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

RESTRICTED

15755

DP/ID/SER.A/729
14 August 1986
ENGLISH

ASSISTANCE IN QUALITY CONTROL AND PRODUCTIVITY IMPROVEMENT FOR COTTAGE INDUSTRIES

DP/PHI/83/008

PHILIPPINES

Technical report: Production adaptation for loomwoven products*

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

Based on the work of David Holbourne,
Expert on product adaptation for loomwoven products

United Nations Industrial Development Organization
Vienna

---

* This document has been reproduced without formal editing.

355

V.86 59190

Abbreviations

NACIDA	National Cottage Industries Development Administration
CITC	NACIDA's Cottage Industry Technology Centre at Mirikina, Metro Manila
AID/MMSU	Institute of Art and Design of Mariano Marcos State University, Paoay, Ilocos Norte

ABSTRACT

This report covers the three month consultancy on product development under the Project "Assistance in quality control and productivity improvement for cottage industries" PHI/83/008/A/01/37. The expert was required to identify potential products, produce samples, and make proposals for future development.

Recommendations include: follow-up product development and training activities by CITC; study tours on production management, organizing producers' associations, and design; upgrading of equipment; consultancies on management, producers' associations, and common technical facilities; and financial assistance for producers and their associations.

The expert made a study of the weaving of the Philippines and investigated producer's problems. New products and designs were sampled. Producers and technologists were trained in new techniques and management methods.

The lack of suitable supplies and services is the main constraint on the development of the industry.

CONTENTS

ANNEXES

INTRODUCTION

The appointment of an expert in product adaptation for loomwoven products is a component of the project "Assistance in quality control and productivity improvement for the cottage industries". The Philippines Government implementing agency is the National Cottage Industries Development Authority (NACIDA), of the Ministry of Trade and Industry.

This report covers the activities and findings of the expert during the three months assignment, which started 6 February 1986.

The duties of the expert were:

a) Study existing capabilities and products of loomweaving industries in selected areas.

b) Identify new products which have a high export potential and which may be produced within existing capabilities.

c) Identify additional inputs which may be needed to enhance production capabilities of other types of new product.

d) Demonstrate or supervise the fabrication of product prototypes.

e) Assist in the foundation of programmes for the development of loomweaving industries.

During the initial discussion with the NACIDA co-ordinator she indicated that she wished to include training of production workers as part of the programme. It was readily agreed to as being a necessary element in the introduction of new designs. The proposed regional training programme would also facilitate the development and sampling of new designs. A greater concentration of sampling facilities, in particular, skilled weavers, was put at the disposal of the expert than would have been possible if product development had been carried out with individual producers. It resulted in a far greater number of new designs being developed than would otherwise have been possible.

The expert travelled throughout the country and visited most of the main weaving centres. Visits included producers, exporters, retail shops, wholesalers, training institutions, trade associations, yarn and dye suppliers, and Nacida regional and provincial officers.

A total of 280 new design samples was completed. Most were development of existing products. Few opportunities for the introduction of completely new products were found as producers are already quite inventive in this direction. Therefore the emphasis was on improving the standard of design, introducing up to date and export orientated styles, and innovative methods of varying designs and patterns.

Various constraints on the development of the industry were identified and practical suggestions for overcoming them were made. The opportunities for establishing specific programmes were limited due to a change of government during the assignment. A complete reorganization of th ministry is proposed which will have a profound effect on the way the services at present provided by Nacida will be organized in future.

RECOMMENDATIONS

1. Immediate follow-up to be carried out by CITC Fibrecrafts section:

   a) Complete design sampling commenced during consultancy.

   b) Complete testing of selected dyes. Prepare shade cards and recipes for distribution to producers.

   c) Conduct countrywide short training programmes or seminars focused on specific techniques introduced during the consultancy, e.g. use of specification forms, systematic quality checking, yarn estimating, costing, use of lams.

   d) Mount a travelling display of new design samples to tour the regions.

These activities should be supported by an extension or renewal of assistance in field training under PHI/83/008/A/01/37.

2. Fellowships to be provided:

   a) Study tour to India to observe organization of large scale handloom production. Participants: Nacida trainers, officers of weavers' and producers' associations, selected producers. Duration: four weeks.

   b) Design study tour in Europe and USA. Participants: designers, producers, and Nacida technologists. Participants must have a practical and detailed knowledge of weaving and have direct responsibility in their work for the sampling of new designs. Itinerary to include design studios, trade shows, outlets, and schools of design. Duration: six weeks.

   c) Study tour to Asian countries to observe organization and function of producers' associations, co-operatives, and common facility centres for weavers. There seems to be very little co-operation between small producers in Philippines, or any deep appreciation of the value of such co-operation. Many of the present problems may never be overcome without such co-operation.

Representatives from the industry should be given the opportunity to see how co-operation can provide valuable common purchasing, marketing, and technical facilities.

3. Equipment to be provided to Nacida:

The staff at CITC are quite unable to perform their role of developing and demonstrating improved methods as their workshop is inadequately equipped. Equipment required includes looms modelled on those used in the various regions, and facilities for warping, winding and dyeing. Models of new types of equipment for demonstration and introduction to the regions would include a horizontal drum sectional warper, simple power bobbin winders, flying shuttles, and a knot tying tool suitable for making single strand abaca yarn. Some of this equipment should be duplicated in the proposed model regional common facility service centre.

4. Technical assistance to be provided to Nacida: Possibly, as a follow-up to

a) Expert on institutional development of producers' associations and co-operatives. Objective is to organize small producers to co-operate in purchasing materials, market development and provision of common technical facilities, e.g. warping, beaming and dyeing. Duration: 6 months.

b) Expert on small scale manufacturing management. Activities to include: design a management and organization model for small scale weaving production including systems for quality control, stock control, financial management, and division of labour; develop training materials; conduct trainers' training and pilot producers' training programmes; assist in setting up a model workshop. Duration: 1 year.

c) Expert to advise and assist in setting up a regional common service centre. Activities include purchase and construction of equipment, setting up the organization, training staff. Duration: 1 - 2 years, possibly in combination with 4a) above.

5. Financial assistance required:

a) Revive the loan guarantee scheme for cottage industry producers or create an alternative scheme. The producers need assistance to overcome materials supply problems, to finance product development, and market development activities, and to upgrade equipment.

b) Provide financial assistance to producers' associations for new activities arising from the proposed fellowship and technical assistance programmes. These activities might include bulk purchase or commissioning of yarns, commissioning of dyeing, provision of common technical facilities, and market development activities.

1. LOOMWEAVING IN THE PHILIPPINES

A. Weaving Techniques

The term loomweaving is used in the Philippines to distinguish handweaving proper from purely manual techniques such as mat making and basketry.

There are several distinct traditions of weaving in the Philippines and many variations in methods and equipment from one place to another. The main distinction is between the ethnic backstrap weaving which is done by various tribal communities, and weaving on footwower looms which is more or less influenced by European traditions.

In Tigaon, Camarines Sur they use simple wooden frames with rigid heddles. In Banaue Handicrafts in Baguio City they have semi-automatic looms with a flying shuttle activated by the food treadle movement.

The footpower looms vary from simple constructions of bamboo poles lased together, or looms built underneath the house and using the house uprights as the framework, to well made imported looms or locally made copies of European looms.

Plain weave on two harnesses is the most common, but overshot patterns on four or five harnesses are also widespread. Two harness looms are often used with extra leash sticks to make patterns. Terry towelling is woven on three harnesses in Ilocos Norte and Cebu.

Most looms have counterbalanced harnesses, but the three and five harness looms have counterweighted harnesses. Flying shuttles are not in use. Boat shuttles are used for cotton weaving and cotton style weaving done with synthetic yarns. Stick shuttles are used for abaca. In Bangar and Manila wide looms are operated by two weavers throwing alternately, with one set of tradles on either side of the loom for each weaver.

Three types of tribal weaving were seen. The Igorot weaving in Baguio City is mainly faced and uses warp stripes, 1x1 warp end combinations and warp and weft floats with leash stick to create various traditional designs. They use cottan and some synthetic yarns.

The Yakan and Tausug weaving from Zamboanga City and Basilan is the most varied and intricate of all Philippine weaving. They produce three distinct types of cloth. Bunga-sama has pick up patterns made with leash sticks and using several weft pattern colours side by side in each pick. Sapu-tangang is a tapestry like fabric but with additional fine binding weft yarn going across the width of the cloth alternately with the pattern yarns. Sina-luam is a warp faced fabric with patterns of warp floats.

Mandayan weaving is the most authentic indigenous weaving in the Philippines. They weave warp faced ikat fabrics from hand processed abaca. The design is always traditional and only local natural dyes are used.

B. Materials

The most common fibre is cotton. Most cotton yarns come from mills in Metro Manila. Few weavers dye their own colours, prefering to buy stock colours from the mills. The dyed yarns that are available are not made for weaving. They are either crochet yarns or coarse sewing threads. One or two counts of weaving yarn are available from stock but only undyed. Waste yarn from large weaving mills is often used. It comes bleached and sized in tangled bundles in limited lengths.

Some synthetic yarns are also available in stock colours from the Manila mills. The ones most commonly used by weavers are coarse polyester sewing threads and acrylic knitting yarn.

In Albay, Camarines Sur, Davao, and Capiz, abaca is grown and the various grades of fibre from the plant are used by the local weavers. Abaca is the name of the fine inner fibre. It is used either single with the fibres of one to four feet length tied end to end, or braided or twined. Lupiz the inner skin is split and used tied together for warp or in short pieces for weft. Bakbak, the coarse outer bark, is split and used in short pieces for weft. The fine abaca fibres is dyed by the weavers. The coarser fibres are used in their natural colour. The abaca weavers often use a cotton warp and abaca weft.

In Iloilo the fine pina and jisi cloths are woven from pineapple fibre used in single strands tied end to end.

Some export oriented and designer companies in Manila and Baguio City use a wide range of exotic materials including leather and snake skin strips, denim strips, metallic and chenille yarns. Jute, raffia, banana fibre and plastic straw are also used in some workshops.

C. Production Methods

Few weavers dye their own colours. The exception is the apaca producers who buy the fibre locally, dye it in their workshops, and supply their weaver sub-contractors with the coloured fibre. A few small weavers of cotton use basic dyes purchased from local retailer shops. Dyeing is done in a rather haphazard way which results in uncertain quality and poor colour matching. The Mandayan weavers use traditional natural dyes.

Warping is done on simple warping boards. There are industrial warping machines at the Banaue and Itogon workshops but neiter is in service at present. Bobbin winding is done by hand on simple charka type winders.

There is normally no division of labour. One weaver completes all the processes for making a length of cloth including warping, winding, and weaving. There are a few exceptions to this practise, particularly in Ilocos Norte and Zamboanga. In Ilocos Norte weaverss sometimes hire a specialist to make the warp and dress the loom in preparation for weaving one of the complicated tradtional overshot patterns. The weavers do not know the threading for these designs, only the weaving sequence. Those employed to do the threading each know a few patterns which they can do from memory. In Zamboanga the producers sometimes empoloy specialist warpers, designers and weavers. The designer is the one who knows the pattern by heart and ties up the many complicated leash sticks required to weave the pattern.

No weavers employ finishing processes after the cloth is removed from the loom.

D. Organization

The industry is organized in various ways in different parts of the country. Many weavers work alone or with only family members to help them. They buy their materials from local retailers and sell their products either in the local retailers and sell their products either in the local public market or to visiting traders from other areas. Some are seasonal workers who weave only during the slack agricultural seasons. Others work full-time at weaving. Some work as sub-contractors for larger producers. There are weaving factories in Manila and Bauguio City employing from twenty to several hundred people. The factories are owned by individual entrepreneurs or by charitable trusts. They have their own retail showrooms as well as selling wholesale to local and export markets, and doing contract furnishing for local decorators.

Small weavers may sell cloth to makers up of finished articles or they may make up the finished articles themselves. Some producers contract weavers on a labour only basis, supplying materials and designs. Others are merely traders who buy from the weavers regular production. Some producers contract out the weaving but do the making up on their own premises. This is the normal practise with the abaca producers of Bicol.

Small producers and weavers also sell through Nacida regional showrooms and periodic Nacida trade shows in Manila and the regions.

E. Products

Most weavers produce utility products for a very localized market. The most common items are bedcovers, pillow covers, towels, sarongs, and dress fabrics. Table cloths, runners, napkins and place mats are also produced in some areas. Less common products include mosquito nets, and, in Baguio, acrylic blankets.

The very expensive pina cloth produced in Iloilo is used to make the traditional barong tagalog dress shirts, shawls, and wedding and baptismal dresses. The main market for this cloth is in Manila.

Abaca is mainly used to make place mats and handbags. Wall-hangings, hats and novelties are also made. Many are exported direct by the producers. Others go to wholesalers and exporters in Manila or to tourist outlets.

The tribal weavers make traditional sarongs, belts and loincloths. Their traditional fabrics are also used to make handbags, purses, place mats, and wall-hangings. Tourist sales and Manila stores account for most of their output.

The designer companies in Baguio and Manila also produce furnishing and upholstery fabrics, and cushions in addition to the products already mentioned.

F. Colour and Design

In general weavers favour lots of strong bright colours. The most common designs are bold checks in plain weave, traditional overshot patterns in one colour, and plain fabric with coloured borders in pick-up designs. Most weavers have a small collection of patterns which they do from memory. They produce the same designs over and over again without variation. They do not know hop to plan or draft a new design. Although colour and weave may be complicated there is little variety in texutre and fabric quality.

A wide variety of pick-up designs is produced with weavers in different places specializeing in particular designs. Examples are the large animal and floral picture motifs used for runners and pillow covers in Paoay, repeating figurative motifs in coloured rayon on pina cloth from Iloilo, and towels incorporating lettering from Paoay and Cebu.

The tribal weavers' groups each have their own distinctive motifs and patterns. They include the man and crocodile motif of the Mandayas and the complex multi-coloured geometric designs of the Yakans.

A few designer-weavers produce sophisticated designs suitable for export markets. They include the Kinabe grouping of three producers in Manila, Narda's and Dosey Lewis, and Itogon Weavers in Benguet. The distinguished features of these producers are a greater variety of texture, use of novelty yarns, almost exclusive use of plain weave, more subtle, fashion conscious colours, and more traditional products, e.g. furnishing.

2. PROBLEMS

A. Supplies

Only one or two counts of weaving yarn are available from stock from the spinning mills in Manila and only in natural. Most weavers therefore use yarns not intended for weaving, mainly cotton and polyester sewing threads, cotton crochet yarn, and acrylic knitting yarn. They are readily available in Manila in small quantities and in a wide range of colours. But they are more expensive than weaving yarn and can be used for only a limited range of end users. Even then they do not produce the best results being hard to the touch, heavy, and rather inflexible. They are not suitable for garment fabrics.

Small weavers in the provinces have even more problems. The small quantities they need make it impracticable to buy direct from Manila. They buy from local retailers. The price is high, choice limited, and the retailers frequently run out of stock.

Purchase of dyes and chemicals is also difficult. No good quality dyes are available in the provinces. Even in Manila it is not possible to buy quality dyes in small quantities. Suppliers generally do not have technical information, shade cards, or even accurate descriptions of the dyes they sell.

B. Production

Productivity is poor. There are several contributing factors. Weavers simply work slowly and frequently interrupt work. Flying shuttles are not used at all. This particularly affects productivity on wide looms where at times two weavers work side by side instead of the one required with a flying shuttle. Lams are not generally used. This particularly affects productivity of overshot designs with complicated treadling. The customary short warps affect productivity especially in backstrop weaving. Setting up a short warp takes almost as long as for a long warp, so increasing time taken per yard.

There is usually no division of labour. This means that looms are frequently standing idle while weavers do other jobs. Less skilled labour could be used for winding, and warping quality would be improved with specialist operatives.

Lack of production planning or material control leads to frequent stoppages.

Some weavers do not beam the warp. They simply tie it in a bunch to the back of the loom. The result is uneven warp tension which causes irregular picking, broken ends, and mis-shedding. Even when warps are

beamed the standard or warping and beaming is poor, leading to the same faults. The normal method of makign warps on a board is very slow and gives poor results, especially on long warps.

The normal method of hand winding bobbins is extremely slow and adds disproportionately to labour costs without adding anything in the way of quality or individuality.

There is usually no systematic quality control. Few weavers use written or drawn patterns. Without them it is difficult to achieve predictable quality and design, and impossible to introduce a wide range of new designs.

Few weavers have the knowledge or facilities for dyeing yarn. This limits both the choice of yarn and of colour. Those who do dye do not work systematically and get generally poor results both in the colours they get and the colour fastness of their fabrics.

C. Products and Design

The patterns and styles commonly produced do not accord with current fashions and taste in export markets, or even with the more fashion conscious customers in Manila. They are often too fussy and colours are crude and repetitive. There is little attention given to attractiveness or variety of texture which is more important than colour and pattern for success in export markets.

Most weavers have no programme for developing new designs and products. Many have closed down when demand for their particular product fess because they did not know how to develop new designs and products. The abaca producers are more innovative in introducing new products, but they continue to use the same range of basic fabrics for all their products.

The designer-weaver companies in Manila and Baguio are an exception to the rule. Their success emphasises the need for more weavers to follow their example.

D. Marketing

Traditional products are being replaced by more modern products in the weaver's own local markets. It is difficult for small weavers to find markets beyond their immediate locality. Their production is so small that most market development activities would be too expensive, and wholesale customers would not find it worth their while anyway. Weavers who normally sell to tourists report a decline in sales in recent years. The lack of variety or innovation in design means that their is a buyers' market for most items, puuting pressure on prices and profit margins.

E. Management

Management skills are noticeably lacking. Most weavers do not control usage of material or monitor wastage. Few have even a rudimentary knowledge of estimating or costing techniques. Financial control and cash flow planning are not generally understood. Some producers are grossly overstocked on materials and finished goods. Others suffer constant stoppages through understocking of materials.

F. Finance

Small weavers are under financed and suffer frequent stoppages due to cash flow constraints. They are often obliged to work on labour only contract basis due to lack of funds to buy materials. Even the most successful cannot finance the commissioning of spinning or dyeing and have to make do with inappropriate yarns bought from stock. Few can afford product development or market development activities.

3. ACTIVITIES

A. Investigation

Visits were made to producers and weavers in important areas, and to suppliers, weavers' and producers' associations, training institutions, and Nacida regional offices and technical centres. Products and production methods were observed and the weavers' problems discussed.

B. Product Development

Abaca

New products in abaca which were designed and sampled included trays and boxes woven on the loom in one piece, place mats and purses woven to shape on the loom, purses and bags woven complete on the loom and requiring no making up, three-dimensional hangings woven complete on the loom, new styles of abstract and geometric wall-hanging, tapestries, and various styles of rug.

The normal practise in abaca production is to weave two or three convential kinds of simple cloth and then to cut, sew and decorate them with embroidery and applique to make a variety of products. A product goes through at least three separate processes before completion. It is costly and complicated and in the process of woven cloth loses any appearance of individuality. It is used as if it were a mass produced fabric. For these reasons emphasis was on new products which were made, shaped, and decorated directly on the loom.

Besides the double weaving technique to make ready formed bags, and the three-dimensional weaving,other new techniques introduced to make new designs included open work and relief techniques, distorted weft, cut out shape wefts, rug texture techniques, crochet and knotting combined with weaving, diagonal floats and tapestry weaving.

Products sampled included wall-hangings, purses and bags, place mats and rugs.

Cotton and Synthetics

Few new products were introduced. Emphasis was on new cloth qualities and new fabric designs for existing end uses. New design ideas included combinations of different yarns to add textural interest; variations of traditional overshot designs including simplifications, plain and pattern combinations, and multi-colour versions; and new pick up designs. Development of the terry towelling technique included combinations of terry and pleain weave, multi-coloured terry patterns, and new types of cloth exploiting the terry technique. These included cut pile designs for bedspreads, and raised surface designs for place mats, bags and rugs.

Colour

Advice was given on colour selection and combination, particularly with regard to current trends in important export markets. Colour ranges were planned for several different types of product and for several different producers based on yarns readily available locally.

Producers were shown how they could get a wide range of co-ordinated colour combinations from a limited range of colours through careful planning and colour selection. This approach makes designing easier as colour combinations are planned in advance according to a particular theme or target market. It also reduces stock level requirements and makes stock control and costing simpler.

C. Training

There were four organized training events, two in Bicol region with abaca producers, one in Paoay with cotton weavers, and one in Manila for Nacida technical and training staff. The format for each training was the same. Each trainee was given individual work to do, each weaving a series of design samples on a different theme. By this method a maximum number of new ideas and techniques were introduced. Technical specifications were recorded for each sample by the Nacida trainers. By regular quality checking, technical shortcomings were identified and recitified.

The expert was assisted by Nacida trainers from CITC and from the regional technical centres.

In Tigaon, Camarines Sur new methods of warping and shedding weere introduced toghether with the use of tapestry bobbins, to improve quality, productivity, and flexibility to make new designs on the simple laplooms. New techniques and designs for wall-hangings, place mats, bags and rugs were introduced.

In Legaspi, Albay, three dimensional and snaped weaving was introduced, as well as double weave pockets and many new weaves and patterns. The training programme was planned in consultation with the producers' association to include techniques and designs for which they could find a ready market.

In Paoay, Ilocos Norte, a new method of weaving towellling on four instead of three harnesses was introduced to facilitate production of the new patterned terry cloth. Use of lams was demonstrated. Many new patterns and designs were introduced. Classes were held for selected trainees on materials estimating, costing, design, and product development.

At CITC each trainee was asked to research materials and technical resources in their selected weaving community, and to base their design sampling on this information. They were not given new designs to produce. Each trainee was assisted in developing their own ideas. They were given instruction on planning and organizing sample production and on drafting new patterns. New techniques introduced included weaving three-dimensional hangings, double pocket weaving for purses and pillow covers, doube width weaving for wide bed covers, shaped weaving, and four harness patterned terry. Many new patterns and designs were sampled with emphasis on mixing yarns to vary textures, and use of fasion conscious colours.

One trainee practised improved dyeing methods to achieve accurate colour matching, pastel shades, and better colour fastness. A training officer from Zamboanga experiemented with transferring traditional backstrap designs onto the more efficient footpower loom.

In addition to workshop practise classes were held daily. Topics including writing and using specifications, quality control, estimating, costing, accounting, design, and product development.

D. Counterparts

The expert was very ably assisted by CITC technical staff on plant visits and in product development and training, and by Nacida regional technical staff, and the teachers in the weaving department ofthe Institute of Art and Design Mariano Marcos State University (IAD/MMSU) during training in their regions. Counterparts were introduced to methods of planning and organizing product development activities, and to new training, quality control, management and weaving techniques.

4. RESULTS

A. New Products

A total of 285 design samples was completed together with written specifications and a photographic record of each one.

The abaca samples were displayed during an open day to which all producers, exporters, and weavers in Bicol were invited through their respective associations. Sets of all the specifications were printed and distributed to producers. Weavers had th opportunity to see some of the new techniques in progress on the loom. Producers in Albay are making counter samples based on the new designs for a Nacida marketing event planned to take place in Manila in May. The main buyer of Tigaon weaving placed trial orders for the new designs before the end of the training.

An exhibition of samples produced at Paoay was mounted at AID/MMSU and remained open to local producers for two weeks. The exhibition was then brought to CITC. Copies of specifications for the new designs were distributed. Orders have been received for several of the new designs and others are planned for production.

The CITC technologists have a better understanding of the product development process and have started a series of new designs which they are continuing to develop. However, they are constrained by inadequate facililities at CITC and a lack of suitable yarns.

Producers have been supplied with colour forecasts and shade cards of colour ranges for particular products and markets.

B. Training

Twenty trainees completed the two week course on laploom weaving at Tigaon, Camarines Sur. In addition there were ten observers who did not take part in workshop practise and four Nacida technologists who participated as assistant trainers.

Eight weavers completed a one week course in abaca weaving on footpower looms at Legaspi, Albay. In addition seven producers participated as observers and three Nacida technologists participated as assistant trainers.

Twenty weavers completed the two week course on cotton weaving at Paoay, Ilocos Norte, and two Nacida technologists parcicipated as assistant trainers.

Twelve trainees completed the trainers' training at CITC, includng seven CITC staff, four Nacida regional technologists, and one teacher from AID/MMSU.

A one day training was held at Argau, Cebu. Twelve trainees participated, including weavers and teaching staff of the technical school.

Follow-up training in the regions is planned, to be conducted by the trainers who took part in the trainers' training, and based on the new techniques introduced during the programme.

C. Methods

Standard procedures for specifying, quality control, estimating and costing and planned product development and sampling methods were introduced. Colour planning and selection methods were introduced. Improved dyeing procedures were demonstrated.

Many new weaving techniques, patterns, and decorative effects were demonstrated and tested. An improved method for setting up laplooms was demonstrated. A loom was fitted with lams and their use demonstrated. Demonstration looms were fitted with four harnesses in place of the normal three to increase patterning capability in weaving towelling.

The use of horizontal sectional warping drums was recommended to improve quality and productivity in warping. However, this will require further assistance as there is no example of this type of equipment in the Philippines and no knowledge of the method of operation. The use of improvised power winders was recommended. This could be achieved with the help of Nacida technical staff.

5. CONCLUSION

The consultancy was extremely well organized and supported by Nacida's Co-ordinator of training, and by Nacida Technologists, and the Regional Managers and their staffs. This was in spite of the unsettling conditions at the time, with a sudden change of government and the subsequent proposal to abolish Nacida.

The weavers and producers were very receptive to new ideas and performed their training tasks diligently. The Nacida technologists were especially quick to grasp new concepts and techniques.

Although most weavers practise their craft in the traditional way, some producers have considerable creative and entrepreneurial talents. All are hampered however, by the lack of infrastructural support particularly in the supply of materials, and marketing and technical services. If the services required were provided existing producers would expand and become more profitable and more entrepreneurs would find weaving an attractive proposition and invest in the industry.

The individual weavers are particularly isolated. They usually know only one product and one or two outlets for their output. They suffer from their dependence on such a specialized business and the consequent fluctuations in income.

The producers themselves could provide the support their industry needs through co-operative effort. But it would be difficult for them to do it without financial help and training.

ANNEX A

NACIDA CONTACTS AND COUNTERPARTS

Central Office

Mr. Vicente Roco III	Deputy Administrator
Mrs. Milalin Javellana	Committee chairperson and co-ordinator of training
Mrs. Marissa Macuja	Consultant office of the administrator

Cottage Industry Technology Centre

Mr. Fernando B. Tjongson	Division Chief Research and Development Division
Mr. Reuben Catmaitan	Senior Training Officer Fibrecrafts
Mrs. Corazon Arcenas	Industrial Technologist Fibrecrafts
Mrs. Carolina Cordova	Industrial Technologist Fibrecrafts
Mrs. Victoria Garado	Industrial Technologist Fibrecrafts

Region I

Mr. Renalto Peralta	Regional Manager
Mrs. Conchita Laksamana	Assistant Regional Manager
Mr. Jaime Lucas	Division Chief Industrial Training and Assistance Division
Mr. Benjamin Garcia	Cottage Industry Specialist
Mrs. Linda Castro	Provincial Officer Laoag
Mrs. Erlinda Augustin	Provincial Officer Baguio City
Mrs. Virginia Romana	Training Officer

Region V

Mrs. Evelyn Navera	Regional Manager
Mrs. Teresita Barrios	Division Chief Industrial Training and Assistance Division
Ms. Minerva Lanuza	Chief of Research Division
Mr. Nonito Ricasio	Industrial Research Technologist
Mrs. Pacita G. Prades	Training Officer
Mrs. Liza Nepumoceno	Provincial Officer

Region VI

Mr. Oscar Alba	Personal Manager

Region VII

Mrs. Antonia Tadlip	Provincial Officer

Region IX

Mr. Oscar Balnon	Regional Manager
Mr. Hermel Francisco	Training Officer

Region XI

Mr. Arturo Gaerlan	Regional Manager
Mr. Raul de Guzman	Senior Cottage Industry Specialist
Mr. Faustino Tablaogo	Training Officer

ANNEX B

PRODUCERS VISITED

Kinabe, Makati, Metro Manila
Philippines Household Crafts Co. Ltd. Legazpi City
Shelmed, Legazpi City
Rearos Enterprises, Balugo, Albay
Mariano de Castro, Bangar
Gregoria Noto, Bangar
Asuncion Flores, Bangar
Bangar Loomweavers' Cooperative, Bangar
Easter School Weaving Room, Baguio City
Banaue Handicrafts, Baguio City
Atc Handicrafts, Baguio City
Narda's Cottage Industries, La Trinidad, Benguet
BSU Weaving Room, La Trinidad, Benguet
Itogon Weaving Room, Itogon
Sister Mary Ancilla, Vigan, Ilocos Sur
Lucia Pablico, Vigan Ilocos Sur
Antonia Petate, Vigan, Ilocos Sur
Dolores de la Cruz, Vigan, Ilocos Sur
Felicidad Velasco, Paoay, Ilocos Norte
Eladio Basilio, Laoag, Ilocos Norte
V Villanueva, Iloilo
Anna Cordova, Iloilo
Feliza Flores, Argau, Cebu
Yakan Weaving Centre, Zamboanga City
Yakan Weavers, Basilan
Nabunturan Cooperative, Davao
Tedeco Weaving, Davao

ANNEX C

I T I N E R A R Y

February 9	Arrive Manila
10	UNDP/Nacida central office
11-14	Visit suppliers and producers Metro Manila
17	To Legazpi, Bicol Region
17/18	Observation tour Albay
Feb 19 - March 1	Training at Tigaon, Camarines Sur
Feb 24 - March 1	Training in Legazpi city
March 2	Leave Bicol for Manila
3	Leave Manila for La Union
4-7	Observation tour Bangar, Baguio, La Trinidad, Itogon, Vigan, Sarrat
10-22	Training at Paoay, Ilocos Norte
23	Leave Paoay for Manila
24	Leave Manila for Iloilo
24/25	Observation tour, Iloilo
26	Leave Iloilo for Cebu
26	Observation tour Argau, Cebu
31	One day training Argau, Cebu
April 1	Leave Cebu for Zamboanga
1/2	Observation tour Zamboanga
4	Leave Zamboanga for Davao
4/5	Observation tour of Davao
5	Leave Davao for Manila
7-9	Preparte for Trainers' training
10-25	Trainers' training CITC Marikina, Metro Manila
April 28 - May 2	Final discussions, prepare report

ANNEX D

TRAINING MATERIAL

a) Weaving specification form

b) Yarn cost estimate form

c) Cost sheet

d) Calculation of overhead apportionment form

e) Quality checking record sheet

WEAVING SPECIFICATION

Sample No. ____ Weaver _____ Date _____

Materials	Fibre	Yarn	Remarks
Warp 1			
2			
3			
Weft 1			
2			
3			

PATTERN

Warp Yarn						
Color						
Threads						
Weft Yarn						
Color						
Threads						

Colour Code _____

Width _____ Length _____ e.p.i _____ p.p.i _____

Reed _____ ends per dent _____

Threading _____

SAMPLE

YARN COST ESTIMATE

WARP

ENDS PER INCH _____ COUNT _____ PRICE PER POUND

WASTAGE _____ % TAKE UP _____ %

Ends per inch _____ x 56	_____
Plus take up _____ %	_____
Plus wastage at _____ %	_____
Yards of warp per square yard of cloth	_____
Count of yarn _____ x 840 = yards per pound	_____
Weight of warp yarn per square yard of cloth	_____
Price per pound	_____
Cost of warp per square yard	_____

WEFT

PICKS PER INCH _____ COUNT _____ PRICE PER POUND

WASTAGE _____ % TAKE UP _____ %

Picks per inch _____ x 36	_____
Plus take up _____ %	_____
Plus wastage _____ %	_____
Yards of weft per square yard of cloth	_____
Count of yarn _____ x 840 = yards per pound	_____
Pounds of yarn per square yard	_____
Price per pound	_____
Cost of weft per square yard	_____
TOTAL COST OF YARN PER SQUARE YARD	_____

Weight of cloth per square yard _____

COST SHEET

DETAILS _____ CUSTOMER _____

REFERENCE TO _____ DATE _____

PREPARED BY _____

Materials

Item	Quantity	Price	Cost/Unit	Remarks
Total				

Labour

Item	Quantity	Time	No. of workers	Cost/ Unit	Remarks
Total					

TOTAL DIRECT MATERIALS
+ LABOUR

Subcontract

Item	Quantity	Price	Cost/Unit	Remarks
TOTAL				

TOTAL DIRECT COSTS
OVERHEAD COSTS - % OF TOTAL COSTS
TOTAL COSTS
PROFIT

CALCULATION OF OVERHEAD APPORTIONMENT

Based on estimated/actual cost for year _____

Direct Labour Cost

No. of Workers	Pay per unit	Units p.a.*	Cost p.a.
Total Labour Cost p.a.			

Direct material cost

Item	Price	Quantity	Cost p.a.
Total material cost p.a.			
Total direct costs p.a.			

* p.a. = per year

Overhead costs

Item	Cost	Quantity	Cost p.a.
Total overhead p.a. including depreciation			

Overhead as a percentage of direct cost

Total overhead _____ 100

_____ x _____ = %

Total direct costs _____ 1

WEAVER _____ SUPERVISOR _____

DATE	TIME	RFI	FFI	WEAVE	PATTERN	WIDTH	OTHER	COMMENT	SIGN.