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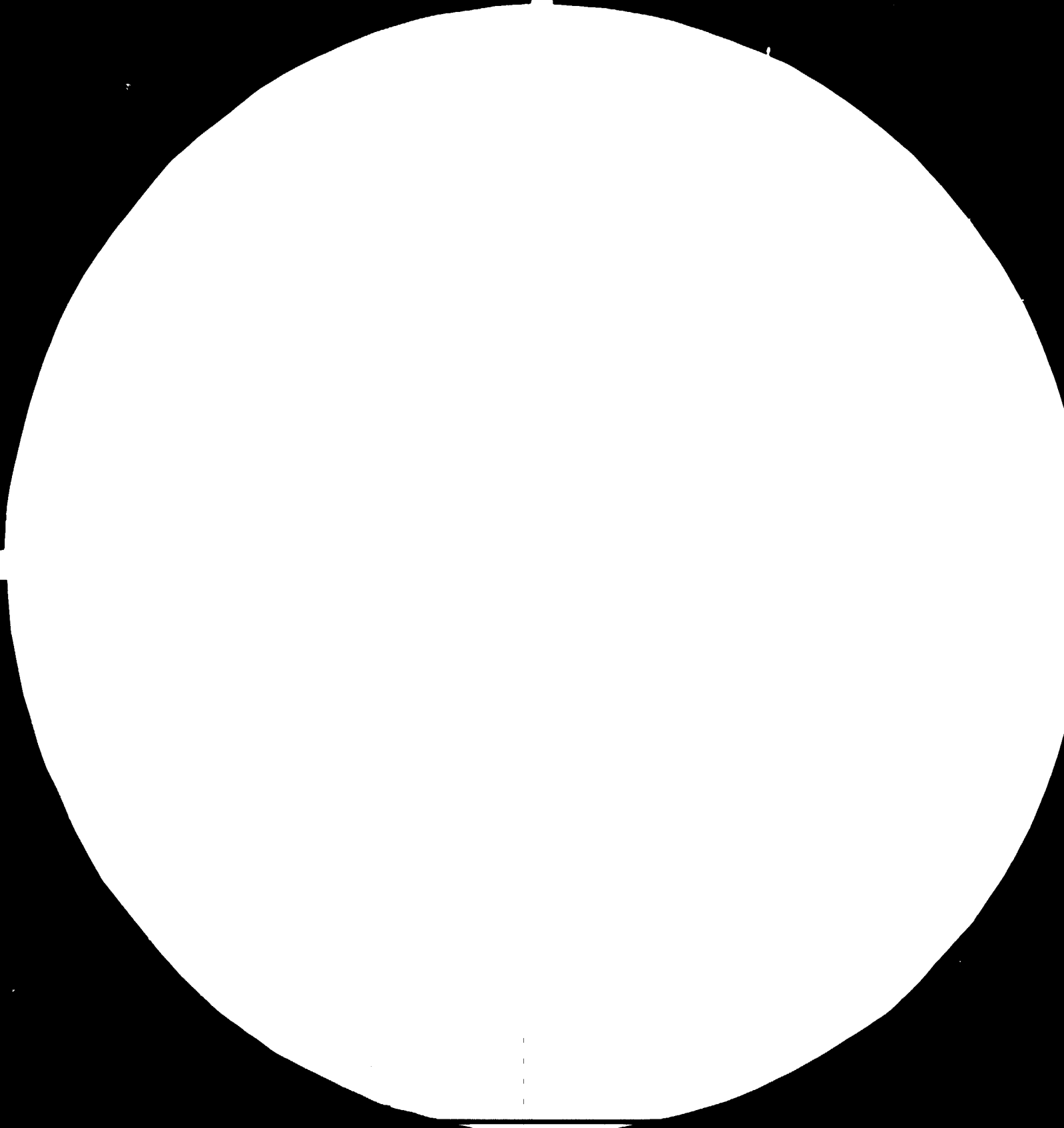
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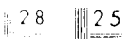
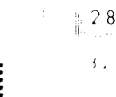
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MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS-1963-A

Terminal report Industrial Engineer

DP/INS/78/078

1983
13019

Activities carried out during the period of 20-8-'82/31-6-'83.

In order to obtain an overall picture of the small scale industries (s.s.i.), visits were made to and discussions held with some of the small scale entrepreneurs who were selected for the Mini Industrial Estate (M.I.E.).

Nearly all of these entrepreneurs mentioned lack of financial means as their main problem. However, during the discussions and after having seen the operations, other major problems were identified. To mention some: inefficient way of working, marketing, record keeping, planning, lack of proper supervision of workers, poor quality of the products (partly due to lack of equipment), etc..

A discussion was held with Bank Negara Indonesia (B.N.I. 1946), one of the banks which provide loans to the s.s.i..

The terms and conditions for a loan were explained to the Industrial Engineer. The delay in the processing of a loan application, one of the complaints of the entrepreneurs, is mostly caused by the lack of information of the entrepreneur's business required by the bank, according to the B.N.I..

The Bank also confirmed the weak managerial skills of the s.s. entrepreneurs.

Discussions were held with private organisations.

One of these organisations, the HIPMI of which members are businessmen, has already expressed their willingness to serve as a market for the products of the s.s.i..

Visits were made to other BIPIK offices and service centres (bamboo and rattan) in Binjai and Keban Jahe. Especially the service centres expressed the need for marketing training for their officers in order to be able to assist the entrepreneurs in their respective regions more efficiently.

As a follow up of the visit to the BIPIK office in Binjai, a discussion was held with Cipta Niaga for the benefit of two garment cooperatives.

The monthly average raw material purchase totals + Rp. by 68 members of the cooperative. The purchase is done individually from different suppliers in Medan. According to the BIPIK office, a saving could be made of Rp.50.000.000 if the purchase could be done in Jakarta and in bulk.

The Head of Cipta Niaga, an organisation which purchase raw material in bulk and distributes it among the entrepreneurs, expressed his willingness to support the two cooperatives.

However, one of the conditions set by Cipta Niaga is that the payment must be guaranteed before any purchase is done because of the very bad experiences and heavy financial losses suffered in the past when also dealing with s.s.entrepreneurs for the same matter.

One of the solutions proposed by the Industrial Engineer to Cipta Niaga and the BIPIK office in Binjai was that each member should apply for a bank loan, approx. Rp.3.000.000 per member. The Bank should not disburse the money to the members but pay Cipta Niaga directly when the raw material is received by the cooperatives. If this can be realised, Cipta Niaga will then be satisfied.

A list of raw materials have-been submitted to this organisation and was sent to its Head Office in Jakarta for price quotations.

Cipta Niaga was also advised to deal directly with the two cooperatives and if required through the BIPIK office in Binjai.

New Industrial Possibilities.

Regular discussions were held with the Industrial Economist of the INS/78/002 project, Mr. W.B. Miller.

Some products suggested by him to be made by the s.s.i. are: doorhinges and doorknobs, rainwater storage tanks, charcoal made of sawdust, coconut husks and shells.

Other products added: egg trays made of waste paper, potatoe chips, washers, safety pins, hair pins, tacks, staples and paper clips.

Through Mr. Eldag, a UNIDO expert on woodworking who was on a short visit in Medan, the UNIDO small enterprise expert has been requested to send documentations of some of the products mentioned

A visit has been made to the BIPIK office in Keban Jahe, the nearest town to Medan where potatoes are grown.

The office gave useful data such as prices of the potatoes, quality, crops, etc..

Technical assistance was provided to Mr. W.B. Miller on a boat building and repair yard project for the Toba Lake.

No such facilities are available at the moment.

Small scale entrepreneurs will be involved in this project.

An orientation visit has been made to the Lake, followed by a second visit for more detailed discussions with the sponsor of the project and inspection of the future site.

All activities of the new industrial possibility program have been stopped temporarily since the National Economist has not joined the Field Team yet, except the boat building and repair yard on which Mr. W.B. Miller is working.

Mini Industrial Estate (M.I.E.).

It was not until 7 March 1983 (!!) that the Field Team could move to the M.I.E. and have its permanent office accommodation, due to water supply connection problems.

Fifteen woodworking entrepreneurs and fifteen metalworking entrepreneurs have been selected by the BIPIK office for the M.I.E.. Out of the selected entrepreneurs, approximately twenty have transferred their business to the M.I.E..

The managerial and technical skills of the selected entrepreneurs are generally poor.

Two woodworking operators and four mechanical operators have been selected and employed by the BIPIK office.

These operators are supposed to operate the equipment at the Common Service Facility (C.S.F.) of the M.I.E. in order to help and assist the entrepreneurs in their production.

However, the C.S.F. operators are less skilled and experienced than the entrepreneurs.

It was, therefore, strongly recommended to intensively train the operators, first, until they will be able to operate the equipment properly and efficiently and assist the entrepreneurs in their production.

A training program was designed for the operators based on the needs of the s.s.i..

Local instructors have been hired for the period of six months to give the training to the woodworking and mechanical operators.

Training material and safety equipment such as safety goggles, dust masks, shoes, etc. were purchased by the Field Team.

The practical training of the mechanical operators started on 6 April, 1983, while the training of the woodworking operators started on 9 May, 1983.

At the urgent request of the Industrial Engineer the electrical installation of the equipment was re-done for safety reasons. Therefore, the start of the training program of the operators was delayed. During this period the operators were only given theoretical training and drawing.

Wooden cabinets, toolboards, workbenches and certain types of wooden tools are being made by the operators as part of their training and which will be used in both the mechanical and woodworking sections for the storage of tools, spare parts and other material.

The training program of the mechanical operators can not be fully implemented yet because of the lack of handtools, machine tools (which were not ordered together with the equipment) and other equipment, such as welding equipment, etc..

A list of the additional equipment and tools was submitted to the World Bank Experts in Jakarta.

In order to run the C.S.F. a supervisor is required assisted by two foremen, one for the woodworking and one for the mechanical section.

A structure for the C.S.F. has been designed by the Industrial Engineer and was approved by the Head of the BIPIK office.

Meanwhile a supervisor has been selected and employed.

The two best operators will be appointed to foreman in the near future.

The supervisor is being trained in both the mechanical and woodworking section while he also receives training from the Industrial Engineer in technical management.

Included in the training program for all operators, are the subjects Maintenance and Industrial Safety.

Training manuals of these subjects have been made already by the

In addition a training manual C.S.F. Management has also been made by the Industrial Engineer and will also be used as training material for the C.S.F. supervisor.

Translation of the available instruction manuals of the equipment from English into Bahasa Indonesia has been initiated and will also be used as training material for the operators since these manuals contain installation, operation and maintenance procedures, drawings and lists of spare parts.

Other activities carried out:

At the special request of the BIPIK office in Banda Aceh, the Industrial Engineer made a visit to Lhokseumawe together with two officials from the DJIK office in Jakarta.

Discussions were held with some members of a woodworking (furniture) cooperative who intend to set up a C.S.F..

The land and building will be financed by the cooperative while the equipment will be funded by the World Bank and will be the property of the BIPIK office in Aceh.

The future site was inspected and technical advice was given.

The two DJIK officials were advised to make contact with Mr. Eldag, an experienced woodworking expert from UNIDO who is currently stationed in Samarinda, and to request his advice on the equipment and necessary machine tools to be purchased and on the plant and machinery lay out.

The officials were also provided with a copy of the C.S.F. Management manual.

It was also suggested to attract two short term consultants, one management consultant and one woodworking expert for the period of three to four months, after the completion of the construction of the building and the installation of the equipment.

A Dutch non-profit organisation will be able to provide these consultants. Only boarding and lodging expenses will be charged to the cooperative.

Their reaction was very positive and the necessary contacts have been made.

Visits were made to some s.s. entrepreneurs with the Marketing Adviser, Mr.L.Aavatsmark.

The owner of a hand embroidery business expressed her desire to export her goods. Mr. Aavatsmark gave her some advice, such as labelling, etc..

As a follow-up, a visit was also made to the Department of Trade and discussions were held with the Head, followed by a second visit with the owner of said firm.

The export procedures and possibilities were explained to her and full support was also granted by the Head of the Department of Trade.

Mr. L.Aavatsmark also confirmed the weakness of the entrepreneurs in the field of management, especially marketing.

Discussions were also held with International Consultants from other organisations, such as Bank Indonesia, J.I.C.A., a Japanese organisation, German and Dutch organisations, etc., UNIDO experts Mr. H. Eldag and Mr. L. Placzek.

Meetings in Jakarta and Surabaya were attended.

Administration, regular reporting to and discussions were held with the Head of the BIPIK office.

The activities of the Industrial Engineer during the first six months were hopelessly hampered by the lack of transportation. Cars were used from other departments but on a very limited time basis and more than often no cars were available at all. Visit schedules could not be worked out and trips outside Medan could not be made which could be very helpful in identifying new industrial possibilities and assistance to the clusters, etc. It was not until 7 March, 1983, that a car was made available by the BIPIK office.

Another major problem was the office accommodation.

Due to difficulties already mentioned at the M.I.E., its offices could not immediately be used until 7 March, 1983.

The first two months were spent in the office of the INS/78/002 project using the desk of the Industrial Engineer of that project who was on leave

The next four months were spent in a hot and noisy office which had to be shared with other persons due to limited space and it was quite difficult to concentrate, fully, on ones' work.

The Industrial Engineer is still operating without a National Economist so that the new industrial possibility program and management training could not be carried out.

One candidate has been selected, tested by the Industrial Economist of the INS/78/002 project, Mr. W.B. Miller and approved by the Team Leader after an interview with the candidate.

However, the procedure was changed by the UNDP office in Jakarta and the candidates must now be recruited through an advertisement in the newspaper.

Findings and Recommendations.

This mostly deals with the M.I.E. since most of the time was spent on the M.I.E.

The M.I.E. is supposed to serve as a model case.

The design of the M.I.E. and in particular its C.S.F. should have been much more based on the needs of the s.s. entrepreneurs. The buildings in which the woodworking entrepreneurs are operating are too small. One should have taken into consideration that furniture and raw material are bulky objects.

No proper storage facilities were arranged so that raw material, half finished and finished products have to be stored in the production area.

Such a situation makes the business run very inefficient from a technical point of view and it is also unsafe.

The selection of the equipment for the C.S.F. should also have been done more carefully and again, should have been much more based on the needs of the s.s.i..

A big surface grinder or a milling machine is certainly not the first machinery needed by the s.s.i..

The equipment was manufactured in seven countries which is also a disadvantage.

No proper checking was done when the equipment was delivered. Machine parts and some instruction manuals are missing.

No proper supervision by a technical person was carried out during the installation and trial of the machinery.

Some machines were not working because of wrong electrical connections, missing parts and damage (already on arrival??). Other machines have been jammed during the trial by completely inexperienced persons.

The necessary machine tools for some of the machines were not ordered together with the machines, neither were spare parts ordered.

Apart from the day to day technical management, the C.S.F. Management manual developed by the Industrial Engineer also deals with how to avoid the problems mentioned and the set up of a C.S.F. from the beginning, such as the design of plant and machinery lay out, selection of equipment, procedures to be followed when receiving the equipment, installation and trial of equipment, etc., etc..

The selection of the M.I.E. entrepreneurs was most probably done on the basis of the "viability of their business". Their managerial and technical skills and talents were not taken into consideration.

Since the authorities wish to have the M.I.E. serve as a model case, aggressive and ambitious s.s.entrepreneurs with the necessary talents should have been selected.

Developing such entrepreneurs can make the M.I.E. a model case and an example to other s.s.entrepreneurs.

The M.I.E. entrepreneurs were told that after "they are developed" they should leave the M.I.E. in order to enable other entrepreneurs to make use of the M.I.E.. The time given is approximately 5 years, depending on the situation and circumstances. However, it is doubtful whether it was clearly defined what is meant by "after they are developed", taking for instance the woodworking entrepreneurs who operate mainly with handtools. When using the C.S.F. equipment their production will improve both in size and quality.

Assuming that their sales will also increase means that their income will also increase.

When the entrepreneurs have reached this stage, it will hopefully not be considered as "they are developed".

Requesting the entrepreneur to leave the M.I.E. will then be an enormous set back for them since the only place they can go is their previous workshop.

Nearly all the previous workshops of the present M.I.E. entrepreneurs are located in residential areas where the use of machinery is not allowed because of the noise.

If the entrepreneurs want to maintain their production size and quality, it means that they have to purchase equipment and purchase or rent another building.

Therefore, the entrepreneurs should be given sufficient time to gradually purchase the necessary equipment and if required also a building while operating from the M.I.E..

The equipment can be used in their workshop at the M.I.E. until a suitable building is found.

Purchasing equipment and building at one time will most probably be too heavy a financial burden.

The M.I.E. entrepreneurs should be made aware of this and act accordingly.

A possibility for future M.I.E.'s is to equip all the workshops (with sufficient space) with basic equipment and to enable the entrepreneurs to gradually take over ownership and control of the equipment.

Skilled operators should then give on the job training to the entrepreneurs and their workers. Training and production can be done at the same time.

Depending on the number of operators, more entrepreneurs and workers can be trained than when trained at the C.S.F..

It will be more efficient and meaningful than a training at the C.S.F.. Without equipment in their own workshop, the entrepreneur will not be able either to practice what they have learned.

It will not be necessary to equip the C.S.F. with production machinery.

It might be equipped with repair and maintenance facilities, tool sharpening and grinding equipment (a necessity which the s.s.entrepreneur can not afford financially), equipment for tool and dies and other service facilities.

Such a service station can also serve a wider group of s.s.entrepreneurs and not M.I.E. entrepreneurs only.

Special production machines might also be considered if it is beyond the financial capabilities of the entrepreneurs.

However, such equipment should serve a large group of entrepreneurs and be fully utilised.

The costs of such a system may be higher but on the other hand the chances of achieving the goals with such a system, combined with proper selection of entrepreneurs will be much greater.

The selection and training of the C.S.F. operators should also have been based on the needs of the C.S.F..

Most operators received a two months training in casting including the woodworking operators while the backgrounds of the woodworking operators are electrical and mechanical.

For future C.S.F.'s it is highly recommended to select operators with relevant backgrounds and to train them well before the completion of the C.S.F.

Recommended Activities.

The activities at present are fully concentrated on the M.I.E. and its C.S.F. and should be continued since the C.S.F. is not fully organised yet.

One of the important things is the purchase of missing machine parts, machine tools and spare parts which can be done after the missing manuals are obtained.

When receiving additional equipment, ordered through the World Bank experts in Jakarta, assistance should be given in checking and supervision during installation and trial.

The World Bank experts will be requested to submit the dimensions of the equipment as soon as it is known to them in order to design a proper lay out. A part of the additional equipment will be installed in another room adjoining the mechanical and woodworking section which is empty at present.

Storage facilities should be arranged for spare parts, tools and other material in the store room and working area.

The woodworking operators have already started to make some of this equipment as part of their training.

The training of the C.S.F. supervisor in technical management should continue until he is able to manage the C.S.F. himself. Until the supervisor is able to operate the C.S.F. himself, all technical activities should be planned and coordinated by the UNIDO Industrial Engineer.

The two best operators (one mechanical and one woodworking) should be selected and become foreman/storekeeper.

As soon as the National Economist joins the Team, the subcontracting and new industrial possibilities program can be dealt with. The most ideal situation would be to involve the M.I.E. entrepreneurs in these programs.

Assistance to the M.I.E., C.S.F., new industrial possibilities and subcontracting can then all be carried out from one place. If no suitable entrepreneurs at the M.I.E. can be found, others have to be selected and the selection should be done very critical. Basic skills, aggressiveness, ambitions and talents should be the most important factors in the selection.

Any open space at the M.I.E. should be reserved for entrepreneurs involved in said programs.

Regular discussions with the Industrial Economist of the INS/78/002 project, as were held in the past, will also be very useful for the subcontracting and new industrial possibilities program. It is therefore important to maintain the existing good cooperation and relationship between the two projects.

As was proposed by the Industrial Engineer, the National Economist will train the M.I.E. marketing officer.

Both the C.S.F. supervisor and the marketing officer should be involved in both programs to enable them to continue these programs after the UNIDO project is phased out.

Assistance should be given to M.I.E. entrepreneurs in improving the production methods in terms of efficiency, quality and reduction of waste. They should also be trained in a more organised way of working.

Management training of the M.I.E.entrepreneurs is also a necessity. This can be done, for instance, by regular workshops (record keeping, marketing!, etc.) and on the job training by the National Economist. Especially marketing workshops should also be attended by the T.P.L.'s from different Sentras in the provinces.

The success of the INS/78/078 project depends a great deal on the cooperation and coordination between the International Experts both in the Central and Field Teams.

Important decisions and/or alterations in the program should not only be discussed by the members of the Central Team but the Field Experts should also be involved!

What applies to one region, does not necessarily apply to another region.

When targets are set, the situation in the Field should also be taken into consideration.

It is therefore strongly recommended to have regular meetings attended by all International Experts of the project, say once per three months.

The difficulties, progress and the situation in the Field can be discussed in such meetings and conclusions made.

Decisions taken, based on those conclusions, will then be more meaningful and will also result in a good understanding and working relationship between the International Experts.



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INS/78/078.



