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ASSISTANCE TO THE GARMENTS FACTORY

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KIRIBATI

Technical report: Findings and Recommendations*

Prepared for the Government of Kiribati

by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of R.A. Harkness
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Vienna

*
This document has not been edited.

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INTRODUCTION

The Republic of Kiribati, formerly the Gilbert Islands before Independence on 12 July 1979, are Atolls comprised of coral reefs.

Kiribati is presently importing 50,000 pieces of garments and some 125,000 pieces of 'seconds' and used clothing annually.

The Government, through the Ministry of Trade, Industry and Labour has successfully promoted the first privately owned Garment Factory in Tarawa. Substitution of imported garments with locally produced merchandise will create employment, and there is possibly future export potential.

TERMS OF REFERENCE

In co-operation with the counterpart staff assigned to the expert by the Ministry of Trade, Industry and Labour to:-

- i. prepare a layout for the pilot plant
- ii. assist in the installation of the equipment
- iii. prepare a detailed work plan for the 20 week assignment
- iv. carry out the plan as indicated
- v. make recommendations on measures needed to increase the overall competitiveness of the sector.

1. REVIEW OF CURRENT SITUATION IN THE GARMENT FACTORY

The observations set out below are based on the preliminary visit to the Garment Factory.

FINDINGS

1.1 Type of Manufacturing Unit

The garment factory is centrally located in Bairiki, to the rear of a most successful cooperative which is funding the venture.

The factory is a single storey building with floor area of approximately 1200 square feet, refer to Appendix I of this report for proposed layout.

The ceiling is very low, without electrical lights, overhead fans for ventilation, or power points to drive the sewing machines.

There is much natural light from two adjacent walls with large windows.

Toilet facilities for the proposed personnel is in the initial phase of construction.

The exterior and interior of the factory is in very good condition having been recently refurbished.

1.2 Machines

All of the sewing machines are industrial type, electrically driven and treadle controlled. For list of machines and types refer to Appendix II of this report.

All machines are assembled correctly on their stands, but are not sewing tested due to lack of power.

Spare parts, needles etc. have not been considered due to lack of knowledge. Service manuals for all machine types have been ordered.

1.3 Products and Material Used

The range of garments is expected to include men's shirts and shorts, T-shirts, skirts and tops for ladies. In the immediate future shorts, shirts and Government Uniforms have been selected for production.

Cloth in use include 100% polyester, 65-35% polyester cotton and 100% terylene given the climate and cost of fabric.

Cloth is mainly imported from China and is commonly 36", 42" or 45" in width.

1.4 Personnel

Ten sewing machine operators and one supervisor are selected by the Ministry of Trade, Industry and Labour as having the necessary qualities to work in the factory. Refer to Appendix II of this report for further information.

The 10 sewing machine operators have exposure to domestic single needle lockstitch machines, electrical, pedal or hand powered at school or home.

The supervisor is making all kinds of garments at home on an electrically powered domestic single needle lockstitch machine.

An expatriate entrepreneur acts as mechanic and electrician.

Little knowledge of up to date design and fashion is apparent due to limited access to fashion news or periodicals.

No formal training in fashion design, lay planning, cutting and make up exists in Kiribati. Local primary schools have sewing lessons enabling the indigenous population to sew together school uniforms and simple garments and also carry out repair work.

The most outstanding sewing operators may be considered for further training in New Zealand.

2. SUMMARY OF FINDINGS

- a) A table is required 20 feet long by 56" wide for laying up and cutting the fabric.
- b) Installation of electricity to power the sewing machines, the cutting knife, lighting and ventilation fans.
- c) Prepare lay-out for sewing machines, cutting table, power points and lighting, refer to Appendix I of this report for details.
- d) Purchase needles suitable for the sewing machines and sewing of polyester and polyester blends.
- e) Draft simple short and skirt pattern for training of supervisor and operators.
- f) Training of supervisor in all aspects of management, refer to Assignment Work Plan for detail.

- g) Training of Mechanic - on-going throughout the 20 week mission.
- h) Training of sewing machine operators - on-going throughout the 20 week mission.
- i) Source for supplies of suitable cloth, thread, zips, buttons etc in Fiji, Singapore, Hong Kong, China etc.

3. ASSIGNMENT WORK PLAN

<u>ACTIVITIES</u>	<u>WEEKS</u>
Arrival of expert, introduction assessment of situation.	1
Layout of factory, construction of cutting table installation of electricity. Refer to Appendix I of this report for layout.	2
Commence supervisor, assess same on all sewing machines, draft and cut simple short pattern	1
Commence 3 sewing machine operators and sew garments	1
Train supervisor in quality control	1
Commence 3 sewing machine operators. Train one to cut the cloth with the Eastman straight knife, and bundling of cut garments in preparation for sewing.	2
Training of supervisor in garment construction procedures and production control	3
Draft and cut simple short sleeve shirt pattern, lay up cloth. cut, bundle and sew same. Training of supervisor in use of folders and attachments.	1
Commence 4 sewing machine operators, draft and cut skirt pattern, lay up cloth, cut, bundle and sew.	6
Summary of Work Assignment/department	<u>2</u>
TOTAL	<u>20</u>

The Assignment Work Plan was revised on several occasions due to the limited availability of training materials, ie thread, zips, buttons, cloth etc.

In the time allowed, it was only possible to make a set of patterns for mens/boys shirts and shorts, and girls/ladies skirts and train the sewing machine operators and supervisor.

The factory operates a Progressive Bundle Unit system in which operations are laid out in sequence.

Over 1500 garments have been manufactured, spreading the cloth, make up and presentation for sale in the Cooperative stores.

4. RECOMMENDATIONS

In co-operation with the Ministry of Trade, Industry and Labour, organise:

- 4.1 One indigenous person with suitable academic qualifications to attend a course in Design and Pattern cutting, refer to Appendix III of this report for course content.
- 4.2 One indigenous person to attend a Sewing Machine Mechanics course, refer to Appendix IV of this report for course content.
- 4.3 The supervisor to be attached to an overseas factory, probably Fiji, for 4 weeks to gain exposure in a high output manufacturing environment.
- 4.4 Recruit a Garment Expert to carry out additional training detailed in Appendix V of this report, this to be Phase II Assistance to Nanotasi Cooperative Society Garment Industry.
- 4.5 Exempt Customs Duty on imported sewing machines, ancillary equipment and all raw materials for use in the garment factory, initially for 3 years. This will assist the factory to compete with the very cheap 'seconds' or used clothing on sale in other outlets.
- 4.6 Grant low rate of interest at 6% for working capital and replacement of equipment every 5 years.

There is vast scope for the development of this type of industry in Kiribati and many outlets for a diversity of products.

Given further assistance, while in its infancy, it is expected that the Garment Factory can cater for the domestic and later export markets. Without this Technical Assistance, the factory has little chance of developing.

5. ACKNOWLEDGEMENTS

I would like to thank all those with whom I came in contact for the extreme kindness, understanding and hospitality shown to me during the mission.

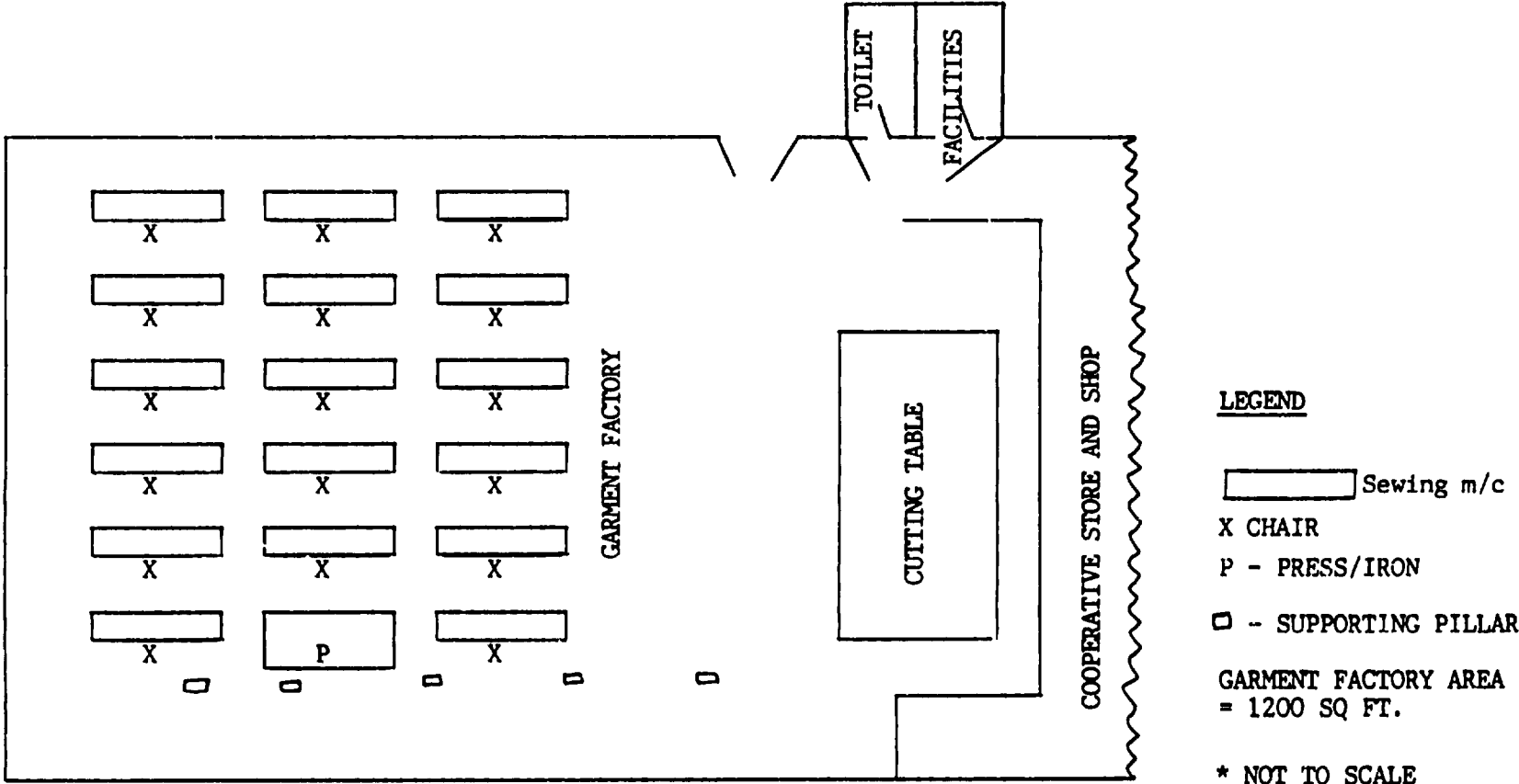
I would given special mention to :-

- Mr R Bataroma - Minister of Trade, Industry and Labour
- Mr N Singh - Industry Adviser, UNIDO
- Mr T Tekanene - Senior Industry Officer, Ministry of Trade, Industry and Labour
- Mr M Toffinger - Industry Adviser, Ministry of Trade, Industry and Labour
- Messrs Ringrose and Vicente - UNDP, Suva, Fiji
- Mr A Siarie - Manager, Nanotasi Cooperative Society



and all others with whom I came in contact.

APPENDIX I

* PREPARED LAYOUT



LEGEND

-  Sewing m/c
- X CHAIR
- P - PRESS/IRON
-  - SUPPORTING PILLAR

GARMENT FACTORY AREA
= 1200 SQ. FT.

* NOT TO SCALE

EQUIPMENT

L/S	O/L	B/H	B/S	B/T	KANSAI SPECIAL	2 NEEDLE CHAIN STITCH	ZIG ZAG	PRESSING	LAYING UP	CUTTING		OTHERS
9 1 MACHINE HEAD MISSING	2	1	1	1	1	1	1	3 x INDUSTRIAL STEAM IRONS	-	1 x 10" STRAIGHT KNIFE	1 x DRILL MACHINE	1 x MANUAL SCREEN PRINTING MACHINE

All sewing machines are of the industrial type, electrically driven and treadle controlled.

The screen printing machine has been imported from Australia, to be used for printing on T-Shirts.

L/S - Lockstitch single needle - Toyota
O/L - Overlock - Pegasus
B/H - Button hole - Brother
B/S - Button Sew - Juki
B/T - Bar Tack - Brother

APPENDIX II (Continued)

PERSONNEL

PROPOSED PRODUCTS FOR MANUFACTURING	MARKET	LAYERS UP/ CUTTERS	SEWING MACHINES	PRESSERS/ EXAMINERS	SUPERVISOR
SCHOOL UNIFORMS, TROUSERS, SHORTS, T-SHIRTS, BLOUSES, GOVERNMENT UNIFORMS	LOCAL	1	9	-	1

APPENDIX III

GARMENT INDUSTRY TRAINING COURSE

Course : Polytechnic Diploma in Clothing Technology
Duration : 10 months
Venue : Manchester Polytechnic, England

The aims of the design course are to provide the participating member with comprehensive training in:-

Styling and Pattern Technology
Cutting Technology
Garment Fabrication
Quality Control
Work Study
Clothing Materials
Engineering and Equipment Technology
Marketing

The above Training Course is recommended, however similar courses may be available and in closer proximity to the Central Pacific area, but unknown to the writer, e.g. Australia, New Zealand or Hong Kong.

APPENDIX IV

GARMENT INDUSTRY TRAINING COURSE

COURSE : Sewing Machine Maintenance
DURATION : 4 months
VENUE : Manchester Polytechnic

The aims of the mechanics course are to provide the participating member with comprehensive training in repair and maintenance of sewing machines commonly used in an industrial factory:

Single needle lockstitch
Overlock
Buttonhole
Button Sew
Bar Tack
Kansai Special

and other sewing machines

The above Training Course is recommended, however similar courses may be available and in closer proximity to the Central Pacific area, but unknown to the writer, e.g. Australia, New Zealand or Hong Kong.

APPENDIX V

GARMENT INDUSTRY EXPERT

PHASE II : Additional Technical Assistance.

The problem of finding one person with the technical experience required is very unlikely, hence it has been separated to allow two experts to be recruited, one for design, lay-planning, cloth spreading and cloth cutting, and the other for sewing, make up and final presentation.

The expert in Garment Design will commence the mission prior to the expert in Production Management.

The expert in Design will draft patterns, at the same time select and order suitable cloth and accessories eight to ten weeks later than the expert in Production will commence. The lead time will allow the cloth and accessories to arrive. All raw material is imported and quantity of any item is almost impossible to get locally.

APPENDIX V (Continued)

GARMENT INDUSTRY EXPERT - DESIGN

PHASE II : Additional Technical Assistance - Design
DURATION : 3 man-months

AREAS OF TRAINING

GARMENT CONSTRUCTION

Design
Pattern making
Pattern grading
Lay planning
Cloth spreading
Cloth cutting

The Garment expert will not be required to conduct formal lectures but will work closely with the counterpart and establish a comprehensive range of patterns, all merchandise for sale in the local market. The patterns, all of complete size range, will include the following minimum:-

- 1) 3 styles men's shorts
- 2) 2 styles short sleeve shirts
- 3) 6 styles T-shirts
- 4) 2 styles ladies tops
- 5) 2 styles ladies skirts

and Government Uniform patterns as instructed by the various Ministries and other patterns as required.

The Expert will advise on all machinery and ancillary equipment requirements.

Knowledge of screen printing will be advantageous as T-shirts are a popular item of clothing.

APPENDIX V (Continued)

GARMENT INDUSTRY EXPERT - PRODUCTION

PHASE II : Additional Technical Assistance - Production
DURATION : 18 man-months

AREAS OF TRAINING

a) GARMENT PRODUCTION

Garment Construction
Factory and Line Balancing
Control of Production
Control of Quality
Folders and Attachments

b) WORK STUDY

Method Study
Work Measurement
Incentive Schemes
Rating and Timing Practice
Work place layout
Garment engineering
Quality Specifications and Standards
Fault Analysis

The Garment Expert will be capable of sewing on most industrial machine types, familiar with all aspects of garment cutting, sewing, make up and final presentation.

The Expert will not be expected to conduct any formal lectures but will instruct the counterpart to manage and resolve any technical problems and establish a garment industry producing:-

- a) a diverse range of quality garments for sale in the local market
- b) quality of sufficient standard to enable the company to export.

The Expert will advise on all machinery and ancillary equipment requirements.

Knowledge of screen printing will be advantageous as T-shirts are a popular item of clothing.