing.

Output 5

Two persons trained in sewing machine maintenance.

Note - training of sewing machine mechanics was to have been carried out in Hong Kong. This has now been superseded.

The six month programme was planned to include all the above objectives. Training in all areas was carried out and the factory re-organised for efficient work-flow with suitable storage for fabrics and accessories. 30 people in all, plus the owners (administration) are now producing approximately 1000 mens' ladies' and childrens' garments per week of a very high standard at a reasonable cost. Basic machine maintenance and repair training has already been undertaken and two qualified mechanics will be coming in late September for a one month period, to train local people.

There is a lot of potential in the Solomons for the manufacture of garments for both the local and the export markets. It is suggested that training facilities should be organized. They may for example be set up in conjunction with the Industrial Training Department at the Solomon Island College of Higher Education whereby pattern-makers, cutters and machinists could be trained thus providing a pool of labour for the further expansion of the garment industry.

## II INTRODUCTION

Before Rita Fashion wear was started there was no industrial-scale production of garments in the Solomon Islands. There were a few small tailoring and dress-making establishments but the cost of custom-made garments was generally too high for the ordinary wage-earner. Annual imports of garments, both new and used, amount to about one million pieces incurring a 63% import duty.

The Government, through the Ministry of Commerce, Trade, Industry and Labour, is encouraging the local manufacture of garments to meet the domestic demand and has offered incentives to the local entrepreneur. Through UNDP/UNIDO projects, DP/SOI/88/002, promotion and development of small and medium scale industries and DP/RAS/86/075, small and medium-scale industry and entrepreneurship development in the Pacific Islands, the entrepreneur (paying his own expenses for the trip) was given the chance to study garment industry operations in Fiji and to formulate his plans with the assistance of UNIDO experts provided under these projects.

Second-hand equipment (sewing machines, overlockers, button-holing and button sewing machines) had already been acquired, a building with a floor area of 2200 sq. feet was available for the factory and labour with basic sewing skills was available in Honiara where the factory was planned to be established.

A weekly production of 500 plain T-shirts, 750 mens' shirts and 500 mens' shorts was foreseen with a labour force of thirty-two, mostly women.

In view of the fact that neither the entrepreneur nor the

potential labour force had any first-hand experience in industrial production of garments, the Government requested UNIDO assistance in planning the production, training the labour force and in guiding the initial operation of the factory in general. This will be the first local garment factory in the Solomon Islands and, if successful, will motivate other private entrepreneurs to establish manufacturing units.

UNIDO further assisted by providing equipment for training as listed in Annexe 8.



111. RE-ORGANISATION OF FACTORY AND TRAINING

A Introduction

At the beginning of the project, 40 staff were employed. Twenty-seven machinists, four supervisors, one cutter, two mechanics/cutters, two pressers, two table hands, one cleaning lady and a manageress.

The cutting room was supplying the work to the machines on a "hand to mouth" basis. The machinists often had to sit and wait for work to be cut. The table being used for cutting was far too wide for the cutters to stand either side and lay the material. Consequently, one person would crawl along the table to straighten the material. (See Annexe 1)

The patterns and cutting methods being used were that of the "home dressmaker" i.e. commercially bought tissue paper patterns, with cutting undertaken by folding the material in half, laying on the pattern and cutting around the edges. There are three disadvantages to this method: -

1. A great deal of fabric was wasted,
2. It was easy to cut too much from the edge of the pattern each time, thus changing its' shape.
3. It was extremely slow.

The styles in production included mens' trousers, shirts, boys' shorts, ladies' dresses and some safari suits. Generally, the quality of the stitching was of fair standard but tensions on machines were poor, causing wrinkled seams; the threads used were not of matching colour and the production methods were inefficient. Machinists had a community bench between them on which they kept their cut work and spent half their time trying to sort out which piece they wanted to sew next and/or, did it

belong to that machinist or the next?

The industrial sewing machines, most of which were very old and worn, had parts missing, were seldom oiled or cleaned and had not been ergonomically adjusted for the comfort of the machinists. For instance, the angle of the foot treadle might be too steep, causing discomfort in the ankle and leg.

Production lines had been set up without knowledge of work flow or time and motion. Although garments were being made in several different steps or operations, sometimes one girl might do three or four different operations in one day, giving her no chance to improve her speed or quality by repetition.

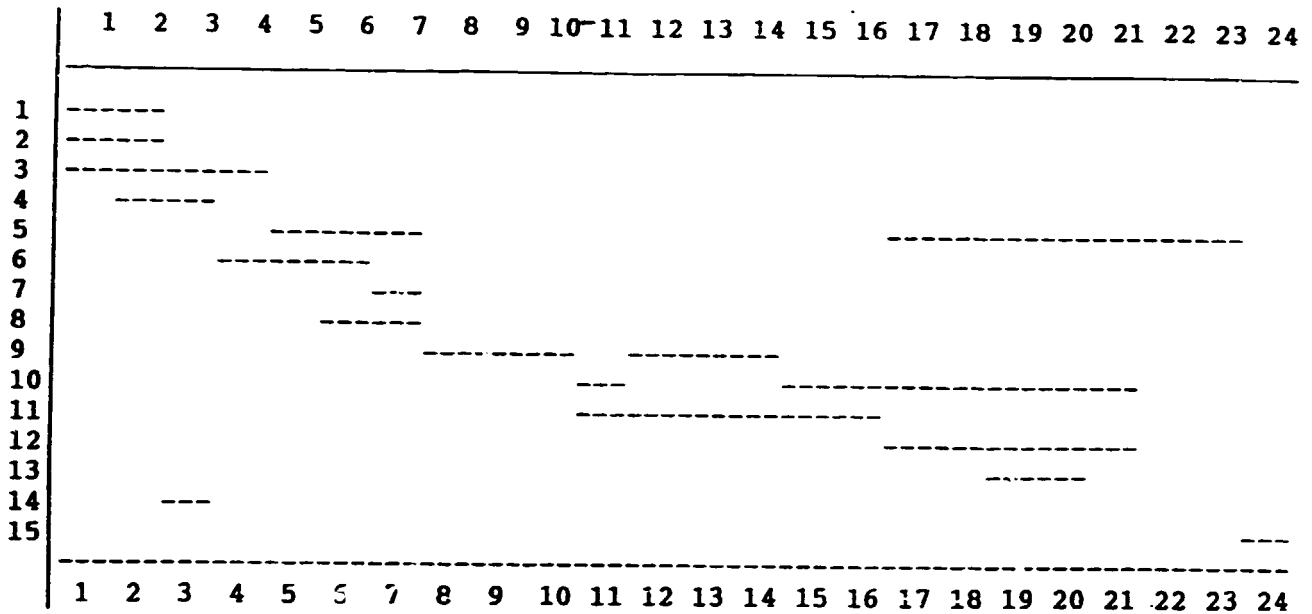
The supervisors had approximately seven girls each to 'mind'. They fetched them work, occasionally cutting for them if needed. As the cutting wasn't very accurate, there was constant unpicking, so the supervisor would just help their machinists as needed.

The finishing (button holes, buttons and pressing) was carried out in the same haphazard way. Buttons, threads and zips were stored in mixed colours and sizes on a table at the back of the room, resulting in a lot of lost time. There was no template for button positions and garments often had large pencil marks in incorrect positions. Pressing was done using a domestic iron (without steam) on a flat table and many creases were pressed in.

The training schedule planned (See fig 1) was commenced with the assistance of the manageress, who was a competent seamstress and excellent at passing on any instruction in Pidgin language.

FIGURE 1

6 MONTH TRAINING PROGRAM SOLOMON ISLANDS



Training Activity

- 1 Re-organize cutting room
- 2 Re-do pattern library
- 3 New styles - Pattern Library
- 4 Lay planning - Cutting
- 5 Pattern making and Grading
- 6 Machine maintenance
- 7 Lay out production lines
- 8 Preparation - Machinist training program
- 9 Machinist Training
- 10 Follow up - Machinist training program
- 11 Supervision training
- 12 Production planning
- 13 Costing
- 14 Quality Control
- 15 Report

Unfortunately, six weeks into this programme, the manageress left. The training programme had to be revised, as there were no other person with the knowledge of garment-making processes, i.e. even the simplest garment had to be explained step by step.

Also, due to staff depletion (terminations, pregnancies and other family reasons), there were only twenty-two machinists who participated in the Machinist Training Programme, including the owner.

### B Cutting Room

In the re-organisation of the cutting room, the extra large cutting table was reduced to a suitable width and two other tables made from the surplus. One to be used for sorting and bundling the bulk cut work and the other of raised height, for a pattern-making table (with a shelf underneath for scrap pattern paper).

Shelves were organised for cut work to be stored ready for the machinists and others built for storage of pattern-making equipment, scissors, cutting machine, labels and reference books. Passageways around the cutting tables were cleared of bags of scraps. A small storage room was fitted out for storage of fabric, threads, zips, elastic, buttons etc. which were sorted into colour and size.

### C Pattern Library

A numbering system was devised for the cataloguing and storage of patterns.

A sheet was designed for collating information needed for cutting and also for the costing of a garment.

Information recorded included: fabric usage, trimmings needed, size of sample garment, sizes graded and machining time. (See sample in Annexe 2 ). Patterns were numbered and stored on hooks around the walls of the cutting room.

### D Styling

Initially designs and patterns were made for several basic garments suitable for local retailing. These included mens' boardshorts, shirts, small boys' shorts, ladies' skirts, pedal-pusher pants, tops and dresses. By producing these in different fabrics and using slightly different style variations, it enabled us to produce a wide range of garments with minimum

pattern work.

As the local entrepreneur has four retail outlets in Honiara, (three of which sell mainly second-hand clothing), it was very easy to plan production styles. The input from the staff in the shops on "most popular styles", was very helpful and input from the staff at the factory was also encouraged. We later developed many other styles: -

1. Mens' Shirts - Long & short-sleeved  
Casual & dress shirts.
2. Mens' Shorts - Broad shorts (various styles)  
Sports shorts  
Dress shorts
3. Mens' Trousers
4. Mens' Overalls
5. Ladies' Dresses  
Skirts
6. Childrens' Shorts  
Girls' dresses  
Boys' Suits  
School Uniforms ( Boys and Girls)

#### E Lay Planning and Cutting

Lay planning, when done correctly, can save a lot of fabric. It is the art of marking in, with pencil or chalk, your total number of pattern shapes on to the width of your fabric, with the minimum of wastage. People with a good concept of area and shape have an advantage although experience will eventually compensate. There are basic rules to follow and if you can juggle your pattern pieces to save even 1" of fabric, over 200 shirts this would result in a saving of nearly 6 yards or 5 metres of fabric.

As a lot of the cutting had previously been with remnant (small) pieces, this concept was quite new to the cutters and required a lot of instruction and supervision.

A  $3\frac{1}{4}$  inch circular blade cutting machine was brought from Australia and cutters were shown the correct method of laying up fabric for bulk cutting. Instruction was given on the correct usage of the cutting machine, with particular emphasis on safety. The wire holding the lead to the machine was centralized over the table. (This small cutting machine is adequate for lays of up to 35 to 40 layers of cotton or similar fabric.

A cutting sheet was designed to record information on style number, quantities, colour and size. It also records the cutter, date and number of cutting order. (See Annexe 3) The information from these sheets is collated in a cutting book which also has a despatch date entry. This allows one to see at a glance the current work still being processed in the factory.

#### F Pattern Making and Grading

At the beginning of the pattern-making programme, training was commenced with three participants, one cutter, the owner's wife, (who expressed the desire to be involved with styling and patterns) and the manageress. As pattern-making is a difficult area (Diploma students in Australia have 3 to 4 hours instruction per week for 3 years), it is easier to understand if combined with the making of garments. This way, you can see how flat pieces of different shapes are joined together to fit a three dimensional curved body.

Blocks of standard shapes were used, i.e., skirt, set-in sleeve bodice, mens' trouser, childs' bodice and participants were shown how to make a style from these basic shapes. After

the manageress left, instruction continued with the cutter and one of the owners. However, she had other commitments and as our programme now effectively related to managing the factory, the programme was revised to pattern adaptation and grading. This meant a much simpler method of pattern-making was taught. For instance, one can take a pattern of a ladies top and add a gathered skirt and produce a dress pattern. Or, one can take a man's shirt pattern, cut a horizontal panel across the chest in contrast colour and create a new style or adaptation.

Vylie, the cutter, showed an aptitude and ability in pattern-making and grading. He had never sewn garments together, but being a cutter for many years, had given him an insight into component shapes. He has adapted several patterns and this skill combined with a very good colour sense, will be adequate to cope with new styles as needed in the immediate future. His grading work shows an excellent understanding of sizing and body shape and he has been given charts showing the basic grading for mens' ladies' and childrens' wear.

#### G Machine Maintenance

As the machines were seldom cleaned or oiled, regular daily and weekly maintenance was commenced. Screwdrivers and brushes were bought for each machine and the girls given instruction on daily cleaning and weekly oiling. This helped: -

1. The machine's performance,
2. The cleanliness of the finished product,
3. Reduce repair time required by mechanic.

There were frequent breakdowns of machines with machinists losing a lot of time prior to these instructions. At this stage there were several machines spare, so the two mechanics were shown how to take parts from spare machines to

improve the performance of others. All machines were thoroughly serviced and tensions adjusted. The spare machines were stored in another area leaving twenty-four machines working in a fair to good condition. Machines were tested for speed and rated and there was found to be a 30% difference in their performance.

#### H Machinist Training

In the Solomon Island traditional society 'work' could be commenced, delayed and added as the person felt it was needed. There is also a clear lack of literacy and numeracy skills.

Their retention level is low. Often, even after six months repetitive learning, they forget programmes if not continually supervised. Another hindrance, has been the reticence to ask questions or to query the logic of an operation. Therefore it was decided to teach small numbers by splitting the initial twenty-two machinists into two groups.

The fastest machines were moved to what is now the finishing and pressing area (see plan Annexe 4) and a video cassette player system was set up. The three week training programme (designed in Australia) is an intensive one involving demonstrations on the video cassettes. The first week, a series of exercises, designed to develop skills on the machine in conjunction with speed, were introduced. (details of Programme - Annexe 5). Each machine was fitted with a stop watch and participants were given instruction on use and recording times. The objective is to constantly improve your time, whilst at the same time improve and retain your quality. Each exercise has two target times and as times are recorded in three separate columns, i.e. "target 1", "target 2" and "below target 2". It is easy to follow the participants' progress while at the same time check quality.



The following facets of the industrial sewing machines were demonstrated to both groups.

1. Hand Positioning
2. Control of machine
3. Directional control
4. Handling techniques
5. Speed
6. Production methods
7. Production tasks.

This was done by two methods,

- a. Practical demonstration to allow group interaction.
- b. Video cassette, which gave close, clear visibility and the opportunity to replay sequences to allow time for full comprehension.

The second week a series of production exercises were introduced, again, with emphasis on speed and quality. These tasks introduced basic production methods and practice in time and motion. Scrap fabric was used, which meant that speed and handling could be emphasised, while not expecting 100% quality.

The third week was actual production of garments, using production line methods. Quality had to be high and each operation was timed. Again, the girls could see how repetition helped improve their speed and handling.

The first group of ten that were trained, included the four supervisors and the girls who, in initial production trials, were found the better machinists (speed and quality). To help choose a suitable supervisor for the machine room, a suitable group was selected. Each day, a different girl had the job of supervisor. She was responsible (with guidance) for the delegating of the different processes, for recording times and

keeping the work up to the girls. This exercise proved very interesting. The girl who showed the most initiative and a greater understanding of the needs of the position, was one of the machinists, not any of the four previous supervisors. On the whole, the second group of twelve, did not achieve as well as the first group, having more difficulty with comprehension, retention and speed.

Overall, their results were excellent considering their background and the condition of the machines used. The charts below show achievement results expressed in percentage terms. The low achievement results in some cases, were explained by slow machines and also poor dexterity.

| <u>BASIC MACHINE SKILL NO:</u> | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> |
|--------------------------------|----------|----------|----------|----------|
| TARGET 1                       | 65       | 15       | 20       | 65       |
| TARGET 2                       | 20       | 55       | 45       | 25       |
| BELOW TARGET 2                 | 15       | 30       | 35       | 10       |

| <u>SEWING EXERCISE NO</u> | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> |
|---------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| TARGET 1                  | 60       | 80       | 70       | 35       | 40       | 55       | 38       | 70       |
| TARGET 2                  | 20       | 10       | 20       | 25       | 30       | 30       | 50       | 20       |
| BELOW TARGET 2            | 20       | 10       | 10       | 40       | 30       | 25       | 12       | 10       |

| <u>SEWING PICTURE NO:</u> | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> |
|---------------------------|----------|----------|----------|----------|----------|
| TARGET 1                  | 60       | 35       | 40       | 25       | 30       |
| TARGET 2                  | 30       | 20       | 5        | 20       | 50       |
| BELOW TARGET 2            | 10       | 45       | 55       | 55       | 20       |

Prior to this training programme, machinists were taking approximately two hours to make a men's short-sleeved sports shirt. During the third week of training, the first group could produce one in twenty-nine minutes, (using six separate operations with ten garments in one bundle).

All participants were asked to evaluate the programme (see question sheet Annexe 6).

It was interesting to note that prior to these six weeks of training, absenteeism was high. During these weeks, not one person stayed away, despite some minor ailments.

RESULTS OF QUESTION SHEET

1. Show on the scale if the training was enjoyable or hard work.  
Enjoyable.....Hard work.

66.7% 28.6% 4.7% 0% 0%

2. Did you learn new and better methods? a lot a few None  
91% 9% 0%

3. Has your speed on the machine increased? a lot some No  
57.3% 28% 4.7%

4. Has your handling of work improved? a lot some No  
72% 28% 0%

5. Was time for training Too long Just right Too short  
18% 64% 18%

6. Indicate with a tick for helpful or x for not necessary:-

|                       |       |        |
|-----------------------|-------|--------|
| VIDEOS                | 100 % |        |
| PRE-CUT SAMPLES       | 91 %  | x 9%   |
| ENDLESS BANDS         | 100 % |        |
| SEWING DEMONSTRATIONS | 95.3% | x 4.7% |
| LONG PRACTICE LESSONS | 91 %  | x 9%   |

7. Was there something else you would have liked to learn? What?

|              |       |
|--------------|-------|
| More Zips    | 27 %  |
| More Collars | 13.6% |
| More Pockets | 9 %   |
| Dresses      | 9 %   |
| No comment   | 41.4% |

8. OTHER COMMENTS?

a) I want to learn more to organise myself to improve my speed and handling and everything in the right way.

b) It would be good to have more Machinist Training Programmes here in The Solomons. I know a lot of women here would be interested.

c) It's a shame that people in the other provinces can't get the benefit of a course like this. These islands are a bit scattered about and people in villages haven't got the money to come over to Moniara. Why can't they send teachers over to some of the other islands?

### I Production Lines

After the machinists training programme, the factory was re-arranged to facilitate work flow (See plan Annexe 4). All plain sewing machines and three overlockers were moved into the larger area where storage shelves were built to store "work in progress", i.e. bundles of garments waiting to go to the next operation. The long tables between the machines were removed and individual work bins on stools were placed beside each machine. Apart from allowing the girls to keep their work in a more orderly fashion, this arrangement allowed a lot more space around each machine. Extra lights were installed over some machines as needed.

### J Training of Supervisors

The job of delegating a number of different operations requiring various levels of skill to a group of machinists, who themselves have different skills, whilst at the same time, not overloading the work to be done on the overlocking machine, is fairly complex. At the beginning, the supervisor and I discussed the suitability of different machinists for operations requiring higher and lower degrees of skill. As the factory currently is only manufacturing for local consumption, the number of units cut in each style is kept between 50-200. With small cuts like this, you may have four different styles going through at the same time. Consequently, this entails a

considerable number of changes in the operations. The only style made regularly each week is boys' shorts.

To make it simpler for planning, the machinists were separated into three groups:

Group 1. Capable of operations requiring higher skills, i.e. trousers, zips, attaching collars, rouleau binding etc.

Group 3. The simplest operations - small boys' shorts, hems etc.

Group 2. The in-between, with the flexibility of being able to do some Group 3 work or Group 1 work when needed.

Then the different operations on each garment were assigned in a similar way - to Group 1, 2 or 3.

Hence, the supervisor had set guidelines to follow when planning her production-flow. The other variable in the planning - build-up of work for the overlocking machines has been partly overcome by the purchase of two additional machines. This has given flexibility to planning with one very old machine now left as a standby in case of breakdown or bottlenecks.

Each morning, the supervisor has to discuss with the head of the cutting department, the work planned for that day. He can help her future planning by saying what is going to be cut.

#### K Production Planning and Controls

As at this stage, there is no manager as such, one of the owners was asked to come for several hours each day to help with planning, timing and costing. She had participated in the machinists training programme and felt she had a basic understanding of garments.

Throughout the entire training programme, various people

including the pattern-maker, cutters, all participants in the Machinist Training Programme, were tested to see if they could work out the order, in logical sequence, of putting together a garment. Advertisements were put in the paper and over the radio to try and find a sample machinist. (One capable of sewing together a new style without needing step by step instruction). To no avail. Unfortunately, in the Solomon Islands, the emphasis in education has not been on problem solving.

The present arrangement with the owner is a temporary one as she has other commitments. Arrangements are being made to employ a suitable person from overseas to manage the factory and to locate and train a local person to eventually take over.

For production control and a check on quality, a ticketing system was devised for the cut work. Each bundle cut has information on cutting sheet number, style number, size and quantity. On the back of these tickets, each machinist must write her operation number and name.

To help with communication and problem solving, regular fortnightly meetings have been organized between supervisors of the machine section, cutting section, finishing and quality control, the owner and one representative from the machinists. This has proved to be of great benefit in encouraging them to work through problems themselves.

#### L Finishing and Quality Control

The finishing, quality control and pressing section was set up in the smaller part of the factory (see plan Annexe 4). A supervisor was chosen for this section and trained in quality control. Work finished by the machine room has to be inspected and if there are any faults, has to be returned to the machinist

responsible. Buttonholes and buttons are then done as required. Templates were made for marking of positions.

A gravity feed industrial iron was purchased, which improved the standard of pressing and a girl given training on pressing methods.

Work being despatched was counted and marked off against the original cutting sheet.

### Costing

Apart from calculating the cost of fabric, accessories and an allowance for overheads and depreciation, a lot of work has been done on timing each separate machine operation, in order to calculate cost for labour. The reason calculations have been done on single operation time is that it is intended to bring in an incentive scheme within the next three months.

After the operation is timed, an extra percentage is allowed to cover fatigue. The usual allowance is 10% but because of the heat and work ethic in the Solomons, 20% has been allowed. This time will be the one used for the incentive scheme. But for costing, an additional 30% time has been allowed to make sure that slower workers are covered. It is hoped, when incentives are offered, these workers will improve, as, during the three week Machinist Training Course, they showed that they could work faster.

Books have been set up to record all times and also one for costing.



#### IV RESULTS

The initial impression of the factory is now one of light and space with ceiling fans throughout and music playing in the background. It is tidy and organised and key staff have been given a list of their responsibilities.

The total staff is now 30 (plus the owners) comprising: 22 machinists, one supervisor, 4 cutting and pattern-makers, 1 presser, 1 despatch and quality controller and 1 cleaner (who also helps in the finishing section.).

In the cutting room, there are two people capable of using the electric cutting machine and one of these has had adequate training in pattern adaptation and grading. Three people have been trained in lay planning and laying up of fabric. One girl is a junior, who is learning and helping with sorting and bundling. A large number of short pieces of fabric are used, which is good for variety in the local market, but it does create extra work in this section.

The machining section is producing work of a very high standard. The quality is continually high, which has been remarked upon by overseas visitors on a number of occasions. They are producing a variety of mens', ladies' and childrens'wear. Some machinists are still fairly slow but as they showed during the intensive training that they could work faster, it is expected that this problem will be rectified when the incentive scheme is introduced. One machinist has been selected to sew and time new samples, as well as assist with instruction to others. She is gradually learning many new processes and eventually should be able to handle all new styles.

At present, production is averaging 1000 garments per

week, with 19 machinists in this section. Previously with 29 machinists, it was between 750 to 800 per week. This represents a 100% increase in production.

The supervisor is managing this section very well and as she gains experience in solving small daily problems, which inevitably arise, e.g. absenteeism, etc., she should be excellent. Machine breakdowns have been minimised, where before there were at least three a day, now it would be one every three days. This is due not only to maintenance work done initially, but also to education of the machinists during their three week training programme.

The cutting sheets introduced have helped the finishing and despatch section to know what work is coming through, the quantity and also the required date.

Because of the low wage structure in The Solomon Islands, combined with the attitude of the people, which is to try very hard to please, this factory is producing garments of a high standard at a very reasonable cost.

## V. FINDINGS

### A Learning Ability and Retention

As mentioned before, the employees trained had relatively low learning and retention abilities. Therefore it would be preferable for machinists to have 2 or 3 months of repetition on similar styles to allow them to increase their speed before introducing a great variety of styling. With all tasks, be it lay planning, cutting or machining, repetition is the key word. After a time lapse, one must be prepared to revise constantly.

### B Quality

When shown the quality expected, either in the actual stitching or cutting or in the accuracy required in the grading of the patterns, work is of a very high standard. But problems can arise in different areas. For instance, a pocket can be beautifully stitched on slightly crooked or with stripes not matching, or a size 4 label could accidentally be stitched on a size 10 short, without instinctively realising something is wrong. This can be overcome with supervision and diligent checking.

### C Mechanics

Output 5 of the Project Objective was to have 2 people trained in sewing machine maintenance. Originally, this was to take place at Hong Kong Polytechnic over four months, but unfortunately there was no course available. Therefore, it was requested that teachers be sent here for a one month period. Two qualified mechanics will arrive here in the third week of September, 1990 and will give 'on the job' training. Although this will not give as broad a training programme as was expected in Hong Kong, it will be excellent as a "hands on" experience.

#### D Raw Materials

Solomon Island companies cannot afford to send buyers of fabrics and accessories overseas, therefore they are totally reliant on sales persons coming here and offering a very limited range of products. They are even limited as far as colour and quality to these suppliers. To fulfil special orders is sometimes extremely difficult especially for example school uniforms. A further problem is delivery. Fabric is ordered, delivery promised and not honoured. It is essential to find reliable overseas agents to supply orders on time. Currently Rita Fashion Wear are only able to take orders for fabric already in stock.

#### E Production Potential

At the moment the factory is operating at about 70% efficiency. As it is a large group of people working together with all key people new to their particular position, it will take a few more weeks for them to feel "at home" in their particular area of responsibility. Also, because of their nature, they were loath to make decisions while I was around. These factors, as well as the speed of some machinists, should be overcome in 2 to 3 months if a suitable manager is employed.

Apart from supplying garments for local shops, there is a lot of potential locally for school uniforms. Orders have been placed already from two local schools totalling over two and a half thousand units. Office uniforms have been made for the staff of the local electricity company and a further order worth US\$ 4,500 has been placed by the leading hotel in Honiara to supply uniforms for all their staff. In all cases, surprise has been expressed at the quality of the workmanship.

Other Pacific islands represent a large overseas market.

A trip is being arranged by the Ministry of Commerce and Primary Industry through the South Pacific Trade Commission (SPTC) to Papua New Guinea and Vanuatu to show samples of garments with a view to future orders.

To export to Australia, duty free under Spartica, there has to be 50% local content. Unless fabric and/or accessories were supplied from Australia, this would be difficult. An alternative is to use this factory for a "cut and sew" operation. Under this type of manufacturing, style, pattern, fabric and often accessories are supplied. This would answer the problem of supply and delivery of fabric.

#### F     Manager

The qualities needed by a manager: ability to handle people, to plan production, knowledge of garment-making processes, of pattern-making and grading, unfortunately weren't found in existing staff.

The pattern-maker showed potential but did not develop enough within the project time. Advertisements have been placed locally and in Australia and negotiations are underway for a suitable person for a minimum period of two years.

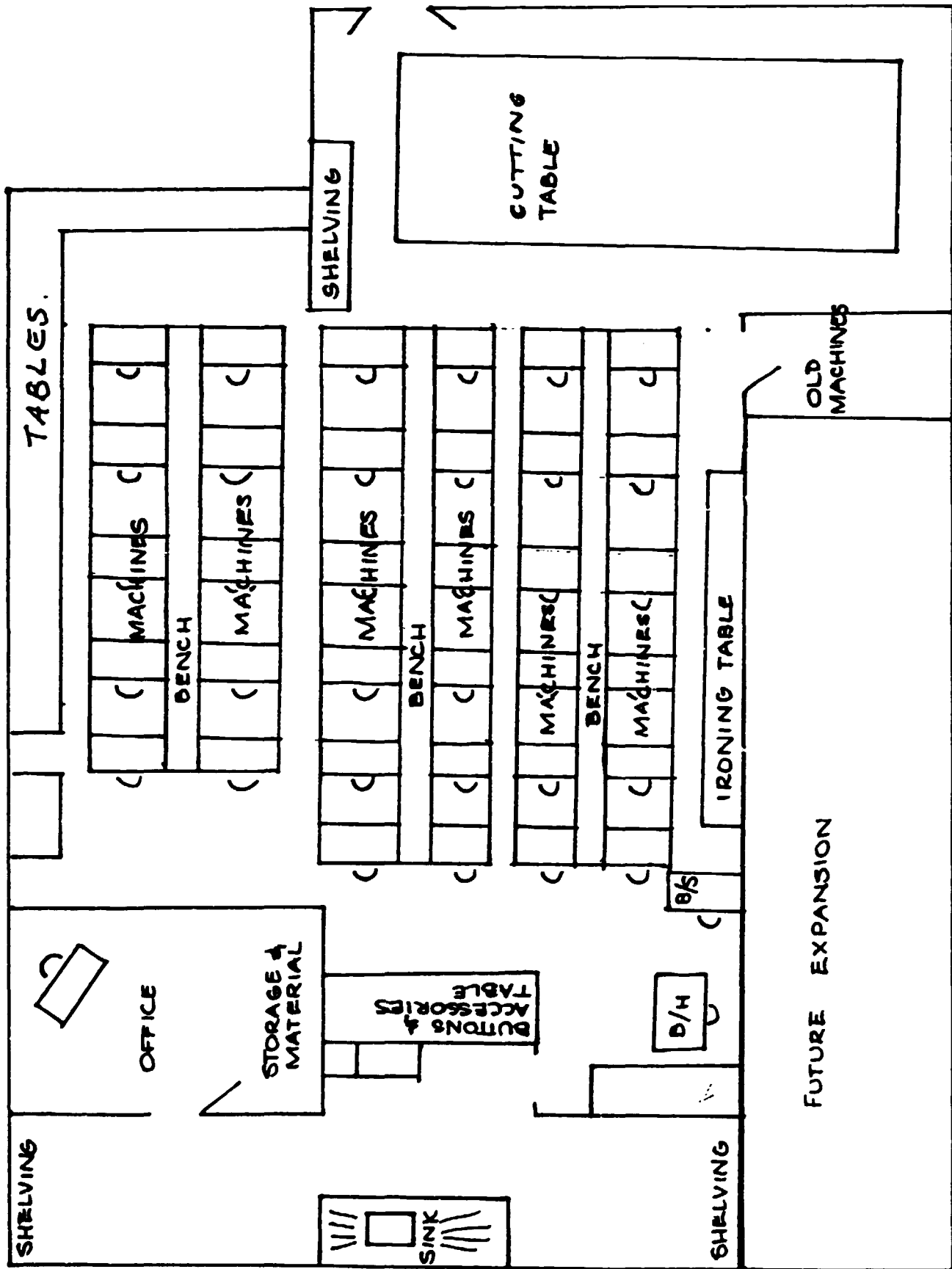
I RECOMMENDATIONS

1. That an application be made by management of Rita Fashion Wear to the Forum Secretariat in Suva for assistance to undertake market research under the Forum Island Countries Marketing Support Fund.
2. That the new manager of Rita Fashion Wear should select ( or find ) and train a local person in managerial skills with the view to eventually taking over management.
3. That a second person should be trained for all key positions, i.e. supervisor of cutting, machining section and finishing section, sample machinist and pattern-maker. Also, that the two school-leavers (juniors) and all new staff other than machinists should have a familiarisation period in each section so that all staff have a broader range of knowledge and therefore are more versatile.
4. Assistance should be given to management of Rita Fashion Wear for the sourcing of fabrics and accessories from new suppliers.
5. That Rita Fashion Wear should purchase, as soon as possible two new pieces of equipment:
  - a. A 10 inch straight blade cutter, in order to be able to bulk cut larger quantities.
  - b. A fusing press, to fuse interlining on collars and cuffs etc. which would be necessary for quality, especially in the export of garments.

6. That support should be given to further development in the manufacture of clothing in the Solomon Islands. That is, local entrepreneurs should be given assistance in the setting up and training of similar sized factories. ( See plan of suggested layout and requirements for setting up of factory Annexe 7)
7. That a training school should be set up to train local people in machining, patternmaking and cutting, in order to provide a pool of experienced labour for garment manufacturing. The logical venue for this would be the School of Industrial Training at SICHE ( Solomon Island College of Higher Education).
8. It was also clear from comments made that there is a significant requirement for training in the Provinces. This is for both home garment making and/or repair, and later for the possibility of piece work.

Recommendations 7 and 8 will be followed up during a two months attachment to Sol/88/022.

# ORIGINAL PLAN OF RITA FASHIONS





Annexe 2

DATE: .....

STYLE NO: .....

GRADED:

SAMPLE SIZE:

| TRIMMINGS | QUANTITY | SIZE | FABRIC | YARDAGE | WIDTH |
|-----------|----------|------|--------|---------|-------|
| zip       |          |      |        |         |       |
| Buttons   |          |      |        |         |       |
| Elastic   |          |      |        |         |       |
|           |          |      |        |         |       |

| No. | OPERATION | MACHINE | TIME | OTHER COMMENTS |
|-----|-----------|---------|------|----------------|
| 1.  |           |         |      |                |
| 2.  |           |         |      |                |
| 3.  |           |         |      |                |
| 4.  |           |         |      | <u>SKETCH</u>  |
| 5.  |           |         |      |                |
| 6.  |           |         |      |                |
| 7.  |           |         |      |                |
| 8.  |           |         |      |                |
| 9.  |           |         |      |                |
| 10. |           |         |      |                |
| 11. |           |         |      |                |
| 12. |           |         |      |                |
| 13. |           |         |      |                |
| 14. |           |         |      |                |
| 15. |           |         |      |                |

TOTAL TIME:

CUTTING SHEET NO: \_\_\_\_\_

STYLE: \_\_\_\_\_

SIZES

| COLOUR |  |  |  |  |  |  |  |  | TOTAL |
|--------|--|--|--|--|--|--|--|--|-------|
|        |  |  |  |  |  |  |  |  |       |
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|        |  |  |  |  |  |  |  |  |       |
|        |  |  |  |  |  |  |  |  |       |
| TOTAL  |  |  |  |  |  |  |  |  |       |

SPECIAL INSTRUCTIONS: -

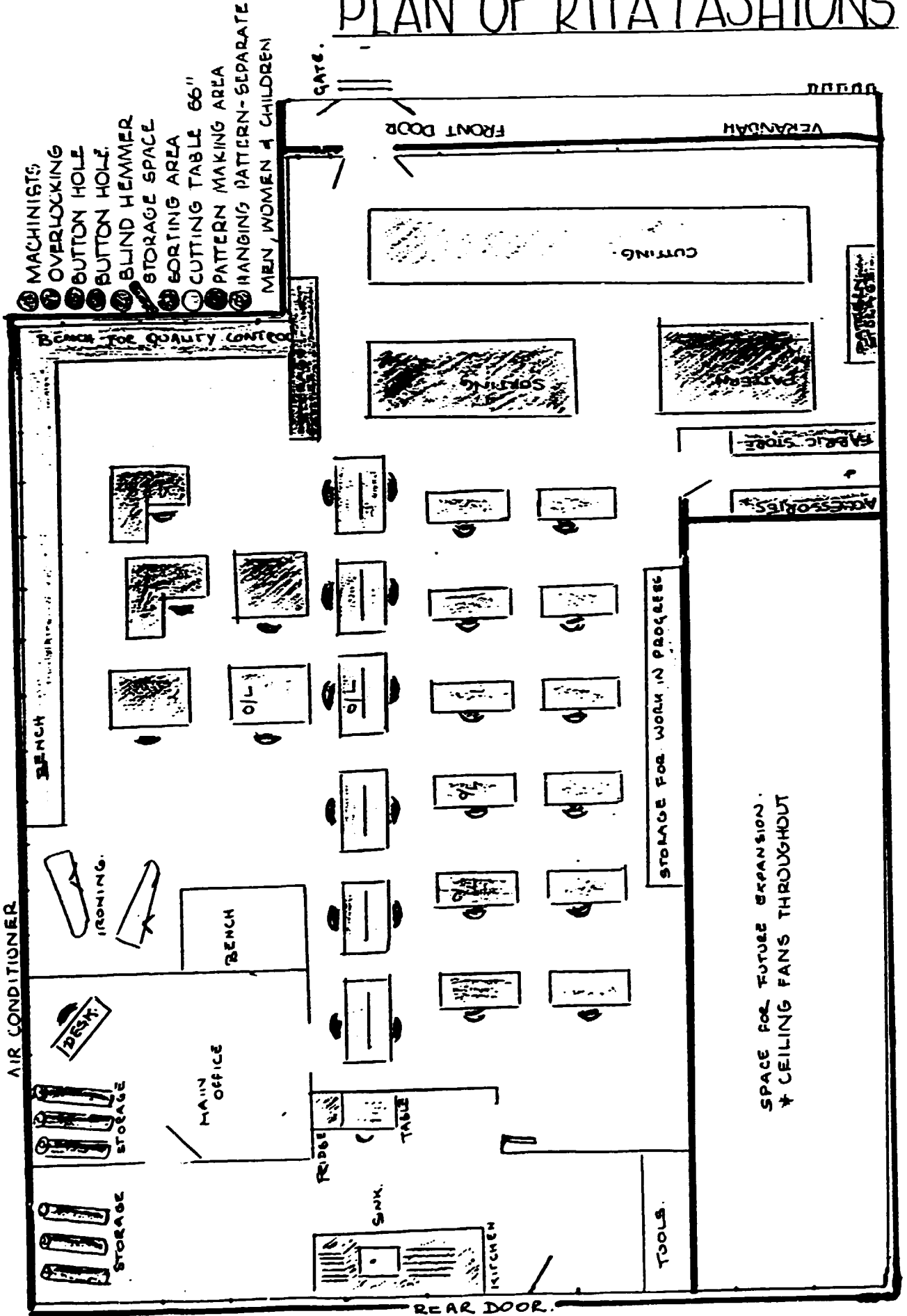
DATE CUT: \_\_\_\_\_

CUTTER: \_\_\_\_\_

DATE DESPATCHED: .....

Annexe 4

# PLAN OF RITA FASHIONS



**MACHINIST'S TRAINING PROGRAM - EXERCISES**

---

**BASIC MACHINE SKILLS (BMS)**

---

These are a series of threading exercises which help the trainee to efficiently thread and rethread the machine.

BMS1 - Top threading

BMS2 - Bobbin change

BMS3 - Needle change

BMS4 - Wind bobbin

**ENDLESS BAND (EB)**

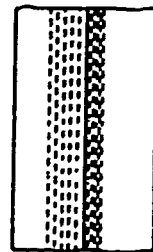
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Used to introduce and familiarize the trainee with machining and control. The stop/start action and controlled machining at speed and use of knee press are essential skills of the machinist. Practice will develop rhythmic movements of the body while performing the set tasks. Gauging seam space and needle control are introduced in this form of exercise.

EB1 - Straight parallel lines

EB2 - Straight parallel lines (backtacking)

EB3 - Curved parallel lines

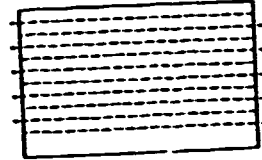


Annexe 5b

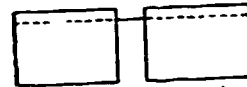
SEWING EXERCISES (SE)

Related to production tasks and provide unguided directional stitching. The trainee practises the hand techniques required for directional control while learning to judge distances. The exercises develop the spatial perception required for seam spacing and turning (on a point) corners, stitching both straight and curved sections and stitching at speed with quality. This introduces the skill required for the production tasks.

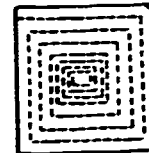
SE1 - Consecutive straight lines parallel to an edge.



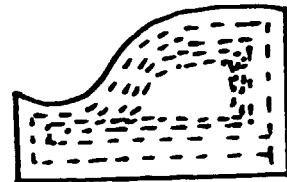
SE2 - Straight parallel stitching - chaining



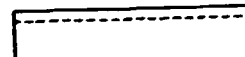
SE3 - Unguided straight lines on a reducing square.



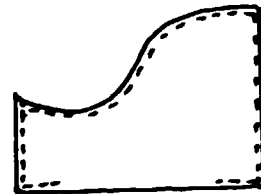
SE4 - Unguided straight lines on a reducing shape.



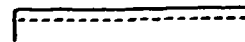
SE5 - Stitching a seam.



SE6 - Making a pocket bag and edge stitching



SE7 - Straight seam - long burst.



SE8 - Stitching a curved seam.

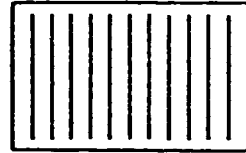


**SEWING PICTURES (SP)**

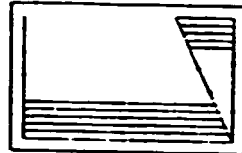
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Provide a means of guided directional stitching, giving practice in the hand techniques required for direction control. Each picture develops a new skill in handling, aligning and positioning while reinforcing machine control.

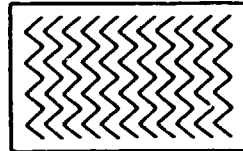
SP1 - Straight parallel lines in short bursts.



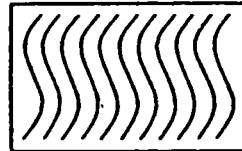
SP2 - Straight lines - varying lengths and angles.



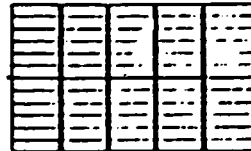
SP3 - Straight stitching - alternate changes in direction.



SP4 - Curved stitching in short bursts.



SP5 - Straight stitching - short bursts with backtacking



---

**LEGEND**

---

BMS BASIC MACHINE SKILLS  
EB ENDLESS BAND  
SP SEWING PICTURES  
SE SEWING EXERCISES

**MACHINIST'S TRAINING PROGRAM.**  
-----**WEEK 2 PRODUCTION TASKS.**  
-----

- |                             |                                  |
|-----------------------------|----------------------------------|
| 1. Darts.(5)                | 15. Belt loops.(10)              |
| 2. Dart placket.(5)         | 16. Gathering.(10)               |
| 3. Pinstitch.(10)           | 17. Bagged pinstitched edge.(10) |
| 4. Curved edges x 2.(10).   | 18. Square pocket.(10)           |
| 5. Collar.(5).              | 19. Angled pocket.(10)           |
| 6. Seam junction.(10)       | 20. Zip-skirt.(5)                |
| 7. Neck facing.(5)          | 21. Zip-fly.(5)                  |
| 8. Y Corner.(10)            | 22. Zip-facing.(5)               |
| 9. L Corner.(10)            | 23. Cuff-no.1 (5)                |
| 10. V Band. (10)            | 24. Cuff-no.2 (5)                |
| 11. Curved seam.(10)        | 25. Shawl collar.(5)             |
| 12. Curved band.            |                                  |
| 13. Pocket hem.             |                                  |
| 14. Lapped seams 1 & 2 (10) |                                  |

**WEEK 3. PRODUCTION TASKS.**  
-----

1. Boy's school shorts.
2. Double & single bed sheets.
3. Pillow slips.
4. Men's shirts (short sleeved)
5. Men's shirts (long sleeved)
6. Ironing board covers.

Annexe 6

MACHINIST TRAINING PROGRAM

PARTICIPANT'S EVALUATION SHEET

Tick the box for the answer that you agree with -

1. Show on the scale if the training was enjoyable or hardwork

2. Did you learn new and better methods?  A lot  A few  No

3. Has your speed on the machine increased?  A lot  Some  No

4. Has your handling of work improved?  A lot  Some  No

5. Was time for training  Too long  Just right  Too short

6. Indicate with ✓ for helpful or X for not necessary -

Videos

Pre cut samples

Endless bands

Sewing demonstrations

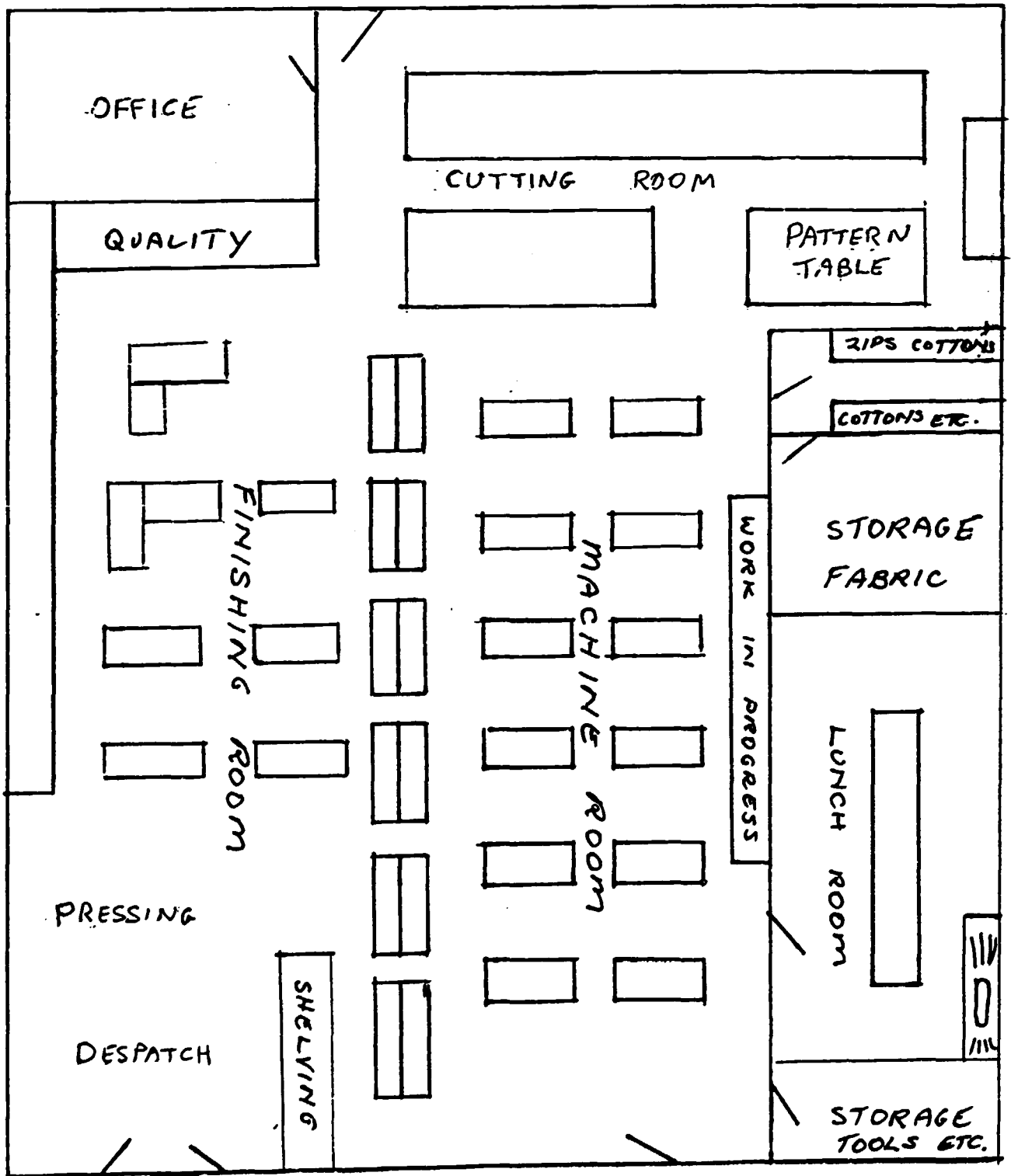
Long practice lessons.

7. Was there something else you would have liked to learn? - What?

8. Other comments -



Suggested layout and requirements for setting up of a factory



REQUIREMENTS AND RESEARCH NEEDED FOR THE SETTING  
UP OF A CLOTHING FACTORY.

1. MARKET- Whether local and/or export.
2. MACHINERY- Source and availability, secondhand or new.
  - a. Plainsewers.
  - b. Cutting.
  - c. Pressing.
  - d. Overlockers.
  - e. Hemmers.
  - f. Buttonholer. Depending on garments
  - g. Buttonsewer. to be produced.
  - h. Binder.
  - i. Bartack.
  - j. Stud.
3. FABRIC AND ACCESSORIES- Source, availability, delivery time, shipping and costs, plus duty if applicable.
  - a. Threads.
  - b. Zips.
  - c. Buttons.
  - d. Elastic.
  - e. Buckles.
  - f. Studs.
4. LABOUR-
  - a. Managerial expertise- capable of production planning, (for efficient work flow and also meeting deadlines), costing, staff, public relations, basic understanding of garment production and machinery.
  - b. Patternmaker/grader.
  - c. Cutter.
  - d. Supervisors (with knowledge of style variation).

Annexe 8

EQUIPMENT PROVIDED BY UNITED NATIONS

|     |   |                    |
|-----|---|--------------------|
| 1.  | Two (2) pcs 30cm straight ruler                   | 8.00               |
| 2.  | Two (2) pcs 12" Set Square 60'                    | 20.00              |
| 3.  | Two (2) pcs 12" Set Square 45'                    | 20.00              |
| 4.  | One (1) Pair Pinking Shears                       | 104.00             |
| 5.  | Twenty (20) pos Fine Marker Pens                  | 80.00              |
| 6.  | Twenty (20) pos Broad Marker Pens                 | 30.00              |
| 7.  | One (1) Dozen 3B Drawing Pencils                  | 28.50              |
| 8.  | One (1) Dozen 3H Drawing Pencils                  | 28.50              |
| 9.  | One (1) Dozen 2B Drawing Pencils                  | 28.50              |
| 10. | One (1) pcs Pencil Sharpener                      | 64.00              |
| 11. | One (1) Box Staedtler Pencil erasers              | 105.00             |
| 12. | One (1) Set Staedtler French Curves               | 21.00              |
| 13. | Two (2) Pairs 12" Steel rule                      | 27.00              |
| 14. | One (1) pcs. Bostitch Stapler                     | 47.00              |
| 15. | Four (4) Tailor chalk                             | 520.00             |
| 16. | Two (2) Pairs 10" fabric Shears                   | 470.00             |
| 17. | One (1) Pce Cloth drill                           | 1,425.00           |
| 18. | Two (2) Pcs Tracing Wheels                        | 14.00              |
| 19. | Two (2) Pcs Men's dress stand Sizes,<br>36 and 42 | 2,410.00           |
| 20. | Two (2) Pcs Ladies " " "<br>34 and 38             | 2,275.00           |
| 21. | One (1) pcs stop watch 1 hour                     | 288.00             |
|     |   | <b>\$ 8,083.50</b> |
|     |   | -----              |
|     | Packing charges                                   | 1,760.00           |
|     | Loading charges                                   | 800.00             |
|     | Freight charges                                   | 2,064.42           |
|     |   | -----              |
|     |   | <b>\$12,707.92</b> |

All prices in HONG KONG \$