

**TECHNONET**  
**ASIA**

REPORT

of the

WORKSHOP ON TECHNOLOGY AND THE ENTREPRENEUR

(ENTRETECH I)

held

25 - 30 May 1977

in

Kuala Lumpur  
Malaysia

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ENCLOSURE 561

HIGHLIGHTS of SIGNIFICANT CONSENSUS REACHED at ENTRETECH I

A. Transfer of Information on Entrepreneurial Development Activities and Technology

The benefits to TECHNONET's Participating Organizations (and associated bodies such as SIET, EW TDI, etc) of a more active, systematic and 'open' exchange of information on activities and experiences among them in the field of Entrepreneurial Development Programmes (EDPs) and appropriate and relevant technology were seen by all, and TECHNONET Centre was requested to encourage and facilitate this.

Within the scope of the above, several specific observations, comments and suggestions were made, and the principle ones follow -

- As an example of "cross-fertilization", the proposal to develop a bilateral industrial (technical) information exchange between Malaysia and Indonesia was made, as both countries have basically a common language.
- All agreed the dissemination of EDP information on SIET, EW TDI, etc, would be valuable as most methodologies currently used are of "Western" origin.
- Information on technology selection and transfer mechanisms was generally desired.
- It was suggested that ASINDEX Forum members during their normal extension activities could observe, record and pass on technical information potentially adaptable elsewhere, through such media as the TECHNONET "Digest", and that TECHNONET Centre should look into devising an appropriate format for collecting and disseminating such information.
- Further, that there should be specific action programmes by each PO to collect and exchange information on technologies adapted locally. If desired, the TECHNONET "Digest" could again serve as the medium of exchange.
- There is a need for information and guidance on community management of EDPs which would have a larger impact compared to development of individual entrepreneurs - in other words, development of entrepreneurs in groups, and especially in the rural areas.
- Personnel of POs with experience and ability in the field of entrepreneurship development should be made available to other POs on short-term consultancies (preferably on an informal basis with TECHNONET's assistance), on a case-to-case basis and on mutually acceptable arrangements.

- Details of EDPs and adaptive technology activities by POs should be provided TECHNUNET Centre on a regular basis for reporting in the TECHNUNET "Newsletter". (The "Newsletter" could be expanded and/or a special section created for this. If such material is not in English, TECHNUNET Centre could also arrange translation.)

Alternatively, such details could be exchanged among the POs directly if desired. This course could be followed for PO reports not normally distributed publicly (and thus not appropriate for "Newsletter" use).

Whether one or both dissemination methods are used, it was suggested TECHNUNET Centre monitor the distribution to ensure continuity and also to note where action or research (by IDRC) may be merited.

- It was agreed that the results of the EW TDI Inter-Country Study Team on "Fostering Local Innovation Methods" (in the form of a Manual to be published at the end of the Workshop in Honolulu) as well as material on IDRC's Science and Technology Policy Instruments Project (STPI) would be made available to all POs through TECHNUNET Centre.

#### B. Potential Research Areas

Since most EDPs are geared to entrepreneurial traits which have largely been identified in researches done in the West, there is a need to identify Asian entrepreneurial needs and traits and to develop and plan relevant Asian EDPs based on these, including the phases of stimulatory, training, assistance and sustaining.

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REPORT ON PROCEEDINGS

Wednesday, 25 May 1977

OPENING CEREMONIES

The Workshop commenced with the welcoming remarks of the Director-General of MARA who emphasized the vital role of the entrepreneur in promoting and accelerating industrial development. This was followed by remarks by the Administrator of TECHNUNET ASIA who underscored the importance of the transfer of relevant technologies and assimilation for the entrepreneur in small industries.

The Workshop was officially declared open by the Secretary-General of the Ministry of Public Enterprises, Malaysia, on behalf of the Minister. He saw the Workshop as a forum to expose participants to new ideas for a total approach system in entrepreneurship development. This would also be of particular benefit to MARA in achieving its objectives to create a viable Bumiputra entrepreneurial community.

SESSION I - Chairman: Johari Hassan

Introduction of Participants and Resource Persons;  
The "Known" Factors in Entrepreneurship  
(A review of past researches and activities -  
findings and conclusions)

The Chairman called upon the participants and resource persons present to introduce themselves by giving a brief description of the work that they do and the organizations they represent.

The TECHNUNET Administrator was asked to give some guidelines as to the direction in which he would like the meeting to be steered and he observed that this Workshop was TECHNUNET's first attempt in the field of entrepreneurship which was a vital aroo to its Participating Organizations. An exchange of experiences among the participants and resource persons and a review of what has been done in the past may indicate what further activity is needed in this field which TECHNUNET, IDRC's Social Sciences and Human Resources Division, or the two together, may be able to sponsor.

The Chairman then proposed that the meeting look at the following aspects relating to entrepreneurial development:

1. Identification and selection methods for entrepreneurs
2. Support activities, including technology, technical advisory service and finance
3. Training and Entrepreneurial Development Programmes (EDPs)
4. Evaluation

The Administrator started the discussions by asking the participants and resource persons to give an overview of the known and unknown factors of entrepreneurship. Subsequent sessions would then deal more specifically on the different modules. The various experiences learnt in India, the Philippines and Malaysia were described and discussed by the participants.

In India it was found that a successful entrepreneur who 'gets out of' his community - those among the lowest 30% of the economically weak group - is often looked upon as a stranger by his own community. The question therefore arises as to whether or not entrepreneurial development should be a "social" process rather than individualistic. The need to classify entrepreneurs into different types was also brought out, namely, entrepreneurs for industry, business and services, as well as whether in an urban or rural setting.

In Malaysia, where the EDP is mainly to develop the "Bumiputra" businessmen, there is no effort to "prioritize" such development of entrepreneurs through its loan programme. The MARA EDP is relative new and various concepts are still being experimented with.

The background of the EDP in the Philippines was described. Most of the entrepreneurs tend to crowd themselves in the urban areas and the thrust now is to send MASICAP (Medium and Small Industries Co-ordinated Action Programme) teams into the provinces to look for entrepreneurs and help them package their ideas into project feasibility studies. It was found that the problem was these entrepreneurs needed assistance in packaging their ideas and presenting them to such bodies as the Development Bank of the Philippines for support.

There are also many ongoing training programmes for entrepreneurial development in the country which would be discussed in the session devoted to this topic.

In all of the above discussions, the question was asked: "Who or what is the Entrepreneur?". At the outset it was agreed that an entrepreneur is one who owns and manages his business and who is a calculated risk-taker, existing in a social environment. It was suggested that studies should be conducted on the factors which make one become an entrepreneur. Successful cases of entrepreneurs - those who have not undergone any EDPs but have made good by themselves - should provide some insight. It was pointed out that these aspects would be covered in Phase Two of the multi-country research project supported by IDRC.

The discussions which ensued showed that there is a great variation of the situation in different countries. There was, however, general agreement that entrepreneurs can be developed as proven by various experiences.

SESSION II - Chairman: Dr M M P Akhouri

Continuation on the "Known" Factors in Entrepreneurship

There was considerable discussion on the importance of selection of entrepreneurs. Resource persons from India and the Philippines each described how selection was done in their own countries. Two papers were circulated on the subject which formed the basis for discussion.

The screening process in Malaysia of potential candidates for EDPs is generally similar to that in the Philippines and India. Initially, those with some vocational training were selected.

It is an established fact that the entrepreneur is affected by existing government policies and guidelines as well as the political situation. The question is, to what extent must the entrepreneur follow these policies that have been laid down? In other words, there may be certain constraints in the EDPs brought about by government policy in each country. Can such government intervention be minimized? This varies from country to country because of different cultural backgrounds and conditions. In some communities, the lack of knowledge of government officials on the entrepreneur's needs is a major constraint.

The conditions in the United Kingdom and Hong Kong were presented to illustrate a situation where private enterprise existed with hardly any government intervention.

One thing seems to stand out - that selection of entrepreneurs is not culturally immune. This perhaps underscores the need for adapting the selection process to existing cultural environments.

The following known and proven factors in entrepreneurship development were also brought out: financing, industrial estates, technical assistance, consultancy and proper selection of would-be entrepreneurs.

The session ended with the general consensus that there appeared to be more "unknown" factors in entrepreneurship than "known" factors. The participants agreed that the impact of technology in entrepreneurship development should be discussed more thoroughly. (This will be discussed beginning in Session VII up to XII.)

Thursday, 26 May 1977

SESSION III - Chairman: Dr Tajuddin Jali

The "Unknown" Factors in Entrepreneurship  
(A review of ongoing and prospective researches  
and activities - anticipated results)

The Chairman started this session by calling on the resource persons and participants to describe the ongoing research programmes they are involved in or familiar with.

The Philippines have six programmes for entrepreneurial development which are set out in the paper circulated by Mr Vitoria entitled "Entrepreneurship Development in the Philippines (Current and Scheduled Projects)".

The East-West Inter-Country Study Team on Methods of Fostering Local Innovations was also presented by its Project Co-ordinator, Mr Chebbi, who described the main objective of the Study Team as primarily to identify community needs in the rural areas. Another aim is also to identify the techniques to help the viability of the products. The Team hopes to compile a manual in Honolulu in the form of a viability study of the various projects at the end of their field visits in Malaysia, India, Indonesia and the Philippines. There were three Study Team members present as observers (from DP Indonesia, MARA Malaysia and UP ISSI Philippines), this being the first leg of their study tour.

From the description of the India experience, it was brought out that "innovation" is usually a part of successful entrepreneurship, but is an unknown factor. Research in this field will perhaps throw more light on the entrepreneurial development process - i.e. how to stimulate innovation, and why it is that "innovators" are generally also successful entrepreneurs.

The field of entrepreneurship development is quite new to Indonesia, and one research programme is an assessment study of the effectiveness of the national programme for small-scale industry development ("BIPIK") which was started in 1974. This has yet to be conducted and would probably be undertaken by an independent institution.

Korea also indicated that there has been no effort to carry out EDPs or thus research thereon in the country. Entrepreneurs do not seem to be lacking here.

In Bangladesh, industrial development programmes are mainly oriented towards rural industries, and what research there is is being carried out with UNDP and US AID assistance.

The EDP in Sri Lanka is akin to the Philippine one in that an experimental programme of entrepreneurial development has been introduced in the schools and vocational institutions to see if organizational and other entrepreneurial skills can be developed in the students. However, there has been no evaluation yet of this programme since it is still in its first two years of implementation. A committee consisting of representatives of various Ministries and Chambers of Commerce and Industry has also been formed to formulate a new set of incentives to industrialists. The objective of this is to find out what kind of an environment of needed to foster entrepreneurship.

In Thailand, there is a lesser degree of attention given to entrepreneurs since there is a feeling that there are possibly already too many entrepreneurs in the country, and consequently there are no research projects in this field. The concern, rather, is to improve the quality of existing entrepreneurs.

Where Malaysia is concerned, it is quite well endowed with funds for research in this field, under its Third Malaysia Plan, but at the moment MARA does not have any ongoing research work in this aspect. It is undertaken by other bodies, the main one being NERDA (National Entrepreneurial Research and Development Association) which has plans for three main areas of study. These are: the East-West Technology and Development Institute Study - identification of entrepreneurial traits and profile leading up to the selection methods and techniques; evaluation of the current EDPs and support systems with a view to ascertaining their effectiveness and to form a more consolidated policy for the government; and to make a survey to identify the present stock of Bumiputra entrepreneurs to be trained and developed.

From discussion of the foregoing country experiences, it was possible to make a summary of the key "unknown" factors in entrepreneurship, as follows:

1. "Trainability" in entrepreneurial traits and skills
  - development of curriculum
  - trainers programmes
2. Effectiveness of EDPs and the environment
  - evaluation research of
    - . programmes
    - . policies
    - . support systems/institutional strategies
    - . environment, e.g. technological, economic, etc.
3. Personality factors
  - role strain
  - entrepreneurial profile
    - . successful
    - . unsuccessful
4. Projects as basis of entrepreneurship
  - local needs - innovation
  - project identification
  - viability test
5. Identification (and selection) of entrepreneurs
  - entrepreneurial traits
  - selection methods/techniques
  - survey of stock
  - self assessment
6. Counselling inputs in EDPs
  - evaluation of role and effectiveness
  - techniques of counselling (including 'timing' of the different elements)
7. The entrepreneurial development process
  - ascertaining phases of development process
  - identifying "needs" of each phase

SESSION IV - Chairman: V K Chebbi

Continuation on the "Unknown" Factors in Entrepreneurship

In this session, an attempt was made to go further into the "unknown" factors, using the guidelines summarized above.

There was considerable discussion revolving round the question of how to integrate the goals of the entrepreneur, the consumer and the national or social objectives. Before one could decide the entrepreneurial traits, it must first be determined what he is required to do - in other words, the entrepreneurial skills must match the social conditions and objectives. In some countries, there may appear to be conflict between the national and individual entrepreneurial objectives, and the national objectives may therefore be a constraint in entrepreneurial development.

SESSION V - Chairman: Dr D F Taylor

PO Country Experiences

- Promotion of Entrepreneurship
- Government Policies and Incentives

From discussions in previous sessions, the Chairman felt that the countries concerned may be classified into three categories:

1. those which historically have little difficulty in promoting entrepreneurial activities - Hong Kong, Korea, Singapore and possibly Thailand;
2. those which have given high priority to activities for some time to develop entrepreneurship - Philippines, India, Bangladesh and Sri Lanka;
3. those which feel a great need and desire to promote it - Malaysia and Indonesia.

The discussions then proceeded on the basis of the above grouping. The government incentives in each of the abovementioned countries were described.

The situation of entrepreneurship in Hong Kong and Singapore was similar in many aspects in that they both started as entrepots and there is a drive to attract investment. They both also have a climate of confidence. There has been little intervention by the government in Hong Kong resulting in too many entrepreneurs and very keen competition among them. In Singapore, there has been very heavy intervention on the part of the government after 1960 to establish and guide the industrial development policy. Promotion of economic activities such as entrepreneurial development has been related to the activities of the Economic Development Board

and the Jurong Town Corporation. The latter provides facilities and infrastructure for industrialists in the form of industrial estates and flat-topped factories. The emphasis in Singapore now is quality, not quantity, i.e. to attract certain types of industries, generally high technology ones, to match the government priorities. The government does give incentives to these industries, in the form of granting pioneer status to them.

In Korea, the development of entrepreneurs normally spring from the large industries who encourage local small or "feeder" industries to manufacture their required component products to substitute the higher cost imported items. There is a great market for the entrepreneur here, although there is no form of government incentives. Entrepreneurs find support through merchant banks in the country, on condition that they have collateral to offer in return. Such banks usually have their own schemes for supporting these small enterprises.

In Thailand, most of the entrepreneurs (about 75%) are concentrated in the urban area, and the government is setting up 3 or 4 industrial estates in the northern, southern and north-eastern regions of Thailand. There are the usual incentives of tax exemption and loans to entrepreneurs who are prepared to go into these new estates. The first one in operation, consisting of mostly new and some relocated entrepreneurs, is already proving to be a success. In selecting the site for industrial estates, consideration is first given to whether there are facilities easily available from nearby urban centres.

In Malaysia there is abundant support by the government through the various agencies involved in supporting the promotion of entrepreneurial development, especially in the Bumiputra sector. Government incentives are in the form of training courses for potential entrepreneurs, credit loans, advisory services, industrial research, etc, all through the various government bodies.

In Indonesia, the intention of the government is not only to move industries to areas outside Jakarta, but more important, to areas outside Java Island. Almost all financial support schemes, including soft loan facilities, are carried out by the respective governmental banks. Physical facilities and support are given by the Department of Industry or other government agencies concerned.

In India - particularly in Bombay - there is a programme of decentralization from the urban areas, and incentives and disincentives are given by the government to achieve this goal. It is relatively easy for entrepreneurs to invest and expand in the home market itself, which is very large. Support also comes in the form of free or subsidized consultation and preparation of project proposals by the Small Industries Service Institutes (SISIs).

In Sri Lanka, as mentioned previously, there is a programme to introduce to the school curriculum subjects to encourage those oriented to set up businesses. Here also, the concern is the quality, not quantity, of entrepreneurs, i.e. selection of projects. Sri Lanka wished to exchange its 'project profiles' on small industries with the other TECHNONET country organizations in the region. It also recommended that a workshop be held in the country to train personnel in the selection and development of entrepreneurs, perhaps with TECHNONET participation.

Bangladesh expressed the problem of a high percentage of emigration of its skilled persons due to the political upheaval. There are government efforts to develop entrepreneurs through vocational institutions, but again the difficulty is the constant 'brain drain'. There are government incentives in the form of tax exemption and minimized import duty for industries in the less developed areas. The emphasis is mainly on agro-industries and, overall, on 'export-oriented' and 'import replacement' industries.

Friday, 27 May 1977

SESSION VI - Chairman: P V Vilorio

PO Country Experiences  
- Training and Development

The session started with some comments on the previous day's discussions on the promotion of entrepreneurship and incentives given. The question was posed whether government incentives do, in fact, compensate for the constraints existing such as lack of opportunities.

In discussing training and development, the Chairman suggested that an inventory be taken of the training activities in each PO country and also India.

In Bangladesh, training is carried out through the Vocational Polytechnic Institutes, Management Development Centre, National Institute of Public Administration and Bangladesh Industrial Technical Advisory Centre (BITAC). Training is also carried out through different agencies of the Bangladesh Small and Cottage Industries Corporation (BSCIC) such as the Design Centre and Counselling and Advisory Service on matters of product development of crafts, marketing, etc. Emphasis has also been given to development of womenfolk in cottage and handicraft industries. A nation-wide programme for training on sericulture and ericulture has been taken up.

Hong Kong does not specifically have any training programmes for entrepreneurs. There are, however, three centres where people may obtain training on a wide range of subjects - the Hong Kong Productivity Centre, the Hong Kong Management Association and the Polytechnic. The Hong Kong and Chinese Universities also conduct part-time courses. Training opportunities also exist in the industry training boards and the newly-formed government training centre for skills training. Generally, Hong Kong does not lack expert resource persons to conduct these courses.

In Indonesia there are many training programmes from various parties - the Department of Trade, the Universities' extension divisions, institutions, etc. Although temporary in nature, as it is not its main function, the Department of Industry has training programmes aimed directly at entrepreneurial development and extension services to support these entrepreneurs, such as for the improvement of technical and management skills and achievement motivation training. Most of these courses are for existing entrepreneurs. There are also trainers' training programmes conducted with UNIDO assistance.

In Korea, there is no government programme for direct training of potential entrepreneurs, but there are often seminars and training courses organized by the unions or co-operatives which may include entrepreneurial development courses.

In Malaysia, training of entrepreneurs is mainly undertaken by the government through the educational system as well as outside it. MARA itself has a number of vocational institutes, other than the MARA Institute of Technology. There is little participation by the private sector in training. The target of the government is to create 17 000 new entrepreneurs in 4 years. The problem is the need of a sufficient number of trainers. One interesting methodology of training was presented to the meeting by the Malaysian resource persons, in that part-time courses are being conducted jointly by the Malaysian Industrial Development Centre (MIDC) and NERDA for small groups of the more sophisticated and educated Bumiputras who have secure employment but are interested in going into private enterprise. In these courses the basic elements of project identification and achievement motivation training are also present. There is already some evidence of success in this type of training.

In the Philippines, UP ISSI has implemented the EDP since 1973 whereby lecturers themselves go out into the rural areas. The entrepreneurial development programmes cover promotion, selection and identification of potential entrepreneurs, achievement motivation training, management and business skills training and project preparation. At the end of the course the project proposals are evaluated by experts and bank representatives. The extension service is undertaken by teams such as the MASICAP teams, since UP ISSI finds it a problem to closely monitor the progress of these entrepreneurs due to the distances involved sometimes. There is also evaluation of the training programmes by feedback systems and evaluation forms. There is also the EDGE (Entrepreneurial Development in General Education) programme previously discussed. The EDF experience is concentration on the farmer society, helping them to form co-operatives and to stand on their own, using CO (Community Organization) and CD (Community Development) techniques. In this respect, the Government has even encouraged the farmers to own and run their irrigation systems themselves.

The main ongoing training and development of entrepreneurs in Sri Lanka is the project work introduced in the school curriculum. Many other government institutions are also involved, although there is no comprehensive programme in these institutions and once the trainees leave there is no definite effort to follow up. However, the Industrial Development Board of Sri Lanka (IDB) does conduct short courses to help people set up their enterprises and also provide services required for identification of projects and supporting services. There is also a programme by the Ministry of Planning and Economic Affairs to set up divisional development councils in the various electorates in the country to identify the human and natural resources available in each electorate. Once the projects in the various sectors are identified these will be supported through credit arranged with the various banks.

Training and development of entrepreneurs in Thailand is done mainly through DIP's Thailand Management Development and Productivity Centre which looks after the management field, and DIP's Industrial Service Institutes, which look after the technical aspects. There is also the Export Promotion Centre to help entrepreneurs export their products, as well as the Industrial Standards Institute.

The Indian EDP is essentially similar to that of the Philippines. Two other training programmes were described - trainers' training and training of government officers. The training includes psychological, economic aspects and management skills. In addition, an action plan is required. The SIET Institute is involved with trainers' training programmes and these trainers in turn go out and train the entrepreneurs. Most of these trainers are government officers based in the region. There was also the stipend programme whereby new engineering graduates were invited to join the courses and are paid a stipend, but this is not being practised any longer. The present trainees are now being provided the actual living expenses rather than a stipend. The AMT element is an important element in these programmes.

One interesting methodology which MARA knows of is using the "negative" approach to obtain positive results - applied especially in the case of retired army personnel. The method is 'inspirational dissatisfaction', stimulating them to self-motivation.

The UK experience was also mentioned, in which there was an out-flow of professional managers from industries during the recession, and these became self-employed in their own enterprises. There was no organized effort to really push them to do it.

From the above exchange of experiences, the conclusion which may be drawn is that there is a lot of training activities within the PO countries concerned, but there are especially 4 or 5 with EDPs directly related to the development of entrepreneurs - Indonesia, Malaysia, India and the Philippines. The Chairman suggested that it would be very useful to have an exchange of the contents and evaluations of these programmes if and when available.

#### SESSION VII - Chairman: L F Yapa

##### PO Country Experiences

- Technical Assistance Needs
- The Role of Industrial (Technological) Information and Extension Services in Developing New Entrepreneurs and Industries

The Chairman stated that since technical assistance is part of extension services, the meeting would concentrate on the second topic. It was suggested that industrial (technological) information and extension services (technical assistance) be discussed since these were of particular interest to TECHNUNET. It was, of course, understood that assistance in financing, marketing and management as well as industrial development was very important.

India was called upon to give an insight of the evaluation of extension services provided by its Small Industries Service Institutes (SISIs). These Institutes started off with the purpose of giving technical assistance only, but later expanded to other areas like marketing and management

aspects. The processes developed in these Institutes are passed on to the small entrepreneurs. The main problem is that, while small industry development was the main responsibility of different States, the SISIs were run by the central government. Often, the SISIs did not respond to local needs and parallel local programmes of assistance were developed by the States. There are also the National Research Development Corporation and SIET's SENDOC. The point was made that many technological developments are being innovated by a number of small industries but have not been documented and are potentials for "transfer". The 'extension workers' could play a key role in such transfer.

The Technical Information Extension Service (TIES) Project of EDF Philippines was then presented, in which various approaches for extension service and information dissemination are still being tested. The problem was first to locate the small enterprises requiring assistance, and then extension aids were employed. There is a great need for extension service, but lack of manpower is a constraint. One method used is to work through the "Producers' Association". Since one main problem is also that entrepreneurs in the cottage industries and lower levels do not appreciate technology, mass media was employed to create an awareness among them. Such mass media methods included publishing articles on technology in the daily newspapers and through the radio. So far these methods have proved a success. There is also a problem in adapting foreign technologies to suit local conditions; and more importantly, to make technical developments easily understood by first the extension worker and then the entrepreneur. By this it is meant "Asianizing" foreign technologies. One effort by TECHNUNET in this direction was the convening of the "Asian Tech Briefs" Workshop recently to look into the possibility of creating an Asian version of the Canadian NRC/TIS TECH BRIEFS.

There was a suggestion by the Korean representative to pay more attention to patent information, as is being done in KORSTIC.

Bangladesh disclosed that it published "Investment Briefs" on various processes as part of its extension and information service, which is serving them well.

In Malaysia, technological needs are catered for by SIRIM which operates by answering technical enquiries posed by industry and undertakes equipment innovations on the request of their clients or on their own initiative to meet local needs.

In Hong Kong, as has been said before, there is no real need to stimulate the growth and development of entrepreneurs. Technological information is given in the form of paid consultancy services through the Hong Kong Productivity Centre, for instance. The only problem in Hong Kong is to get modern technology introduced into the structure of business in Hong Kong - in other words, transferring higher levels of technology into a smaller local context.

SESSION VIII - Chairman: P D Malgavkar

Technology Transfer and Assimilation  
- Specific Considerations for PO Countries

At the beginning of this session TECHNUNET's slide presentation was shown to the Workshop.

The Chairman started discussions by drawing attention to the fact that technology is a very important factor for not only the development of entrepreneurship but to the entire country, and yet many developing countries attach very little importance to it. If this attitude is continued, then it would be difficult for these countries to become independent from the developed world. The significance of technology must therefore be more emphasized.

The problem in Sri Lanka is obtaining technology from abroad for small industries and adaptation of these technologies to the local conditions. Sri Lanka does not have the foreign exchange to import equipment and machinery from outside, and thus there is a need to develop and perfect processes in small industries using the talent and materials available. There is also the problem of lack of capital. One method of technology transfer employed by the IDB is through its "Karmantha" publication which contains in capsule form a wide range of information on machinery, processes, etc. However, the impact of this is still limited.

The Philippines reported that it is now beginning to institutionalize the transfer of technology. The UP ISSI will be tied up with the Technology Resource Centre as one of its nodes for industrial information. The TRC will be involved in development of technology for the Philippines. To illustrate the extension service activities of UP ISSI's pilot extension branch at Tacloban, Philippines, a slide presentation was made showing how UP ISSI extension officers work among the rural small enterprises.

In Bangkok, the Applied Scientific Research Corporation of Thailand has facilities and equipment for developing new products. After finding that a certain technology is suitable, it will be introduced to industry.

The experience in SIRIM is that some of the machinery imported from abroad is unsuitable for use in local industries, especially the agro-based industries. Thus SIRIM's officers have to find the technology for assembling equipment with only perhaps the key parts imported from abroad. The observation was made that there may be people in the country who have the technology for certain processes but are reluctant to make them known publicly.

Korea has paid royalties for import of foreign technology amounting to approximately US\$66 million between 1962 and 1975.

In Indonesia, during the first few years of the rehabilitation programme they imported any type of technology considered suitable, but later they became more selective. There are three groups dealing with advance technology in the country, one of them being the Institute of Technology

of Bandung. There are also the many research institutes, such as the Metals, Chemicals, Ceramics, Textiles and Cellulose Research Institutes. The problem encountered is the dissemination of information from one industry to another. Another problem is the co-ordination between these research institutes.

In Hong Kong, technology transfer is through the 'multi-national' corporations who come to set up their industries there, and perhaps through the Department of Commerce and Trade Missions. Certainly Hong Kong is not doing anything active in trying to develop any local technology.

Bangladesh is seeking government assistance from abroad in respect of technologies to be imported, and expressed the hope that TECHNUNET may be able to help them.

In India, there are two main concerns in transfer of technology - upgrading existing technology and importing technology to suit local needs. The problem expressed was the gap between those who provide the technology and those who use it. The intermediate element to process the information and then pass it on needs development. There are also a lot of innovations, but no suitable way of passing these innovations on. Sometimes, the fact that information be picked up from the entrepreneur besides imparting information to him is overlooked entirely.

An observation was made that if too much attention was being paid to importing Western technology to the point of overlooking possibilities of local innovation, then should not the existing education system be examined to see if any changes could be made to it to overcome this attitude.

Another suggestion was also made that there should be an inventory and documentation of all the patents and processes in Asia. However, it was also noted that many governments and bodies are seriously questioning the usefulness of the 'patent system', and that it may well be drastically changed or done away with in coming years.

A few of the participants also fully endorsed the concept of local study missions.

The TECHNUNET Administrator replied that TECHNUNET is fully aware of the above needs and has developed programmes along these lines. The publication of the TECHNUNET "Digest" is one example of trying to bring to light some of the technological developments within the PO countries. National networking has also been encouraged, i.e. encouraging the POs to collaborate with other centres of information in their respective countries. There is also the policy of encouraging the development of specialized information centres at the appropriate POs or organizations. An example is the HKPC Plastics Technology Information Unit partly supported by TECHNUNET as well as the new International Ferrocement Information Centre at the Asian Institute of Technology in Bangkok and the Asian Packaging Information Centre in Hong Kong, both partly supported by IDRC.

There was a request to TECHNUNET to disseminate to the POs the published results of IDRC's Science and Technology Policy Instruments Project (STPI).

In summarizing this session, the Chairman emphasized the need for developing appropriate technology in developing Asian countries themselves for the purpose of promoting indigenous innovations in accordance with the local social and cultural conditions.

Monday, 30 May 1977

SESSION X - Chairman: Cesar N Sarino

Workshop Summary and Conclusions

The Chairman summed up the discussions that had taken place over the past three days of the Workshop as follows:

The objectives of ENTRETECH are:

1. To serve as a forum whereby the POs can exchange experiences
2. To determine what TECHNUNET can do to complement what has been done as well as what has not yet been done in line with TECHNUNET's role in supporting the development of small industries.

In speaking of "Technology" for the entrepreneur, this is in the form of:

Software - systems, know-how and know-what

Hardware - processes, machinery, equipment, components of technology

He felt that the discussions to-date could be grouped and summarized under three topics:

- A. Government Policies and Incentives
- B. The Entrepreneur and Entrepreneurial Development Programmes (EDPs)
- C. Assistance to the Entrepreneur in the areas of:
  - enterprise identification and development
  - training and development
  - technical assistance needs and information and extension services
  - technological transfer and assimilation

A. Government Policies and Incentives

It is agreed among the POs that 'entrepreneurial development' is an essential ingredient of most government programmes to promote and develop small and medium industries in their countries, this being instrumental to increasing employment and achieving more equitable distribution of wealth. Government efforts in this direction include:

- liberal financing in terms of lower interest rates, longer terms and more flexible collateral requirements;
- tax benefits in terms of lower corporate taxation and "tax holidays";
- provision of industrial extension services and information dissemination, project feasibility studies, etc
- development of industrial estates and free trade zones
- institutionalization of training, research and EDPs
- linking of large and small industries through sub-contracting.

The areas for consideration here are:

1. the specific instruments used by the different governments in implementing their policies and the activity, efficiency and adequacy of these various policy instruments;
2. to look into the congruence of the goals of the entrepreneur and those of the nation;
3. the need to link the different institutions involved in small and medium industries development to co-ordinate the overall entrepreneurial development activity in a country.

There are many ongoing and planned research projects on this topic, for instance those of IDRC's SSHR Division and UP ISSI.

#### B. The Entrepreneur and Entrepreneurial Development Programmes (EDPs)

Under this subject, two main areas were explored - the "known" and "unknown" factors of entrepreneurship.

##### The Known Factors

1. The entrepreneur may not be born - and if not, he can be trained and therefore developed.
2. He possesses certain characteristic traits - achievement, power, willingness to take risks, etc.
3. Since national resources are limited, it is necessary that entrepreneurs be selected through a screening process in order to optimize these resources.
4. Some entrepreneurs, especially those who belong to the lower income strata, become alienated from their communities once they are successful.
5. The process of entrepreneurial development is composed of three basic activities:
  - stimulatory activities (training)
  - support activities (finance, site and other services, incentives)
  - sustaining activities (extension, organization, change in processes).

6. Fostering local innovation is a method of entrepreneurial development and this is a process whereby needs are identified and determinations made as to how these needs are met.

#### The Unknown Factors

1. While certain personality traits of an entrepreneur are already known, a further in-depth study is necessary to draw up a profile of the private sector entrepreneur.
2. The environmental (economic, political, social) influence on the entrepreneur and on entrepreneurial development should be studied.
3. Study should also be made of what training is required for those who do not possess any of the basic characteristics of a potential entrepreneur.
4. There is a need to develop a more scientific technique in the identification and selection of entrepreneurs, as well as the need to identify the different phases (stimulatory, support and sustaining) in the entire entrepreneurial process.
5. There may be a need to look into 'group' entrepreneurial development.
6. There is a need to study in-depth the value of fostering local innovation and adaptation of appropriate technology in entrepreneurial development.

There are also several ongoing researches on the above conducted by IDRC's SSHR Division, MARA and NERDA Malaysia and UP ISSI Philippines.

#### C. Assistance to the Entrepreneur

##### 1. Enterprise Identification and Development

There appears to be two major criteria for this:

- use of indigenous raw materials
- labour intensiveness of the project

The areas for consideration in this aspect are:

- (a) the need for a simple yet systematic methodology in identifying and selecting cottage, small and medium industries;
- (b) the need for assessment of project viability.

##### 2. Training and Development

This subject is inter-woven in the many other subjects discussed, but focus was made on EDPs.

Three countries do not have formal EDPs - Korea, Hong Kong and Singapore - and they seem to have no lack of entrepreneurs. Four do have formal EDPs - Indonesia, Malaysia, India and the Philippines.

The findings, under this topic were:

- (a) There was a consensus of opinion that there may be a value in "cross-fertilizing" the various EDPs. It was not possible to analyse the intricacies of these EDPs within the meeting period itself, but it was suggested that the POs should keep each other fully informed of their respective programmes.
- (b) There is a need to scientifically evaluate the EDP during and after the programme, and also the different industrial projects that have been undertaken as a result of the EDP.
- (c) There will be benefit in evaluating the work study courses injected into the school curriculum when they have progressed further.
- (d) There may be a need for deeper analysis of the 'achievement motivation training' element in EDPs.

3. Technical Assistance Needs and Information and Extension Services

The areas of concern in this aspect are:

1. There is a lack of manpower to support technical assistance and information and extension service needs.
2. Information dissemination systems lack in efficiency and effectiveness.
3. Foreign technology is usually not adaptable to local needs.
4. There may be a need to study the effectiveness of service provided entrepreneurs and to analyse counselling inputs.
5. There is a need to evaluate assistance and extension services.

There are two current efforts being conducted - TECHNUNET's concern to develop "Asian Tech Briefs" which has brought about the "TECHNUNET Digest" as a start, and the EDF experiment on how to effectively implement a technical information and extension service (TIES).

4. Technology Transfer and Assimilation

In most of the PO countries, it was found that foreign methodologies are usually not applicable to local conditions.

The development of certain technologies in all TECHNUNET PO countries could be disseminated to some of the others.

SESSION X - Chairman: Dr Leon V Chico

TECHNONET and Entrepreneurship

- Recommendations for further initiatives within TECHNONET's terms of reference

The TECHNONET Administrator, in taking the chair for this session, reiterated that TECHNONET is biased towards technology and information and extension services, and that the Project's programmes must benefit the whole TECHNONET Network and strengthen the inter-relationship among its POs.

He also observed that entrepreneurship appears to be important in all the PO countries, even in Singapore, Hong Kong and Korea which are relatively highly industrialized and do not seem to have a lack of entrepreneurs.

He explained that TECHNONET and IDRC's SSHR Division may complement each other in undertaking certain recommended programmes.

The participants then made the following suggestions and recommendations -

1. There is a need to "cross-fertilize" among the POs. (For example, MARA Malaysia and DP Indonesia wish to initiate an exchange in the industrial (technical) information area since they both have a basically common language.)

TECHNONET was requested to facilitate the interchange of information on activities and experiences on entrepreneurship among POs.

2. IDB Sri Lanka emphasized its desire to conduct training programmes with TECHNONET assistance with particular concentration on trainers' training. It also expressed the desire to exchange information on technologies with other POs - not only concerning new processes but also known processes. It also suggested the preparation of a "Directory of Experts" in various fields to facilitate the exchange of expertise among the POs.

The TECHNONET Administrator pointed out that TECHNONET already has a matrix of expertise within POs, as well as a list of sources of technology in each PO country and such exchange of expertise and information has in fact been going on.

3. MARA expressed the desire to obtain through TECHNONET any study on evaluation systems of potential entrepreneurs and projects related to psychological testing and selection instruments. The experiences of SIET and UP ISSI would be useful as most of the methodologies currently used are of "Western" origin.
4. Information on transfer-mechanism-models and what type of technology to transfer was requested.

The TECHNONET Administrator mentioned a pertinent Asian Productivity Organization (APO) publication - "Intra-National Transfer of Technology" - which TECHNONET Centre is willing to make available to those POs interested.

5. It was suggested that ASINDEX Forum members during their normal extension activities could observe, record and pass on technical information potentially adapted elsewhere, through such media as the TECHNUNET "Digest" and that TECHNUNET Centre should like into devising an appropriate format for collecting and disseminating such information.
6. There was a suggestion to publish a list or directory of manufacturers of equipment and machinery within the PO countries.

It was pointed out that most countries maintained and published such lists in support of their own industries and their export programmes, and that these were available in the countries concerned or from their commercial representatives abroad.

7. Information and guidance are needed on community management of EDPs which would have a larger impact compared to development of individual entrepreneurs - in other words, development of entrepreneurs in groups, and especially in the rural areas.

TECHNUNET could circulate the results of some researches and programmes on co-operative, group or community efforts to develop entrepreneurship.

8. MARA brought out the possibility of having entrepreneurship experts from Indonesia, India and the Philippines work at MARA on short term consultancies to inject some drive into MARA's EDP. It stressed the advantage of arranging this through TECHNUNET, rather than on a governmental level which is a lengthy procedure. The concerned POs were agreeable to this but it would have to be on a case-to-case basis, depending on the availability of their staff and mutually satisfactory arrangements being made.

The TECHNUNET Administrator said that such exchange of PO personnel is already being carried out to some extent.

9. There was a request from IDB to sponsor research on certain critical areas like rubber, but the TECHNUNET Administrator pointed out that TECHNUNET is not able to support this type of research activity. In any event, Sri Lanka is already a leader in rubber research along with the only other country - Malaysia - in the region in which it is of major economic significance. However, a few of the POs have conducted some industry studies in the form of state-of-the-art reviews (STARs) with TECHNUNET support - but these were not scientific research projects.
10. It was suggested that a more formal method of networking could be affected through the "Newsletter". Perhaps the EDPs and any adaptive technology activity in each PO country could henceforth be reported in the "Newsletter". To further ensure that TECHNUNET is kept fully informed of the activities of each PO, the POs should submit periodic reports to TECHNUNET, even if some of the activities are outside TECHNUNET's sphere, or they are in the POs local languages, in which case TECHNUNET Centre could arrange translation.

11. There should be a monitored distribution system among POs for quarterly and/of semi-annually reports.
12. Most current EDPs were geared to certain entrepreneurial traits which have largely been identified in researches done in the West. There is a need to identify Asian entrepreneurial traits and to plan relevant Asian EDPs for people lacking in these traits.
13. There is also a need to look deeper into the needs of entrepreneurs and support systems necessary in the different phases of entrepreneurship development - such as in the stimulatory, training, assistance and sustaining phases.
14. TECHNUNET should put more pressure on the POs to get information on technologies adapted locally, at the same time as they receive information. In short, there should be a two-way flow of technological information among POs.
15. The results of the EW TDI Inter-Country Study Team on "Fostering Local Innovation Methods" (in the form of a Manual to be published at the end of the Workshop in Honolulu) as well as IDRC SSHR's Division's Science and Technology Policy Instruments Project (STPI) should be made available to the POs.

SESSION XI - Chairman: Mohd Rasli bin Mohd Nawi

Integration and Closing

- Remarks by Participants and Resource Persons

The Chairman, on behalf of MARA, expressed the hope that ENTRETECH I will open up new avenues of co-operation among the POs, especially as MARA, for one, being new in the field of entrepreneurship, hopes to learn from the others.

The TECHNUNET Administrator also expressed satisfaction with the findings and recommendations of the Workshop and promised action by TECHNUNET wherever deemed fit and appropriate. He thanked the resource persons for sharing their valuable experiences with the participants.

The others also took the opportunity to express their thanks to the host, MARA, for the excellent programme arrangements made for the Workshop.

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## TECHNET - MARA

WORKSHOP ON TECHNOLOGY AND THE ENTREPRENEUR (ENTRETECH I)  
(at the Abad Century Hotel)

Kuala Lumpur

25 - 30 May 1977

DIRECTORY OF PARTICIPANTSPO Representatives

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BSIC Bangladesh

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Principal Consultant  
HKPC Hong Kong

HERNOTO  
Head, Infotech Division  
Chemical Industries Research  
& Development Centre  
DP Indonesia

YU Kyung Hee  
Director  
Computer Systems Laboratory  
KORSTIC Korea

Mohd RASLI bin Mohd Nawī  
Deputy Director-General  
MARA Malaysia

Mohd TAJUDIN bin Mohd Alias  
Administrative Officer  
MARA Malaysia

KAMARUDDIN bin Dato Abu Bakar  
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Director  
UP ISSI Philippines  
QUEZON CITY, Philippines

YEOH Beng Poh  
Chairman  
Impac (Sdn) Berhad  
KUALA LUMPUR, Malaysia

Observers

MARA Malaysia:

Tuan Haji HARUN bin Mahmud  
OMAR bin Haji Bahrul  
ABDUL RAHMAN bin Mamat  
HAMZAH bin Abdullah  
Tuan Haji KHALID bin Mohd Sidik  
MEGAT Sulaiman bin Megat Hussin  
ABDULLAH bin Zainal  
MOKTAR bin Ahmad  
ABDUL RAHMAN bin Samad

East-West Technology and Development  
Institute Inter-Country Study Team on  
Methods of Fostering Local Innovation:

SUPARNO - DP Indonesia  
AHMAD bin Abdullah - MARA Malaysia  
Arturo MANGABAT - UP ISSI Philippines  
Ruben M CONTI - DAP Philippines

Federal Industrial Development Authority:

Miss Rahimah OTHMAN  
MOHD ZAIN bin Sakmah  
NG Peng Hiew

TECHNONET Centro/IDRC Singapore

Dr Leon V CHICO  
Administrator

Dr YEUNG Yue Man  
Senior Program Officer,  
IDRC Social Sciences and  
Human Resources Division

Dr William J GALL  
Deputy Administrator

Mrs Vivien CHIAM

## TECHNONET - M A R A

WORKSHOP ON TECHNOLOGY AND THE ENTREPRENEUR (ENTRETECH I)  
(at the Abad Century Hotel)

Kuala Lumpur

25 - 30 May 1977

AGENDAWEDNESDAY, 25 May

- 0845 All Guests, Participants and Resource Persons are invited to assemble in the Dahlia Room (1st floor)
- 0900 - 0950      OPENING CEREMONIES      Welcoming Remarks by Director-General of MARA  
Remarks by TECHNONET Administrator  
Address by The Secretary-General, Ministry of Public Enterprises, Malaysia  
  
(Master of Ceremonies - Encik Rosli bin Deli of MARA)
- 0950 - 1030      B R E A K  
  
Century Hotel Conference Room (9th floor)
- 1030 - 1200      Session I      Introduction of Participants and Resource Persons  
  
The "Known" Factors in Entrepreneurship  
(A review of past researches and activities - findings and conclusions)  
  
Chairman: Encik Johari Hassan
- 1200 - 1400      L U N C H
- 1400 - 1600      Session II      Continuation  
  
Chairman: Dr M M P Akhouri
- 1930 - 2100      D I N N E R  
(hosted by TECHNONET Centre in the Dahlia Room)

THURSDAY, 26 May

0900 - 1030 Session III The "Unknown" Factors in Entrepreneurship  
(A review of ongoing and prospective researches  
and activities - anticipated results)

Chairman: Dr Tajuddin Jali

1030 - 1100 B R E A K

1100 - 1230 Session IV Continuation

Chairman: Mr V K Chebbi

1230 - 1400 L U N C H

1400 - 1600 Session V PO Country Experiences  
- Promotion of Entrepreneurship  
- Government Policies and Incentives  
- Identification and Selection of  
Entrepreneurs and Projects

Chairman: Dr D F Taylor (HKPC Hong Kong)

FRIDAY, 27 May

0900 - 1030 Session VI PO Country Experiences  
- Training and Development

Chairman: Mr P V Vitoria (UP ISSI Philippines)

1030 - 1100 B R E A K

1100 - 1230 Session VII PO Country Experiences  
- Technical Assistance Needs  
- The Role of Industrial (Technological)  
Information and Extension Services in  
Developing New Entrepreneurs and Industries

Chairman: Mr L F Yapa (IDB Sri Lanka)

1530 - 1600 B R E A K

1600 - 1730 Session VIII Technology Transfer and Assimilation  
- Specific Considerations for PO Countries

Chairman: Mr P D Malgavkar

SATURDAY, 28 May

0900 Leave Hotel

0930 - 1030 Visit to MARA Headquarters

1130 - 1315 Visit to SIRIM Complex at Shah Alam

1315<sup>+</sup> - 1400 L U N C H  
(hosted by SIRIM at Subang Golf Club)

1500 Arrive back at Hotel

SUNDAY, 29 May

0900 Leave Hotel

0930 - 1030 Visit to "Syarikat Taba" (silver works factory)  
at Selayang Bharu

1030 - 1430 Visit to "Mimaland"  
  
P I C N I C L U N C H  
(hosted by MARA at "Mimaland")

1430 - 1800 Visit to Genting Highlands

1930 Arrive back at Hotel

MONDAY, 30 May

0900 - 1030 Session IX Workshop Summary and Conclusions  
  
Chairman: Mr Cesar Sarino (EOF Philippines)

1030 - 1100 B R E A K

1100 - 1230 Session X TECHNUNET and Entrepreneurship  
- Recommendations for further initiatives  
within TECHNUNET's terms of reference  
  
Chairman: Or Leon V Chico

Integration and Closing  
- Remarks by Participants and Resource Persons  
  
Chairman: Encik Mohd Rasli bin Mohd Nawi (MARA)

2000 D I N N E R and C U L T U R A L S H O W  
(hosted by the Minister of Public Enterprises  
in the MARA Auditorium)

WELCOME REMARKS BY THE DIRECTOR GENERAL OF MARA,  
DR. ABD. AZIZ BIN HJ. MAHMUD AT THE OFFICIAL OPENING OF  
THE WORKSHOP ON TECHNOLOGY AND THE ENTREPRENEUR ON 25TH.  
MAY, 1977 AT 9.30 AM.

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It is my pleasure and privilege this morning to welcome, on behalf of MARA, the participants of the Workshop on Technology and the Entrepreneur which is being held here in Kuala Lumpur from today 25th. May to 30th. May.

I would also like to extend our warm welcome to the officials of Technonet Asia, who are co-sponsoring this Workshop with MARA, as well as resource persons, observers and guests present at this opening ceremony.

In the throes of rapid industrialisation and commercialisation of the economy today, the subject of entrepreneurial development becomes one of immediate interest to many Government institutions and agencies which are executing programmes for industrial and economic development.

The vital role of the entrepreneur in promoting and accelerating industrial development, I am sure need hardly be emphasised. Various researches have shown that it is usually people with entrepreneurial skills who produce the energiser for economic take-off.

Indeed A Maslow, the renowned behavioural scientist, has gone so far as to argue that the most valuable 100 people to bring into a stagnating economy would not be economists or politicians or engineers but rather 100 entrepreneurs.

We have at this workshop some 20 delegates and resource persons from 9 Asian countries namely; Indonesia, Thailand, the Philippines, Korea, Hongkong, Bangladesh, Sri Lanka, India and of course Malaysia too as the host country. We also have participants from Hawaii represented by the East-West Technology and Development Institute of Honolulu.

With such a wide international pool of knowledge and expertise to guide it, I am sure this workshop will serve as useful forum for exchange of ideas, views and experiences and for formulating new designs, strategies and programmes for entrepreneurial development.

For MARA, I hope this Workshop will also open a new chapter for fostering regional cooperation with our neighbouring countries to undertake joint research projects, field experiments and training programmes, in pursuit of our common objectives of promoting entrepreneurial development in this part of the world.

A common phenomenon that we see in most Asian countries today is the lopsided development of the economy which generally has not permeated to grass root levels. And while expectations have been aroused, the fruits of progress have not been evenly distributed.

It is of course desirable to maximise economic growth but, in so doing, it is equally imperative to ensure that such growth is accompanied by an equitable distribution of the nation's wealth and prosperity. Because of this, in Malaysia the task of re-structuring society and integrating the Bumiputra into the modern commercial and industrial sector has become a cardinal point and, indeed, the main thrust of our New Economic Policy.

This is a supreme challenge to us. We admittedly have an enormous task of creating an entrepreneurial-minded generation of Bumiputra and of building a just society as enshrined in our New Economic Policy.

I would like to take this opportunity to express our sincere appreciation to the Ministry of Public Enterprises for giving its support to this Workshop - and in particular to the Honourable Minister for inaugurating the Workshop.

I would also like to express our profound thanks to the Administrator of Technonet Asia and his staff for their joint sponsorship of this project. As a participating organisation in the Technonet network (together with SIRIM), MARA has received substantial material and financial support from Technonet Asia in such matters as training of extension workers, industrial information services and study tours, and for these we are truly grateful to Technonet Asia. We hope they will continue with their generous support.

Finally our thanks are also due to the various Ministries, Departments and individuals who have in some way or other contributed to this Workshop.

Thank you.

ENTRETECH I, Kuala Lumpur, 25-30 May 1977

OPENING REMARKS

TECHNOLOGY AND THE ENTREPRENEUR

Distinguished Guests, Friends, Ladies and Gentlemen

On behalf of TECHNUNET, let me add my words of welcome and appreciation to the participants, resource persons and observers to this Workshop. I am certain that we would all benefit from the interaction during the next few days. I also wish to publicly thank the Government of Malaysia through its representatives now with us - The Secretary-General of the Ministry of Public Enterprises and the Director-General of MARA - for graciously hosting this important activity. Once more, the Government of Malaysia has demonstrated its support and abiding faith in the often unheralded entrepreneur - not only in this country, but in the rest of Asia as well. Again, "Terima Kaseh" for the kind hospitality.

This Workshop is TECHNUNET's first attempt to delve into the complex issues of entrepreneurship - more particularly in the intricate problems of the effects of technology. Our Participating Organizations in TECHNUNET have long recognized the importance of entrepreneurship and have done much along this line. It is for the Entrepreneur that many of our organizations find their reason for being. After all, it is the Entrepreneur that makes things happen.

We have gathered here today some of the most knowledgeable persons on entrepreneurship in Asia. The needs of the Entrepreneur are ever-changing and we are all living through these dynamic conditions in our daily chores. Technology transfer and assimilation for the Entrepreneur in small enterprises have so far been given little attention. We often tend to equate technology with larger enterprises.

The case for labour-intensive small industries has become much more relevant in this era of energy conservation. Even the more developed economies have begun to take a second look at their industrial policies with a view of reversing the trend towards energy-intensive enterprises. The human resource is still - and will continue to be - our most important resource. How we transfer relevant technologies to millions of small industries in Asia is a key factor in optimizing the use of this resource.

I, therefore, dedicate this Workshop to the Entrepreneur in Asia - whoever he is and wherever he is. I hope that our deliberations will eventually be of direct benefit to him. If we can identify his needs properly and provide more relevant assistance, then can we justify all these efforts.

LEON V CHICO  
Administrator  
TECHNUNET ASIA

25.5.77

UCAPAN Y. B. MENTERI PERUSAHAAN AWAM SELPENA  
PEMBUKAAN RESMI BENGKEL MENGENAI TEKNOLOJI  
DAN USAHAWAN ANJURAN TECHNINET ASIA/MARA  
PADA 25HB. MEI 1977 DI CENTURY HOTEL  
KUALA LUMPUR

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APPENDIX V

Tuan Pengerusi Majlis, Def-Def yang terhormat, peserta-peserta,  
para pemerhati, tuan-tuan dan puan-puan,

Saya, sungguh berbesar hati pada pagi ini kerana telah dapat bersama-sama dengan tuan-tuan dan puan-puan di majlis yang penting ini dan diberi pula penghormatan untuk merasmikan bengkel mengenai Teknologi dan Usahawan. Saya mengucapkan terima kasih kepada pihak Technonet Asia yang telah menganjurkan bengkel ini dan telah memilih Malaysia menerusi MARA sebagai badan gabongannya, untuk mengadakan bengkel tersebut. Saya juga ingin mengucapkan selamat datang kepada para-para peserta, para pemerhati dan lain-lain yang telah datang ke Kuala Lumpur untuk sama-sama menjayakan bengkel ini, dan juga melihat serta bersuka ria di Ibu Kota Negara ini.

Mr. Chairman, Distinguished guests, participants, observers, ladies and gentlemen,

I am happy for being able to be with you this morning in this important meeting and being given the honour to officiate the opening ceremony of this workshop on Technology and the Entrepreneurs. I would like to thank Technonet Asia for organizing this workshop and for having chosen our country through MARA being its affiliate member, to host this workshop. I would also like to welcome each and everyone of you who are here today to participate and make this workshop a success, and to see and enjoy your leisures in Kuala Lumpur.

Technology and Entrepreneurs has been the subject of great concern to many people and many nations. It has been the preoccupation of many developing countries especially and often emphasize remarkably well in their development plans. Entrepreneurship development has often been conceived as vital and is instrumental in making development plans a success and economic progress and advancement achievable. There are some, of course, who view Entrepreneurship development with scepticism and argued it being too capitalistic vesting economic opportunities to too few people.

The subject of entrepreneurship development in Malaysia has been well conceived in a broad perspective to incorporate the basic fundamentals of national interest as well as the interest of various sectors of the population. It is based on the basic national plan objectives of eradicating poverty and restructuring the society. Our concept of Entrepreneurship development must incorporate the basic fundamentals of the society and prevent it at all cost from growing wayward as to become a liability to the national interest. Entrepreneurship development in Malaysia is basically geared to develop a resource of Bumiputra Entrepreneurs to participate effectively in the modern sectors of the economy in line with the policy of restructuring the society. This is the reason why it has continued to receive public support and good response.

Entrepreneurship development is not new to us. Many methods and approaches are devised ranging from classroom instructions to practical undertakings on the trial and error basis. In Malaysia many agencies have been established and various programmes of action were devised and implemented, to suit the varying needs of particular cases. The methodology of MARA has been a total system approach incorporating, identifying and selecting of candidates, strengthening their entrepreneurial capabilities, training them with management knowhow and finally providing them with capital. There are other agencies which specialise on one or two of the above fields like financing by the Development Bank of Malaysia, training and strengthening entrepreneurial skills like the Entrepreneurial Development Centre at the MARA Institute of Technology, National Productivity Centre, Programme for Executive Development etc. All these direct to one motive i.e. increasing one's capability and alertness to grasp opportunities or turn what we call a 'half opportunity' into profitable ventures.

Commensurate with these efforts by the respective agencies, the Third Malaysia Plan provides for greater development expenditures to create greater opportunities especially in the industrial and commercial sectors of the economy. The Government will continue to encourage the development of small scale industries as it provides practical avenues for developing potential entrepreneurial talent and leadership. It is, therefore, the duty of these agencies and MARA specifically to motivate, develop and improve be it the question of aptitude or altitude, through their programmes and strategies while the government will continue to provide and expand business opportunities. MARA being one of the principal agencies that is entrusted with this task must continue to evaluate and improve their programmes and policies with zeal and vigour now that the Third Malaysia Plan is already in the middle of its second year of implementation.

There are obvious benefits to be derived from sharing experiences and link up's made with ongoing projects like the East-west Training Institute, Small Industries Extension Training Institute in India and Institute of Small Scale Industries of the Philippines. These could also serve to formulate further cooperation and exchange of ideas, views and experiences in the field of entrepreneurship development.

9 This workshop on Technology and the Entrepreneur which will act as a forum to expose participants to new ideas from the resource panel who are experts in their respective fields, will I am sure be of great benefit to MARA in achieving its objectives to create a viable Bumiputra entrepreneurial community. This will go a long way in meeting the long term objectives of the Third Malaysia Plan and the new Economic Policy.

Lastly I would like to wish you a successful workshop and a happy stay in this country. In between your tight schedule please find the time to see this country and meet her people.

I have great pleasure in declaring open this workshop on Technology and the entrepreneur. Thank you.

LIST OF PAPERS PRESENTED

(Papers available from TECHNUNET Centre on request)

1. "Promotion of Entrepreneurship - Country Experience" by Z H Chowdhury, BSIC Bangladesh
2. Country Paper by Yu Kyung-Hee, KORSTIC Korea
3. Country Paper by Mohd Shazali bin Othman, SIRIM Malaysia
4. "Government Policies and Incentives in the Promotion of Entrepreneurship - the Malaysian Experience" by Ahmad bin Abdullah, MARA Malaysia
5. "The MARA Entrepreneurial Development Programme" by MARA Malaysia
6. "Entrepreneurship Development in the Philippines (Past Researches and Activities)" by UP ISSI Philippines
7. "Entrepreneurship Development in the Philippines (Current and Scheduled Projects)" by UP ISSI Philippines
8. "EDP Selection Scheme - Philippine Style" by UP ISSI Philippines
9. "Entrepreneurship Development Program: The Total Approach" by UP ISSI Philippines
10. "Training and Development of Entrepreneurs in the Philippines" by UP ISSI Philippines
11. "An Evaluation of Entrepreneurship Development Programs in the Philippines" by UP ISSI Philippines
12. "Entrepreneurship in the Philippine Setting" by Cesar N Sarino, EDF Philippines
13. "Identification and Development of Small Industries" by L F Yapa, IDB Sri Lanka
14. "Balancing the Imbalances caused by the Known Factors of Entrepreneurial Development" by Dr M M P Akhouri
15. "Facts about Entrepreneurial Identification and Selection" by Dr M M P Akhouri
16. "Managing Entrepreneurial Motivation Development Programme through PERT & CPM" by Dr M M P Akhouri
17. "Unknown Factors in Entrepreneurship" by V K Chebbi
18. "Promoting Entrepreneurial Initiative with Proven Technologies" by V K Chebbi
19. "Technology for the Developing Countries" by P D Malgavkar
20. "Technology Requirements Study - An Approach" by P D Malgavkar
21. "The Role of Industrial (Technological) Information and Extension Service in Developing New Entrepreneurs and Industries" by P V Viloría
22. "Appropriate Technology for Small and Medium Scale Industries" by P V Viloría

K.H. Hossain  
Bangladesh

(1)

PROMOTION OF ENTREPRENEURSHIP-COUNTRY  
EXPERIENCE.

Partly because of the historical process of cross-fertilization of culture during the Muslim rule, and mainly because of the impact of the western education introduced by the British colonial administration in the Indo-Pakistan subcontinent, East and West Pakistan were culturally quite forward at the time of Partition of Indian sub-continent in 1947. In spite of their economic backwardness, the prevalent social roles and government policy, these regions largely accepted the view that the world around was manageable and manipulatable. So, the primary condition for the growth of entrepreneurship would seem to have been almost equally prevalent in West and East Pakistan at the time of independence.

It was on the basis of the recommendation as well as experience gained in the process of implementation of the first five year plan (1955-6) that specialized institutions were set up in this country by Government for development of various sectors of economy for example water and power development authority, inland water transport authority, road transport corporation, forest and industries development corporation, city development authorities, the agricultural development bank, industrial credit and investment corporation (PICIC), small industries corporation and the like were created between 1956 and 1961.

In addition, important policy decisions were introduced from 1959/1960 which relate to progressive liberalization of the economy from direct administrative controls and to new fiscal and monetary measures for providing additional incentive for the quick development of the less developed regions. The introduction of export bonus schemes created, in certain source, a limited free market for foreign exchange. Control of prices and rationing of the food were abolished. A system of automatic licencing was introduced under which a large number of industrial raw materials and spare parts could be imported as soon as the user had utilised the previous licence.

The list of items of both automatic licence and the open general licence was expanded.

In the realm of fiscal policies, a system of differential incentive was created by the use of differential rates of import duties on machinery tax rebates, tax holidays for new Industries and so on, in the less developed region. In the realm of monetary policy certain social credit incentives were provided for East Pakistan. For example the margin for advances against all imported manufactured goods was fixed at 20% as against 25% in West Pakistan. Likewise, the limit of advance against the share of newly created companies was set up to 66.33% in East Pakistan as against 50% in West Pakistan.

There has been establishment of financial institutions such as (Industrial Development Bank (IDBP), the Investment Corporation of Pakistan (ICP) and the National Investment Trust (NIT)).

*Equity Participation Fund*  
Other incentive measures were taken such as introduction of a works programme for rural development.

These facilitated the formation of the second and third plan and their successful implementation.

The allocation of fund for East Pakistan in the 2nd plan in public and private sector were Rs.693 and 252 crores respectively. However, the implementation of the 2nd plan in both public and private sectors was excellent.

The allocation of fund in the public sector in the third five year plan for East Pakistan was Rs.1600 and 1100 crores respectively in the private sector out of total allocation of Rs.5200 for the whole country.

In fact economic growth and the growth of private sector in East Pakistan started only after determined efforts had been made by the Government.

Since among other things, the lagged growth of the private sector of this country was primarily governed by the retarded growth of the capacity and the incentive to invest, it was only logical that the efforts for speeding up the private capital formation in the region be directed towards the acceleration of development of the socio-economic environment which governs these two variables. The most important condition in this respect is the growth of public expenditure, especially on the development of the requisite infrastructure.

The evolution of the system of joint venture, especially in the Jute manufacturing industry, between Industrial Development Corporation and the private entrepreneurs has made substantial contribution in the growth of private sector. This system needs to be improved and extended in other spheres of industrial investment. Such joint venture would not only encourage increased investment by private entrepreneurs also it would produce three additional favourable consequences. First, it would amend the adverse consequences of the lack of knowledge and experience amongst the private entrepreneurs. Second, it would enable to develop an independent complex of industries which would facilitate the growth of a balanced structure in the industries sector. Third, it also prevents the growth of concentration of industrial ownership in a few hands.

#### Consortium of Banks

The existing bilateral arrangement between a few large banks and the Small and Cottage Industries Corporation needs further improvement and expansion in order to affect full implementation of the proposal for the establishment of the consortium of Banks for aiding capital financing of the small industries.

THE ROLE OF  
BANGLADESH SMALL AND COTTAGE INDUSTRIES CORPORATION  
IN PROMOTING ENTREPRENEURSHIP.

The Corporation was founded in 1957 by a provincial Government and has the primary objective of promoting small industry development.

The Corporation's Principal link with the Government is through the Ministry of Industries and Planning Commission of Ministry of Planning

The Corporation has a six-men Board of Directors including the Chairman and headquarter staff of 500 employees.

✓ Corporations' Policy

Under the basic policy of the Corporation, three courses of action are being taken to promote the development of small industry in Bangladesh.

First: The development of infrastructure chiefly the Industrial Estates; Second: Furnishing of technical advisory services through the counselling and Industrial Studies Department (Erstwhile Small Industries Advisory Service) to the entrepreneurs; and Third: arranging financing for industry both foreign exchange and taka capital.

Three loan operations

The Corporation has three loan operations. The first is BSCIC's own loan fund utilising Tk.57.5 lacs of capital furnished by Government. The second programme is carried out by in co-operation with the Industrial Development Bank (B.S.B.) utilising Taka capital from Government sources and liberal foreign exchange credits available through the Government of Bangladesh.

Since 1967 a third loan programme has been carried out by the Corporation in co-operation with the consortium of Banks (10 scheduled Banks).

<u>Programme</u>	<u>Total disbursements 1963-64 through 1968-69</u>	<u>Annual average disbursements.</u>
BSCIC Loan Programme:	Tk. 27.54 lacs	Tk. 5.50 lacs.
BSCIC-BSB Loan Programme:	Tk. 69.02 lacs	Tk. 13.80 lacs.
BSCIC-Consortium Programme:	Tk. 242.25 lacs	Tk. 121.13 lacs.

Operation of the Consortium:

This programme operates as follows:

When foreign exchange for small industry financing becomes available, the medium banks of the Consortium pledges taka capital to finance the estimated local currency component of anticipated projects:

- (i) Private industrialists submit projects for approval through the member banks of the consortium or directly to the Corporation.
- (ii) The Corporation, through the counselling and industrial studies departments (SIAS) examines the projects for technical and economic feasibility and the banks evaluate the credit worthiness of the applicants;
- (iii) A designated member Bank opens letters of credit and member Banks sanction and disburse taka loan funds and equity deposits of the borrowers when BSCIC certifies the borrower's request as justified and supported by paid invoices.
- (iv) The banks monitor the recovery of loans;
- (v) The banks and the Corporation share bad debts and losses if any, on 50-50 basis.

Results of Consortium of Banks

The principal results to date have been the establishment of 27 cold storage plants accommodating 20000 tons of potatoes, one tyre retreading plant, one polysterene plant for making insulation, letters of credits have been opened for additional plants. These will include rice milling, shoe manufacture, tobacco processing, automobile servicing shops, printing presses, freezing plants for the export for shrimps and others.

Small Industry growth trend

The Corporation efforts have played a part in the growth of small industries contribution to the gross national product and to the value added by industry.

Trend in the growth of industry sectors in Bangladesh over the last ten years are as follows :-

	<u>1960-61</u>	<u>1969-70</u>	<u>Percent of total value added by industry sector in 1968-6</u>
Small Mechanised Industry, Solar Salt processing, and Cottage Industry	526.9	768.3	36%
Large Industry	406.0	1349.0	64%
Tk.	<u>934.9</u>	<u>2117.3</u>	<u>100%</u>

What is Small Industry ?

Small Industry has been defined by the Government as an industrial unit where investment in fixed capital including the value of land does not exceed Tk.2.5 million lacs (excluding the value of working capital).

All small industries covered by the priority list of Industries (P.L.I.) for the year 1974-76 of investment schedule for the first five year plan (1973-78) are eligible to get BSCIC assistance.

Who qualifies for BSCIC assistance ?

- (i) Those who want to set up industries listed in the industrial investment schedule;
- (ii) Those who want to set up modern small industries.
- (iii) Those who can put up required equity of the total fixed investment and can provide bank guarantee from scheduled banks to the extent of their equity.
- (iv) Preference is given to those who want to set up industries within the industrial estate and use mainly, indigenous raw materials and imported raw materials not exceeding 20% of total raw materials requirement.

Pre-investment counselling and technical information:

- (i) The export services are available with the BSCIC HQ. Dacca.
- (ii) Industrial briefs/fact sheets on industries are supplied to the entrepreneurs through BSCIC HQ. Dacca, 4 Regional Offices, 18 Industrial Estates located in different parts of Bangladesh.

The facilities offered by BSCIC to the Entrepreneurs are as follows:

- (i) Developed plot of land on lease basis at reasonable prices/premiums at the eighteen Industrial Estates located all over the country, with infrastructural facilities like road, water and electricity.
- (ii) Long term loan both in foreign and local currency to the maximum extent of 70% for acquiring land, construction of factory buildings and for purchase of capital machineries and equipments.
- (iii) Expert service to prepare estimates, project analysis, technical study on machinery lay out, etc.
- (iv) Counselling service regarding Preinvestment techno-economic feasibility reports and/or post investment problems.
- (v) Service for construction of factory building and erection of machinery by expert engineering staff.
- (vi) Service to obtain licence from Chief Controller of Imports and Exports for import of raw materials and spares and any other item considered necessary to utilise the established production capacity.
- (vii) Any service needed by the entrepreneurs at any stage for the smooth operation of the factory for the maximum utilisation of production capacity.

Incentives offered by the Government  
to the private industries:

In the incentives policy published by the Government the following incentives and fiscal concessions for investment in the private sector have been offered:-

- (i) A tax holiday for new local investment for a period of 5 years after the unit goes into production, provided 60% of the profits, exempted from the tax are reinvested, or invested in the purchase of government bonds.
- (ii) Payment of 50 percent customs duty on machinery may be deferred for a period of upto 6 years from the date of import of machinery.
- (iii) A rebate of 5 percent of the customs duty may be allowed on capital machinery upto Tk.10 lacs, after the unit goes into production.

The following additional incentives and fiscal concessions ~~ix~~ may be given to industries to be set up in less developed areas (i.e. in areas other than the industrial zone of Dacca, Narayanganj, Chittagong, and Khulna).

- (i) ~~The~~ period of repayment of loan may be extended by an additional grace period upto 5 years.
- (ii) A tax holiday for a period of 7 years after the unit goes into production provided 30 percent of the profit exempted from tax are ploughed back or invested in the purchase of Government bonds.
- (iii) A higher percentage of debt equity than that obtaining in developed areas may be allowed.

Statement on Industrial Estates.

Sl No.	Name of the Estate.	Total area, (Acres)	Area under plots. (Acres)	No. of plots.	No of plots. allotted.	No. of units To whom plots allotted.	No. of on plots allotted.	No. of units under production.	No. of units ready for production.	No. of units under construction.	No. of uni inactive.
1.	Tongi.	89.32	75.62	214	191	128	23	38	19		
2.	Mymensingh.	10.81	9.24	58	30	<del>28</del> 28	25	3	2	19	52
3.	Rajbari.	15.28	13.02	77	38	38	30	-	-	3	20
4.	Khulna.	42.00	36.55	234	118	40	116	-	-	-	38
5.	Barisal.	131.79	137.00	443	225	35	178	9	3	8	20
6.	Swarupkhati.	24.74	17.63	135	52½	26	82½	6	6	3	20
7.	Jessore.	30.06	41.45	278	86	36	188	17	-	-	9
8.	Kustia .	18.49	15.46	86	14	10	72	3	-	1	11
9.	Chittagong.									3	4
	a) Kalurghar.	12.35	10.06	76	63½	34	3½	6	1		
	b) Sholashahar.	12.66	20.41	67	66	44	1	13	5	6	21
	c) Fouzderhat.	37.08	27.31	158	54	18	104	2	-	7	19
10.	Comilla.	54.30	38.58	124	113	99	11	33	-	2	14
11.	Feni.	25.04	21.00	133	81	32	52	12	17	11	36
12.	Sylhet.	24.89	19.69	136	72	41	64	12	1	3	17
13.	Cox' s Bazar.	21.06	17.20	92	16½	15	75½	1	8	13	8
14.	Rajshahi.	182.32	39.21	327	148	79	179	21	1	2	11
15.	Pabna.	102.94	36.07	392	66	42	326	11	-	6	50
16.	Bagura.	14.00	12.47	79	56	23	23	12	7	2	22
17.	Rangpur.	20.96	15.17	82	48	12	34	6	3	6	2
18.	Dinajpur.	33.49	27.98	199	143	32	56	20	1	3	3
		844.20	631.12	3340	1631½	810	1658½	251	73	103	383

Paper by KORSTIC Korneac

It is my great pleasure to have an opportunity to share our experiences under the topic of TECHNOLOGY AND ENTREPRENEURSHIP of which the concerned policies are actually based upon the past three 5-year plans for the National Economic Development. Under the accomplishment of these plans, the practical strategies have been considered in two ways, i. e.

- i. Encouraging the importation of advanced technology.
- ii. Promoting the self-development of technology.

As a matter of fact these two different approaches to the utilization of technology for the national economic development are logically contrary to each other. However, we had to select one way, case by case, for the first few periods either to import or to self-develop according to the national necessity with an economical point of view. The technology importation is, needless to say, a very effective way in a sense of time-saving to develop utility articles but it makes the entrepreneurs' volition for self-development dropped off.

In order to achieve a healthy and rapid growth of national economy, the self-development should be run parallel with importation. But it is a problem how to impose a duty of self-development to the technology-imported entrepreneurs. It was hoped, at the first time, that the technology-imported entrepreneurs should have a responsibility to modify the imported technology and develop an improved new technology. But it seems that they are rather concerned with the immediately effective technology than the modification of imported technology or the development of new technology.

In 1962, the Foreign Capital Inducement Law (Law NO.2640, Revised Dec. 20, 1973) and its enforcement regulations were promulgated.

The technology import defined by this law is restricted as

- i. Should have a technical import contract with foreign owner.
- ii. Should be reviewed and approved by the relating committee.

Under this law, Korea imported foreign technology for a total of 581 projects between 1962 and 1975, paying royalties totaling 66,343,000 US dollars as shown in Table 1.

Table 1. Technology Imports Status  
(As of the end of 1975)

Country Year	Case	Royalty Payment (U.S.\$1,000)
1962-1966	28	305.6
1967	33	725.7
1968	49	1,344.2
1969	60	2,118.3
1970	82	2,399.2
1971	45	4,277.4
1972	49	6,769.2
1973	62	10,367.5
1974	80	19,513.8
1975	93	18,522.4
Grand Total	581	66,343.3

Considering the need for local production of industrial equipment and for strengthened international competitiveness of export products through quality improvement, continuing import of advanced technology will be indispensable, and technology imports in 1981, the target year of the 4th 5-year plan for National Economic Development, are expected to surpass the 5,000-project level.

However, quite a number of enterprises are not intended to be passed by the law in technology import of which royalty is considerably low, because they become able to cover the royalty directly in informal way. Accordingly, this statistics is not a complete status of technology import.

On the other hand, the government emphasized upon the promotion of self-development of technology. In 1972 the Promotion Law for Technology Development (No. 2399) was promulgated. The participating entrepreneurs in developing new technologies have benefited in tax exemption by this law.

It is difficult to measure the entrepreneurs' effort for technology development but Table 2 shows a profile of the effort.

*the total number of patent*

- Table 2. Number of Patent Application to Patent Office, Korea

Year	71	72	73	74	75	76
Invention	1,906	1,995	2,398	4,455	2,914	3,261
Utility	6,810	7,747	7,561	6,833	7,290	8,378
Design	5,348	5,991	6,333	6,220	6,707	6,016
Trade Mark	5,816	6,878	9,562	9,053	9,476	11,037
Total	19,880	22,611	25,854	26,561	26,387	28,692
Growth Rate <sup>1</sup>	1.000	1.137	1.143	1.027	0.993	1.087
Domestic Appl.	2,578	2,714	4,173	7,193	4,103	23,927
Growth Rate	1.00	1.053	1.538	1.724	0.570	5.832

Even though the average growth rate of total patent application for last 6 years is only 6.45%, the average growth rate of domestic application for the same period shows 95.3%.

Last year, the Technology Transfer Center (TTC) was established in cooperation with Korea Institute of Science Technology (KIST) and Korea Scientific & Technological Information Center (KORSTIC) under the supervision of the government. This Center is to provide the consultations and guidance for those who are intended to import the advanced technology:

*by the recommendation of TTC*

Recently, the government has announced the technology list to be imported in the near future, which contains about 1,400 items of technology, and also designated 300 enterprises as technology-leading enterprise. These enterprises are imposed a responsibility to develop one or more new technology each year.

Determining the priority of technology whether to be developed or imported, we have a problem to evaluate the utility and applicability of technology and its effect to other fields such as environment. I think it should be considered to systematize the effective method of Technology Assessment.

Thank you.

INSTITIUT PIAWAIAN DAN PENYELIDIKAN PERINDUSTRIAN MALAYSIA  
(Standards & Industrial Research Institute of Malaysia)

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WORKSHOP

ON

TECHNOLOGY AND THE ENTREPRENEUR  
(ENTRETECH 1)

held in

Kuala Lumpur

25 - 30 May 1977

BY: MOHD. SHAZALI HJ OTHMAN

FOREWORD

This paper was written in conjunction with the brief presentation of Technonet Asia "Participating Organisations Country Experiences in Entrepreneurship" in the Workshop on Technology and the Entrepreneur (ENTRETECH I), held in Kuala Lumpur, 25 - 30 May 1977. This Workshop was hosted by the Majlis Amanah Ra'ayat (MARA).

Mohd. Shazali Hj Othman

23rd. May, 1977.

KUALA LUMPUR - 25 - 30 May 1977.

1. PROMOTION OF ENTREPRENEURSHIP

In the efforts of promoting entrepreneurship, SIRIM's present capability is mainly in giving techno - economics and technological backing to the entrepreneur. Our basic functions are quite biased towards development and promotion of Standards and Industrial Research. We have our limitations in the promotion of Entrepreneurship in the sense that, a lot of cases, the normal problem faced by most entrepreneur is either financial or marketing.

Our Officers had encountered a number of cases whereby the entrepreneur seek our advise on expansion of their industries due to their ability to acquire some form of stable outlet (market) for their product. Although the outlet is normally on short term basis, it is big money, but not enough to justify major expansion. Furthermore the financial problem which most entrepreneurs face is seldom simple or straight forward cases; there is always some complication. With such a situation, quite a number of our recommendations had got to be shelved.

In cases where an entrepreneur can meet the finance requirement for expansion, his next bigger problem is having too much market expectation, whereby for example, he wanted the Government to impose some import restrictions on certain foreign goods so that his increased production can be absorbed by the market. Or to reduce tax on either the raw material or the finished product in order to be able to monopolize the market.

Although his claims are normally quite justified, it is outside our preview, except that we do advise him to forward the case to the proper authority. With this sort of cases, we seldom classify it as top priority case because the expansion project may not be viable at that moment.

In short, we have our restrictions in the promotion of entrepreneurship and it is quite difficult to find cases where SIRIM alone can provide the aid required to solve their problems. We need the cooperations of some other organisations, such as MARA, Banking Corporations, etc., to <sup>complement</sup> ~~supplement~~ our involvement in order to be able to help any entrepreneur.

This is the reason why so far SIRIM's activities are mostly focussed on medium scale industries where all the achievements and field experiences are obtained. We feel that with our field experience built-up, we could serve the small and cottage industries better besides helping to transfer appropriate technologies to the rural areas as required by our Government policies.

The Extension Service Unit however, is currently producing 'Low Technology' booklets on the 'state-of-art' of a number of industries to help create the interest for any one or group to start a small scale industry. Most of these booklets are written in Malay Language to cater for those who are not well versed in English.

## 2. GOVERNMENT POLICIES AND INCENTIVES

SIRIM's role is in assisting industrial development for the whole country and we are working with the objective of achieving the target laid down in the New Economic Policy i.e. to bring up the level of participation of bumiputra involvement in trade and industry to 30% by 1990.

In complying with the Government Policy, SIRIM aims to assist in the industrialisation of the rural sectors of Malaysia. This is also in consonance with the objective of the New Economic Policy to restructure the Malaysian Society.

Some of our activities had been steered to meet the requirement of:-

- a) agro based industries
- b) cottage industries
- and c) utilization of local raw material and industrial waste.

The objective is to assist in bringing industries to the rural areas where agriculture and other raw materials are available, thereby helping to increase the productivity and income of the rural people. *We have not evaluate our activities and how far we are successful in this objective*

3. IDENTIFICATION AND SELECTION OF ENTREPRENEUR AND PROJECTS

The Extension Service Unit employs ad hoc basis <sup>for</sup> identification and selection of Entrepreneur & Projects.

Our main source of work input is from enquiries received from entrepreneurs and would-be entrepreneurs.

We receive quite a number of enquiries from Entrepreneur seeking technological know-how and where possible we try to develop enquiries received into extension projects.

When we go out to a location to investigate enquiries to develop into extension cases, we also find out through our directory of industries, the addresses of other industries surrounding the area, with the objective to <sup>publicise our</sup> publish activities and to promote Standards and quality <sup>and also industrial projects</sup> control. We normally bring back samples of product for test and if the product fails any test or do not conform to specification then we inform the client and offer our Extension Services.

4. TRAINING AND DEVELOPMENT

We would like to acknowledge the need for training and development for the entrepreneur but we are not prepared to undertake such project yet. On the contrary, we have plans to stage some technological

demonstration in the near future, to introduce new machineries or to promote our research projects.

#### 5. TECHNICAL ASSISTANCE NEEDS

SIRIM can play an important role in providing technical assistance to entrepreneur. This is because, we are backed by our Standard and Industrial Research Divisions. Some of the services that can be undertaken includes:-

- a) Inplant Diagnosis - This is main role of the Extension Service Unit in SIRIM, i.e. to assist existing industries when it is in trouble, besides b.
- b) Design or modification of machinery *feedback of informations and prog for the other Divisions of SIRIM*
- c) Assessment of machinery or production plant
- d) Development or technological assessment of industrial processes.
- e) Technological assessment of raw material
- f) Industrial trouble shooting and repairing of instruments and machinery.
- g) Recovery of industrial waste as a means to increase economic viability.
- h) Introduction of Standards and the Certification Marking Schemes to help in the sales of products.
- i) Introduction of quality control.

GOVERNMENT POLICIES AND INCENTIVES IN THE PROMOTION

OF ENTREPRENEURSHIP - THE MALAYSIAN EXPERIENCE

Handwritten notes in the top right corner: "4", "Guidance - MDP/Com bank", "Providing healthy environment for business", "Continued growth", "ET 2 ET 2".



TALKING POINTS

INTRODUCTION

1. When we discuss government policies and incentives in promoting Entrepreneurship in Malaysia, we focus our attention on Government efforts in promoting entrepreneurs among the Malays and other indigenous people. This is because in the economic sphere, the Malays and other bumiputras are lagging far behind the other races.

address ourselves to

Handwritten notes on the right side of the first paragraph: "The Malays are the most", "Group", "Government", "socially", "educational", "background".

2. The basic Government policy objective regarding the promotion of Entrepreneurship in Malaysia is to create, over a period of 20 years, a viable and thriving commercial and industrial community of Malays and other indigenous people, without depriving the opportunities for non-Malays and foreign private entrepreneurs.

3. Towards this end, the Government has adopted inter-related programmes. These included training, advisory assistance, credit facilities, a scheme of preferences for contractors and suppliers among the Malays and other indigenous people.

(1) MANAGEMENT SKILL TRAINING

4. Much effort has been made to ensure that the business skills of existing as well as intending businessmen among the Malays and other indigenous people are upgraded through intensive training. In order to develop their business skills, various agencies are currently offering short courses to small bumiputra

businessmen. Spearheading this effort are MARA (Advisory services, and Entrepreneurship Development Division) and the National Productivity Centre, offering courses ranging from book-keeping to Management accounting, Sales & Marketing to Management development and industrial relations.

(ii) ENTREPRENEURSHIP DEVELOPMENT COURSES

5. In the effort to increase the supply of entrepreneurs from the Malay and other indigenous community, several government agencies are conducting entrepreneurship courses aimed at developing latent <sup>in</sup> entrepreneurial <sup>talent</sup> talents and enhancing the entrepreneurial aptitudes of existing businessmen. The National Productivity Centre used to conduct a two-week entrepreneurial development programme but beginning <sup>July</sup> ~~September~~ 1976, the programme became a joint-undertaking between MARA, NPC and the Ministry of Youth, Culture and Sports. MARA provides the funds, the participants, the organisation, implementation & co-ordination while NPC runs the course. The Ministry supplements and complements the supply of participants and in specific cases finances some of these courses. To date, 1,268 participants have attended the course and by 1980, <sup>we</sup> ~~are~~ expect to expose between 7,000 - 10,000 youths to this course. A follow-up survey of the Graduates of this course revealed at least 15 or 15% have established their own businesses and a few more are in the process of doing so.

6. Apart from the joint programme of MARA-NPC-Ministry of Youth, the Malaysian Entrepreneurial Development Centre (MEDEC) which was established in early 1975 at the ITM, conducted an Entrepreneurship Development Programme in conjunction with the University of Kentucky, USA, in August 1975 for 14 students. The course duration was 1½ years and its basic objective was to create entrepreneurs among the semi-professional groups .

Recently, MDEC conducted a similar programme but of shorter duration which was conducted in the evening over a span of 3 months. A total of 24 participants attended this programme and they comprised ~~of~~ existing bumiputra businessmen and those semi-professional Bumiputras on the verge of going-into business.

7. The National Entrepreneurial Research and Development Association (NERDA), an organisation composed of several leading Government Agencies (such as UDA, MARA, ITM, NPC) & interested private organisations engaged in entrepreneurship development also conducted an E/D Programme in late 1975 in conjunction with the Malaysian Association & Youth Clubs which proved to be quite successful. Investigations revealed that a few have already established their own businesses.

#### (11) PROVISION OF ADVISORY SERVICES

8. Another important measure taken by the Government to promote entrepreneurship among the Malay and other indigenous people in the provision of free advisory services or at subsidised rates. At the end of 1976, MARA through the Advisory Services of Entrepreneurial Development Division provided advice to 1621 clients and undertook about 27 feasibility studies. The Division has also provided industrial extension and follow-up services to MARA loanes and MARA assisted projects in order to ensure the success of those projects. Apart from MARA, the MIDF Industrial Consultants Sdn. Bhd. (MIDFIC) also offered consultancy services ranging from market research to financial management. Since it commenced operations in 1972, MIDFIC has completed 81 assignments, two-thirds of which were undertaken on behalf of Malay and other indigenous clients. Aside from MARA and MIDFIC, other Government agencies such as the NPC, FIDA & SIRIM also provide advisory services.

9. To ensure effective co-ordination of the services provided by these agencies, an Advisory Council on Consultancy and Advisory Services for Small-scale Industries was established in 1973. The Council was reorganised in late 1975 with wider functions and enlarged representation to include Bank Pembangunan Malaysia, Bank Pertanian, Implementation and Co-ordination Unit, The Prime Minister's Department and the Credit Guarantee Corporation. The Council which is serviced by a secretariat under FIDA, is responsible for co-ordination and harmonizing programmes and policies of existing institutions over the whole range of services to small-scale industries.

(iv) PROVISION OF CREDIT

10. To encouraged & nurture the growth of small enterprisos, The Government has intensified efforts to increase credit to small businesses <sup>with</sup> into special emphasis on the needs of the Malay and other indigenous entrepreneurs. Government agencies involved in this effort include MARA, MIDF, Bank Bumiputra, UDA, SEDCs Bank Pembangunan and Bank Pertanian. As a result, the share of the Malay and other indigenous entrepreneurs of the total institutional credit increased from about 14% in 1971 to almost 30% in 1975.

11. Between 1970 and 1976, MARA (through its Loan Division) extended \$132.5 million to 30,511 small Malay & other indigenous entrepreneurs while \$638,000 was extended between 1973 and 1976 to 55 new entrepreneurs who have ventured into the manufacturing & service industries for the first time through its ASED Division.

12. In addition, all commercial banks were also required to give special attention to granting credit facilities through the Credit Guarantee Scheme of the Credit Guarantee Corporation (CGC)

which was established in 1970. Under the scheme, commercial banks are required to increase their loans to small businesses to up to 10% of their total savings deposits. By 1975, loans amounting to some \$302 million had been provided. The Malays and other indigenous people accounted for 42% of the total loans advanced. Special units were also set up in all commercial banks to facilitate the provision of loans to business belonging to the Malays and other indigenous people.

(v) PREFERENCE SCHEME FOR CONTRACTORS & SUPPLIERS

13. Apart from the above-mentioned facilities, Government Departments have also been directed to give preference to Malay and other indigenous suppliers in the consideration of tenders and quotations for the supply of goods and services. The differential ranges from 2% to 10% for supplies up to \$5 million. For works contracts, the Public Works Department (PWD), a major contract-issuing department of the Government, sets aside at least 30% of its contracts for Malay and other indigenous contractors.

(vi) PROVISION OF BASIC INFRASTRUCTURE THROUGH THE ESTABLISHMENT OF INDUSTRIAL ESTATES

14. Industrial estates are being developed by the Malaysian Industrial Estates Limited (MIEL), a wholly-owned subsidiary of the Malaysian Industrial Development Finance Ltd, and by the State Economic Development Corporations (SEDCs) to promote industrialization in general and entrepreneurship in particular.

(vii) PROVISION OF BUSINESS PREMISES

15. The Government has also provided, through MARA, UDA and SEDCs, commercial premises for rental to Malays and other indigenous people. Up to the end of 1975, MARA has built 91 commercial

buildings enabling about 1,200 businessmen to do business in these premises. UDA has also sold or leased <sup>so far</sup> ~~more than~~ business premises to Malays while the SEDCs constructed <sup>about</sup> units of commercial premises.

16. The activities of MARA, UDA & SEDCs in this area will be further intensified under the TMP (1976 - 1980). MARA has been allocated \$13.5 million to build 230 commercial buildings which will accommodate 3,200 more businessmen while UDA will get \$217 million for the same purpose.

#### (viii) INDUSTRIAL RESEARCH

17. Spearheading industrial research in this country is SIRIM. It undertakes, through its Science and Industrial Research Division, research activities aimed at the domestic application of a wide range of proven industrial technology for the manufacture of resource-based products.

18. Other agencies which are involved in industrial research include the PRIM, the Malaysian Rubber Producers Research Association (MRPRA) MARDI and FRI. The PRIM together with MRPRA has been conducting research in the end uses of rubber and rubber-wood. MARDI is engaged in research activities in the utilization and processing of agricultural products, livestock and fish for industrial and commercial use. On the other hand, FRI has developed a wide application of Malaysian timber as well as the fibre by-products of plantation crops for pulping.

#### (ix) PROJECT IDENTIFICATION, SELECTION AND FEASIBILITY STUDIES - FIDA.

19. FIDA which has been established to provide the machinery for the promotion and co-ordination of industrial development &

the development of industrial estates in the country, has been undertaking feasibility studies and industrial surveys to identify suitable new investment opportunities for local (and foreign) entrepreneurs. Apart from this, FIDA has also been assisting entrepreneurs in speeding up the implementation of their projects.

(x) OTHER INCENTIVES

*To vendors & petty traders*

20. Under the Third Malaysia Plan, the Government has allocated \$30 million to assist small businessmen & petty traders through grants and various aids.

*Industrialization programme*

*Inputs - Infrastructure, etc., fiscal incentives*

*Output - export markets outlets*

- a) Subsidised trade requirements*
- b) Common markets*
- c) Investment conferences*

*Amended 20/5  
AA/za.  
20/5/1977.*

MARU ENTREPRENEURIAL DEVELOPMENT  
PROGRAMME



I. INTRODUCTION

Towards the end of 1973, MARU launched Entrepreneurial Development Programme (MEDP) as a special scheme to encourage and facilitate the growth of new Bumiputera enterprises. Essentially the scheme aims at creating new Bumiputera entrepreneurs by helping Bumiputera with suitable entrepreneurial talent to start ventures in certain economic sectors, through a combination of incentives and a comprehensive assistance programme. As a pilot scheme, MEDP currently limits its scope of operation to the manufacturing sector (including processing and repairing services) which has a significantly low Bumiputera representation at the moment.

MEDP is calculated to play a useful pioneering role in the development of Bumiputera entrepreneurship to pave the way for the gradual building up of a Bumiputera commercial and industrial community as desired under the New Economic Policy.

II. KEY ELEMENTS

3. The task of developing entrepreneurs consists of:
  - (a) identifying and carefully selecting those with entrepreneurial potential;
  - (b) developing or strengthening their entrepreneurial capabilities;
  - (c) equipping them with basic management know-how for successful operations;
  - (d) providing financial and infrastructural assistance.

4. The key to success in these efforts lies in suitably coordinating each of the above steps as a part of an integrated, coherent programme. A partial approach by attempting one or two steps alone, or almost content to rest with financial assistance to the entrepreneur, or only achievement motivation, or financial and technical assistance or guidance on management, will be a partial and ineffective one. The key to success lies in the integration of all these steps as a part of an integrated, coherent programme.

training programmes alone as offered by universities and Government agencies have not been strikingly successful in producing entrepreneurs for want of entrepreneurial capacity development and/or project guidance. The programs must carefully integrate the steps described in para 3 above in a cohesive way, backed up by requisite training tools and expertise, organisational structure and financial support.

### III. PRESENT PROGRAM OPERATIONS

5. While the programme as described above represents the ideal, it must readily be admitted that MSDP at this experimental stage is far from being a complete or fully integrated scheme. MSDP incorporates some amount of innovative ideas picked up from past experiences but it has several deficiencies and clearly lacks some of the essential key ingredients of a soundly conceived integrated programme.

#### (a) Identification & Selection

6. For a sound entrepreneurship development programme, a systematic and carefully planned selection process is required to ensure that only those with potential for entrepreneurial development are taken up. The crux of identification lies in evaluating the behavioural and psychological traits relevant for entrepreneurship to avoid wastage of resources and dangers of promoting persons who are not likely to succeed in their ventures.

7. Because of organisational inadequacies, IATA has not developed comprehensive testing procedures such as behavioural science techniques to assess candidates' entrepreneurial abilities. The identification of entrepreneurs as currently practiced consists mainly of inviting applications and conducting personal interviews in the process of which such details as family and educational background, past experiences, technical and management talent and financial standing are examined to give IATA members an impression of the individuals' acceptability. In case an applicant, the selection of entrepreneurial candidates depends largely on intuition and personal judgment of IATA. It is however hoped that with improved staffing position in 1976, a special unit will be established within the Division to conduct comprehensive testing exercises, adapted to local conditions, for the purpose of identifying and selecting entrepreneurs in a more reliable manner.

8. Since IITP does not have comprehensive testing procedures, possession of technical skills and project idea weighs heavily in the selection process. The practice has been to search for entrepreneurial candidates from among the following categories:

- (a) Graduates of MAPA Vocational Training Institutes - technicians, mechanics, welders, carpenters and machinists.
- (b) Graduates in Business Management, Science, Engineering and other branches of technology.
- (c) Euziputra individuals on the periphery of business - business executives, production supervisors, factory foremen, salesmen etc., who are willing to take up self-employment and become entrepreneurs.
- (d) Ex-servicemen and retired civil servants with appropriate technical and/or management know-how.
- (e) Other Euziputra with entrepreneurial talent and sound project idea.

(b) Training Inputs

9. The next step, after having identified the candidates, is to help develop or strengthen their entrepreneurial capabilities. This calls for a training input package to develop those selected into well-rounded confident and competent entrepreneurs. Ideally the programme of training should include the following:-

- (a) Achievement motivation specially devised for industry/business entrepreneurship to develop basic essential entrepreneurial capability.
- (b) Product/opportunity guidance so that the specific economic goal of independent venture is identified towards which the trainee's motivation and - energies are then directed.
- (c) Business management know-how, covering all aspects of how to set up and successfully operate his industry/business.
- (d) Field experience relevant to his own project plans for practical exposure.

- (e) Project report preparation and guidance so that in the course of the training, the specific idea of the goal is developed into an acceptable viable project.

10. Our EDP was launched in mid 1976 through the joint efforts of MARA, the Ministry of Youth and the National Productivity Centre (NPC). MARA provided the funds and the organisation with regards to planning, initiation, implementation and co-ordination of the EDP courses while the NPC provided the instructors, and the Ministry supplied the candidates.

11. This co-operative effort has worked very well despite some "teething" troubles. The course has been designed as a module and comprises 3 stages i.e. The introductory, intermediate and the advanced stage. To date, we have only conducted the course at the introductory stage and 1,263 participants have undergone this stage. The participants are expected to start their own businesses after having completed all three stages, but some 15 <sup>you/us</sup> (1%) have already started their own businesses.

12. The course is designed for both existing and potential entrepreneurs and includes such basic elements as found in other EDP courses in other countries, viz

- (i) Motivation training;
- (ii) Management skill training;
- (iii) Project identification, formulation, and preparation of project paper for financial assistance;
- (iv) Government policies and assistance available for local entrepreneurs;

13. The existing marginal entrepreneurs and petty traders have been included in our EDP course because of the realisation that those groups of people can be developed and upgraded into industrialists and big businessmen given the opportunity, financial assistance, motivation, management training and proper and continuous guidance. We believe these petty traders and marginal businessmen have every chance of being transformed into successful entrepreneurs.

(c) Business Management Guidance and Consultancy Services

14. To back up MEDP, the Division has a team of specialists and technical personnel to provide management and technical advisory services and general counselling. These officers act both as consultants and extension officers who maintain regular contact with entrepreneurs, rendering advice and counselling on such matters as finance, accounting, marketing, engineering and general management. Business management guidance has been found to be an extremely important factor to equip entrepreneurs with the necessary management know-how and techniques for successful operations.

(d) Financial and Infrastructural Assistance

15. To operate this programme MEDP has been given a revolving capital of \$950,000 for <sup>1975</sup> and \$3.4 million for the next five years to help entrepreneurs finance the launching of new enterprises under very liberal terms of credit. The loan fund may be utilised both for acquisition of fixed assets and for working capital and interest is charged at a very moderate rate of 5% for loan not exceeding \$5,000. <sup>& 7% for loans exceeding \$5,000</sup> Being primarily concerned with the small-scale sector, MEDP sets a limit of \$50,000 loan for each project assisted.

16. In addition to providing financial assistance, MARA also helps in securing for the entrepreneurs such developmental facilities as factory space, electric powers, water, communications and raw materials to implement their proposals.

IV. ACHIEVEMENTS

17. Up to-date, (end of April, 1977) MEDP has succeeded in establishing 70 new enterprises involving loans totalling \$259,950. The loans granted range from \$1,000 to a maximum of \$50,000 and the average size is \$12,300 per project.

18. A breakdown of the 70 enterprises established under the scheme is given below:

<u>Type of Business</u>	<u>No.</u>	<u>Total loans (\$M)</u>
Food processing	10	246,400
Wood-based industries	29	225,400
Automobile Repair Workshops	16	134,050
Other Manufacturing industry	7	91,600
Other Service industry	8	112,500
	<hr/>	<hr/>
Total	70	859,950

19. The MEDP has been in operation for a little over three years now and it is too early to evaluate its performance. However, a comprehensive review <sup>of the</sup> in programme in all its aspects is being undertaken.

Advisory Services and Enterprises  
Development Division NARA.

25th November, 1975.

HMMN/hfd.

ENTREPRENEURSHIP DEVELOPMENT IN THE PHILIPPINES\*  
(Past Researches and Activities)

Initially experimental and consisting of only a single component which is training, the Entrepreneurship Development Program (EDP) was launched in the Philippines in late 1973 by the University of the Philippines Institute for Small-Scale Industries. Almost four (4) years hence, the EDP has grown to be one of the Institute's priority programs, expanding the scope of the program's activities from merely training to research and surveys, integration of entrepreneurship concepts in the general education curricula of the school system, to post-training extension services to its graduates.

A. Training

To date, UP ISSI, in cooperation with other national agencies such as the National Manpower and Youth Council, the Development Bank of the Philippines, the Industrial Guarantee and Loan Fund, and the Commission on Small and Medium Industries, has conducted a total of 17 training programs participated by 383 operating, as well as, potential entrepreneurs from all over the country. Starting with the pilot training program on entrepreneurship development in Manila, the EDP subsequently moved to regional centers with the primary objectives of enhancing industry dispersal, utilizing native raw materials, and uplifting the social lives of the regional populace.

Though initial evaluation of the entrepreneurship training programs shows significant improvements in the performance of the graduates, experiences gained in the process of conducting these training programs point to the following needs:

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\*Working Paper prepared by the Institute for Small-Scale Industries, University of the Philippines, for the Workshop on Technology and the Entrepreneur (ENTRETECH I), held in Kuala Lumpur, Malaysia from May 25-30, 1977, under the direction and sponsorship of Technonet Asia of the International Development Research Centre.

1. to design a special training program on entrepreneurship development for each target area that will consider, among others, the natural resources of that particular area, its level of modernization and the characteristics of its people. This will certainly improve the effectivity of the programs.
2. to prepare training materials that are simple, comprehensive and devoid of much sophistication.
3. to develop personnel from the target areas into trainers. This will not only drastically cut down the cost of the program but will ensure continuity of its conduct, thus enhancing the rate of growth of that particular area.
4. to provide special attention and priority treatment to graduates of the EDP in their request for financial assistance.

#### B. Research and Surveys

A directing and supportive activity at the same time, research and surveys play a vital role in the implementation of the EDP. Acknowledging their importance in enhancing the effectivity of the program, UP ISSI embarked on the following activities:

##### 1. Economic/Investment Profile of EDP Target Areas -

To provide the EDP participants with information on possible opportunities in the area, it is the policy of UP ISSI to conduct economic studies of the places where EDPs are held. The studies cover: the general description of the place, its topography, land area, climate and soil; resources, both human and natural; socio-economic facilities and infrastructure, and, economic trends and conditions including present industrial development, developmental problems, and possible areas of investment.

##### 2. Interim Observations -

The desire to continuously improve the EDP prompted the conduct of a survey that obtained significant observations from interviews with graduates of four (4) training programs on

entrepreneurship development conducted from July, 1974 to June, 1975. The results of the survey which involved Mr. Ben James of the Georgia Institute of Technology as a member of the interviewing team, supported the general impressions of the UP ISSI that the EDP was worth all the efforts, time, money and all other resources consumed. The survey team observed that the interviewees have become greatly growth conscious and very much pre-occupied with either project planning or project implementation. They also discovered that the volume in operations of most interviewees' businesses increased or that new businesses were established.

For the maximum attainment of the EDP's objectives, the survey team, however, presented recommendations on four (4) major areas, namely: the program's promotion and selection of participants; the program's administration; the training program's design and curriculum; and, the post-training support.

3. An Analysis of the Impact of the Training Programs on Entrepreneurship Development Conducted in 1973 and in 1974-1975 (First Phase) -

While the interim observations gathered from a survey involving interviews with four (4) training programs' forty-one (41) graduates out of a total of eighty (80) included general indications of the EDP's worthiness, these were not conclusive. To validate, therefore, that the quality and quantity of entrepreneurial supply can be enhanced by training, such as the EDP, UP ISSI embarked on a study of the EDP's impact on its graduates and their respective environment. Specifically, the study put to test the hypothesis that the participants are benefitted by the EDP in terms of:

- a) increased economic returns for the participants' businesses.
- b) expansion and/or diversification of the businesses.
- c) increase in number of businesses established.
- d) stimulated interest in entrepreneurial activities.

The following findings and conclusions, among others, are the results of interview sessions with eighty percent (80%) of the total number (106) of graduates from the six (6) least recent training programs on entrepreneurship development. These training programs were conducted more than a year before the interview sessions:

a) EDP graduates have greater entrepreneurial drive compared to non-EDP graduates. This is supported by other findings such as:

1. EDP graduates who come from families which are engaged in business also manage other businesses which they themselves established. In contrast, non-EDP graduates who belong to families with entrepreneurial background, merely joined the family enterprises and did not set up their own businesses.
2. There are significantly more EDP graduates than non-EDP graduates who are running two or more businesses.
3. EDP graduates do not believe that their motives for going into business have been satisfied while non-EDP graduates do.
4. The percentage of graduates coming from families who are not engaged in businesses (78%) supports the contention that individuals can be open to other motivating factors such as entrepreneurship development training.

b) Practically all EDP respondents reported to have been more stimulated to succeed in business after the EDP training. This can be seen objectively from the finding that the graduates who are engaged in business increased from 65% prior to EDP to 88% after the EDP. The increase came from 66% of those who were not in business at the time of participation in the EDP.

Stimulated interest in business may also be seen from the increase in businesses owned and managed by EDP graduates - an increase from 76 to 136 or 79% over a 3-year period. In contrast, non-EDP graduates registered an increase of 24% lower than that of the graduates. In addition, 59% of EDP respondents are in the process of developing 54 business projects in varying pre-operational stages.

- c) The Entrepreneurship Development Program has made significant contributions to the national economy not only in terms of increase in number and/or expansion of businesses established and yet to be established, but also in terms of the nature of these businesses (mostly manufacturing and agricultural concerns) and additional employment generated.

#### 4. A Study on Philippine Small and Medium Scale Industries, Phase I -

Since the creation and promotion of small enterprises is the entrepreneur's function, the development of entrepreneurship and the stimulation and promotion of small industries can virtually be regarded and treated synonymously. In connection with this, UP ISSI has embarked on a two-phased national study on Philippine small and medium industries. Specifically, the first phase which has just been completed, aimed to establish the contribution of small-scale manufacturing industries to the national economy; and, to assess the growth and development of small-scale manufacturing industries in the economy. In short, it is a study of this particular sector's present status. The findings will be used as inputs in the second phase of the national study which will deal mainly on programs and policies for small and medium industries.

At this point, it may be pertinent to note, in brief, some of the findings of the study's first phase, namely:

- a) Small-scale industries (SSI) comprised 94% of total number of Philippine manufacturing establishments as of 1975, registering 5% and 9.9% growth rates from the year 1967 to 1972 and from 1972 to 1975, respectively.
- b) While net production on value added of SSI increased, their share continued to fall as compared to those of their bigger-sized counterparts. On the average, the value added of both medium-scale industries (MSI) and large-scale industries (LSI) grew 5% to 10% faster than SSI's over the six-year period.

- c) SSI employed 161,000 workers in 1974 or an increase of 22,000 from 1968. But similar to production, as a share in total employment, the position of SSI slipped by 5 percentage points so that SSI hired less than one-third of total number of workers in manufacturing by 1974.
- d) The gap in the labor productivity between SSI workers and MSI and LSI workers appears to be widening with LSI and MSI workers producing more than 3 and 2 1/2 times, respectively, what workers in SSI could produce.
- e) Statistics show an increasing concentration of SSI in Metropolitan Manila with about 60% of the total located in the area.

ENTREPRENEURSHIP DEVELOPMENT IN THE PHILIPPINES\*  
(Current and Scheduled Projects)

Reflections of the continuing efforts to strengthen the Entrepreneurship Development Program (EDP) of the University of the Philippines Institute for Small-Scale Industries (UP ISSI) are a number of activities it is presently undertaking or about to undertake. It is assumed that upon completion of these activities, the EDP would have had greater contribution in the pursuit of rapid economic growth; and, some experiences should have been encountered which will contribute to the inventory of knowledge and skills of UP ISSI staff involved in the implementation and enrichment of the Entrepreneurship Development Program. The following are some of the noteworthy activities:

A. Training Programs on Entrepreneurship Development

As shown by the findings of the first phase of the "Analysis of the Impact of Thirteen Training Programs on Entrepreneurship Development Conducted in 1973 and in 1974-1975," entrepreneurs can indeed be "created." Considering the vital role entrepreneurs play in the development process, UP ISSI firmly believes that the resources, time and efforts it has injected in conducting the EDP training have been justifiable and should be continued. Consequently, five (5) more programs were scheduled and presently the third and fourth ones are on-going. It must be noted that this particular series becomes more significant with the support extended by other national agencies concerned with small and medium industries in terms of funding, promotions, and various assistance to graduates of the program.

At this point, it appears that the EDP will continuously gain support, particularly from the national government. Hopefully, with the pending approval of another series of twelve (12) training programs and the Countryside Entrepreneurship Development which is basically the same

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\*Working paper prepared by the Institute for Small-Scale Industries, University of the Philippines, for the Workshop on Technology and the Entrepreneur (ENTRETECH I), held in Kuala Lumpur, Malaysia from May 25-30, 1977 under the direction and sponsorship of Technonet Asia of the International Development Research Centre.

as the training program on entrepreneurship development except for its emphasis on the post-training assistance phase, the Entrepreneurship Development Program in the Philippines will be able to enlarge the scope of its operation and thus, deepen its impact on the national economy.

B. Entrepreneurship Development In General Education (EDGE)

As part of the overall program to increase entrepreneurial supply, the national government is presently incorporating concepts on entrepreneurship in the curricula of the primary, secondary, vocational and collegiate education. In cooperation with the Department of Education and Culture (DEC), the UP ISSI has come up with a program called Entrepreneurship Development in General Education (EDGE) whose primary objectives are to:

1. stimulate in the students a greater predisposition for entrepreneurship;
2. enhance their awareness and appreciation of the country's resources, needs and values; and
3. familiarize them with occupational and other skills that may be instrumental to entrepreneurship.

It is being developed using the experiences of other countries as well as the contention of social scientists that entrepreneurs can be created or that individuals can be taught or trained to gear their motivation towards entrepreneurship.

Though there is general agreement among government planners on the appropriateness of the educational system in the large-scale promotion of entrepreneurship, strategies for its operationalization are yet to be developed, tried and tested. Efforts towards these, however, are underway.

C. Research for Determining the Presence or Absence of Role Strain Among Filipino Entrepreneurs

Relevant to the success of emergent entrepreneurs in the Philippines is the outcome of a research being conducted which attempts to determine the presence or absence of "role strain" among Filipino entrepreneurs.

Role strain, as behavioral scientists explain, is a conflict between attitudes and values of the social structure and those of the business world, and that the significant presence of such among emergent entrepreneurs impedes development of their entrepreneurial potential or adversely affect their decision-making capabilities.

Of great importance, therefore, is the outcome of this research in order that necessary programs and policies be adopted or developed.

D. Study of Successful Entrepreneurs

In order to determine the various factors affecting success of Filipino entrepreneurs, the UP ISSI is presently engaged in careful examination and analysis of a number of successful Filipino entrepreneurs. Hopefully, these studies will show certain commonalities in traits and characteristics and correlation of some variables such as family background, occupational experience and regional origin to the achievements that these individuals have made.

It is also the objective of these studies, when written in case forms, to provide participants of training programs on entrepreneurship development models for emulation.

E. International Research Project on Small Industry Development:  
A Comparative Regional Study

With the important and increasing role which the small industry entrepreneurs have to play in the nation's economic development, it is necessary that the policies and programs of the government toward the development of this sector, be assessed. Specifically, this study which was submitted to International Development Research Centre (IDRC) and Association of Development Research & Training Institutes of Asia and the Pacific (ADIPA) for funding, aims to:

- a) Critically examine and evaluate the policies and programs for developing small manufacturing enterprise. The specific activities related to policy and programmes will include:
  1. Initial promotional activities
  2. Financial support system

3. Technical and infrastructure support
  4. Supply and marketing support
  5. Training, management and extension activities; and
  6. Research activities.
- b) Study the extent of coordination among institutions and agencies in developing small manufacturing enterprises.
  - c) Study interrelationships and congruencies between policies and programmes related to small manufacturing enterprises and broader national development policies.
  - d) Examine the policy implications of the findings and formulate recommendations for policy-makers.

So far, there has been no major study conducted which critically assessed all the policies and systems of the government in assisting and developing the small-scale industries' sector. This research study will be the first such study.

F. A Study on Philippine Small and Medium Scale Industries, Phase II

With the data gathered during the first phase of the study, the second phase will hopefully come up with a more effective strategy in promoting the development of small and medium industries.

Towards this end, the study will concern itself with: the inter-relationships of the small industry sector with the economic environment; and, the provision of the appropriate institutional framework for direct extension services to individual entrepreneurs.

Among others, the first concern will require the following:

1. An analysis of the regional dimensions of Philippine economic growth with an attempt to identify broadly the nature of the small industries that can be expected to develop in the different regions.

2. An assessment of technological developments in the industrial sector with special reference to appropriate technologies for selected small industry categories.
3. An assessment of government industrial policies and infrastructure programs in general with special emphasis on small industry developments.
4. Projections of the loan requirements of the small industry sector.

The second concern will require the building of models. A general outline for the offices that will provide management and technological services directly to the entrepreneur will be formulated. The nature and size of the extension staff, together with an analysis of the structures and delivery systems of assistance, will comprise the outline.

### EDP SELECTION SCHEME - Philippine Style

Realizing that important traits and factors necessary in the development and motivation of potential entrepreneurs must be considered in the selection of participants to the Entrepreneurship Development Program, a Selection Scheme has been devised by the University of the Philippines - Institute for Small-Scale Industries as follows:

#### I. Application Form

The first source of information is the Application form filled out by the participants. From this, biographical, demographical-physical, and socio-cultural factors are identified.

The variables considered for final selection are reflected on Table 1.

TABLE 1

Variables and Weight Assignment on  
Data Gathered from Application Form

<u>VARIABLES</u>	<u>WEIGHTS ASSIGNED</u>
1. Present Age	
a. between 20's - 40's	5
b. between 41 - 50	2
c. between 51 and above	1
2. Educational Background	
a. MA and/or College	5
b. High School	2
3. Work Experience	
a. Related to business	5
b. Somewhat related	3
c. Not related	1

<u>VARIABLES</u>	<u>WEIGHTS ASSIGNED</u>
4. Business Exposure	
a. Planning	5
b. Already	3
c. Employee	1
5. Type of Business	
a. Manufacturing	5
b. Agriculture	4
c. Service	2
d. Marketing	3
6. Nature	
a. Priority	5
b. Non-priority	2
7. Equity	
a. $> 25/75$	3
b. $< 25/75$	0
8. Financial Support	
a. Obtained	3
b. Did not obtain	1
9. Business Concern	
a. Labor intensive	3
b. Capital intensive	1
10. Location	
a. Outside city	3
b. Within city	0

## II. Interview-Schedule

From the form filled out by a Selection Staff (usually the Project Manager) during the interview with the prospective participant, personality traits and additional demographical-physical factors are considered.

The factors considered as well as weight assignation are on Table 2.

TABLE 2

Variables and Weight Assignment on Data  
Gathered From the Interview Schedule

VARIABLES	WEIGHT ASSIGNED
1. Age when first embark into business	
a. 20's or less	5
b. 30's	4
c. 40's	3
d. 50's or more	1
2. Sibling position	
a. Eldest	3
b. Middle	2
c. Youngest	1
d. Others	1
3. Persons for going to business	
a. Be own boss	5
b. Challenge	4
c. To make more money	3
d. Familiarity with trade	2
e. Be famous	1
4. Encouragement	
a. Loved ones	3
b. Others	2
c. No encouragement at all	1

<u>VARIABLES</u>	<u>WEIGHTS ASSIGNED</u>
5. Work Experience	
a. Direct bearing to plans	3
b. Somewhat related to plans	1
c. Unrelated to plans	0
6. Sought assistance	
a. Financial	3
b. Technical	3
c. Moral	1
7. Plans	
a. Definite and specific	1-4
b. Not definite nor specific	0
8. Previous Business	
a. Failed	0
b. Overcome failure (how)	1-4
Succeeded	
9. Attendance (Willingness to attend)	1-4
<u>Others:</u>	
Credibility	1-5
Concreteness	1-5
Determination	1-5
Endurance	1-5

### III. Paper/Pencil Test

The paper/pencil test consists of four tests and the last source of information before final selection is made. The tests are:

1. Purdue Non-Language Test (PNLT)
2. Raven's Standard Progressive Matrices (RSPM)

3. Panukat ng Ugaling Pilipino (PUP)
4. Choice Dilemma Questionnaire (CDQ)

From the above tests, data on motivation, personality, risk-taking ability and intelligence quotient are gathered. Together they comprise 50% of the total selection scheme.

A presentation of the percentage distribution according to final story and selection of participants is made on Table 3.

TABLE 3

Percentage Distributing of Factors Considered for the Final Selection Recruitment Scheme

	<u>RAW SCORE</u> (Maximum)	<u>PERCENTAGE</u>
A.		
1. Application Form	45	
2. Interview Schedule and Other Information	60	
		50%
B.		
1. Choice Dilemma Questionnaire	3	20%
2. Panukat ng Ugaling Pilipino (PUP) (Measure of Filipino Character Traits)	20	15%
3. Purdue Non-Language Test (PNLT)	45	75%
4. Ravens Progressive Matrices (RPM)	60	75%
	TOTAL .....	100%

## CONCLUSION:

The three sources of information on the perspective participants are:

1. Application Form
2. Interview Schedule
3. Paper/Pencil Test

These three sources of information are meant to gather the considered crucial variables in the training and development of potential entrepreneurs.

Table 4 summarizes the variables and the sources considered in the final selection.

TABLE 5

Sources of Information and Variables Considered  
in the Selection of EDP Participants

	<u>Application Form</u>	<u>Interview Schedule</u>	<u>Paper/Pencil Test</u>
1. Biographical Data	✓		
2. Demographic-Physical Data	✓	✓	
3. Motivational Factors			✓
4. Personality Traits	✓		✓
5. Socio-Cultural Factors	✓		
6. Risk-Taking			✓
7. Intelligence Quotient			✓

ENTREPRENEURSHIP DEVELOPMENT PROGRAM: THE TOTAL APPROACH\*

In contrast to traditional economic theories treating economic development as primarily contingent upon the availability of land, labor and capital, recent economic theories have laid stress on human factor -- on the role of the individual by whose creativity, land, labor and capital are combined to establish profitable undertakings. Consequently, economics, as an area of study, has inevitably widened to include what is now recognized as a vital component in the growth process: entrepreneurship.

Observations show that entrepreneurial behavior is a product jointly of personality and external variables. Contributing greatly to the success of the entrepreneur are certain characteristics and traits such as calculated risk-taking, innovativeness, use of feedback, initiative and desire, foresight and adaptability to changing conditions in his environment. Difficult it is to find all these qualities in some individuals, they still have to be supported by other variables in order that these individuals achieve entrepreneurial effectiveness. This is not to say, however, that these qualities cannot be developed among individuals with entrepreneurial potentials or that certain external variables cannot be engineered to support the individuals in their quest for entrepreneurial success.

The first and so far the most concrete manifestation of the growing recognition of entrepreneurship as a vehicle for economic growth in the Philippines is the Entrepreneurship Development Program (EDP) designed and organized by the University of the Philippines Institute for Small-Scale Industries (UP ISSI). Launched in late 1973, the program had

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\*Working Paper prepared by the Institute for Small-Scale Industries, University of the Philippines for the Workshop on Technology and the Entrepreneur (ENTRETECH I), held in Kuala Lumpur, Malaysia, from May 25-30, 1977 under the direction and sponsorship of Technonet Asia of the International Development Research Centre.

sought to stimulate entrepreneurial activities in the rural areas, Specifically, it is aimed at:

- a) accelerating industry dispersal;
- b) generating self-employment schemes for potential entrepreneurs and provide employment to others in the process;
- c) encouraging and developing the processing of local materials into finished or semi-finished products for local as well as foreign consumption; and
- d) promoting the use of modern technology in small-scale manufacturing to generate higher productivity.

In a nutshell, the Entrepreneurship Development Program's integrated approach consists of five (5) distinct but inter-related components, namely: promotions; identification and selection of potential entrepreneurs; training; post-training assistance; and, research.

#### A. Promotions -

During the early years of the program, its promotion was directed solely on the conduct of its training component. After selecting venues on the basis of their resources and potentials for development, various national and local agencies, trade, professional and civic organizations, and the local media were tapped to assist in the promotional activities. Brochures, posters and application forms were distributed while the local media announced over radio stations the scheduled conduct of the training program and its requirement for participation. Capping the promotions is a one-day symposium held to introduce the program in detail and to answer any query from interested individuals.

Recently, however, promotions of entrepreneurship development took on a larger scale with the launching of the search for The Outstanding Entrepreneurs of the Philippines (TOEP). The annual search for TOEP aims to focus public attention and confer national recognition to these entrepreneurs' achievements and contribution, and to the enterprises they have built to serve as inspirational examples and real models for other Filipinos who may then be encouraged to establish their own enterprises.

Another vehicle and perhaps the most effective one in the promotion of entrepreneurship development in the Philippines is the introduction of entrepreneurial concepts in the general curricula of the school system. Initiated only recently, this particular project coded EDGE (Entrepreneurial Development in General Education) seeks to stimulate among the youth a greater predisposition for entrepreneurship by enhancing their awareness and appreciation of the country's resources and needs and by familiarizing them with occupational and other skills that may be instrumental in entrepreneurial endeavors.

B. Identification and Selection of Potential Entrepreneurs -

It has been hypothesized that entrepreneurs are a rare breed of individuals possessing certain personal qualities that greatly contribute to their entrepreneurial success. Taking this in mind, it is necessary that selection of participants to training programs on entrepreneurship development be limited only to those individuals possessing entrepreneurial potentials. In the case of the EDP, selectivity is made possible through selection schemes developed in collaboration with psychologists from Ateneo de Manila University and from the University of the Philippines. Selection is based mainly on:

1. age
2. the applicant's personality profile
3. his strong desire to organize and manage a business
4. the soundness of his project
5. access to financial resources to be used in his proposed project.

The major determinants of an individual's entrepreneurial potential is his personality profile which is obtained from tests administered during the selection process. To measure the prospective applicants' risk-taking, organizational ability, innovativeness, perseverance, and his IQ level, the following tests were used: Purdue Non-Language Test, Raven's Standard Progressive Matrices, Choice Dilemma Questionnaire, Test of Self-Esteem, and Enriquez's Multi-Dimensional Filipino Personality.

Application forms, questionnaires are used as instruments in gathering economic data concerning the prospective participant. The data gathered were later analyzed to determine the acceptability of the applicant on the basis of age, relatedness of profession and work experience to business plan; type and feasibility of proposed project, and his credibility and determination, among others. Personal interviews which probe into the person's history, family background and other entrepreneurial attempts were conducted. The interview also aims at obtaining insights into the person's motivation for being an entrepreneur.

C. The Training Program -

Admittedly the best developed among the components of the Entrepreneurship Development Program, the training of selected applicants with entrepreneurial potentials consists of four (4) modules, namely:

1. Achievement Motivation Training

This module is aimed at providing the participants with the proper psychological preparation with the view to developing the proper attitude and behavior towards entrepreneurial undertakings.

2. Management Skills Training

With the realization that starting a business is distinctly different from surviving in the business field, the participants are provided with the necessary management and technical know-how to enable them to run their enterprises effectively and efficiently. Covered under this module are the different functional areas of management such as organization and personnel, marketing, production and finance.

3. Feasibility Study and Project Preparation

Aside from facilitating the actualization of the participants' projects, this particular module serves to provide the participants with the fundamental know-how in determining project feasibility. There is no better assurance of successful project implementation than a careful study and preparation of an action plan.

#### 4. Entrepreneurship: Philippine Setting

The inclusion of this module in the design of the training program is in recognition of the fact that an entrepreneur will always be confronted with various environmental factors affecting his enterprise. Changing economic, social and political conditions are no exceptions to these environmental factors. It is, therefore, imperative that prospective entrepreneurs be aware of his environment and develop the capability to analyze changes that may affect his enterprise.

#### D. Post-Training Assistance and Governmental Policies and Programs Affecting Small-Scale Entrepreneurs -

It has often been mentioned that entrepreneurial behavior is a product of both personality and external factors. Developing the personality through training alone cannot be considered as a complete strategy for developing entrepreneurs. Assistance programs and other governmental policies that will motivate and support the graduates of entrepreneurship training programs when they venture into the business world, should be incorporated as an integral part of the entire entrepreneurship development scheme.

Precisely because of this awareness, the EDP in the Philippines has been designed in such a way that the responsibilities of the agencies involved in its implementation do not end after completion of the training component. Per provision of the Memorandum of Agreement among the EDP's sponsoring agencies, various support programs will be provided to develop the various projects of the program's graduates. With the initiative and leadership of the Commission on Small and Medium Industries (CSMI), member-agencies are specifically assigned areas of responsibilities in so far as assistance to EDP graduates is concerned. Financial assistance, for instance, is under the scope of the Development Bank of the Philippines (DBP) and the Industrial Guarantee and Loan Fund (IGLF); marketing assistance under the Trade Assistance Centers of the Department of Trade and the Food Terminal, Incorporated; and, technical assistance under the UP Institute for Small-Scale Industries, National Manpower and Youth Council, Design Center Philippines and the Medium and Small Industries Coordinated Action Program (MASICAP) and Small Business Advisory Center (SBAC) units of the Department of Industry.

It must be pointed out, however, that the CSMI's support programs are not limited to EDP graduates alone. Since the creation and promotion of enterprises is the entrepreneur's function, and any entrepreneur for that matter, the Entrepreneurship Development Program, together with governmental programs and policies affecting the development of enterprises, should be viewed within the national scope. And in pursuit of rapid economic growth, vis-a-vis the recognition of the vital role the entrepreneur plays in the process, the government has initiated significant shifts in development strategy as demonstrated in the following approaches under the Four-Year Development Plan for FY 1974-1977:

1. Promotion of employment at low capital cost.
2. Encouragement of export-oriented industries utilizing indigenous raw materials.
3. Industry dispersal in the region.
4. Promotion of intermediate and capital goods industries.

The massive infrastructure projects, liberalization of credit, tax incentives, assistance programs, and streamlining of the Philippine bureaucratic system are some manifestations of the government's seriousness to provide an environment conducive to entrepreneurial activities, and consequently achieve its development goals.

#### E. Research -

The Entrepreneurship Development Program, especially at such an infant stage, needs to be strengthened. While certain theories and methodologies used in the implementation of similar programs in other countries appear to be applicable, it does not necessarily mean that the same can hold true in the Philippines, the environment and people's culture being different and distinct from those of other countries. At best, these certain theories and methodologies can be tried and validated and where they cannot be totally applicable, the same can probably be modified to adapt to the particular characteristics of all the elements involved.

To describe the importance of research in the effectivity of the Entrepreneurship Development Program is belaboring the point. Suffice it to say that the sponsoring agencies, particularly the UP ISSI, are gathering all the information they can and developing new and better techniques in order that the EDP will be more effective and thus have greater contribution in the quest for rapid economic growth.

TRAINING AND DEVELOPMENT OF ENTREPRENEURS  
IN THE PHILIPPINES\*

Many social scientists are in agreement that the entrepreneur is the key link in the process of economic growth. The entrepreneur's special personal qualities, particularly his need for achievement, creativity and endurance, allow him to mobilize land, labor and capital in the pursuit of a fruitful endeavor. Because of the entrepreneurs, enterprises are established, natural resources are exploited and markets are created or tapped.

With national economic development contingent upon the quality and quantity of entrepreneurial supply, it becomes imperative that individuals with entrepreneurial potentials be developed and trained. There is need for more entrepreneurs if the growth process is to be accelerated. However, this is very much easier said than done. One basic question remains, and that is: "How can entrepreneurial behavior be instilled among individuals, given the presence of a culture not oriented towards it, such as that of less developed societies like the Philippines?"

The Philippine's efforts towards this goal have been influenced to a great extent by Dr. David McClelland's Indian experiment where it was shown that entrepreneurial characteristics can be developed among selected individuals. Consequently, a training program on entrepreneurship development was designed, incorporating among other relevant modules, Dr. McClelland's model on achievement motivation. It must be pointed out, however, that in the development of entrepreneurial traits among potential entrepreneurs, the training program is not the only vehicle. In addition to it are the incorporation of entrepreneurship concepts in the school curricula on one hand, and the development of trainers' training program on entrepreneurship development on the other. These two additional vehicles appear to be more effective in so far as scope of diffusion of entrepreneurial concepts is concerned.

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\* Working paper prepared by the Institute for Small Scale Industries, University of the Philippines, for the Workshop on Technology and the Entrepreneur (ENTRETECH I), held in Kuala Lumpur, Malaysia from May 25-30, 1977, under the sponsorship of TECHNUNET ASIA of the International Development Research Centre.

To provide greater understanding of the efforts the government, through the University of the Philippines, Institute for Small Scale Industries (UP ISSI), is taking towards increasing the nation's supply of entrepreneurs, it would be best to describe them in detail.

A. Training Program on Entrepreneurship Development for Prospective Entrepreneurs

Design -

Initially, a 7-week training program but now conducted over a period of three (3) months, the program is composed of four (4) distinct but inter-related modules, namely:

1. Motivation Training

This is a four-day live-in activity which includes lecture sessions, awareness exercises, achievement games, simulation exercises, feedback sessions and goal-setting and life planning sessions. In the process, the participants uncover their own personal characteristics - their strengths and limitations. This behavioral approach contends that by differential reinforcement, behavior can be modified and increasing a person's confidence and achievement levels is possible. It is further contended that awareness of one's characteristics enables him to properly utilize these traits as potentials to the fullest.

2. Management Skills Training

This module which consists of thirty (30) two-hour lecture sessions is aimed at providing the participants with the basic management skills or know-how necessary to effectively and efficiently operate an enterprise. It is incorporated in the design in recognition of the fact that scientific management know-how coupled with the entrepreneurial drive provides greater chances of success to the participants. The module covers functional areas of management such as organization and personnel, marketing, production, and finance.

3. Feasibility Study and Project Preparation

To allow them the opportunity to discuss with experts and determine the viability of their projects, the participants are required to prepare and submit a feasibility study of the projects

they intend to undertake, Aside from enlightening and providing them with greater understanding of their proposed projects, the requirement of feasibility study preparation, together with its evaluation, is also in recognition of the banking system's lending policy, one of which is the presentation of evidence of project viability.

#### 4. Entrepreneurship: Philippine Setting

The sessions included in this module allow the participants to gain greater understanding of the environment he lives in. Discussions revolve on entrepreneurship in relation to the existing business structure, the legal aspects of Philippine business, opportunity identification and forms and sources of assistance for new and expanding enterprises. In order to gain insights on how to succeed in business, successful entrepreneurs are invited to relate how they started their business and discuss with participants what it takes to start and develop an enterprise.

Towards the end of the training program, representatives of the various member-agencies of the Commission on Small and Medium Industries are invited to form a panel of resource persons to discuss with the participants each agency's programs and policies affecting small and medium enterprises. It is also during these forum discussions where problems of operating entrepreneurs are aired and the representatives of the agencies get feedback.

It must be pointed out that the design of training program on entrepreneurship development allows flexibility. The content and methodology are modified from time to time for adjustment to extraneous factors and conditions.

#### Training Methodology and Administration -

The methodology used in the conduct of these training programs has been a combination of group dynamics, lecture discussions, case studies, and workshop exercises. Visual aids are also used to facilitate the learning process.

During the project feasibility study preparation portion, coaches on the various aspects of the study such as organization and personnel, marketing, technical and financial, are fielded to assist the participants.

B. Entrepreneurship Development in General Education (EDGE)

Considering that entrepreneurial behavior is the product of certain qualities that can be developed as shown by social scientists, the school system provides a very suitable ground for developing such entrepreneurial qualities. The Institute for Small Scale Industries (ISSI) has recently concluded a workshop on Entrepreneurship Development in General Education (EDGE) using two (2) high schools in the Visayas as pilot schools.

The EDGE program is a direct acknowledgement of the vast possibilities the educational system can contribute in increasing entrepreneurial supply of the country. It is also a manifestation of initial, yet concrete steps being taken to tap these possibilities. Designed initially for secondary school students, the curriculum and the instructional strategy that evolved out of the EDGE workshop aim to:

1. Provide understanding of the role of the entrepreneurs in the economic development;
2. Stimulate in the students a greater predisposition for entrepreneurship;
3. Acquaint the students with the skills, knowledge, attitudes, and qualities required of an entrepreneur;
4. Enhance their awareness and appreciation of the country's resources; and
5. Provide motivation to the students for exploring entrepreneurship as a distinct career option.

Though it has just gone through the initial conceptualization stage and is yet to be implemented this coming schoolyear, the EDGE program is expected to develop further.

C. Trainer's Training Program on Entrepreneurship Development

The impact made by six training programs on entrepreneurship development conducted by the UP ISSI during the fiscal year 1974-1975 calls for the intensification of efforts for their conduct. One way to achieve this is through diffusion of expertise in administering such program, i.e., develop more people, particularly from regional growth centers, into experts on entrepreneurship development.

Aside from increasing the number of entrepreneurship training programs, the conduct of trainors' training programs on entrepreneurship development carries with it other advantages, such as:

1. Reduction of cost in the administration of the program as a result of minimization of air travel since resource persons will be coming from the local area.
2. Facilitation of communication between resource persons and participants, particularly in areas where most participants are proficient only in their own dialects.
3. Greater effectivity of the program due to greater understanding of the resource persons of the local conditions.

4 In the Philippines where many provinces have different socio-cultural traditions, values, beliefs and dialects, the conduct of trainors', training programs is necessary, if understanding acceptance of entrepreneurial concepts, and effectivity of the entrepreneurship training program are to be enhanced.

While the UP ISSI has developed up to its present level an Entrepreneurship Development Program that has, to a certain extent, increased the entrepreneurial supply of the country, there is still much to be desired by the EDP. Entrepreneurship is a relatively new area of study and much is yet to be learned about it. And it is only through experimentation, continuous efforts towards improvement, and cooperation among countries working in the same line that greater productivity will be attained.

AN EVALUATION OF ENTREPRENEURSHIP  
DEVELOPMENT PROGRAMS IN THE PHILIPPINES\*

INTRODUCTION

Economic development has traditionally been treated as primarily contingent on the availability of land, labor and capital. Over the years, however, experience has shown that inducement of economic growth cannot be fully achieved with these economic resources alone. It has been shown that progress is basically the result of human effort and "it takes human agents to mobilize capital, to exploit natural resources, to create markets, and to carry on trade." (Harbison & Myers, 1964).

Consequently, recent economic theories have laid stress on the human input, on the roles of the individual by whose talent and ability, labor, land and capital are converted into profitable undertakings. Recent economic studies contend that this individual, the entrepreneur, is a key variable to development.

In particular, developing countries strive to achieve rapid economic expansion by giving focus to the development of the entrepreneur, specifically the small scale entrepreneur.

In the Philippines, development planners have acknowledged the important role of the entrepreneur in the growth process. Various programs are being established and implemented to increase entrepreneurial supply. A government agency, the Commission on Small and Medium Industries (CSMI), has been created purposely to develop and execute an effective and comprehensive national program to encourage, assist and develop the small industry entrepreneur, especially in the rural areas.

THE ENTREPRENEURSHIP DEVELOPMENT PROGRAM (EDP)

One of the more recent programs envisioned to contribute to the national development goals in the Entrepreneurship Development Program launched jointly by the UP Institute for Small Scale Industries (UP ISSI) and the National Manpower and Youth Council (NMYC) in late 1973, The training program was developed using the experiences of other countries, as well as the contention of economic scholars and theories, as the basis.

The joint program has sought to stimulate entrepreneurial activities in the rural areas as an approach to growth and specifically aimed at

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promoting the development of small enterprises outside the urban places, generating self-employment for potential entrepreneurs and provide employment to others, encouraging the processing of local materials into finished or semi-finished goods and promoting the use of modern technology in small scale manufacturing to generate higher productivity.

The EDP consists of three phases, to wit: a) the identification of potential entrepreneurs through a recruitment and selection scheme, b) training of selected participants to increase their motivation and equip them with skills in management, feasibility study and project preparation, as well as to familiarize them with the business environment, and c) post-training assistance.

#### EDP EVALUATION RESEARCH

The EDP Evaluation Research is a study which aims to analyze the impact of the thirteen (13) EDP courses which were conducted nationwide in 1973 and in 1974-1975. This study is divided into two phases. The first phase (which comprises this report) covered the first six EDP's and included 106 participants. It was started in June, 1976 and completed in April, 1977. The second phase, which covers the remaining seven programs, just wound up the interview portion and has started with coding.

That rationale behind the study is to determine the validity of the EDP model in enhancing the development of the entrepreneur through training. The evaluation research puts to test the hypothesis that the participants of the program are benefited in terms of: increased economic returns for the business, expanded and/or added products and/or services of the business, additional businesses established and for those who were not in business before, stimulated interest in business.

To attain the objectives of the study, teams of interviewers were fielded in the Greater Manila Area, Butuan, Tacloban, Legaspi and Cebu, the sites of the first six (6) EDP's.

As a means for measuring the degree of the impact of the EDP, especially on their stimulated interest in business, the EDP graduates were grouped into:

- Group A: those who were engaged in businesses prior to EDP;
- Group B: those who were not engaged in business prior to EDP;
- Group C:

To maximize the certainty that the observed changes in the pre and post-training activities, performance of business operations and attitudes of the graduates are attributable solely to the training program, the use of a control group was employed. This group consisted of entrepreneurs who did not undergo EDP training.

## RESEARCH FINDINGS

### A. Profile of Respondents

#### 1. Personal

At the time of training, the participants were young with a collective mean age of 38 years.

Comparing the two groups of respondents who were involved in business at the time of the EDP, Group A is younger than Group C by 5.8 years.

Graduates who were not involved in business at the time of the EDP (Group B) set up their own businesses after the training at a mean age of 36.3 years. This mean is one year less than the mean age at which C respondents got involved in business. This fact implies that the EDP training was able to achieve one of its objectives--that of hastening the start of businesses in the countryside.

Most respondents are college degree holders and many are presently earning graduate credits. Most of them took up disciplines in the exact sciences which are not related to business management.

This finding indicates a need for a less formal business training like the EDP. It can be said further that the continued conduct of the EDP training in the rural areas can bridge the gap between the academic preparation and the actual vocation or calling of both the practising and prospective entrepreneurs.

#### 2. Business

Several findings suggest that the graduates have greater entrepreneurial drive compared to C respondents.

Many graduates who come from families which are engaged in business also manage other businesses aside from the family enterprise. Some set up their own establishments while others joined their friends in business.

In contrast, those C respondents who belong to families which are engaged in business merely joined the family enterprise and did not set up their own businesses.

There are significantly more A and B respondents than C respondents who are running two or more businesses.

There are more A and B respondents than C respondents who cited service and achievement as motives for going into business. According to McClelland (1967) these motives are the main motivating force of an entrepreneur.

The graduates of the program do not believe that their motives for going into business have been satisfied while C respondents do. The literature on entrepreneurship contends that a continuing dissatisfaction or a constant striving to better what has been already achieved is characteristic of entrepreneurs.

Of the graduates who founded their own establishments, 78% came from families who are not in business. It would be logical to infer from this that although the family's involvement in business can influence the vocation of the person, it is not a prerequisite for a businessman to come from such family. The person is thus open to other motivating factors and if provided such factors, interest in business can be stimulated. That the EDP has stimulated such interest in 66% of the graduates who were not in business before EDP therefore suggests that the EDP training can achieve that objective.

Graduates showed entrepreneurial tendency at an earlier age (as shown by the mean age at which they got involved in business) compared to control respondents.

Stimulating exposures or events whereby an individual learns new ideas or skills which may be profitable in business were cited by most respondents in all groups as the events which motivated them to go into business.

In Group A, most of the respondents mentioned their exposure to the particular industry where they engaged in as a factor which motivated them to engage in business. If such an experience can be meaningful to an individual, training programs like the EDP should include components wherein the participants will be oriented in the industries of interest to them. This portion might be in the form of plant visits, in-plant exercises and perhaps even business apprenticeship.

This stimulating effect of EDP may be clearly seen from the finding that in Group B, the most mentioned stimulating exposure was to the EDP. The program was able to motivate these respondents to leave their employers and start businesses of their own.

A few B respondents mentioned other training programs they attended as the events/situations (factors) which motivated them to go into business. This and the above-mentioned finding indicate that an appropriate training program is enough to motivate individuals to go into business.

On the other hand, the C respondents mentioned that the various events which led them to learn business skills as those that stimulated them to go into business. It is significant to note that none of them attributed their stimulation to go into business to any of the business management seminars that 18% of them attended.

Most of the businesses in all groups were started with no borrowings from outside sources. This finding merits further study in view of the fact that financing institutions seem to be getting only a few borrowers despite their advertisements of generous lending programs.

It is interesting to note, however, that obtaining financial assistance was most frequently cited among the problems and difficulties faced by the respondents in running their businesses. They specified the difficulties that arise from red tape, stiff collateral requirements and delays in the release of loans. These difficulties could very well be among the reasons why entrepreneurs have not availed of the assistance offered by financing institutions.

Practically all respondents reported to have been stimulated to go into business after the EDP training. Stimulated interest in business may be seen objectively from the finding that the graduates who are engaged in business increased from 65% prior to EDP to 88% after the EDP. This means that 66% of those who were not engaged in business at the time of participation in the EDP have now set up their own enterprises or joined others in business.

#### D. Economic Value

The EDP produced an impact on the graduates in terms of the four entrepreneurial traits introduced to them for internalization during the Motivation Training. They were found to be innovative, to have engaged the services of experts whom they preferred to be neither friends nor relatives, to have set attainable goals for themselves, to be moderate risk-takers, and to have made positive use of feedback. The percentage of C respondents who showed similar entrepreneurial tendencies were found to be less than the percentage of graduates who did. However, this point is subject to further investigation since the sample was too small to allow for reliable generalization at this stage.

#### C. Motivation Value

The fact that the graduates do actually make use of skills learned from the EDP training implies therefore that EDP is able to cater to the needs of the entrepreneurs in the rural areas.

Seventy-four percent of the A and 72% of the B graduates actually made use of management skills acquired from the EDP training.

The positive changes in ratings were attributed by the A and B respondents to formal training courses attended. Sixty-seven percent specified EDP as the contributory factor to their upgraded skills.

The EDP training produced an impact on the graduates in terms of skills development. It could be clearly observed that the concentration of responses on one and two, more than sufficient and sufficient, respectively for EDP graduates, is greater than that for C respondents.

#### B. Technical Value

Stimulated interest in business may also be seen from the finding that the number of businesses owned and managed by the graduates increased from 76 to 136, registering a 79% rate of increase over a 3-year period. In contrast, the number of businesses in C group which did not take the EDP did not increase as much as that in A and B. The rate for Group C was 24% lower than the rate for Groups A and B.

In addition, stimulated interest in business is also shown in the intentions of the graduates who are presently in business to put up additional businesses, most of which are now on activation and organizational stage.

Several findings show that the EDP was able to make positive contributions to the national economy.

The number of businesses being managed by the graduates increased from 76 before EDP to 136 after the EDP. The rate of increase was 79%.

Sixty-nine percent of graduates who are presently engaged in business still have plans for putting up additional businesses. Fifty-one percent of these plans are on project activation and organization stage; 23% on project preparation and feasibility analysis and 17% are on the stage of project identification and conceptualization.

Most of the businesses set up after the EDP were manufacturing and agricultural concerns. This approximates the attainment of one objective for launching the EDP, that is, to bring economic benefits to the community not only in terms of employment generated by new enterprises but also in terms of usage of indigenous local raw materials.

At least thirty-nine percent of the businesses established before the EDP reported to have expanded their operations in terms of additional products/services and in terms of additional changes to machinery and equipment.

The businesses being run by the graduates have been able to generate employment for at least 3,577 individuals.

Comparing the pre-and post-training employment size of the businesses established before EDP, the number of hired workers was seen to increase by at least 80% (in the case of Butuan) to at most 384% (in the case of Cebu).

It is worth noting that the increases in the number of hired workers among businesses in Cebu, Legaspi and Tacloban were higher than the rate of increase in the Greater Manila Area. This is in line with the program's objective of providing employment opportunities in the rural areas.

## RECOMMENDATIONS

The study resulted to findings and conclusions which indicate the positive effect of the EDP training. At the same time, the study revealed some areas of concern that have to be considered in designing and implementing development programs. Thus, to the policy-makers, notably the sponsoring agencies of the EDP, the following recommendations are submitted:

### A. On the EDP in general

1. The conduct of the EDP should be continued.

Several findings justify this particular recommendation, the most significant of which are the following:

- a) Indirectly, the EDP fosters proliferation of business enterprises. This is the inference that can be gathered from the finding that the graduates of EDP are "early starters" in business, i.e., they were quite young when they ventured into business.
- b) The EDP generated the establishment of more manufacturing and agricultural business ventures thereby providing more employment opportunities.
- c) As can be seen from their educational background, many EDP participants are wanting in formal education in management. Thus, to meet the resulting need for managerial skills and capabilities, the importance of less formal (non-degree) training programs like the EDP cannot be underestimated.
- d) The study revealed that a training program like the EDP is enough to motivate individuals to get involved in business. It may be inferred that as a result of their participation in the EDP where they were taught the rudiments of running an enterprise, as well as assured of assistance available to them as graduates of the program, the respondents gained self-confidence that emboldened them to venture into business.

2. In selecting the venues for the training program, the environmental factors and the area's readiness for development in terms of infrastructure and public utilities available, should be considered.

Of particular interest in this regard is the finding of the study that in Butuan City where infrastructure and public utilities like water supply and electricity are inadequate, the percentage in increase in workers employed or businesses added was the lowest among all the places where the EDP was conducted.

3. Individuals who do not come from families with business background but nevertheless possess entrepreneurial potentials should be given priority as recipients of development inputs, starting from the eligibility to participate in training programs for entrepreneurs up to the availment of assistance programs after training.

4. An effective information drive or campaign regarding entrepreneurial development programs should be instituted. Information on financing facilities and other support services such as consultancy (industrial extension services) that are available to small entrepreneurs should be widely disseminated. This will greatly help the promotions and recruitment strategies for programs like the EDP, as well as redound to an effective application of schemes for selecting and identifying entrepreneurs.

5. More businesses are anticipated to be organized as a result of development programs like the EDP. Concomittantly, the need for skilled manpower would increase. This therefore calls for the provision of more vocational and manpower training on the part of the National Manpower and Youth Council.

6. On the part of the financing institutions, particularly the Development Bank of the Philippines (DBP), it is recommended that, as much as possible, preferential attention be given to viable projects submitted for financing by graduates of EDP.

7. The EDP calls for a general reorientation in terms of its relevance and adaptability in the particular areas or regions where it is conducted.

The designer of the program - the University of the Philippines Institute for Small Scale Industries (UP ISSI) should adopt a more practical approach to training, and thus enable the program participants to learn in concrete rather than vicarious terms. This can be made possible by

including plant/factory visits in the training program, drawing up of an investment profile of each area where the training is to be conducted and focussing the lectures (especially when citing case examples) at the industries indigenous to that particular area of region where the training program is taking place.

B. On the Training course in particular

1. The time duration of the EDP course should be lengthened. A significant number of respondents commented that the time is too limited to allow for extensive and intelligent discussions of the topics presented in the entire course.

2. There should be more detailed and extensive sessions on the area of production management, specifically on the following topics: "Time and Motion Study", "PERT/CPM", "Plant Location and Layout", and "Quality Control". Modern accounting systems and problem-analysis should also be expounded on.

ENTREPRENEURSHIP IN THE PHILIPPINE SETTING\*

Industrialization, as a national policy, is a relatively new phenomenon in the Philippines, having commenced only after the post-war period when the needs of a growing and developing economy began to be felt more keenly. Prior to these years, the climate was hardly conducive to an aggressive promotion of entrepreneurial activity, and to a large extent, this may be traced to the country's historical experience during the colonial era.

Historical Perspective

The period under Spanish rule, for instance, was characterized by a laggard, subsistence-level economy which gave little impetus to the establishment of industrial enterprises. Spain had no industrial tradition to impart to its colony, and consequently, the condition of the era provided no incentive for the growth of any large scale manufacturing activity. The application of scarce capital resources was likewise a negative factor, because while Filipinos and Spaniards invested their wealth in houses and real estates, Chinese merchants concentrated on merchandising and trade operations.

The entry of the American influence failed to improve the situation, and an economy which thrived principally on agriculture continued to prevail. Abetted by the tax-free importation of American products, little encouragement was given to the setting up of a manufacturing sector and apart from the slow advance of the agricultural and a few extractive industries such as mining and logging, no substantial departure from conditions during the Hispanic era could be perceived. It was therefore only during the Commonwealth period, with the prospect of independence and the projected loss of favorable terms of trade with the American market that plans for a vigorous industrialization scheme, with government corporations as the principal catalysts, were finally drawn up. Even these efforts, however, suffered a setback with the outbreak of the Pacific War, and it was thus after liberation that a group of Filipino entrepreneurs began to emerge. Deprived for three years of consumer goods to which they had been long accustomed and realizing the technological limitations which had inhibited the development of a manufacturing sector, this enterprising group launched the country's first real step toward industrialization.

\* Country Paper presented by Mr. Cesar N. Sarino, EDF President, during the Technonet Asia Workshop on Technology and the Entrepreneur in Kuala Lumpur, Malaysia, May 25-30, 1977.

From this initial attempt on, to the era of controls and import-substitution and up to the present, industrialization has remained at the forefront of government policy. Today, the eagerness with which this task has been pursued finds evidence in many facets of economic activity --- the encouragement of investments, the promotion of ~~the~~ export trade, the drive toward fuller integration. A system of incentives has been devised to induce the entry into large-scale, capital-intensive enterprises which cater to the requirements of both the domestic and the overseas markets. Yet, perhaps ironically enough, there is a segment which has not kept pace with the rapid growth and expansion of the industrial sector but which, because of its very nature, should be given considerable priority in the country's drive toward economic improvement --- the small and medium business enterprises.

#### The Role of Small and Medium Entrepreneurs

Undeniably, the contribution of small and medium business enterprises in the industrial progress, particularly of developing economies, can hardly be underscored. Labor intensiveness, their paramount characteristic, provides the much-needed employment opportunities for the rural and semi-urban population which pervades the typical Third World economy. At the same time, their fairly low investment requirements decrease the pressure on a developing country's limited funds resources. They are further characterized by a high utilization of indigenous raw materials, thereby fully maximizing the nation's natural wealth. Finally, their potentials for attracting foreign markets and generating foreign exchange earnings place them in a position to directly influence the trend and direction of economic growth.

In spite of all these possibilities, however, the contribution of small scale industries to national output has been far from impressive. In a survey of manufacturing establishments, for instance, only 17 per cent of the total employment were engaged in small-scale enterprises notwithstanding the fact that these enterprises accounted for 80 per cent of all which were surveyed. The gross output of these small establishments, moreover, amounted to only five per cent of the total production - a clear indication that such units have been outpaced by the larger enterprises in terms of overall contribution to the economy.

The inability of the small-scale industry sector to meet expectations is closely allied to a number of reasons, the most pervasive of which is perhaps the Filipino's basic orientation toward an agricultural economy. As explained at

the start, the Filipino's historical experience gave him little opportunity to go beyond the idyllic, rural type of life that essentially made for a subsistence-level economy, and only lately, by force of circumstance, was he impelled to adjust to the needs of a modern, technologically advanced environment. Several other factors too, account for the slow development of small scale industries. The persistence of the family-run enterprise, the absence of production planning and control, the resistance against the institution of systems and administrative procedures, the failure to manage funds in an orderly way, the reliance on intuition and gut-feel, the lack of access to the latest technical information --- all these are symptoms of the malaise that afflict virtually every entrepreneur who attempts a small-scale business venture.

On top of these difficulties, there is the all too obvious problem of credit availability, a factor which has significantly stunted the growth of small enterprises and even prevented the emergence of new ones. On the other hand, where credit is available, the paperwork and other requirements involved in approving the loans considerably delay the actual disbursement of funds, thus rendering the whole financial scheme untenable. Government programs designed to assist entrepreneurs all too often suffer from a chronic lack of manpower to effectively implement such programs. Limited incentives are given to enterprising inventors, thus restraining the development of an entrepreneurial spirit among small businessmen. Finally, the technology that is transferred from foreign countries is rarely suited to the particular needs and limitations of domestic small-scale ventures. The resulting effect: entrepreneurs who have not developed interest in and appreciation for technology.

It is fortunate that even at this late stage, both the government and the private sectors have given due recognition to the potential contributions of small-scale industries in the overall thrust toward industrialization and economic development.

#### Increasing Government Involvement

In response to the need for easier availment of credit, the government created the Medium- and Small-Scale Industries Coordinated Action Program (MASICAP) and the Small Business Advisory Center (SBAC) under the Department of Industry to extend assistance to project proponents. The MASICAP aids entrepreneurs in the preparation of feasibility studies, thus paving the way for easier access to sources of financing. The SBACs function primarily as diagnosticians, analyzing the problems faced by small business, giving direct advisory assistance or referring these problems to a pool of specialists.

On some occasions, however, access to credit facilities is limited by the imposition of strict collateral requirements with which small businessmen find problems in complying. Hence, the financial program for these types of enterprises received a big boost with the creation of the Industrial and Guarantee Loan Fund (IGLF), which grants, with easy collateral agreements, working capital loans up to ₱500,000. In addition, the Development Bank of the Philippines (DBP) has evolved a loan program which maintains a scheme characterized by liberalized collateral and equity requirements. The Central Bank, for its part, has redirected credit facilities to rural areas in order to encourage productive activity among the small entrepreneurs. It has also allowed the rediscounting and production credits with maturity periods of up to 180 days and 360 days to small- and medium-sized economic units.

Another step which the government has undertaken in its effort to provide the impetus for the creation of entrepreneurial units is the regional delineation of the country, a measure which enables assistance and growth to be localized and distributed on the basis of the particular needs and resources of the area. The identification of growth centers in each region serves to de-emphasize the concentration of industrial activity in the Manila area. The infrastructure programs of the government are also geared towards the objective of encouraging the growth of small business in the non-urban areas. In line with this, the government has also identified strategic sites in the different regions for its industrial estate program. The principal goal of this program is to diffuse the productive capacity away from the traditional population centers and exploit the comparative advantages of other regions. Such industrial estates are envisioned to be the eventual locations of small- and medium-scale industries.

Another approach that has been adopted is the encouragement of sub-contracting arrangements with large-scale manufacturers or with trading firms which could guarantee the absorption of a great bulk of the small firms' production. The objective is to evolve a system where small enterprises not only acquire new skills and access to assistance, but also gain a sure market for their output. The Progressive Car Manufacturing Program, for instance, is designed to stimulate manufacturing activity in small enterprises, thus enabling independent component producers to supply the local content requirements of car assemblers. Other programs similar in nature are the Progressive Truck Manufacturing Program and the Progressive Motorcycle Manufacturing Program.

Also lending support to all these government efforts is the University of the Philippines Institute of Small-Scale Industries (UPISSI). Specifically, UPISSI aims to train

competent people to enable them to assist existing small-scale industries and to develop and encourage the establishment of new ones; provide consultancy and extension services to small entrepreneurs; and conduct research on plant operations and disseminate information on the results of these research projects.

### Efforts of the Private Sector

On the part of the private sector, efforts towards extending assistance to small-scale industries have so far been limited, but these have been gradually expanding in response to the growing needs of these enterprises. An increasing number of commercial banks and financing institutions are currently involved in programs through which small-sized firms can avail of funds for their investment requirements.

Also, responding to this challenge, the Economic Development Foundation (EDF), in cooperation with Technonet Asia, has launched the Technical Information and Extension Services (TIES). The objectives of this effort are to upgrade the operations of small-scale industries by providing vital technical information brought down to the level of entrepreneurs and to provide extension assistance to improve operational efficiency and productivity. Based on the results of the program, EDF plans to develop a comprehensive manual on extension services which, hopefully, would serve as a useful tool, not only for local extension engineers, but also for extension workers of the other participating organizations of Technonet Asia.

### Conclusion

It can therefore be seen that slowly, the potentials of small-scale enterprises are being harnessed toward the attainment of the country's industrial development targets. Efforts are being extended, not only in the expansion of large scale manufacturing facilities, but also in the development of small- and medium-sized business projects which can serve as ancilliary links to these large firms. More important perhaps is the increasing awareness of the role of the small entrepreneur, not only as a supportive structure to industry, but also as the very backbone of economic growth and advancement.

(13)

IDENTIFICATION AND DEVELOPMENT OF  
SMALL INDUSTRIES

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L.F. Yapa, I.S.B., Sri Lanka

Introduction

Employment opportunities in agriculture are limited. However more and more jobs have to be provided to educated youth. The annual addition to the workforce in Sri Lanka is estimated to be 120,000 persons out of whom nearly 20,000 do not find employment. The number of unregistered unemployed persons and the number of under-employed are not known. The identification and development of projects therefore take national priority. The limited availability of capital, the limited market, scarcity of raw material, dearth of skills, low level of technology and the abundance of idle labour - all make it imperative that we identify and develop not large-scale industries but small scale industries which not only create employment opportunities, but also disperse development into the rural areas, so that the trend towards large scale migration of youth into towns will be reversed.

The IIB has therefore, given top priority for identification and development of small scale industries in its programme. The IIB has tried to systematise the procedure of identification and development of small scale industries. It consists of the following stages:

- (a) identification of projects
- (b) pre-feasibility study
- (c) detailed feasibility study
- (d) promotion of entrepreneurship

Identification of projects:

Several methods of identification could be adopted.

contd...2

Some of the following have been used by the personnel of the IDB:

- 5 (1) Listing of the resources of the country or a region and comparison with a list of products: The resources should be listed according to the various types - Mineral, Marine, Forest, Agricultural, Animal and other. This has proved to be a difficult task. No up-to-date or comprehensive list of resources is available. An attempt has therefore been made to prepare a list with data that has been compiled by various departments and organisations of the Government. But this would not yield a comprehensive list. The better alternative is to carry out a survey of resources.

One need not however wait till comprehensive lists of resources are prepared. A working list based on the knowledge of the officers concerned and the information already available could be prepared. This could be compared with a list of products (like the U.N. Standard Industrial Classification) that can be turned out of various materials. Along with these two lists, a list of saturated fields could also be used for elimination of such industries. Quite a number of industries can be identified in this manner.

- (ii) Study of the skills : this is another pre-requisite for the identification of projects, for it will indicate the skills which are untapped or under-utilised
- (iii) Examination of the requirements and end products of existing large scale industries, business enterprises, agricultural enterprises, Government Departments, Corporations, local government bodies etc: it will be seen that some of the materials required by these organisations could be produced by small industrialists and their end products too could be further processed by them.
- (iv) Checking demand : the goods and services which are in demand by the population of the region should of course be estimated to check on items that are not

- (v) Examination of the imports and exports :  
 The practice has been to prepare lists of products that are imported and of products that are exported, based on published data like the Reports of the Central Bank and the Returns of the Customs Department. One should of course be aware of the details of the products that are already being manufactured locally and the available skills and resources in order to identify opportunities for import substitution. An examination of the exports also would reveal products (which are now exported in a raw or semi-processed form) that could be further processed.
- (vi) Scrutiny of programmes and publication of local and foreign research organisations : a number of new lines of production could be identified by following the research findings of the CISIR, the N.K.D.C. of India, T.P.I. of the U.K. etc.
- (vii) Perusal of earlier attempts at identification of projects and of reports that have been shelved : a great deal of work had been done earlier, not only by the IBB, but also by other Government and Private Sector organisations in identifying projects. These projects could be re-examined.
- (viii) Reading journals of local and international business organisations and discussions with businessmen and industrialists : this is something that personnel engaged in identification of industries should not overlook.

A form that could be used for identification of projects in this manner is at annexure I.

Resort to these methods will yield two types of projects namely existing lines of production which could be expanded and entirely new lines of production. The former are referred to by the IBB as Model Projects and the latter as Development Projects. The latter are so named because of the fact that the technologies and machinery involved and the products themselves have to be developed anew before their technical and commercial feasibility is demonstrated.

Model projects are those whose technologies are known, the technology is available locally and there is a ready market for the products.

#### Pre-feasibility Study

Not all projects that are identified can be established as going concerns. A cursory study of the local and foreign market, resources available and the technologies involved have to be made in order to decide whether to go ahead with a given project or not. The most important aspect of this study is the market. The local demand, imports, the local production and of any proposals to manufacture the identified products have to be studied. If there is no local market or if the local market is insignificant, the export opportunities with prices and specifications have to be examined. If the product does not have a local or a foreign market, no further study of that particular line of production is necessary and it can be dropped. Also, if the study of the technologies involved reveal that they are too sophisticated or capital intensive, any particular line could be dropped. Then the raw material position should be studied to check the availability, locations, specifications and present use with surpluses or deficits. If there is a deficit, there is no need to study a particular project any further.

#### Detailed feasibility study

The pre-study would have eliminated a number of projects. Detailed study of the rest of the projects could then be undertaken. This involves the study of the market, the process of production, the required machinery, their capacities, capital costs, operational costs, sales and returns. In the case of development projects, the technologies have to be obtained either from local research institutions or from foreign organisations. This is the most difficult and time consuming task of all. Most often technologies available from foreign countries are too sophisticated or transfer of labour intensive technologies involve a great deal of correspondence, negotiations and foreign exchange. Sometimes, it is not forthcoming at all. In the case of Model Projects, although the technologies may be available locally much

## Promotion of Entrepreneurship

Who is an entrepreneur? He can be described as "a person who is enterprising, energetic, resourceful, alert to new opportunities, able to adapt to changing conditions and one who is willing to assume risks."

A more accurate description is ..... an entrepreneur is a person who is capable of identifying a project, implementing it and making it yield an adequate return against all odds. In Sri Lanka, entrepreneurs have sprung up from among merchants, workers employed in factories, artisans, land owners, importers and exporters, Government servants, professionals and qualified technical personnel. However, there is a severe dearth of entrepreneurs in Sri Lanka. The majority of the educated youth of the country seek white collar jobs in public and private sector organisations and establishments. The number seeking self employment is very small. However entrepreneurs are not born; however they could be made in the quantity and quality required by the country.

The various stages in the promotion of entrepreneurship are as follows;

- (a) Attraction of entrepreneurs
- (b) Selection of entrepreneurs
- (c) Provision of extension services
- (d) Follow up

### Attraction of Entrepreneurs:

Entrepreneurs can be made by resorting to a number of methods namely; (a) creation of an atmosphere conducive to the development of entrepreneurship (b) Making available profitable projects to prospective entrepreneurs (c) Active extension work involving the

provision of information, training, technical, managerial and marketing advice and assistance and the provision of credit.

One of the ingredients of an atmosphere conducive to the development of entrepreneurship is the prevalent attitude towards industry and towards entrepreneurs. It must be clearly understood by the people that industries are required not only to provide employment, but also to sustain high standard of living and that entrepreneurs are necessary in order to create industries required for the well being of a country. Society should also be achievement oriented in order to sustain a number of successful industrialists; they should not accept that their present lot cannot be improved. Such attitudes could best be developed by education.

Besides these intangibles, tangibles such as policies and incentives available for industry also contribute to the creation of an atmosphere conducive to the development of entrepreneurship. Annexure II is a note on the policies and incentives that are available to industrialists in Sri Lanka at present. In granting incentives to entrepreneurs, it is most important to see that these incentives are not nullified by other regulations and procedures governing industry, therefore, all incentives, regulations and procedures pertaining to industry should be prepared by one agency to achieve the goal of attracting entrepreneurs.

If a country therefore decides to promote entrepreneurship by offering incentives, the next step is to make available a set of projects which will pay an adequate return to the entrepreneur. At present, the National Savings Bank pays 7.2% interest on savings accounts, 7.5% on fixed deposits and 11% for saving certificates. Private finance companies pay more. Therefore, the return on investment on an industrial project should necessarily be more than 12%.

#### Training

countries like the U.K. and U.S.A. have programmes such as the "Young Enterprise", "Young Achievement", in order to catch them young and train them in the dynamics of entrepreneurship, such as identification of projects, financial management, personnel management, accountancy, and marketing. This is a short cut to development of entrepreneurship that less developed countries can adopt. At annexure III is a description of the training programmes undertaken by various organisations in Sri Lanka. It is evident that the Government of Sri Lanka is making a very strong effort to impart the skills that are required by an entrepreneur through the schools and technical institutes and organisations. A feature that is conspicuous by its absence is a co-ordination of the efforts of these organisations. Certainly, a co-ordinated programme can yield better results much faster. For instance, if the trainees of the Technical Institutes, National Apprenticeship Board and the Labour Department are provided with projects and the necessary assistance many more industrial projects would be set up. At present, there is no follow up after the training period.

#### Selection of Entrepreneurs:

Once a portfolio of profitable projects is prepared, they should be made known to prospective entrepreneurs. This could be done through the public media such as the press and radio or by actual scouting for entrepreneurs in the field. A fact that should be remembered in this connection is that it is the innovator in society who would be ready to experiment and go ahead with the project while the others wait cautiously to see what happens. If the innovator succeeds, the rest follow suit. Therefore, it is the innovators who should be picked up for development into entrepreneurs. They are usually found among the classes of people mentioned earlier such as merchants.

An interesting scheme has been developed in India to identify, select and develop entrepreneurs. It is known as the Incentive Development Campaign.

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It consists of the following steps;

- (a) selection of an area,
- (b) carrying out a techno-economic survey,
- (c) preparation of a report indicating industrial and other possibilities,
- (d) preparation of feasibility reports and selection of the ones which give a satisfactory return.
- (e) holding a meeting of prospective entrepreneurs and all concerned in approving the projects and assisting them in the provision of sites, machinery, raw-materials, finance and technical, managerial and marketing advice. The purpose of this meeting is to pick entrepreneurs, persuade them to select and go ahead with the implementation of a project, as well as to arrange for the approval of the projects and to provide necessary assistance.

The advantage of this procedure is that delay between the selection of a project and its implementation is cut down to the minimum. However, it is quite apparent that much preparation and co-ordination of the work of various organisations concerned is required for holding a meeting to offer projects to entrepreneurs.

#### Provision of Extension Services:

Offering a profitable project alone is not sufficient to set up a new entrepreneur in industry. It is important for extension officers concerned to sit down with the entrepreneur, plan a programme of implementation as well as to make arrangements to obtain the assistance that he needs to set up a project successfully. If a check-list were prepared, the officer concerned may find that the entrepreneur needs a wide range of assistance. He may have to intercede on behalf of the entrepreneur to get the project approved without delay. He may need finance to purchase a site, put up buildings and obtain machinery and equipment and raw materials.

He may then require technical assistance in the fabrication and installation of machinery and equipment. He may also have to be assisted in getting his products tested. He may not know how to select and train his workers, while he may also be ignorant of marketing his products. It is here that a well conceived programme of extension services will be of immense benefit to entrepreneurs. Countries like India and Japan, have made much headway in assisting entrepreneurs. Sri Lanka too has made a fair amount of progress in this direction due to the activities of the Industrial Development Board. At annexure IV is a list of services made available to entrepreneurs by the I.D.B. It is very important to make available to entrepreneurs a complete package of assistance, through a well co-ordinated set of institutions.

The role of information in entrepreneurship development should not be overlooked. Entrepreneurs need all types of information at every stage from the selection of a project up to commissioning. Information required by an industrialist is of two kinds (a) General information pertaining to policies, incentives, approval procedures, assistance schemes, resources, markets etc. (b) Specialised information pertaining to processes, machinery and equipment, product designs, specifications of products etc. This information should be made available at the proper time he needs it and in a form that is easily understood by the entrepreneurs. This is a task for an extension agency which will act as the channel of communication between the sources of information and the entrepreneurs. The agency supplying information should also check back whether the information supplied is useful and relevant, if not the entrepreneur should be supplied with more information to suit his requirements.

Information supplied in this manner can be of immense benefit, specially in helping small entrepreneurs to set up their projects on their own without dependence on Government Officers.

#### Follow-up

Once an entrepreneur is persuaded to set up a project, consistent follow up attention is necessary to enable him to solve problems that may crop up from time to time as well as to give him moral support. If the project has been planned methodically, follow up becomes so much easier. Without this attention, the entrepreneur may give up the project when faced with difficulties.

#### Conclusion:

The essence of establishing industries consists of identification and selection of profit yielding projects, persuading entrepreneurs to adopt them and nursing the project until the entrepreneurs can go ahead on his own without outside help.

This is the challenge that has to be met by those who are engaged in the promotion and development of industries to solve the country's problems such as unemployment and unbalanced growth.

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INDUSTRIAL PROFILE

(.....region)

1. RESOURCESa) Raw Materials

Type of Resource	Location	Extent	Specifications	Present Pattern of utilization			Industrial Possibilities
				Annual Availability	Present Utilization	Surplus	
				U*Q*V*	Q V	Q V	
MINERAL MARINE FOREST ANIMAL AGRO. Plantation High-land Low-land Waste Materials OTHER AGRI. POSSIBILITIES							

b) Skills

Skill	Location	No. of Persons	Products	Industrial Possibilities

2. PRESENT INDUSTRIAL PATTERN (Large Scale & Small Scale)

Products	No. of Units	Total Capacity		Production 1976		Industrial Possibilities
		Unit	Q V	Q	V	

\*U - Unit of Measurement

\*Q.- Quantity

\*V - Value

3. ANCILLARY ITEMS

Industry	location	Item	Speci- fica- tions	Qty. Req'd. per year		Price	Pre- sent sup- ply	Deficit	Indus- trial p ssibili
				U	Q				

4. DEMAND FOR FOOD, CLOTHING, SHELTER ETC.

Item	Speci- fica- tions	Qty. in demand	Qty. Supplied	Price	Deficit	Industrial Possibilities

5. INVESTMENT POSSIBILITIES (Summary)

Project	Location
1. Raw Material Based	
2. Ancillary Based	
3. Demand Based	

.....  
Date

.....  
Name

.....  
Signature

Govt. Policies and Incentives

The Government encourages the setting up of industries which possess the following characteristics :

- (a) Local raw material based; (b) Labour intensive; (c) Import substituting; (d) Export oriented; (e) Local machinery using; (f) Capable of being set up outside the capital.

The incentives which are offered to industries are aimed at achieving these policy objectives. The incentives that are available at present to manufacturing establishments are as follows :

- (i) Investment Relief:- Relief from approved investment plan: companies which are established after 1st April 1975 and which are set up in accordance with an investment plan approved by the Govt. are entitled to a deduction of either the amount of the investment or 10% of the taxable income for that year, whichever is lower.
- (ii) Relief for obtaining foreign exchange:- companies that do not draw on foreign exchange reserves of the country but bring in foreign exchange for manufacture after 1st April 1975 will be entitled to a deduction of either the amount of the foreign exchange earned or 20% of the income tax attributable to the income of the concern for that year.
- (iii) Relief for increasing or creating employment:- (a) businesses set up prior to January 1st, 1976 and which provide for an increase in the labour force over the total number of persons employed during the previous year will be entitled to a deduction of the tax payable upto 20%; (b) business set up after January 1st, 1976 which employ a labour force of at least 50 persons will be entitled to a deduction of 20% of the tax payable.
- (iv) Relief for increasing exports and production:- industrial establishments that increase production and exports are entitled to a deduction of 20% of the tax payable.
- (v) Relief for shares in foreign exchange earning projects:- individuals and companies that purchase shares after April 1st, 1975 in approved Limited Liability Companies which are capable of earning foreign exchange for the country are entitled to a deduction of the full amount of the investment or 1/5th of the assessable income.
- (vi) Deduction of promotional expenses:- the full cost of advertising an export product outside Sri Lanka, expenditure incurred on R & D into an article exported and expenses incurred in travelling outside Sri Lanka for promoting exports could be deducted in arriving at the export profits of an industrial establishment

- (vii) Capital Allowances :- industries are entitled to a lump sum depreciation allowance ranging from 33 1/3% of the cost of buildings to 80% of the cost of short lived equipment acquired after April 1st 1957.
- (viii) Development Rebates :- industrial establishments are entitled to a development rebate of 20% for new plant and machinery. If the undertaking is approved by the Government this rises to 40%.
- (2) Foreign Exchange Entitlement Certificates :- all forms of non traditional products are eligible for a premium of 65% of the f.o.b. value of such exports.
- (3) Convertible Rupee Accounts :- all industrial exports which are earning foreign exchange are eligible for a bonus of 5% of the f.o.b. value.
- (4) Customs Duty Rebate Scheme :- custom duties levied on inputs for the manufacture of about 300 export products are refunded.
- (5) Import Restrictions :- import protection is provided for import substitution products which satisfy specified standards.

Training and Development

The Department of Census and Statistics reports that in 1974 the number of registered unemployed was 506,000 out of which nearly 24.1% were those who have passed the G.C.E. (Ordinary) Level Examination. Hitherto, the G.C.E. (Ordinary) Level Examination has prepared students for white collar jobs. As it is increasingly difficult to provide white collar jobs, the Government has instituted far reaching reforms of the system of education. The emphasis is now on the provision of the type of training that is required for the development of the economy.

The training scheme now in force are as follows :

Ministry of Education:I. Project Work in Schools:\*

"Project Work" is actually a continuation of the programme of vocational studies which commence in Grade VI. Among the many aims of this programme, the most important are :

- (a) "To enable pupils to recognise and accept the role they can play within an organisation;
- (b) To enable pupils to develop organisational skills and ~~conscience~~ <sup>CONSCIOUS</sup> ~~conscience~~ seeking skills; ;
- (c) To make pupils understand the development/administrative structure of a region with a view to identifying the nature of the development services provided and to learning how to utilise it;
- (d) To enable pupils to learn techniques of assessing manpower and feasibility resources of the community/neighbourhood with a view to utilising them when required;
- (e) To enable pupils to acquire competency in the manual and social skills under operational conditions of a community based activity;
- (f) To enable pupils to gain self-confidence through successful involvement in project work."

Some of the project areas are as follows :

- (a) "Rural Development Projects;
- (b) Location of natural resources - surveying & assessment;
- (c) Undertaking feasibility studies on behalf of the DDCC Projects of the Ministry of Planning & Economic Affairs;

\* Project Work Hand Book. Curriculum Development Centre.

(d) Improvement of techniques used in local industries;

(e) Undertaking market surveys, demographic sample surveys etc. for agencies such as the Central Bank & Department of Census."

The students are required to spend about 200 hours during the two years, in Grades 10 & 11 that they are preparing for the H.N.C.E. At the end of this period the teachers concerned make an evaluation of the various projects completed by the pupils. This includes an assessment of the performance of each pupil. The number of pupils in Grade 10 every year is over 25,000 so that it is felt that this scheme will have a great impact on the development of entrepreneurship.

## II. Technical Training :

The Ministry of Education has so far established 7 Polytechnical Institutes and Junior Technical Institutes. The Polytechnical Institutes conduct a four year course for the Higher National Diploma in Commerce, Accountancy, Valuation etc. and a two-year National Diploma Course in Technology, Business, Agriculture etc.

Junior Technical Institutes prepare students for the National Certificate in Business, Agriculture, Civil/Electrical/Mechanical, Engineering, Electronics etc. They also conduct a course for the National Certificate in Crafts in association with the National Apprenticeship Board. The duration of these two courses is two years. However, it is three years for part-time students.

The output of trainees under this programme is about 2000 - 3000 persons per year.

The Technical Institutes also conduct a School Leavers' Programme which provides training in about 200 fields. In addition, the Technical Institutes provide facilities to students in Grade 11 preparing for the HNCE Examination subjects such as Technology and Science.

### The National Apprenticeship Board:

The N.A.B. conducts courses ranging from 1-4 years in more than 85 different trades and skills in association with the Junior Technical Institutes and other Government and private organisations and enterprises. The output of tradesmen is about 1000 per year.

### The Department of Labour:\*

The Department of Labour has 3 Vocational Training Centres and 109 Mobile Training Centres which run courses in more than 20 different trades and skills. The duration of the course is 1 year and the annual output of trainees is about 2,200. This number would be doubled in 1977.

\* The Vocational Training Programme of the Dept. of Labour, October 1975.

The National Institute of Management :

The N.I.M. provides a higher level of training to executives in the public and private sectors.

Industrial Development Board :

Other Institutions:

~~2b-a~~ The Institute of Worker Education of the University of Sri Lanka has recently started a four year course in such subjects as Technology and Management for workers. The Department of Small Industries trains craftsmen in their Pottery , Coir, Handloom and Handicraft Centres scattered throughout the Island and in their Design Centre. The only private organisation in this field is the Sarvodaya Movement of Sri Lanka. It trains youths selected from the villages in such trades as Batik printing, Blacksmithy, Machine Shop practice, carpentry etc.

AREAS OF ACTIVITY OF THE IDB <sup>©</sup>

The main areas of activity of the Divisions of the Board are set out below:

PLANNING DIVISION:

- \* Preparation of the IDB Programme within the framework of the National Plan.
- \* Identification of new industries for feasibility study with a view to implementation.
- \* Collection and compilation of basic economic data for the planning and programming of the small-scale industry sector.
- \* In-depth studies of identified areas of industry with a view to formulating specific proposals in regard to technology, quality, diversification of production, marketing etc.
- \* Progress control of IDB Projects schemes and services.

EXTENSION SERVICES DIVISION:

- \* Technical consultancy services in respect of studies undertaken by the Planning Division for identification of new industries and implementation.
- \* Technical consultancy services to small scale industry in regard to machinery and process technology, product improvement and diversification.
- \* Assistance to small-scale industry in the areas of credit and finance, procurement of raw materials, machinery and spares.
- \* Specialised consultancy services in the areas of management and finance such as general and personnel management, costing, accounts etc
- \* Co-ordination of training programmes for small-scale industry.
- \* Civil engineering consultancy services including preparations of designs and estimates for small-scale industrial units.
- \* Consultancy services to small-scale industry in industrial engineering and product design.
- \* Implementation of the credit scheme for small-scale industry.
- \* Preparation of technical reports in respect of applications received from industrialists for approval of the Ministry of Industries and Scientific Affairs.

ENGINEERING DIVISION:

- \* Engineering consultancy services in respect of studies undertaken by the Planning Division for identification of new industries and implementation.
- \* Preparation of engineering designs, specifications and estimates.
- \* Development, adaptation and manufacture or the organisation for the local manufacture of machinery for small-scale industry.
- \* Manufacture of components and machinery spare parts for the private industry sector and public sector organisations in its workshop and foundry.

BORON RUBBERWOOD DIVISION

- \* Study and research to further the scope of the utility value of Boron treated rubber wood.
- \* Organising the collection of rubber logs, sawing and boron treatment of the rubber wood.
- \* Sale of Boron treated rubber wood furniture such as school furniture, office furniture, house furniture. (Inquiries from - Manager, Boron Rubberwood Division, No. 110, Sir James Peiris Mawatha, Colombo 2.)

REGIONAL OFFICES

The Regional Offices of the Board, co-ordinate and channel the facilities and services of the Divisions of the Board to the small-scale industry sector at the regional level. The technical staff attached to these offices help industrialists with their technical problems on the spot and in cases where advice and assistance of a specialised nature is required, such cases are referred to the respective Divisions at Head Office which will provide the required assistance, where necessary with the assistance of other public and private specialised organisations.

These offices in addition render to small industrialists such assistance as preparation of project reports, guidance in the approval of industrial units, liaison work with local public and private organisations for the procurement of raw material requirements etc.

- \* Implementation of skills training programmes organised by the Extension Services Division for the small-scale industry sector, training of special and trade apprentices of the National Apprenticeship Board.

INDUSTRIAL ESTATES DIVISION:

- \* Establishment and development of industrial estates
- \* Management and administration of the estates
- \* Special studies on development of industrial estates

MARKETING DIVISION:

- \* Advisory services in marketing to small-scale industry on products, quality and design, pricing, packaging and market trends etc. and offer of services through the Board's Marketing Centre.
- \* Special studies in marketing for purposes of identifying the nature of markets for particular areas of industry both locally and abroad, with a view to offering new industrial possibilities to the small-scale industry.
- \* Implementation of the IDB/People's Bank Marketing Credit Scheme under which the small-scale industrialists can obtain on definite orders, a loan/advance not exceeding Rs. 25,000/- at any one time for the sole purpose of meeting specific orders for the supply of manufacture without insistence on security.
- \* Assistance to small-scale industry in export marketing.

DOCUMENTATION & PUBLICATION DIVISION:

- \* The acquisition of books, periodicals and reports on different fields of industry for reference by the small-scale industry sector and managerial and technical personnel engaged in industry.
- \* The acquisition and dissemination of information on current developments and on matters of interest locally and abroad to the small-scale industry sector through its Industry Information Service, Abstract Service, Current Awareness Service and Pamphlet Series.
- \* Dissemination of information to small-scale industry through the monthly publication 'Karmantha' carrying current information relevant to the small-scale industry sector - ranging from local industrial statistics and Ministry information, programmes of other State Sector organisations engaged in industry, market prospects for industrial manufactures, simple small-scale processes and technology, success stories of the local small-scale industrial sector and an inquiry service providing answers to problems raised by small-scale industrialists.
- \* Offset Lithographic Colour Printing including designing and layout for the small-scale industry sector and other public and private organisations, by personnel specialised in this field.

**BALANCING THE IMBALANCES CAUSED BY THE KNOWN  
FACTORS OF ENTREPRENEURIAL DEVELOPMENT**

By  
Dr M.M.P. Akhouri



BALANCING THE IMBALANCES CAUSED BY THE KNOWN  
FACTORS OF ENTREPRENEURIAL DEVELOPMENT

MMP Akhouri\*

The recent experiences from developing countries all over the world favours the hypothesis that entrepreneurship can be developed through planned efforts. It has also been realised that entrepreneurial development is needed to solve more than one problem of raising national production by producing import substitute, export and consumer goods. In developing countries the problems of unemployment, unbalanced areas of development, concentration of economic power, non-reinvestment of profit in the areas of profit generation and above all general lack of self confidence in youth are some of the equally acute problems to which the mass entrepreneurial development offers effective solution.

Recently a number of government and other agencies have involved themselves in this gigantic task of entrepreneurial promotion. To most of them, the known factor for entrepreneurial development are regarding financial and physical facilities. This includes arranging credit supplying raw materials, providing land, shed, power and water

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\*Dr. MMP Akhouri is Member Faculty, Small Industry Extension Training (SIET) Institute, Yousufguda, Hyderabad. Paper prepared for the workshop on Technology and the Entrepreneurs (ENTRTECH-I) Kuala Lumpur, 25 - 30 May, 1977.

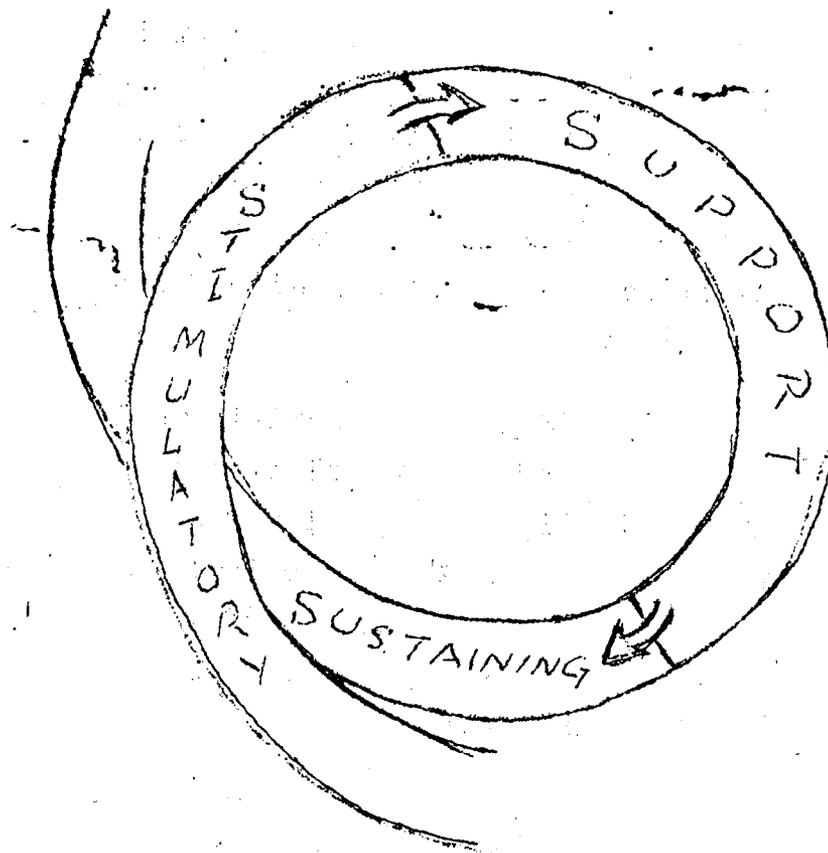
connection, issuing letter of intent, licence or registration, offering tax relief ensuing market and obtaining machinery and equipment in hire purchase. They sincerely attend to these factors. There is a basic assumption behind the strong emphasis on credit, marketing and technical know-how that there will be automatic flow of entrepreneurs if such facilities are created in the area. The experiences, however, does not uphold the assumption, often are heard heads of industries departments of different States in India saying: "We have schemes, we arrange finance, the industrial infrastructure is ready, but we do not find entrepreneurs". To offer financial support to prospective entrepreneurs, and also announced its intention to help market the products through State ordinance etc. In spite of all these, entrepreneurs could not be located for 90 per cent sheds even after one year of such efforts.

Such experiences provide adequate evidences that known factors regarding financial and physical facilities, although very crucial, but are not the only factors necessary for entrepreneurial development. There is a need to appreciate the importance of every aspect and plan efforts for all.

#### Spiral of Entrepreneurial Development:-

The whole efforts of promoting and developing entrepreneurs follow the spiral form. Each loop in the spiral consists of three categories of activities.

1. Stimulatory
2. Supportive and
3. Sustaining activities.



The STIMULATORY activities needed to help emergence of entrepreneurship in the society. This may include the planned publicity, training and education regarding entrepreneurial opportunities; identification of comparatively more potential entrepreneurs; motivating them by providing economic insight and managerial skill; making available the techno-economic and area information, evolving and publicising new products and processes; creating local agencies manned with adequately trained personnel in the field of entrepreneurial counselling and motivation and finally organizing the entrepreneurial forum.

The SUPPORT activities refers to all such activities that enable entrepreneurs to set up and run their enterprises. These may be arranging finance, granting subsidy; providing land, ~~shed~~, power and water connection; supplying scarce raw materials and issuing licence; registration or offering letter of intent; creating common facilities centres; help obtaining machinery and equipment assistance in marketing and offering management consultancy.

The SUSTAINING activities include all efforts regarding modernization; expansion and diversification; and replacement of equipments or processes. It may also include the activities released to revitalization of sick units. This group of activities, however, needed much later than the first two.

Each group of activities play complementary role to each other. In the absence of one, the other may be rendered infructuous. Incidentally, in developing countries the support activities have been over emphasized even to the extent of causing of imbalances. The recent study by Akhouri et.al. provide emperical evidences for that. The study refers to 7 States/Union Territories of India there 25 government organizations are direct or indirectly involved in entrepreneurial development. The study

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Akhouri MMT, Singh NP & Setty ED, 1977, Study of Entrepreneurial and Managerial needs of the North Eastern Region - Antecedents, Consequences and action suggested to meet the need - An Interim Report, SIET Institute, Hyderabad, India.

TABLE 7 & 8: Mapping of Organisational Functions related to Entrepreneurial Development

STIMULATORY ACTIVITIES:- 1. Entrepreneurial Education and planned publicity of Entrepreneurial opportunities; 2. Identification of potential Entrepreneurs from within; 3. Motivational and inplant training to new Entrepreneurs; 4. Help and guidance in selecting products preparing project; 5. Arranging techno-economic and feasible product reports-profiles; 6. Evolving locally suitable new products and processes; 7. Training officers and creating local agencies for Entrepreneurial counselling and promotion; 8. Organizing Entrepreneurial forums.

SUPPORT ACTIVITIES:- 1. Registration of the unit; 2. Arranging finance for working and fixed capital for plant and equipment; 3. Providing loan, shed, power, water etc.; 4. Help and guidance in selecting and obtaining plant, machinery; 5. Supplying scarce raw materials and/or import licences etc.; 6. Providing common facility centres; 7. Granting tax relief and other types of subsidy; 8. Other management consultancy including help in marketing the product.

States/ Union Territory	(Activity No. as given above)								*Total involve- ment score	(Activity No. as given above)								*Total involve- ment score	
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		
Assam	0.4	0.3	0.4	0.6	0.3	0.1	0.4	0.1	21.76	0.3	0.6	0.6	0.7	0.6	0.4	0.3	0.3	29.68	
Manipur	0.8	-	-	0.5	0.5	-	0.5	-	9.00	0.3	0.8	0.5	0.3	0.8	-	0.5	0.5	27.50	
Megha- loya	0.3	-	-	0.7	0.7	-	-	-	4.95	0.3	0.7	0.3	0.7	0.7	-	0.7	-	19.80	
Nagaland	0.7	-	-	-	0.3	-	0.3	-	3.96	0.3	0.3	0.7	0.3	0.7	-	0.3	0.3	20.79	
Tripura	0.2	-	-	0.2	0.2	-	-	-	1.80	0.2	0.4	0.2	0.4	0.8	0.2	0.2	0.4	22.40	
Arunacha Pradesh	-	-	-	-	-	-	-	-	-	1.0	1.0	1.0	-	1.0	-	-	-	16.00	
Mizoram	-	-	-	0.5	1.0	-	-	-	3.00	0.5	0.5	0.5	0.5	0.5	-	0.5	-	18.00	
Total No. of vacant cells - 33. Total:									44.53	Total No. of vacant cells - 10. Total:									151.17

\*T.E.S.= Total of all 8 columns X number of cells in the row with score. This has been calculated with 2 decimal figures in cells and not one as presented here.

refers to mapping of the functions of these organizations under two categories - Stimulatory and Support. This has been presented here in table 7 and 8. The figures in the cells represent the ratio of number of organizations involved in column activity in each State. The involvement score for each State/Union Territory, however, has been estimated by multiplying the total score with the number of activities performed. Thus if all the organizations in one State, perform all activities under either category, they will get a total score of 8 in each column and a Total Involvement Score (TSC) of  $8 \times 8$  i.e. 64. Therefore, the maximum possible TES combining all States/Union Territories for either group of activities is 448.

A visual picture of table 7 & 8 presents the contrasting emphasis in two groups of activities. In all 33 out of 56 cells under stimulatory activities are vacant as compared to 10 out of 56 under support activities. This shows most of the stimulatory activities are neglected. The total involvement score for stimulatory activities is only 44.53 as against 151.17 for support activities. The scanty stimulatory activity and greater emphasis (almost 4 times) on support activities causes some imbalances. Many cases in these States/Union Territories have been reported where in industrial estates have been constructed and all facilities like finance and power have been arranged, still the sheds have remained unoccupied for years together and ultimately respective governments have issued these sheds for starting certain units under its own corporations.

Besides showing imbalances the table-7 and 8 also highlights a lot of wastage of resources. A number of organizations duplicate or even triplicate the same activities under support category. This is a just wastage of scarce resources of developing countries and can very well be diversified to perform there stimulatory activities which are unattended.

If this is accepted a normal pattern, then there is a need to review the total activities, organize such which are lacking, reallocate them among the existing agencies or create new agencies to fill in the gap. Not the mere efforts but the balanced efforts regarding the known factors alone can ensure rapid supply of entrepreneurs.

# **FACTS ABOUT ENTREPRENEURIAL IDENTIFICATION & SELECTION**

By  
Dr M.M.P. Akhouri



## FACTS ABOUT ENTREPRENEURIAL IDENTIFICATION AND SELECTION

M.M.P. Akhouri\*

The success achieved recently by a number of countries in stimulating and developing local entrepreneurs, demolishes the contention that entrepreneur is a rare animal and an elusive character. Now, it is an accepted fact that entrepreneurship is not the exclusive property of those who are gifted with certain qualities at birth, rather it can be developed and acquired. To-day it is easier to define and refer entrepreneur as a person who undertakes to organize, manage and assume the risk of running an enterprise. Such a definition describes comprehensively the owner/manager of a small unit. Most of the developing countries have shown deep concern about the development of entrepreneurs of this definition.

Until recently, the attempt to ensure entrepreneurial supply had a primary emphasis on economic strategy. It was assumed that there would be automatic flow of entrepreneurs if the external blocks, relating to credit, marketing and technical knowhow, were minimised. The impact of strategies designed on such assumption, however, does not seem to have yielded desired results.

Incidentally, entrepreneurship has engaged the attention of sociologists, psychologists, anthropologists and economists. Sociologists analyse the characteristics of entrepreneurs in terms of caste, family, social status, value, migration, etc. Psychologists attempt to isolate them from the general population on various personality traits such as need for achievement, creativity, propensity to take risk, independence and leadership. The economists

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economists highlight the situational characteristics such as occupational background, access to capital and business and technological experiences. Generally, the economist's focus is on managerial skills which enable a person to exploit economic opportunity and obtain economic gain.

An entrepreneur has certain personality traits which influence his behaviour. He lives in a society and is obviously affected by economic opportunity and incentives. Any attempt to describe entrepreneurial characteristics against only one dimension will be a partial analysis and will not give a wholistic view.

#### Reported Characteristics

Scholars, planners and administrators have attempted to describe the characteristics of entrepreneurs. Some of them have conducted empirical study to establish entrepreneurial characteristics. Others have used planned observation, but most of them have made casual observation. Because of the different methodologies used, it is difficult to synthesize them into one profile. However, a review of such observation provides a tentative list of characteristics.

These characteristics have been reviewed below under three categories.<sup>5</sup>

- (a) Characteristics reported on the basis of empirical studies;
- (b) Characteristics mentioned on the basis of planned observation; and
- (c) Characteristics mentioned casually.

Hornaday<sup>8</sup> analysed a number of characteristics which, he felt, were significantly associated with entrepreneurs. Out of the 9 listed in Table 1, he found need for Achievement, Support, Independence and Leadership as most significant characteristics.

Table 1

Comparison between entrepreneur and general population on nine personality scales

	Gen. Pop.		Entrepreneurs		All Ent.	Gen. Pop.
	M	SD	M	SD	Diff.	
Achievement	14.4	4.80	17.3	3.89	2.9	3.40**
Autonomy	13.5	4.79	14.7	4.28	1.2	1.34
Aggression	12.5	4.74	12.5	4.48	0.0	0.00
Support	15.0	5.70	11.6	5.05	3.4	2.66**
Conformity	14.8	6.50	12.0	5.53	2.5	1.86
Recognition	11.2	5.20	10.7	4.86	0.5	0.39
Independence	16.9	7.40	21.5	6.76	4.6	2.76**
Benevolence	15.8	6.80	14.7	5.76	1.1	0.80
Leadership	16.1	7.70	19.9	7.08	3.7	2.15*

\*\*0.01 and \*0.05 for level of population.

Singh and Kiran<sup>18</sup> reported that business entrepreneurs are those having 1) high need for achievement and 2) who take high risks.

Collins and Moore<sup>6</sup> after interviewing 150 small business entrepreneurs at Michigan reported that:

- (1) most of the entrepreneurs were orphans or half-orphans i.e., with parents psychologically away or in forced separation which means symbolic or actual rejection of father;
- (2) Entrepreneurs lack social mobility drives; they do not strive for posts of authority and rewards associated with power and status;
- (3) punishing pursuits of task and choice fatigue when one job is done, they like another conquer;
- (4) Lack of problem resolution;
- (5) categorising subordinates only as good or bad;
- (6) rebellion against peers and parents. Generally strained with partners but good with those outside the business;
- (7) independence;

(8) rejection of male authority figure.... Seldom they are assured of help or looked upon as models to emulate. They viewed female as mother (good) or seductive (bad) without any intermediary conceptions.

Collins and Moore concluded that entrepreneurs can be best described as too restless too independent and too creative.

Nandy<sup>12</sup> in his study of 67 entrepreneurs and 48 non-entrepreneurs from two sub-cultures showed that need for achievement, power, efficacy, and overall modernity were positively correlated with entry into enterprise i.e., taking up an entrepreneurial role, but a factor analytically derived from a scale of entrepreneurial competence correlated with only education and overall modernity.

The sociological characteristics reported by Sharma<sup>17</sup> who surveyed the social characteristics of entrepreneurs of Gujarat, Punjab, Delhi, Andhra Pradesh, Maharashtra and Uttar Pradesh reported that more than 50 per cent entrepreneurs in India are Vaisyas, a business community. This was further supported by the fact that, out of 116 engineers trained by SISI Ludhiana, only 16 got into industries and most of them belonged to business caste and family.

The study of entrepreneurship in Madras State by Berna<sup>15</sup> in 1960, covering 52 industrial establishments, disclosed occupational and social background of the entrepreneurs as follows:

Rural artisans	...	5
Merchants and Importers	...	15
Factory workmen	...	6
Graduate engineers	...	12
Cultivators	...	4
Manufacturers	...	4
Miscellaneous	...	6

This figure also supports the supply of entrepreneurs from among those having previous business experience or <

experiences in a particular skill. Berna<sup>4</sup> concludes that more important characteristics are access to capital, besides possession of experiences of business and technical knowledge.

Analysing the background of small-industry owners from Bangalore, Venkata Rao<sup>19</sup> has reported that out of 78 entrepreneurs, 28 were formerly traders and financiers, 23 were skilled workers, 15 were former employees in private or government business, 6 graduate engineers and 6 came from miscellaneous backgrounds such as agriculture, rural artisan activities etc. Here again, the bulk of the entrepreneurs come from the trader and artisans community. He has also tried to locate the educational status of these entrepreneurs. For example, 13 had no elementary schooling, 28 had completed elementary schooling, 17 had high school education and 20 had higher technical education including 20 who had obtained degrees and diplomas.

Patel<sup>13</sup> while describing the indicators for entrepreneurship reported that in one survey 70% of the entrepreneurs were in the range of 26 to 40 years age-group. Regarding education, he also found no significant indicator because the entrepreneurs were from 5th standard to the Ph.D. level.

Christopher<sup>7b</sup> has listed 18 characteristics of entrepreneurs based on the information given by participants of the symposium, on Development of Entrepreneurial talent.

According to him, the entrepreneur:

1. Takes calculated risks;
2. Is preservant and hard working;
3. Is aspiring and not content with his gains;
4. Gets pleasure and satisfaction from challenging tasks;
5. Is willing to learn and does not suffer from complex;
6. Is dynamic and identified with creating and changing;
7. Has adaptability to changing situations;
8. Is innovative;
9. Is good salesman of idea, knows how to win friends, and influence people;
10. Has initiative and is willing to face and overcome crises;
11. Has self-confidence and will power;

12. Needs to succeed and is determined to win;
13. Has pleasing personality, is composed and tactful;
14. Likes to excel in his work;
15. Takes personal responsibility for achieving results;
16. Is person of integrity;
17. Considers times' importance; and
18. Is constantly under stress.

Christopher<sup>7</sup> on the basis of his study of 61 entrepreneurs who started small manufacturing units between 1964 and 1967 in the twin cities of Secunderabad and Hyderabad describes entrepreneurs as:

Typical entrepreneur, is younger in age having formal education, urban background, experience in industry, high scores on adoption propensity, level of aspiration and risk taking. He has further reported that on the factors like technical education, contacts with the influentials, membership in organizations and high scores on interpersonal trust and need for achievement were not found to be associated with him.

McClelland<sup>11</sup> has reported in his "Achieving Society" that entrepreneurs are characterised by: (1) unusual creativeness; (2) propensity of risk taking; and (3) strong need for achievement. He has sought to prove that high n Ach is associated with entrepreneurship. Accordingly the associates of McClelland have reported the following characteristics of a person high n Ach.

1. Likes to take personal responsibility;
2. Likes to take moderate risks;
3. Wants to know the results of his efforts;
4. Tends to persist in the face of adversity;
5. Tends to be innovative;
6. Is oriented towards the future;
7. Tends to be mobile and is not completely content;

Literature reviewed earlier presents a large number of characters, which have been enumerated in Table 2. However, all of them have not been either researched or supported by research studies.

Table 2  
Reported Characteristics of Entrepreneurs

Category	Empirically tested (those with asterisk were found statis- tically significant)	Observational
Psycholo- gical charac- teristics	n Ach* n Power* Independence* Propensity to take risk* Personal modernity* Sense of efficacy* Autonomy Aggression Conformity Recognition Benevolence Tension Innovativeness	Lack of problem resolution Rebellion Foresight Creativity Diligence Not completely content Challenging tests Willing to learn Adaptability Self-confidence and will power Determined to work Result oriented
Economic	Support* Business experiences* Occupational background	Access to capital Experience of technology* Time is important to him
Sociolo- gical	Leadership* Symbolic or actual rejection of father* Lack of social mobility drives* Caste Family background	
General	Age Education	Good salesman Pleasing personality tactful Person of integrity

Emerging Entrepreneurial Profile

High need for achievement	⊖	
High need for Power	⊖	
Independence	⊖	
Propensity to take risk	⊖	Psychological
Personal modernity	⊖	
<b>Sense of efficacy</b>	⊖	
Sense of efficacy	⊖	
Support	⊖	Economic
Business experience	⊖	
Leadership	⊖	
Symbolic or actual rejection of father	⊖	Social
Lack of social mobility drives	⊖	

### Use of Profile for Identification and Selection

Several programmes of entrepreneurial development have been tried in different parts of the country with variety of identification and selection strategies. A brief review of such strategies along with their impact will give some insight for future planning. However, in this paper I propose to limit my discussion to SIET experience alone.

The SIET Institute developed elaborate selection procedure as a part of the SIET Integrated Model for entrepreneurial development. This procedure comprises of written test and personal interview. The following weightage to different items were decided by the officer-trainees from different states at the time of formulating Action Plan for entrepreneurial development in their respective states.

#### Scoring Schedule

Written test & background data	Model-I JK, Assam Marathwada	Model II Karnataka
A. Psychological		
1. Need for achievement	10	5
2. Risk taking	5	5
3. Personal Efficacy	5	5
B. Family background	5	5
C. Social Participation and Leadership skill	5	5
D. Educational background	5	5
E. Past Experience	20	20
F. Knowledge, skill and attitude towards business	25	25
G. Efforts made so far towards starting the enterprise	20	20
	100	100

<u>Personal Interview Items</u>	<u>Score</u>
1. Eagerness for self employment	5
2. His state in the enterprise	8
3. Logic and rationality	8
4. Knowledge of proposed enterprise	5
5. Immediate possibilities of starting the enterprise	5
6. Present activities	4
7. Reaction in case of failure	10
8. Physique and general personality	5
	50

The score thus obtained by a candidate gives him rank among others in respect to entrepreneurial potentiality. But it does not have any point below which a candidate can be rejected.

This selection procedure was first adopted in the State of Jammu and Kashmir where within an year, 575 units were established by the selected candidates.

In the State of Assam this procedure was adopted in six Entrepreneurial Motivation Training Centres for selection of entrepreneurs from educated unemployed. In all 1550 completed their training. More than 30% established their units and others were reported in the process of setting up. All these within a short span of 18 months where an entrepreneur usually takes 3 1/2 to 8 1/2 months' time in growing from the stage of a trainee to that of an owner of an enterprise.<sup>1</sup>

These entrepreneurs have demonstrated some of the unique qualities. They have been very tenacious in pursuing their entrepreneurial goal inspite of many hurdles spread over a considerable period of time. They have been innovative in selecting and modeling their enterprises. Punctuality in repayment of bank dues has been taken as a challenge by them which has successfully initiated a change in the attitude of local bankers towards the so-called "roadside entrepreneurs".\*

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\*The roadside entrepreneurs because bulk of them come from educated unemployed without having capital of his own or sufficient property to offer as security.

But all these cannot be attributed to the selection procedure alone, because these acts are the cumulative outcome of selection and training both. Exclusive effect of selection has not been studied separately.

In 1975 similar selection procedure was adopted to select entrepreneurs for setting of ancillary with Karnataka State Electricity Board (KSEB). The first 16 candidates were sent for entrepreneurial training at SIET. All of them completed the 12 weeks training; and 7 of them have already been sanctioned finance. Others are still striving hard to set up their units. No case of dropout has been reported from this group, although 14 of them were engineering graduates with brilliant carrier and had good opportunity to get employment.

A contemporary programme in the State of Karnataka where some selection procedure was to be adopted but could not be executed, presents a different picture.

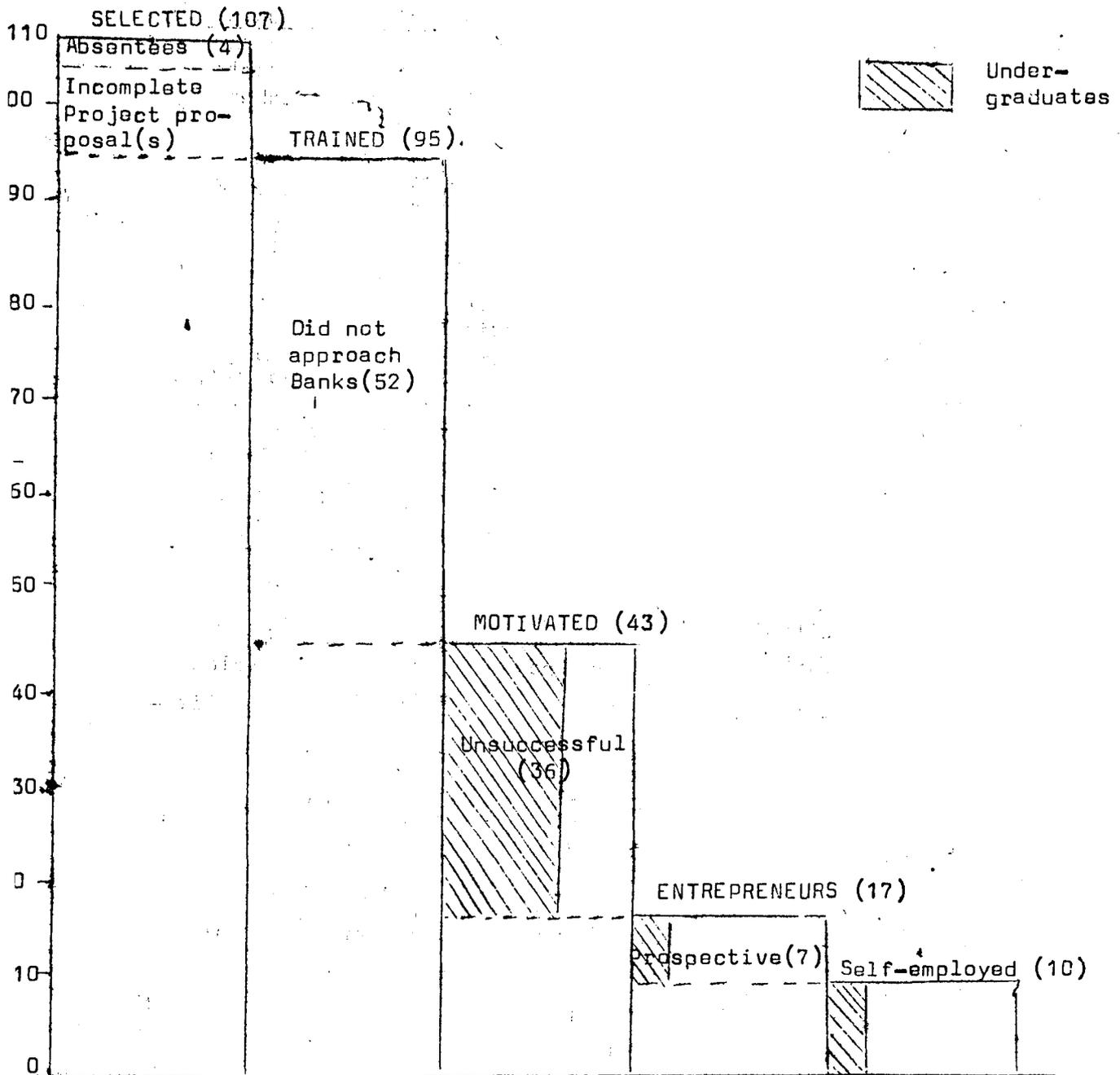
As a part of Karnataka's self-employment promotion programme 107 candidates were selected by the department official at Bidar in Feb-March 1975. Only 95 of the candidates came forward for training. After training 52 did not put even the minimal efforts required for self-employment. Out of them 9 were found to be continuing their studies, while 15 persons were either employed or looking for employment. Of the remaining 43, only 17 could start their enterprise. This poor response can be largely, if not wholly, attributed to unsatisfactory selection.<sup>14</sup>

These are some of the experiences which suggest that even the crude selection procedure having emphasis on entrepreneurial characteristics is much better than no selection or selection on purely economic background.

### Implications

In the light of the above discussion, it may be concluded that identification and selection of entrepreneurs is crucial to entrepreneurial development. But a scientific

PROGRESS OF SELF-EMPLOYMENT PROMOTION PROGRAMME  
AT BIDAR (KARNATAKA) MARCH 1976



SOURCE: C.S. Raman: Evaluation of Karnataka's Self-Employment Promotion Programme for Educated Unemployed at Bidar (1976) SIET Institute.

selection is possible only when both the executives and the researchers shoulder their responsibilities jointly.

The executives have to take the decision and carry a conviction of the scientific selection procedure. This refers to two policy implications:

1. Every programme of entrepreneurial development must give equal importance to all the three group of activities—stimulatory, supportive and sustaining. Identification and selection involves time and money. Initially it may lower down the quantum of achievement of a programme in terms of number of entrepreneurs registered. But the time and money spent on identification and selection are the real investment and whatever small target will be achieved through it; will be real achievement. It really checks the wastage by reducing high mortality and dropouts.
2. The act of identification and selection of entrepreneurs being an integration of psycho-cultural and economic exercises; demands definite training and orientation. The officers or person involved in this task should be duly oriented to the concept and methods before being put into the field. This will enhance their skill at selection and will also add conviction in the process.

The researchers in the field of entrepreneurship have greater responsibility to develop a packages of tests and procedures suitable to be adopted by the executives of entrepreneurial development programmes. This is a complex task and requires collaborative efforts by different institutions in the country.

The figure 2 on next page describes the evolutive process of entrepreneurial selection procedure.

The first stage in the process of developing entrepreneurial selection procedure requires isolating entrepreneurial behaviour. Entrepreneurs have some behaviour which distinguishes them from rest of the population. At present it is not very clear which is the behaviour unique to entrepreneurs. This is the basic question required to be answered before we proceed further to determine the characteristics of entrepreneurs.

Evolutionary Process of Entrepreneurial Selection Procedure

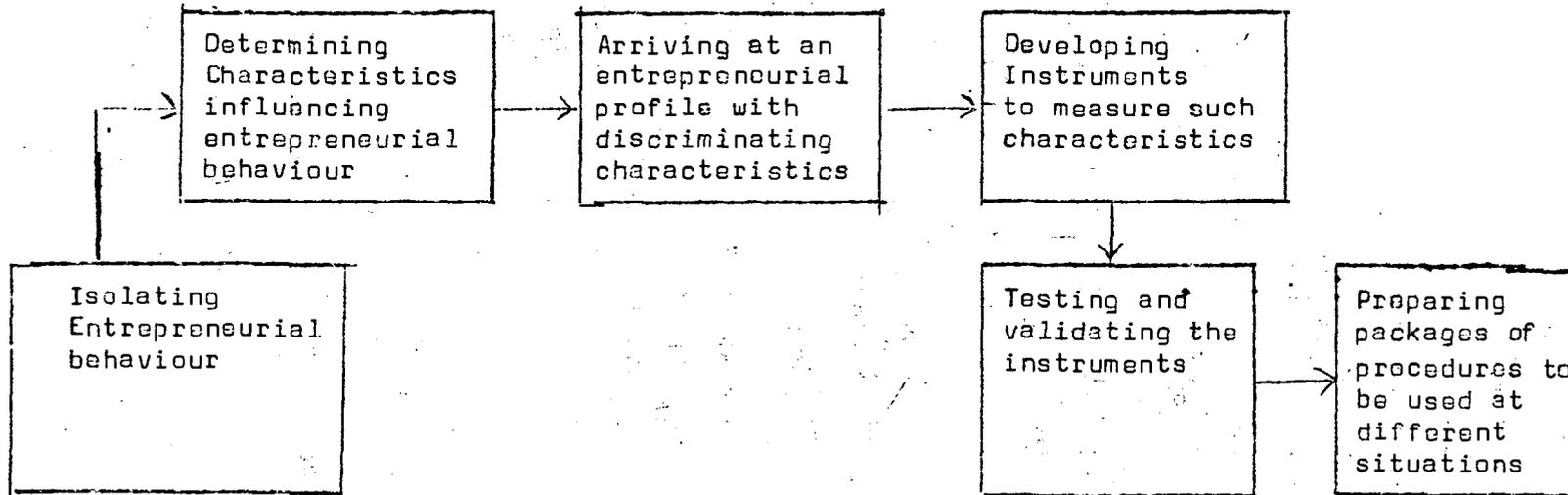


Figure 2

Once the entrepreneurial behaviour is identified, it may be possible to study the characteristics that influence the behaviour. All characteristics may not be equally affecting the behaviour and hence study of extent of their influence will also be necessary.

All the characteristics thus located may be included in profile-study with a view to develop entrepreneurial profile with most discriminating characteristics.

The fourth stage of evaluative process involves developing or adopting instruments for measuring the characteristics of the profile. Some of them may be simple, whereas others may be very time consuming. If possible, researchers may find out more than one instrument to measure same characteristic. This may help them in preparing different packages for different situations.

The fifth stage refers to standardization of the instruments under local condition.

The last phase in the process of developing selection procedure is about preparing different packages combining suitable number of instruments. This is required because all instruments may not be suitable for all situations, to all types of audience and by all levels of practitioners. Hence it is the responsibility of the research group to provide different packages of selection procedure.

The task to researchers is enormous. The developing countries with predominantly cultural and locational variations need to combine together to meet the urgency of developing standard selection procedure; let institutes and organizations from various regions collaborate and put their efforts together to achieve the noble cause of developing indigenous entrepreneurs in every part of the developing world.

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**Managing Entrepreneurial Motivation Development Programme  
Through PERT & CPM**

*M.M.P. Akhouri*

Often we hear of administrators and politicians fixing a target in thousands for providing self-employment to the unemployed. Such targets are often arbitrary, sometimes proportionate to the total number of unemployed youth in the state and at other times set as per the economic potentiality of the state. Rarely is any attempt made to fix a target based on a realistic plan for entrepreneurial development, as a result of which we often fail to achieve the target.

This poses a basic question – Can we not plan and estimate the target of a programme which, when executed in a planned manner, can achieve or even exceed the target in a stipulated period of time?

PERT & CPM is a well tried management tool which helps in planning, controlling and scheduling the activity for achieving

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the said target with given resources and time. This paper elaborates on the use of PERT & CPM for conducting the Entrepreneurial Motivation Development Programme (EMDP) in a systematic way.

### Need for a Programme

It is now recognised that entrepreneurship is not solely an inherent quality, but that it can also be developed and encouraged in a person. An entrepreneur is a person who undertakes to organise, manage and assume the risk of a business.<sup>1</sup> Entrepreneurship is needed for economic progress, for balanced regional development, for solving the problems of unemployment, for ensuring the dispersal of economic power and, finally, for harnessing the vigour and enthusiasm of young persons who, for want of creative employment, often become the victims of social maladjustment.

Unemployment is a universal problem, but is particularly acute in India. According to the live registers, there were 4.4 million job seekers in India in 1972. Of these, 2.05 million were educated unemployed. The available job opportunities cannot absorb more than 10 percent of this enormous number.

The developing countries can offer good opportunities for self-employment. Self-employment in a developing country induces a chain reaction in that the development of a particular city leads to the relative development of its suburbs and also causes the emergence of a number of growth centres which require a number of service units, trades and small businesses. Hence these growth centres in turn provide further self-employment opportunities. Thus, self-employment has a unique quality of creating further opportunities for self-employment. But successful self-employment is not a matter of chance. It requires a certain amount of psycho-cultural conditioning, managerial and economic skill, and insight.

<sup>1</sup> Copulsky, William and Hubert W. McNulty, "Entrepreneurship and Corporation", *AVACOM*, New York, -1974.

If self-employment is to solve the pressing unemployment problem, a scientifically planned programme is essential. An analysis of past programmes reveals a general lack of planning of all aspects of a programme, as indicated earlier. Each activity in a programme has its importance, sequence and significance. The omission or negligence of any activity has crippling effects on the entire programme. For example, sanction of finance by banks, when denied or delayed, has often caused the entrepreneurs to give up the idea of self-employment and seek employment. Repetition of such cases creates loss of faith in the programme and fails to attract participants in the future.

The Entrepreneurial Motivation Development Programmes, therefore, need to be planned and executed with caution and overall economy in the use of resources. This can be done successfully through the use of PERT/CPM. The administrative machinery of the government may use the latter for planning, controlling and scheduling the programme of entrepreneurial development in an area.

#### About PERT CPM

Programme Evaluation and Review Technique (PERT) is a technique of planning, scheduling and controlling a project consisting of a group of interrelated activities or jobs directed towards a common goal. To this end, PERT provides a framework which defines the jobs to be done, integrates them in a logical time sequence and, finally, affords a system of dynamic control over the progress of the plan. The merit of PERT lies in the fact that in addition to helping management achieve the objectives on time and focussing their attention on danger areas, it also enables optimum utilisation of all the resources needed for a project.

This brings us to the meaning of the term "danger areas". If we analyse any big project, we find that 10 - 20% of the activities involved control the time required for the execution of the entire project. Any delay or speeding up of these activities will affect the date of completion of the project. These activities which control the completion time of the project are

known as danger areas. PERT offers a way of identifying these activities right at the planning stage, so that management is equipped to face any difficulties at the execution stage of the project.

### Steps for PERTing a Project

Once it has been decided that a project is to be planned, scheduled and controlled with the help of PERT, certain procedures are followed for its implementation. The main steps in using the PERT system are as follows:

1. Prepare the list of individual jobs activities
2. Establish the inter-relationships between activities
3. Construct the network, and then number the elements
4. Estimate the duration of activities
5. Analyse the network
6. Revise the network
7. Establish work schedules
8. Follow up the schedule
9. Update.

Before describing how PERT can be used to plan projects through the above steps, let us understand certain basic terms and symbols used for building up networks.

### PERT Terminology

A *project* is any task which has a definable beginning and a definable end which requires the expenditure of one or more resources in each of the separate but inter-related and inter-dependent activities which must be completed to achieve the objectives for which the task was instituted. Example: Entrepreneurial development in an area.

*Activity* is any time or resource-consuming part of the project which has a definable start and finish. This is represented by an arrow in the logic diagram (network) having no vectorial significance, i.e. length and direction do not signify anything except that the tail denotes the beginning and the head the completion of the activity. Example: Selection of potential entrepreneurs.

The exceptional case is a zero time or dummy activity represented by a dotted arrow, indicating dependency of one activity on another:

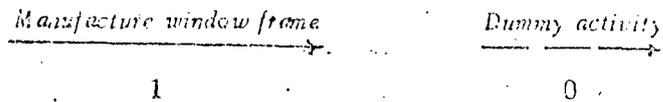


Figure 1

In the network, the description of the activity is written above the arrow, and the estimated time below, as shown in figure 1.

**Event:** The beginning and ending points of activities are called "events" and are considered instantaneous points in time. Events do not consume time or resources. An event is represented by the symbol shown in figure 2. Example: Preliminary Motivation Training started.

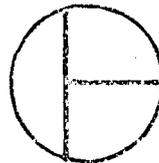


Figure 2

**Network** is a pictorial representation of a project plan, showing the inter-relationships of the various activities through symbols, as shown in figures 1 and 2.

**Analyse the project structure:** The entire project can be broken into manageable parts known as activities. The breakdown of the activities depends on the level at which the network is being prepared. It can be (i) at administrative level, for policy make-up, or (ii) at responsibility level, for exercising and follow-up at subsections of working, or (iii) at functional level for the actual execution of the activity of the project. Thus, the development of the network requires to be visualised at three different levels. It is, therefore, necessary to identify the broad activities first and later explore the details in different areas and finally small activities for

supervision and executive levels.

### PERTing EMD Project

The first and second steps in PERTing a project consist of listing all the activities needed for completing the project and establishing inter-relationships of the activities in respect to entrepreneurial development programme respectively. In this connection, a critical review of completed as well as on-going EMD projects in the country is helpful. Accordingly, a detailed review of major EMD programmes in India is given below.

### Indian Programme – a Review

#### *Intensive Campaign:*

Towards the end of the 1950s, there was a strong realisation of the need for stimulating entrepreneurship in the country for several reasons. As a result, intensive campaigns were initiated by the Government of India in 1959 to stimulate entrepreneurship on a large scale. "The *modus operandi* was to create a climate conducive to small industry development by intensive instruction and propaganda about the assistance programme".<sup>2</sup>

The campaign consisted of ten steps: meetings, demonstration, exhibition, discussion, visits, readymade schemes, printed matter, help in completing and verifying forms, setting up new industries, and industrial cooperation.

Such campaigns were launched with much fanfare. Readymade schemes were shown and letters of intent issued on the spot. The end results were far from satisfactory. "Many district collectors cautioned against such campaigns as ultimately they had to bear the burden of failure and the resultant frustration on the part of the community".<sup>3</sup>

<sup>2</sup> S.V.S. Sharma, 'Entrepreneurial Development: SIET's Experiences', SEDME Vol. 2, No. 1, June 1975.

<sup>3</sup> P.D. Malgavkar, 'Entrepreneurial Development – Review and Approach', SIET Institute, Hyderabad.

### Rural Industries Project

In 1961, the Planning Commission initiated a Rural Industries Project (RIP) based on the area development approach.

- } The project aimed at all-round development of agriculture, irrigation, transport, communication, power, social services, etc., along with industry. The long-term objective of the programme was to convert the present lop-sided, purely agricultural community into a balanced, agro-industrial one.

The EMD programme in the project area was mainly promotional in character, providing training (trade), common service, marketing and credit facilities, helping in the purchase of machinery and construction of workshop, and providing working capital and technical assistance. The programme started with a preliminary techno-economic survey, on the basis of which a programme for development was drawn up.

### Training for Young Entrepreneurs

A programme for Training Young Entrepreneurs (TYE) particularly engineers and other technically qualified persons was initiated by the Government of India in 1967-68. The training programme aimed at stimulating entrepreneurship, motivating the prospective entrepreneurs, guiding entrepreneurs in the selection of a project and preparation of a feasibility report, and assisting them in obtaining financial and other facilities for setting up the unit. The Small Industry Development Organisation (SIDO) was given the responsibility of implementing this programme. Thus, starting with stimulation of entrepreneurship, the programme gradually covered all the steps necessary to put the industrial unit on the ground, responsibility for which was taken by a single agency. TYE was taken up all over the country and training courses were started at all SISIs and other interested institutions.

While the original entrepreneurship development programme was initiated from the Centre, various States took the initiative in evolving their own entrepreneurial development programmes. In this connection, the experiments made in the States of

Gujarat, Maharashtra, Andhra Pradesh, Jammu and Kashmir are significant.

#### Gujarat Experiment

The Gujarat Entrepreneurial Development Programme was initiated by Gujarat Industrial Investment Corporation in collaboration with Gujarat State Financial Corporation, Gujarat Industrial Development Corporation, and Gujarat Small Industry Corporation. Entrepreneurs were selected on the basis of relevant experience, family background, and the projects available with them. The trainee selection was rigorous and adopted the psychological tests designed by the Behavioural Science Centre (BSC), New Delhi. Importance was given to the factor of experience rather than education or unemployment.

The selected entrepreneurs were trained in factory process, management and organisational techniques, financial accounting, cost analysis, purchase and sales technique, labour relations and labour laws, taxation laws, licensing policy, state facilities, and general knowledge.

The project did not end with the training; after training concluded, a project leader was posted especially to assist trainees in the preparation of project reports and to offer counselling in setting up the enterprise.

The main feature of the programme was its close links with the various developmental agencies, which ensured the sanction of loans, and supply of machinery and raw material. The Gujarat Project, in short, was successful but its coverage was selective and small, and resulted in supporting the already developed entrepreneurs more than the potential entrepreneurs.

#### MSSIDC

In Maharashtra, the State Small Scale Industries Development Corporation launched a well-structured programme of entrepreneurial development in poor districts. The first stage of entrepreneur selection in each district was indirect, designed to elicit local expressions of need and economic opportunity.

The process of selecting entrepreneurs included psychological testing by the BSC. Selected candidates paid a fee to attend the 2-week Entrepreneurial Development Clinic for motivational training. Each prospective entrepreneur also undertook the preparation of a project report.

Records available on candidate entrepreneurs and entrepreneurs who started new firms provide a detailed and systematic basis for eventual programme evaluation. At present, the progress of individual projects is promising but the Corporation's experience leads to the belief that the momentum developed even in the most remote district is straining the existing governmental framework of rules and procedures with regard to development in general.

#### Andhra Pradesh Crash Programme

In Andhra Pradesh, the schemes for entrepreneurial development focussed on self-employment schemes for educated unemployed. The accepted candidates were given viable schemes for self-employment, together with a guarantee of financial assistance from the selected financial institutions. This was followed by a training programme to give necessary management orientation to entrepreneurs. 'Implementation Committees' were established at different levels to help and guide participants till the units were set up and functioning. The units were generally small in size and included businesses like tailoring, laundry, cycle-rickshaw, typewriting institutes, photographic studios, etc. Besides, small scale units for the manufacture of such sophisticated items as tape-recorders, record changers, microscopes, eliminators, cylinder liners, industrial conductors, etc., were also encouraged. In the self-employment programme, the financial institutions played an important role and participated in the scrutiny of schemes.

#### SIET Integrated Model

The Small Industry Extension Training (SIET) Institute, Hyderabad combined all the dimensions of entrepreneurial development in the programme known as SIET Integrated Model for Entrepreneurial Development. This model was tried fully

the country. By and large, these emphasize one or the other aspect of the programmes described above. For example, in Karnataka the entrepreneurial development programme was initiated effectively through ancillary units. In the tribal areas of Bihar, a Christian missionary is promoting entrepreneurship among the Christian population with emphasis on direct support system.

### Basic Activity Areas

A critical review of the content of all these programmes reveals a number of important activities needed to successfully implement an entrepreneurial development programme in an area. These activities fall under five broad headings, namely:

- (a) Identification of potential entrepreneurs
- (b) Training for motivation and project identification
- (c) Localised techno-economic information
- (d) Management/Trade training and consultancy
- (e) Support systems – financial, physical and technological – for setting up and running new enterprises.

Each of these 5 aspects can be further subdivided into a number of activities, listed in Table 1. A critical analysis of these activities in terms of their sequence, duration, importance, and resource requirements is essential in formulating an effective strategy for Entrepreneurial Development Programme in an area.

### Estimated Time for Activities

The success of a project depends on how unbiased the time estimates are. When estimating the time for any activity, it should be presumed that normal resources like men and material are unlimited. Three estimates could be made: (i) most probable (ii) optimistic, and (iii) pessimistic. On the basis of the programmes reviewed, the average time for each activity is estimated and included in Table 1.

**EMD PROGRAMME FOR AN AREA**  
 A Project for Self-employment to Educated Unemployed  
 (Akhouri, 1975)

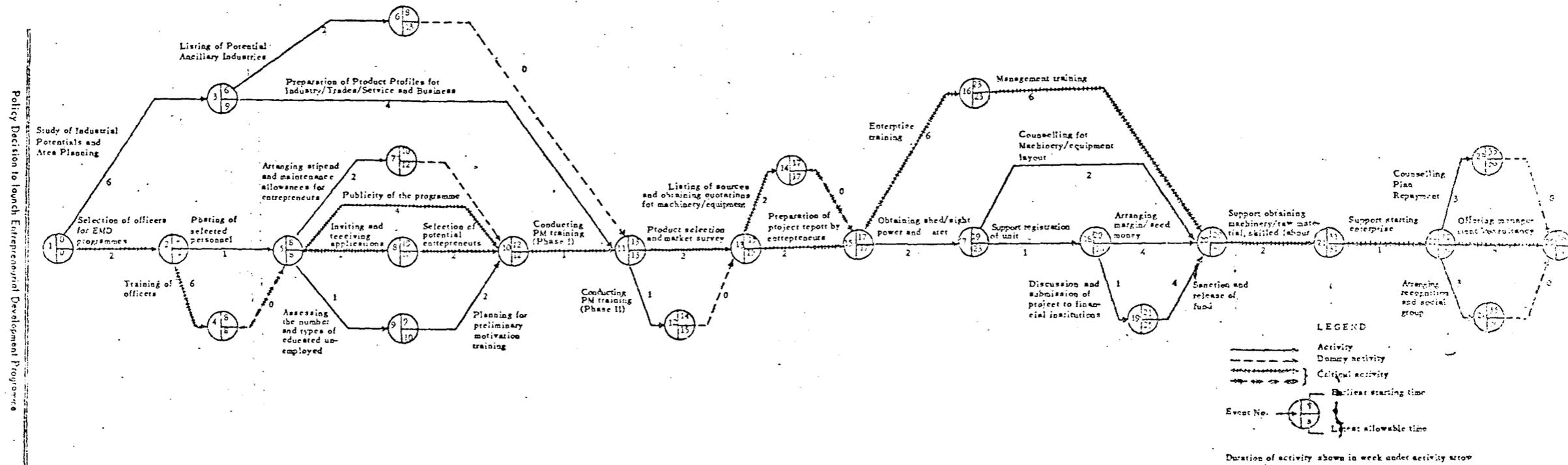


Table I: EMD Programme Activities

Sl. No.	Particulars	Code	Time in weeks	Remarks
1.	Policy decision regarding organisational set-up for EMD work	--	--	The project starts after the government decides to start EMD programme. Hence not included in network.
2.	Selection of officers/personnel for carrying out the programme	1-2	2	
3.	Training of selected officers/personnel in the methods and techniques of entrepreneurial development	2-4	6	
4.	Placement of trained officers/personnel at their establishment	2-5	1	
5.	Publicizing the programme	5-10	4	
6.	Assessing the number and types of educated unemployed in the area	5-9	1	
7.	Inviting, receiving and scrutinising applications	5-8	2	
8.	Identification/selection of relatively more potential entrepreneurs from among the applicants -- test and interview	8-10	2	
9.	Planning and arranging preliminary motivation training for selected entrepreneurs	9-10	2	
10.	Arranging stipend/maintenance allowance for selected entrepreneurs	5-7	2	
11.	Conducting preliminary motivation training (Phase-I)	10-11	2	
12.	--do-- (Phase-II)	11-12	1	

Sl. No.	Particulars	Code	Time in weeks	Remarks
13.	Tentative selection of the product and related market survey by the entrepreneurs	11-13	2	
14.	Listing of sources and obtaining quotations, for machinery/equipment by the selected entrepreneurs	13-14	2	
15.	Preparation of project report by the entrepreneurs	13-15	2	
16.	Study of industrial opportunity and area planning	1-3	6	
17.	Preparation of product profiles to potential industry/trades/services and business of the area	3-11	2	
18.	Study of potential ancillary industries of the area	3-6	2	
19.	Arranging enterprise training	15-16	6	Time for enterprise training varies, depending on the product.
20.	Arranging management training	16-20	6	
21.	Support obtaining shed/site/shop/power/water	15-17	2	
22.	Support for registration of the unit	17-18	1	
23.	Arranging seed/margin money	18-20	4	
24.	Counselling in installation of machinery and equipment and layout of the unit	17-20	2	
25.	Discussing the project in district committees, including representatives from financial institutions, and submission of the scheme to financing institutions	18-19	1	
26.	Sanction and release of finance	19-20	4	
27.	Support in purchasing/obtaining machinery/equipment, skilled labour and scarce raw materials	20-21	2	

<i>Sl. No.</i>	<i>Particulars</i>	<i>Code</i>	<i>Time in weeks</i>	<i>Remarks</i>
28.	Support in starting the enterprise actively	21-22	1	
29.	Arranging recognition to successful entrepreneurs	22-24	3	
30.	Counselling for drawing repayment	22-23	3	
31.	Counselling in record keeping, marketing and financial management (counselling)	22-25	4	
32.	Annual evaluation of the EMD Programme	--	--	This will be done at the end of every year.

#### Construction of EMD Network

The activities analysed in Table 1 have been used in the construction of a network by simple conventions such as a circle for an 'event' and an arrow for an 'activity'. An 'event' occurs when a new series of activities can be started or when a series of activities is completed. An 'event' cannot occur if even one activity remains incomplete.

The activities are those which have some time value and consume resources like men, machines, materials, etc. An activity is represented by an arrow. The tail of the arrow indicates the beginning, and the head, the end of the activity, while the direction of work is indicated by the arrow end. The length of an arrow has no relation to the activity duration. The duration of each such activity is mentioned in terms of weeks, under the arrow itself. Thus two arrows emanating from an event indicate commencement of the two separate activities (but parallel to each other) while two arrows one after the other indicate that only after completion of one activity can the other activity be started.

By a series of such combination of activities, it is possible to build a network diagram based on logical sequences. This

enables the planner and administrator to understand a project in totality

In the enclosed network, the entire EMD Programme is represented by 31 activities. The first activity refers to the policy decision by the government/organisation to launch the programme. While drawing the network, it is assumed that the decision has already been taken. Accordingly, the time consumed in reaching such a decision is not considered. Similarly, the end activity, i.e. evaluation of the programme, will be an annual feature at the end of one year, and will run concurrently. This again has not been scheduled in the network although it will be an important activity helping to make the programme a dynamic one.

#### Analysis of EMD Network

The PERT network has been drawn for the Entrepreneurial Development Project. The programme consists of three main parts: (1) preparation at the governmental/organisational level for launching the programme; (2) actual activities for entrepreneurial development; (3) general follow-up. The first phase will be a feature only of the first year. Once the officers are selected and trained they will continue in the following years. Similarly, activities related to the study of industrial potential and preparation of product profile will be done once only.

The developmental activities will recur every three months. The cycle of developing one group of entrepreneurs will be completed every three months, i.e. between event nos. 2 and 22. At this stage, the period for enterprise training will vary from a few weeks to one year for each enterprise. However, entrepreneurs undergoing long duration enterprise training are few in number. Often enterprise and management training are combined.

Arranging recognition of the new entrepreneurs and organising them as a social group, offering management consultancy, and help in planning repayment of dues form the third part, i.e. follow-up activities of EMD Programme. These activities can be carried out over a period of time a few months after the

start of the enterprise production.

### Critical Path

Critical path refers to the longest time taken by the chain of activities. Even a single day's delay in any of the critical path activities delays the project by the same amount of time. Thus, the activities on the path become critical for the timely completion of the project. In the enclosed network, the critical path has been represented by arrows with horizontal out-marks. An administrator/executive of the programme should see that activities on such critical paths are completed in the scheduled period of time. In the whole EMD programme of 31 activities, only 14 activities fall on the critical path. They must be executed with all care.

Other activities may have slight flexibility; they are termed float or slack. Their starting or completion time may be adjusted to some extent without affecting the total period of the project.

### Conclusion

The EMD Programme has three distinct phases. The first one refers to organisation of a unit/cell with trained officers and conducting industrial potential survey and area planning, including preparation of product profiles. This phase will occur only once, i.e. in the first year and, as per network, will take three months time.

The second phase includes a number of activities, ranging from identification of entrepreneurs to the setting up of enterprises by the entrepreneurs. The activities, on an average, last three months. The cycle of such developmental activities will recur with each batch of entrepreneurs. There can be two such cycles in the first year, and four in the following year.

An understanding of the content and duration of such cycles can form a more realistic basis for estimation of targets for setting up enterprises in a year in an area. For example, one

entrepreneurial development unit/cell can settle 30-40 entrepreneurs in each cycle. Since there can be two cycles in the first year and four in the following year, each unit can establish 180 - 240 entrepreneurs in two years time. With a suitable increase in the number of EMD units/cells as well as the trained officers in each unit/cell, the number of settled entrepreneurs can be increased. Such calculation also helps in estimating and fixing the target for providing self-employment to educated unemployed.

The third phase includes follow-up of the programme. It includes recognition, evaluation and modification in the future programme.

PERT thus helps provide a more realistic base to the planning of EMD Programme.

## UNKNOWN FACTORS IN ENTREPRENEURSHIP\*

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Entrepreneurship Development Programmes (EDPs) vary widely in terms of objectives, content and design from one country to another. Though economic development is the ultimate objective of all programmes, the concern in the developing countries has been towards equitable distribution of economic gains. The process of industrialization that was started after the countries attained freedom, has benefitted small groups who had the business or industrial experience, and the industrialization took place only in a few metropolitan towns. Population is increasing and consequently the workforce in the rural areas, thereby increasing the pressure on cultivable land and adversely affecting further the land - man ratio. More than 50 per cent of the workforce in the developing countries is engaged in the primary sector. Unemployment and under-employment in the urban and rural sectors among the educated and uneducated is increasing at an alarming rate. Metropolitan and urban centres are growing at the expense of the rural areas and causing social and economic problems.

To correct some of these and to broaden the entrepreneurial base, Entrepreneurial Development Programmes have been taken up in several countries. Some of the objectives of these EDPs are:

- 1 Creation of entrepreneurship among groups which are traditional ie, people living in rural areas and engaged in agriculture and allied activities (who are mostly uneducated). Creation of non-farm activities to reduce the pressure on land and support

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\* For the Workshop on "Technology and Entrepreneur (ENTRETECH I)" at Kuala Lumpur from 25 to 30 May, 1977.

the primary sector with inputs and processing facilities.

- 2 Creation of employment opportunities through self-employment programmes for the educated people living in low income urban communities and in the rural areas.
- 3 Dispersal of industries from the metropolitan to the backward areas to ensure a balanced regional growth.
- 4 To set up industries and other economic activities in the remote forest areas where tribals live. The objective is to exploit the local resources and provide a gainful self-employment opportunities to the tribals.

Policies and programmes have been developed in many countries to meet such objectives. Institutions have been set up to implement the programmes. Financial, and fiscal measures have been given to support and protect "infant industry." Extension services are being provided to encourage entrepreneurship and to give them guidance. Entrepreneurs are being trained to provide practical experience, technical skills and managerial abilities. Liberalised credit and capital subsidies are given. The industries are protected from external and from internal competition.

Creation of entrepreneurship among the traditional or the indigenous people poses many problems. Entrepreneurship is shy and scarce making selection of entrepreneurs difficult, if not impossible. The approach taken in many backward areas is that the people who respond to publicity are considered as potential entrepreneurs and helped. It is a process of

"self-selection." The support programmes offered include training, assistance for getting capital, market, machinery, industrial sheds, etc.

The extension agent is the key person, who acts as a "missionary" to help and support the entrepreneur. These entrepreneurs are also encouraged to form associations so that they can support each other.

The approach is based on the hypothesis that the risk-taking capacity of the entrepreneur and his need for achievement is low, and to overcome this the programmes are designed to reduce his risk. He is helped to change from his traditional occupation to that of an industry or a business. The unknown factors in this case are to what extent entrepreneur can survive when the support structure is removed i.e., the market is no longer protected, capital subsidy and extension services are withdrawn. Studies are needed to identify the kind of publicity campaigns and extension services most effective. The hypothesis that needs to be tested is whether a hesitant entrepreneur motivated, supported, and to some extent pushed, in the initial stages, could stabilise himself after the support is withdrawn. The analogy from physical science, viz, the force required for starting is far more than the force required for continuing whether external agencies can help him to overcome the inertia.

The number of people who are unemployed among the educated is increasing at an alarming rate. The educated youth do not want to go back to the rural areas, where agriculture is the only possible occupation, which is over-crowded. For these people, the problem is of survival and since the employment opportunities in the organized sectors are not available, they are seeking employment through self-employment programmes either by starting a small industry/business/services. In contrast to this in the developed countries, a person takes up entrepreneurship in preference to services to fulfil his high "need for achievement."

But in the developing countries where unemployment is high, the choice of employment opportunities are extremely limited. A few of the educated persons may take up the entrepreneurship in response to this need for achievement, but the majority of them take to self-employment as a means of survival (or to satisfy the "survival need"). It has been observed that though they take up self-employment by force of circumstance, they develop entrepreneurial characters, and make it a success. In the self-employment programmes, various facilities are given, training is imparted, and the projects are assessed from the point of view of viability and not security. The factors that need further investigation are:

1. How the "need for survival," which exists at the time of starting the self-employment activity, gets transformed into the "need for achievement," for growth and survival? What factors hinder and help?
2. Does general or technical education bring about a need to leave the traditional way of life and take up non-farm, non-traditional occupation? It is observed that the educated youth do not want to return to the rural areas to take up agriculture.
3. What kind of selection tests need to be used for selecting entrepreneurs from this class?
4. Can entrepreneurial skills be built in stages?
5. Is the mortality and sickness rate high in the case of industries started by educated unemployed persons as against the ones started by persons with backgrounds of industry and business?

Risk element in starting industry/business/service would widely differ, depending on the type and nature of activity. Activities like running a fair price or ration shop, or a gasoline station may have very little risk compared to an industrial activity. Even among the industries, processing an agricultural produce or starting an ancillary industry will involve less risk as compared to a consumer durable manufacture.

Among entrepreneurs the risk taking ability and the need for achievement also vary widely. Though this, to a large extent, depends on family background, is also conditioned by education, training and work experience. For entrepreneurs coming from business or industrial communities, starting another business or industry for his son is no risk. On the contrary, if the son were to take up a job in an office, he will feel the risk and the uncertainty more. The threshold risk-taking capacity for any enterprise will have the following components:

- 1 Family background, training, and work experience of the entrepreneur;
- 2 Psychological characteristics of the entrepreneur;
- 3 Type of industrial or business activity; and
- 4 Support structure available for him.

A study could be undertaken to correlate these factors with the activity he selects, and note the degree of success he has achieved. Since EDP is an on-going activity in most countries it would be a very meaningful empirical study if these factors, which can be further sub-divided, are related to the industry or its success or failure.

Such a study will be of value to the extension agency to match industry to entrepreneurs.

The unknown factors mentioned above have arisen out of a situation in which:

- a job opportunities are limited, widespread unemployment among educated and uneducated, and consequent emphasis on self-employment and entrepreneurship;
- b creating entrepreneurship in rural areas, and among indigenous and tribal people;
- c locating industries in backward and rural areas;
- d problem of matching industries with the entrepreneurs keeping in view his abilities.

The mortality and sickness in small industry seems to be increasing, with the aggressive promotional effort and liberalised credit. Attempt through research and studies is to delink these, so that the effective promotion and credit policy should increase the health and growth of small industry and not hinder it.

**PROMOTING  
ENTREPRENEURIAL  
INITIATIVE  
WITH PROVEN  
TECHNOLOGIES**

WORKSHOP ON TECHNOLOGY & ENTREPRENEUR  
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PROMOTING ENTREPRENEURIAL INITIATIVES  
WITH PROVEN TECHNOLOGIES

1. It has been recognised that entrepreneurship is shy in the developing countries, and particularly so in the rural and low income urban communities. The attempt is to create local entrepreneurship so that "the sons of the soil" can exploit the natural resources and meet the local demands. This could create employment opportunities for the abundant labour force available in these communities. The entrepreneurship attracted from outside could be either for very sophisticated industries, or for collaborating with the local entrepreneurs. The outside entrepreneurs can at best serve as "starters" in the process of industrialisation but the focus of all promotional efforts is to develop entrepreneurship among local, indigenous or tribal people, i.e., to create entrepreneurship among those who do not have this quality. Many of the developing countries have even restricted or regulated the entry of entrepreneurs from cities into tribal areas to ensure that the tribals are not exploited.

2. Entrepreneurs have been described in many different ways. Attempts have been made to evolve an entrepreneurial profile, based on research studies of entrepreneurial behaviour. However, the basic characteristic of taking calculated risk is a common factor in all such descriptions. It is this risk-bearing capacity that enables him to take up a new occupation, invest capital, venture into new markets, try new processes or technology, etc. He departs from his traditional occupation and takes up a new activity, using new tools, techniques and technology.

3. The selection tests and the training programmes developed for identifying and motivating entrepreneurs have been emphasising, among other things this characteristic viz- the ability to take calculated risk. The selection tests tend to identify and measure this characteristic in the behaviour of the person and the motivational development programmes are aimed at increasing the calculated risk-taking and need for achievement ability by creating awareness about the characteristic and profile of entrepreneur, through discussions, exercises, games, role plays, case studies, visits to factories, etc.

4. The policies and programme of the developing countries for the promotion of small industries through creation of entrepreneurship and employment opportunities recognise the low risk-taking capacity of local and/or rural entrepreneur. The programmes are designed to help him overcome this handicap by providing the necessary policy support and establishing institutions for administering the programmes. These programmes are designed to help him by reducing the risk involved in starting a new industry/business. The entrepreneur has to face risks mainly in areas of marketing, finance and technology. His ability to face competition from existing supply sources is low. To overcome this, sheltered markets are provided through import restrictions. Government purchase

programmes, quality marking schemes and opening retail outlet channels, etc. Other measures adopted are the reservation of certain areas for small industry production, restriction on expansion of certain sectors of large industry, encouraging ancillary development, etc. Tax exemptions for new industries are also given in many countries to enable them to compete with existing industries. The "infant industry" protection policy is used for stimulating entrepreneurship.

5. Raising equity or risk capital is one of the major areas of uncertainty for the new entrepreneur. Financial institutions have developed special programmes to directly participate in the risk capital or equity capital of the entrepreneur. The other forms of participation in the equity capital/risk capital are provision sheds or land in industrial estates on rental or hire-purchase basis and machinery on hire-purchase or deferred payments basis. Long term and short term loans are advanced by financial institutions and banks, on liberalised terms. The terms are liberal both from the point of view of low rate of interest and low margin. Securities are not insisted upon. The schemes are judged on viability considerations and not on security considerations.

6. Studies conducted regarding the mortality of small industries and the problems of new entrepreneurs indicate that the main risk the entrepreneur has to take is in getting the right technology, and the operating skills for managing the enterprise. The skills could be the technical skills and the management skills. While protective measures and provision of finance would be done through financial & fiscal policies and suitable administrative action, the provision of technology and the skills needs a determined promotional effort on the part of the organisation.

7. Industrial extension services are provided to help entrepreneurs in regards to technology selection and operation. Training facilities are made available for training in technical and managerial skills. The problem in the developing countries is getting the right technology and the facilities and techniques for transferring and/or adapting it.

8. Technology available to the rural entrepreneur from the developing countries is either the sophisticated technology, or the primitive or the traditional technology existing in the developing countries. Sophisticated technology is not relevant as it is expensive and has high production capacity, calling for high degree of managerial and technical skills and infrastructure facilities. Capital is scarce and expensive, and techno-managerial skills are not available. It cannot use the low cost, low skilled labour force of the developing countries and it is wasteful for the small markets. The result is that these plants tend to have low capacity utilisation coupled with breakdown and losses.

9. Traditional technology is available for certain industries which are classified as village or rural industries. These are used for processing agricultural products and for meeting some of the needs of the rural population. These technologies are cheap,

employ semi-skilled labour and do not call for infrastructure. Production productivity measured on the basis of capital or labour are low; many of them are hand operated or powered by a single animal. The artisan who uses these technologies consumes all he produces, and no surplus is generated for re-investment and the industry stagnates. Many States give subsidies with a view to sustain these technologies. These could be called the "subsistence technologies" of the developing countries. Instead of generating surplus for reinvestment they absorb surplus generated in other fields. Industrialisation through such technologies instead of helping economic development, hinders it.

10. The need in the developing countries is of a technology which is less expensive (as capital is scarce) and uses cheap labour (which is abundant). Capacity of the plant should be limited consistent with the small market and should not call for sophisticated management and technical skill on the part of the entrepreneur and should not call for infrastructure facilities unattainable in developing countries. Dependence on low power consumption and preferable human or animal power would be an added advantage. Such technologies are called Intermediate or Appropriate Technology (AT).

11. The rural entrepreneur has to be provided with an appropriate technology, and aided and assisted in adapting it. Hence the efforts in the developing countries have to be in the area of identification, development and transfer of Appropriate Technologies to reduce the entrepreneurial risk.

12. These technologies could be developed in either of the two ways - (1) Upgrading the artisan or subsistence technology existing in developing countries. This can be done either through mechanisation, improvement in design, change in material of construction, etc. (2) Simplifying the modern technology from the developed country by reducing the degree of sophistication and automation from the plant, by reducing the size of the plant, with a view to make the plant less expensive and more labour intensive. The capacity could match the small market of the developing countries.

13. The technologies which are needed for industrialising the developing countries should have the twin characteristics of capital-saving and capital-forming and should suit the local skills and markets. Such technologies are termed differently by different people, such as intermediate technology, appropriate technology, relevant technology, etc. Appropriate Technology is the most accepted term, and it connotes the appropriateness for a given situation of capital, cost, labour cost and size of the market.

14. Technologies "Appropriate" for the developing countries have to be developed in the country itself through a process of selection, upgrading or simplification as the case may be. It may be mentioned that most of the developing countries have similar problems in terms of scarcity of capital and abundance of labour. Hence the technologies developed in one country will have relevance to another and could be transferred with advantage. This is particularly true in the case of South East Asian Countries.

Following are some of the steps in developing Appropriate Technologies (AT):

15. Identification of Technologies

All industrial processes cannot be converted into Appropriate Technologies. Technology for the synthesis of Ammonia or the manufacture of basic plastics or steel, etc., cannot be simplified. But the processing of these materials into final products could be done with the help of Appropriate Technologies like making fertilizer mixtures, agricultural implements or plastic toys, etc. It is therefore necessary to identify the group of industries where ATs can be profitably used. These could be the mass consumption items like garments, soaps, utensils, furniture, etc., required by the rural population, industries for processing agricultural produce, building material, etc. A list relevant to each country could be prepared and action initiated for developing ATs.

16. Inventory of Technology

In the developing countries, the innovative entrepreneurs, the equipment designers and manufacturers and industrial research laboratories are continuously engaged in developing, adapting, and upgrading technologies. Research laboratories in different fields of technology and science are being established. These work on local resources, and local industrial problems. Technologies claimed to be suitable for developing countries are also being marketed in large numbers by machinery suppliers from the developed countries. They have published elaborate machinery guides. An industrywise inventory of all technologies available for the manufacture of the selected industry needs to be prepared. This inventory could list technologies according to the size, cost and the degree of sophistication and the source from which the technology is available. Such an inventory of technology would indicate:

- 1) Size of plants available - whether there are any gaps in the capacity range,
- 2) Degree of automation and mechanisation in plants,
- 3) The cost range, and
- 4) Requirement of infrastructure facilities such as power, water, etc.

The gaps, if any, identified in the range of sizes available could be filled by the persons engaged in technology development. Technology itself has two dimensions viz., (i) the hardware part of technology, i.e., the machinery and equipment, (ii) software part of technology are the process details, formulations, skills required for operating the machines and management skills for the industry. These should also form a part of the inventory of technology.

17. A

#### 17. Assessment of Technology

Technologies inventorised and those developed have to be continuously assessed to identify their areas of strength, such as ability to use labour instead of capital, capital-saving and capital-forming aspects, profitability, break-even point, etc. The results of these studies along with the inventory of technology could be made available to the entrepreneur to enable him to choose the right technology according to his requirement. Extension agencies can help him in this, provided he has this basic data on different technologies.

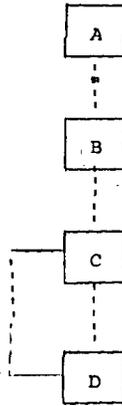
#### 18. Transfer of Technology

Entrepreneurs coming from rural areas, before accepting a technology, would like to satisfy themselves about the soundness of the technology they are buying. They would like to see the plant working and if possible, get trained in the operation of running the plant. If the technology is not suitable for their requirement, they would like to get it modified or adapt the technology to suit their needs. In short, the entrepreneurs would like to go in for a proven and tested technology so that the risk could be minimised.

19. Transfer of Technology (TT) is one of the accepted methods for providing proven technology to the entrepreneur. It minimises entrepreneur's expense on research and product development. Gestation period is short. He can get the know-how from the enterprise transferring the technology. TT can be within the same country i.e., from one region to another or between different countries. It can take place in some of the following ways:

- 1) From one firm to another firm,
- 2) From a research laboratory to an entrepreneur,
- 3) From an equipment manufacturer to an entrepreneur, and
- 4) From an extension agent to an entrepreneur.

Transfer of technology has been taking place from one firm to another in the large industry field. This transfer has been an on-going activity from a developed country to a developing country. This transfer provides the technology, research and development, training, managerial assistance, etc. It also provides for transfer in stages. It is suggested that this method of transfer process could be tried for stimulating small industry entrepreneurs. This has been tried in a small way in India and found to be quite successful. The advantage in this is that the new entrepreneur also gets an opportunity for learning, at first hand, the skills from the experienced entrepreneur. The transfer can be in stages so that the entrepreneur acquires the necessary skills gradually, e.g.:



If 'A' is the starting material, B & C being the intermediate products. The new entrepreneur can start from 'C' and come to 'D' and gradually start from 'B' and then from 'A'. The collaborating entrepreneur supplies the intermediate products. In the case of products which are manufactured from natural resources arising out of agriculture, mineral or forest, the same process of adapting technology in stages could be tried. Instead of exporting raw materials in the unprocessed stage, they can be processed into semi-finished goods and gradually the stages of processing could be increased till final products are manufactured for home or export markets.

20. Among the various methods that have been tried for transfer of technology for helping local entrepreneur, the transfer from the existing entrepreneur to the new entrepreneur is the most effective, provided the existing entrepreneur is willing. It has been found that the existing entrepreneurs are willing to share know-how in cases where the new entrepreneurs are not likely to compete with them.

Transfer of technology from one unit to another could be in any one of the following ways:

- a) transfer of information from one unit to another,
- b) the receiving entrepreneur visiting the donor entrepreneur for discussions and training,
- c) the donor entrepreneur visiting the receiving entrepreneur and helping him to establish the process,
- d) the donor entrepreneur gives, along with the process, equipment, components etc., so that the gestation period of the plant is reduced,
- e) the donor entrepreneur enters into long term agreement with the receiving entrepreneur to get continuing support.

21. It has been recognised that the most effective method of training a new entrepreneur is through in-plant training in the plant of the donor entrepreneur. The inplant training has the advantage that the new entrepreneur not only gets proven and tested technology but also learns the various aspects of management of the enterprise. He also learns as to what are the critical aspects of the process and where to get help, in the event of a crisis.

22. International co-operation in the area of providing Proven  
Technologies to new entrepreneurs

It has now been recognised that Appropriate Technologies, relevant to the entrepreneurs in the developing countries have to be located/innovated/developed in the developing countries themselves. These technologies have been developed by the efforts of the innovative entrepreneur, or by the Industrial Consultant and/or Research Organisations. The innovative entrepreneur develops a technology and uses it for his own purpose. If this technology has to be marketed, it needs to be standardised. Some countries have set-up bodies like "Invention Promotion Boards" to promote innovations and inventions and give funds to enable the innovator an inventor to commercialise his project.

23. Each country may have to develop an inventory of technologies and also a data bank for information on technologies. These data banks will facilitate the exchange of information between different countries and also locate entrepreneurs who are willing to exchange information and those who are anxious to get information. The role of the extension agency in Transfer of Technology is to catalyse the process of exchange of information between those who have invented and developed the technology and those who want the technology.

24. Some of the questions that need to be discussed are:

- a) Stimulating national efforts for innovating and developing technologies, .
- b) The need for having a national and international clearing houses on technologies,
- c) National technology transfer and international technology transfer.

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## **ABOUT SIET**

The SIET Institute was established as a Government of India Society in Hyderabad in July 1962 to assist in the promotion and modernisation of small industries by undertaking training, research and consultancy activities in the three related fields of small industry development, management and extension.

SIET's training programmes were initially designed to meet the requirements of the Small Industries Development Organisation, and the State Directorates of Industries in India. They have since been extended to include the needs of other organisations such as banks, financial corporations, associations of small industries and small industry owner-managers. Every year more than 45 regular training programmes are offered in industrial development, management and extension. SIET courses are fully residential and participatory in nature.

The SIET Institute has been growing fast. It has enlarged its training programmes to include special annual international courses for officers from Afro-Asia and its research programmes to inquire into topics related to its training commitments. In 1970, a national documentation centre was set up at SIET to cater to the information needs of small industry.

The management of the SIET is in the hands of a Governing Council appointed by the Government of India. The Chairman of the council is Mr. I.C. Puri, Development Commissioner (Small Scale Industries) and ex-officio Additional Secretary in the Department of Industrial Development, Ministry of Industry. The governing body acts through a resident Principal Director. The present Principal Director is Mr. S.V.S. Sharma.

Technology for the Developing Countries

- P. D. MALGAVKAR

The value of technology lies not only in its economic viability and its technical soundness, but in its adaptation to the local social, cultural and ecological environment.

Besides the hardware of technology (in the form of factories, machines, products or infrastructure), the software of technology (knowledge, know-how, experience, education and institutional forms) is equally important.

A system of values - cultural, social or religious - which can legitimise and encourage social and economic change is very important.

The software is much more culture specific and hence generally more difficult to transpose deliberately from one society to another.

Development is a process which consists for a large part in thousands of small improvements and modifications in software, rather than in sudden and massive leaps forward in hardware. (Public health system in Bangladesh).

Appropriate technology has to be indigenous as it is in response to socio-cultural milieu - and its main strength is it helps to build indigenous innovative capability.

Though appropriate technology is comparatively expensive, its large scale diffusion requires large sums of money and men plus ideological and political backing.

Society's innovativeness can be greatly stimulated by adverse circumstances, and notably by sudden interruptions of the inward flow of foreign aid and foreign technology - (USA - war of Independence, China - Russian aid cutoff, Nigeria - Biafra war). Appropriate technology helps turn development into an autonomous process of innovation and growth from below.

Besides its economic importance, technology has a psychological and cultural role to play.

It is not only a question of technical knowledge or money but also the psychological self-confidence it generates.

In order to function effectively, the innovative system requires much more than R & D capability - a well-managed production system and a close link with market demand. It needs an educational infrastructure to supply the qualified manpower, a credit system to finance the risk of innovation and the cost of investment, a transport and distribution network, and an intelligence or information system. Most important of all, it requires a reward system: no entrepreneur is willing to launch a new product or an agriculturist to buy a new machine or cultivate an improved variety unless he has some prospect of making a profit.

The great difficulty is to build a system to foster technological development.

The differential nature of innovation process means that those who, because of their poverty, their lack of education, their inferior social position, or their poor professional qualifications, stand the most to gain from innovation, are in fact, those who benefit from it last of all. Innovation first reaches those who are capable of paying for it and those who, for cultural or social reasons, have the greatest ability to absorb it. The objective of equality or fairness stands in opposition to the differential and inegalitarian nature of the invention process.

Innovations depend on mental ability, market demand and existing knowledge. Lack of or deficiency in any of these is an obstacle to innovation.

INNOVATION

Resistance to diffusion of per negative knowledge is caused by

- 1 - economic factors.
- 2 - psychological obstacles.
- 3 - social obstacles - inertia.
- 4 - social dislocations.
- 5 - vested interests

Technological development has to contend with cultural gap because technology inevitably develops faster than social sciences. Besides,

- 1- lag of public opinion behind the knowledge of specialists
- 2- lag of bureaucracy's actual knowledge of the social science field
- 3- the problem of university instructors getting out dated because of the fast technological development
- 4- women's problems and
- 5- problems of the third World all come in the way of technology absorption and transfer.

The A.T. developed in the informal sector by the local entrepreneurs and craftsmen have already withstood the test of practical application, unlike the technologies developed by the A.T. groups which are still in the experimental stage.

The weaker the innovative system and its components (e.g. repair services, educational level of the users, credit facilities, transportation network, etc.) the more important the reliability and economic attractiveness of the hardware. The most appropriate technology is the one which entails the least risks for its users. Poor people who already commit <sup>their</sup> time and energy <sup>cannot</sup> afford to risk large capital.

Most innovations end up in failures because of the weakness of marketing.

Technology may be classified as :-

- I Private : Whose introduction depends exclusively on the decision of the individual or family.
- II Public : Represented by large industrial firms, National institutions, (railways, etc.)
- III Community: Where community decision is involved - water supply, drainage, transport, education and production technologies of individual farmers or craftsmen, or infrastructure.

Here the innovation system functions least well because:

- 1) As there is no effective pricing mechanism, it is impossible to establish a fair balance between cost, price and value.
- 2) Detailed planning and central decision making is virtually impossible.
- 3) A relatively large part of any community technology is composed of software which is much more complex and difficult to manage and control. (Bio-gas plants).

Organizations active in the development and diffusion of new A.T.

- 1. Higher educational institutions.
- 2. Govt and private, or semi-public organizations and National Research centres.
- 3. Multinational groups and international research centres.

The major task of A. T. groups is:

1. To identify the real needs of the local community.
2. Develop or introduce technologies and organizational means which can meet these needs.
3. Contribute to initiating a process of development based on the internal innovative forces of the local community.

The need for A.T. tends to be evaluated in macro-economic terms like employment generation, import substitution, public health, rural development, or social equality, whilst the individual innovator is more concerned with profit, convenience and the practical means of survival.

Innovation does not occur simply as a result of a need, but rather in response to a demand, expressed in terms of an ability to pay a certain price for a product or service. (Bio gas plants can only be installed by rich farmers). Piped water, when local villagers continue to drink well or pond water, (Parsee wells in Bombay) because it tastes better to them.

The emphasis on the know-why rather than the know-how or the know-what would involve the user in appreciating his need and the price he will pay for the know-how and the know-what. Participation is a tool for building up self-confidence and sense of independence and control over one's future, which is one of the preconditions for innovation and for an active involvement in the innovation process.

In China, the Maoist idea that the most important resource of a nation is man, and that every peasant and every worker can and should be an inventor is participatory just as much as the Protestant ethic of USA.

### Information network.

Knowledge about modern technology tends to circulate very rapidly but the knowledge about A.T. can take years to travel a 100 miles. (Khandevari sugar to West Bengal).

The vast pool of A.T. which can be found in the informal sector lies for the most part unexploited.

Documentation service and the technology assistance service are rather expensive, the more so for a developing country as the demands made on it are small.

To be effective, an information service must collect and store a substantial proportion (50 to 80%) of all information concerning a particular technology. But in LDCs the no. of potential users of the information is small. This increases the cost. (Cost in India per technical answer is about \$ 150)

Subsidisation of information service does not seem to make it more attractive to potential customer. The real problem is in the ability of the customer to absorb and use new information. Poor farmer will not take the initiative to go to an information centre. Extension service has to convey the information to him.

### The role of the universities.

Universities have a basic commitment to modern technology which stands in opposition to the guiding philosophy of A.T. University education is expensive, concerned with modern technology, has a large element of foreign cultural import and is elitist and non-egalitarian.

A.T. has a political dimension since it is oriented primarily towards the most underprivileged groups in society.

Universities have a number of assets - intellectual, technological and organizational.

By and large, A.T., belongs to the realms of the craftsmen and village artisans rather than to the world of academic teacher and scientist. Encouraging universities to develop A.T. requires a modification of their reward and promotion system.

This would be assisted by encouraging closer contacts between the University and the rural community.

A.T. is a non-proprietary technology, available in most cases free of charge. It must be economically, socially and technically competitive.

The main purpose is not merely to develop new technologies or new products, but also to build up a capability for technological innovation.

#### Building new industries.

The individual entrepreneur is a very important link in promoting innovation.

Cooperatives demand high technology in management and administration - a high educational level and high motivation and skill. Successful cooperative comes about in a community sharing the same values and interests and which has an institutional entrepreneur and a social missionary. More than anything else, it demands involvement of the whole community.

Government agencies have a very important role to play as the indirect supporters of low cost technology.

The destruction of traditional technology is destroying both socially and morally the very class of people who have the technical and innovative ability.

If we encourage and develop a change in social values by creating psychological and cultural conditions to make industrial activities socially more acceptable and more prestigious, it in turn would motivate other potential entrepreneurs to start new firms.

A.T. has to offer a series of technical tools to reduce the inefficiencies in specific areas. Example - price collapse with agricultural surplus. To economist the solution is to impose a minimum price, to A. technologist, the solution may be to introduce a simple storage system.

Not only should A.T. be technically and economically more advantageous than both the existing traditional and modern technologies, it must also be commercially viable and capable of producing a surplus.

We have to keep in mind that developing countries would have better use for machinery that is less capital intensive, capable of providing more jobs, more versatile in its applications, more rugged and simple to handle! The technologies should be 'tailored to the adverse climate and to lower skilled labour. At the same time, the machines should be efficient enough to ensure production of (internationally) competitive goods'. Many Western answers to the technical problems do not fit the conditions and needs of developing countries.

Secondly there arise specific tasks for which the Western countries cannot offer any solutions. For instance, in India researchers in Coimbatore have developed high yield strains of sugarcane, now used by all the sugar factories in the Country. Indegenously developed methods of bamboo pulping have enabled India to meet domestically most of its demands for various kinds of paper. Technologies have been developed for producing viscose from <sup>gum tree</sup> new baby foods from the milk of buffalo cows, etc.

Small enterprises enable to overcome economic imbalances. But they need different kinds of equipment than large industries - putting new challenges before science and technology - but have no resources of their own to support the necessary R and D. Miniaturising and standardising of parts and components, would go a long way in making small industries competitive and healthy.

Criteria for competitiveness of A.T.

	Competitiveness vis-à-vis	
	Traditional tech.	Modern tech.
Engineering efficiency		
Economic viability.		
Social and cultural acceptability		

A.T. must not only be competitive today, it must have an evolutionary capacity to meet the dynamic technological development. It must build an innovative capability - or innovation system. It must not be forgotten that A.T. complements modern technology.

Policies

1. It must tap not only the existing R & D centres but also the informal sector and the industrialised countries.
2. It should be a technological federation, with initiatives and innovations coming from all levels.
3. It should not focus exclusively on the new types of hardware but also on new forms of organization, more efficient use of existing resources and faster transfer of knowledge between sectors and regions.
4. One of the basic aims of national service policies should be to encourage federalism rather than suppress it for the sake of coordination and rationalization.

A.T. with its emphasis on local initiative, diversity and self-reliance, represents a potentially destabilising political force.

5. We should identify local traditions and attempt to use them as a basis for the development of new but somewhat related technologies.
6. Every effort should be made to upgrade and develop local technological base

7. A large no. of important innovations are made by individuals with little, if any, university education. We should focus on this vast pool of formally uneducated people and school-children.
8. We should develop modified standards and specifications meeting local needs for products and services. (In China, specifications for cement, iron and electricity, etc. differs as per the ultimate use.)
9. Innovation in credit and extension to meet the new techno - entrepreneurial environment have to be fostered.
10. Testing and evaluation facilities will have to be established at A.T. centres.
11. Foreign assistance may be sought not only for a new piece of technology but to help initiate, within the receiving community, a process of innovation and self-sustaining growth.
12. Govt. policy of helping the sector in economic difficulty by subsidies, etc., discourages innovation. An alternative policy would be to encourage mobility in its fullest sense; physical movement of the people and organizations, retraining, work on the psychological processes, etc. would help accelerate technology use.
13. Besides Policy support for the transfer of technology requires Research and Development support policy, patent policy; tax policy; anti-trust policy, import-export policy; govt. purchase policy; loan policy; and regulatory policy etc.

TECHNOLOGY REQUIREMENTS STUDY - AN APPROACH

P.D. MALGAVKAR

The significant contribution of technology to the human welfare and wellbeing is now recognised all over the world. As it is, the technology contribution to the growth of the Developed Countries has been estimated to be about half the overall growth. The UNIDO, in the furtherance of its objective of raising the living standard in the Developing Countries to be in line with the Lima declaration of 1975 considers technology as one of the key areas demanding immediate attention. The Ministerial Conference of the Developing Countries held in January 1977 at Delhi went further and specified "unconventional sources of energy, electronics and drugs and pharmaceuticals as the sectors in which their technological knowledge and resources could be pooled for the mutual benefit of the Developing Countries."

Shri K D Malaviya, the then Minister for Petroleum and Chemicals, told the Commonwealth Pharmaceuticals Association that the main objective of the Govt. policy was 'to produce simple medicines' for the use of the patients in the rural areas and in the regions remote from the civilization. Shri Malaviya went on to say that the fewer the number of medicines, the better for the villager. We want to persuade him to keep himself in more hygienic conditions.' (Jan. 16, 1977).

The Indian Science Congress in its meeting in Bhubhaneshwar in the beginning of January 1977 emphasised the need for

- 1) continuously updating information on survey for natural resources - biological, mineral, land and water with the aid of the sophisticated techniques such as aerial and satellite methodology.
- 2) agricultural technology including intensified plants survey, rodent population and their control, assessment and improvement of biofertilizers utilising genetic engineering

techniques.

Research on Photosynthesis and exploitation of solar energy for increasing crop productivity.

Education of farmers on cropping patterns and management. Seed storage and post-harvest technology, biological controls, forecasting of diseases and insect pests, assessment of groundwater potential and method for its conservation and utilization, and physiology of plants growing under stress conditions such as high altitudes, arid zones, saline and marshy areas etc.

- 3) Energy resources such as coal, fuel cells for electro-chemical energy conversion and hydrogen fuel, solar energy storage, geo thermal and tidal power.
- 4) Human resources development through family planning, psychological methods for mobilising human energy, and training of mother and child for better nutritional habits, cleanliness and hygiene.

The National Committee on Science and Technology has listed areas of prime importance in its paper 'An Approach to the Science and Technology Plan' (January 1973).

In the paper on Industrial Policy we had stated that the objectives of the Industrial Policy should dovetail into overall objectives of National Policy which are 'removal of poverty and attainment of selfreliance. We then listed the activities necessary to meet the objectives as:

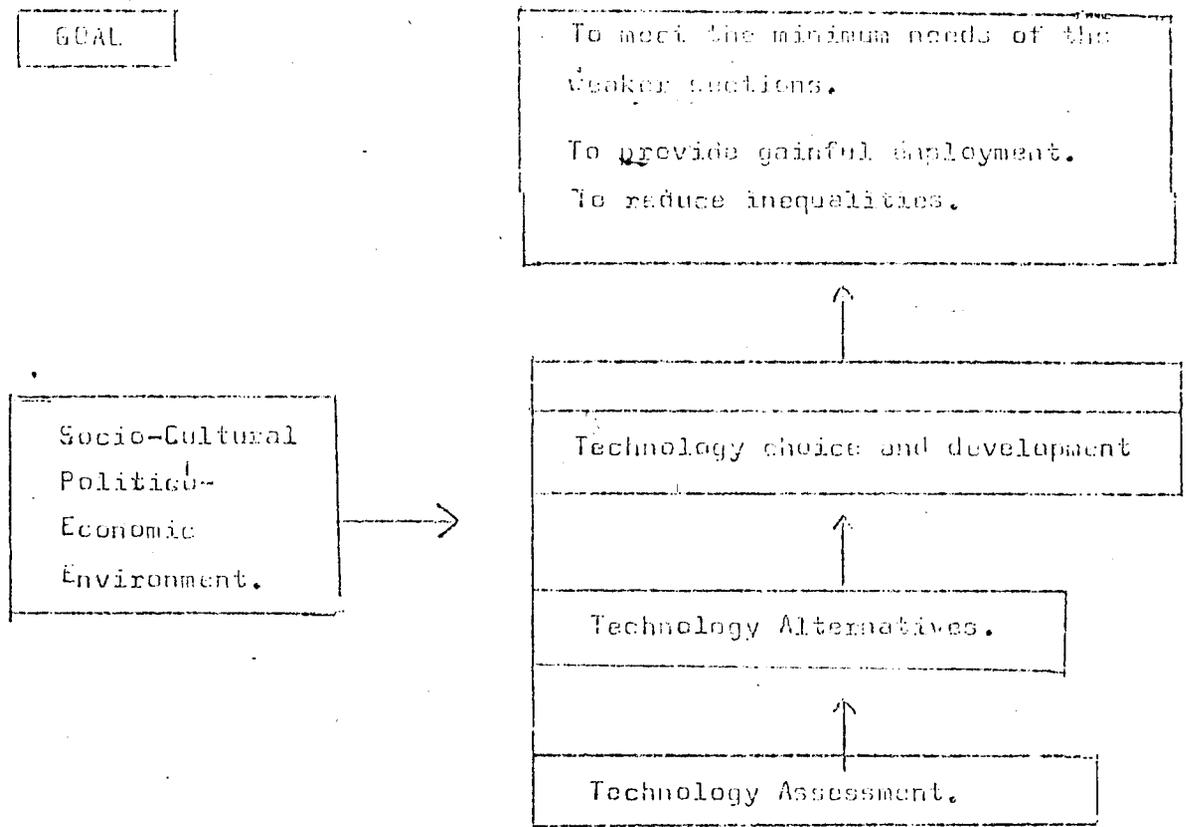
- 1) ensuring the minimum needs of the people, especially the lowest 30 per cent in consumption, health, self development (education and training) and shelter.
- 2) having production facilities and capacity in areas essential for National security and defence. so that we

are not unduly dependent on outside countries for National security.

- 3) Exporting goods and services to meet our import requirements and debt servicing charges.
- 4) having a technological research and Development base to ensure
  1. that we are on par with neighbouring countries in defence technology and production
  2. location of growth areas in which technology will have a breakthrough in the first quarter of the 21st century so that we may bridge the technological gap between us and the Developed World and be on par with them in growth industries and development.
  3. Resources optimization -human, agricultural, mineral, forests - so that the industry is geared to development of local resources for optimum value - both socially and economically.

How do we set about deciding the technological policy and priorities amidst increasing and multifarious claims of every branch of science and every sphere of activity surrounding man?

It is equally necessary to have an impact analysis of the possible positive and negative aspects of technologies which will help in developing technologies which will not be in conflict with the basic social objective of quality of life. Ordinarily, the technology choice and development should be directed to the attainment of the desired 'quality of life'. The determination of 'quality of life' is beset with many difficulties and has to satisfy not only the economists, but also the sociologists, Psychologists and so on. For us, in India, however, our greatest need is to meet the minimum needs of the weaker sections, provide gainful employment to the labour force and reduce the inequalities within the population. We may therefore represent diagrammatically our technology policy as follows:



Technology assessment itself will indicate areas which have, perforce, to be developed indigenously because the value of technology is not only in its economic viability and its technical soundness, but also its adaptation to the local, social, cultural and ecological environment

1.

Viewed in this light, the field of technology known as 'Appropriate Technology' has to be indigenously as it is in response to local technocultural milieu. The appropriate technology developed in the formal sector by the local entrepreneurs and craftsmen have already withstood the test of practical application, unlike the technologies developed by the Appropriate Technology Institutions which may still be in the experimental stage. (Bamboo casing for tube wells in Bihar, Khandasari sugarcane plants and thousands of small improvements and modifications effected by small entrepreneurs, which may be unknown to the next door neighbour, whilst knowledge about modern technology jets, electronics, space, Lasers, etc.) is broadcast all over the world very quickly. A vast pool of a.t. can be found in the informal sector, which for the most part, remains unknown to the others.

Besides, development of a.t. is comparatively inexpensive, though its diffusion requires establishment of a live data bank, and an involved extension service which appreciates that the know how has to be preceded by the 'know-why' so that a receptive climate for a.t. is created.

A.T. has another advantage in that it can spread deep into rural areas and people thus creating a psychological and cultural atmosphere receptive to technology development (Republic of China). Besides, a.t. being non-proprietary, is generally available free of charge.

A.T. seeks to

1. Identify the real needs of the local community.
2. Develop and introduce technologies and organizational means to meet these needs.
3. Contribute to initiating a process of development based on the internal innovative forces of the local community.
2. The software of technology (knowledge, know-how, experience, education, institutional and organizational processes, extension techniques, etc.) is much more culture specific and so more difficult to transpose deliberately from one country to another. This is the next area which has to be developed indigenously.
3. The unique resources or processes peculiar to our country will have to be technologically supported indigenously. The conversion of buffalo milk into cheese and baby food of bamboos into paper pulp or rayon grade pulp, ayurvedic medicines, etc. are extant examples of cases coming into this category.
4. Small enterprises need scaled down processes, more varied yet less capital-intensive machines, which are more rugged and simple to handle, tailored to the adverse climate and

to lower skilled labour - but efficient enough to produce internationally competitive goods. These machines and processes will have to be developed indogenously.

5. Coming to the modern fields of technology, we will have to develop a technology assessment checklist which should consider among others, its impact on value, environment, society, institutions, demography and economy. We will further have to consider
  1. How far the technology will be unique to our country.
  2. The technological efficiency of the process.
  3. The degree of risk involved in getting the anticipated results from it.
  4. Its economic viability.
  5. The overall monies and efforts that will be required. For instance, certain technologies require so much of effort and resources that even Developed Countries have to undertake these as multi-country projects.
  6. Socio-cultural acceptability.
  7. Time span required. For instance, fusion technology for energy generation is considered possible only by the beginning of the 21st century.

Such a checklist would help in arriving at technological priorities for the country. We would apply it to the technology projects emanating from diverse fields, such as defence, health, medicine, agriculture, industry, housing, energy, teaching, nutrition, etc., and arrive at advantageous priorities.

We may now set down the task of the technology study as:

1. Ascertain the broad socio-cultural, politico-economic environment and the likely trends in its shift.
2. Assess the state of the technology not only in the modern field, but also in the area of appropriate technology, software technology, unique resources, processes and

- environment technology, and small enterprises technology.
3. List the technological challenges likely to be confronted in the various fields.
  4. Develop a checklist to determine the technological priorities.
  5. Apply the checklist to the technological challenges to determine the technological priorities.
  6. Considering the significance of technology, suggest overall allocation to technological development.
  7. Suggest allocation of technological budget to different fields of technology keeping in mind that, left to itself, technology allocation tends to be dominated by military, atomic energy and space efforts. (Over 80% of devoted to these areas).

Such a study will not only give some guidelines for technology budgeting, allocation and priorities, but will also enable the country to decide on the areas which have got to be indigenously developed, indicate areas in which we have more than reasonable chances of bettering other countries' performance, areas which are important, but should be undertaken in collaboration with other countries because of the risks, amount, time and skills involved, areas which could be brought from other countries, and areas, which, for the time being at least, should be left alone.

THE ROLE OF INDUSTRIAL (TECHNOLOGICAL)  
INFORMATION AND EXTENSION SERVICES IN DEVELOPING  
NEW ENTREPRENEURS AND INDUSTRIES\*

by Paterno V. Vilorio  
Director - UPISSI

INTRODUCTION

It is interesting to note that at present, the technological component of most programs aimed at generating and developing entrepreneurs for small and medium industries in developing countries, have not received enough consideration, if not totally been taken for granted. Assuming that it is possible to "manufacture" an entrepreneur by developing the need for achievement in an incubated environment; without appropriate technology, the recipient will not have positive directions or even a novel "idea" from which to build an enterprise. The "product" will be a man who is endowed with drive, power and enthusiasm. But how will he make use of such attributes? Will these be his means to create? Or will he capitalize on them to destroy?

Appropriate technology can provide positive directions to which an individual (receiving the entrepreneurial seed) can channel all his physical and psychological resources, thus propelling his entrepreneurial spirit.

Obviously, technology is not the only supportive factor needed to assure entrepreneurial growth. Other factors, i.e., managerial support, marketing assistance, research components, government policies and incentives, etc. are equally important. However, discussion on these factors is beyond the scope of this article.

DEFINITIONS

To provide a common baseline information for subsequent discussions, special definitions of the following terms have been formulated:

1. Technology - In the broadest sense, it is considered to be scientific, engineering, and managerial knowledge that makes possible the conception, development, design, production and distribution of goods and services. Technological knowledge or know-how is distinguished here from the know-why type of knowledge which is the ordinary product of a basic scientific research.

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\* Paper prepared for the Workshop on Technology and the Entrepreneur (ENTRETECH I) held in Kuala Lumpur, Malaysia, from May 25-30, 1977, under the sponsorship of Technonet Asia of the IDRC.

2. Technology transfer or transfer of technology - This is an exceedingly complex involving a sensitive combination of technological, economic, social and political factors by which science and technology are diffused throughout human activity. Wherever systematic rational knowledge developed by a group or institution is embodied in a way of doing things by other institutions or groups, technology transfer occurs. This can be either transfer from the more basic scientific knowledge into technology or adaptation of an existing technology to a new use. Technology transfer differs from ordinary scientific information transferred, it must be embodied in an actual operation of some kind.
3. Information requirement - Simply, it is the need expressed by an individual, a group, or an organization for data, ideas or interpretation that are related to a specific problem.
4. Innovation - This is an idea perceived as new by an individual. It really matters little, as far as human behavior is concerned, whether or not an idea is objectively new as measured by the amount of time elapsed since its first discovery. It is the newness of the idea to the individual that determines his reactions to it.
5. Invention - This refers to the process of bringing new technologies into being, or new technology created in processes. Here, innovation would refer to the process of bringing invention to use.
6. Technological development - is a continuous process, which generally include the various stages of creation (research and invention), dissemination/diffusion (technology transfer) and application (technological innovation and adaptation) of scientific and technological information.

#### A Concept of an Innovative Small Enterprise Development

An innovative small-scale industry can be likened to a change susceptible and highly reactive living organism. A fundamental biological structure possessing these characteristics is amoeba. Refer to Figure 1.

The amoeba is made up of a nucleus, protoplasm, and a highly flexible cell wall. The nucleus could be compared to the basic philosophies or

objectives of the enterprises. The protoplasm could be likened to the integrated sum of the management's utilization of limited resources and the various interactions of the capabilities of its personnel. The super-flexible cell wall is compared to the group of policies and strategies, formulated by management and designed to achieve growth and competitiveness in the industry. This wall reacts either positively (expands) or negatively (contracts), depending on the way management makes use of the opportunities, risks and constraints it meets in its operating environment.

The basic characteristics of this type of organization, as pointed out earlier are as follows:

1. Change susceptible - The obvious dearth of staff functions in small-scale industries make them very susceptible to changes arising from their continuous operations. Usually, the owner-managers do not have the time to fully investigate the viabilities of changes. Once these owner-managers are fully convinced of the relevance of the idea of change for their enterprises, they make the decision to implement such changes.
2. High reactive - The simplicity of the organizational structure (having little or no staff assistance) of small-scale industries make them highly reactive to changes which would be generated as they interact with their publics. Assuming that the owner-managers are fully convinced of an idea change, the time lag involved from the inception of the idea to its implementation is theoretically very small. The owner-managers usually instigate changes and make the final decision for implementation.

Small-scale industries possess these characteristics in varying degrees: on one extreme, as innovators; on the other, as artisan types. From the technological point of view, the profile of small-scale industries in developing countries can be represented conceptually as shown in Figure 2.

For the purposes of this paper, the technological changes, one major variable which determines the innovative character of small-scale industries, will be extensively discussed.

## Technology and Entrepreneurship Development

It has **always** been said that without entrepreneurship, there will be no economic development. Corollary to this, economic development will be at a stand-still without technology. Appropriate technology can provide positive directions to which an individual (possessing or receiving the entrepreneurial seed) can channel all his physical and psychological resources, thus propelling his entrepreneurial spirit and pursuing the strong-need for achievement by creating or expanding his small-scale **business**.

Technology is a motive means that keeps the development process going. In the context of developing countries, however, it must be appropriate technology. Thus, the emphasis should not be on adaption but an adaptation. The choice and careful utilization of technologies become very crucial decisions in this respect. Here, appropriate technology must, among other things, satisfy the following basic criteria:

1. Low investment compared with local income.
2. Labor-intensiveness and/or employment generation capacity.
3. Minimum infrastructure layout.
4. Utilization of indigenous raw materials.
5. High compatibility with the socio-cultural-political environment.
6. Easy operations and maintenance of hardware components.
7. Maintenance of the highest possible degree of flexibility.
8. Simplicity in the design of moving or wearable components.
9. Simple set-up and quick changeover.
10. As much as possible, "re-usability for other applications.

These criteria, some of which are even conflicting, must be carefully considered by the technology suppliers hoping to fill the technological demands of developing countries. For the receivers (developing countries) of the technology, greater attention must necessarily be

placed on the design and implementation of policies and institutional mechanisms, which are geared towards the following terminal goals:

1. Making advanced technology more accessible to a larger proportion of the rural population; and
2. Conducting the process of technology diffusion in a manner, which is transmuting rather than destructive of the existing basic and traditional social, economic, and political structures.

#### TECHNOLOGY TRANSFER MECHANISMS

In general, technology generated from scientific and engineering laboratories, research institutions and techno-economic agencies could be directed towards any sector of the economy (small and medium industries, in particular) through any or the combination of the following transfer mechanisms:

1. Consulting, advisory and industrial extension services.
2. Movement of people from the different fields of science to technology or directly from science into technology.
3. Spin-off of new missions or enterprises from existing organizations.
4. Scientific and technological literature.
5. Interaction between the supplier and customer or, in a broad sense, the technology developer and the technology user.
6. Programs of training and education.
7. Patents and trades-in knowhow.
8. Marketing and applications engineering.
9. Accidental personal contacts (old boy network)
10. Conferences and technical meetings.

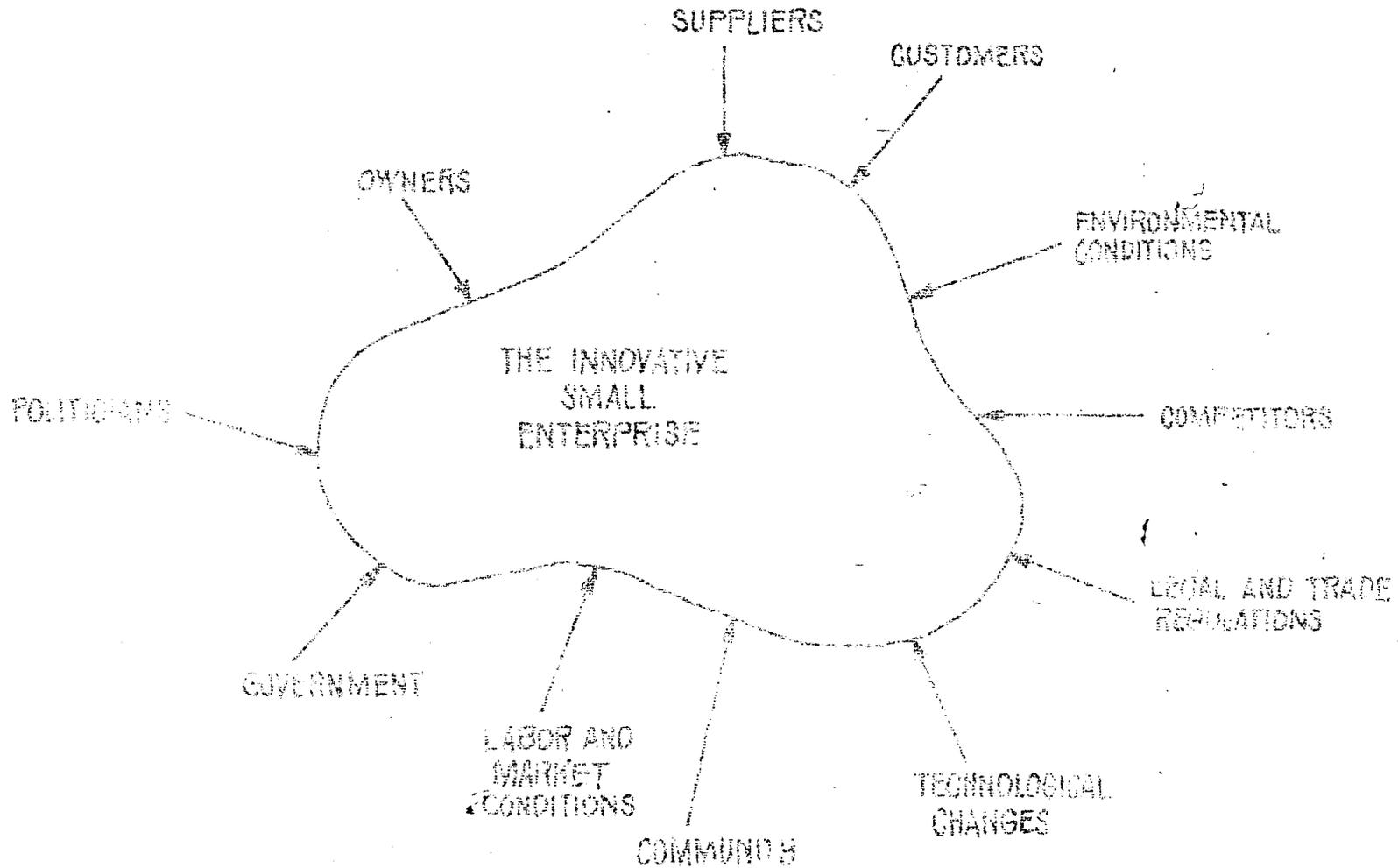
Through these mechanisms the entrepreneur can get access to technological developments necessary for the growth and competitiveness of his enterprise.

#### CONCLUSIONS AND RECOMMENDATIONS

One characteristic of a modern entrepreneur is his ever-continuing search for new ideas and concepts for improvements. Technology can quench his thirst for such things. The real problem is how to bring technology into the entrepreneur's doorstep in the right package, time and cost that he wants them. For this, the use of effective technology transfer agents is recommended as a technology transfer mechanism for entrepreneurship development programs for the small industries of Asia. These persons are expected to gather innovative techniques and laboratories and carry them to the small industrialists.

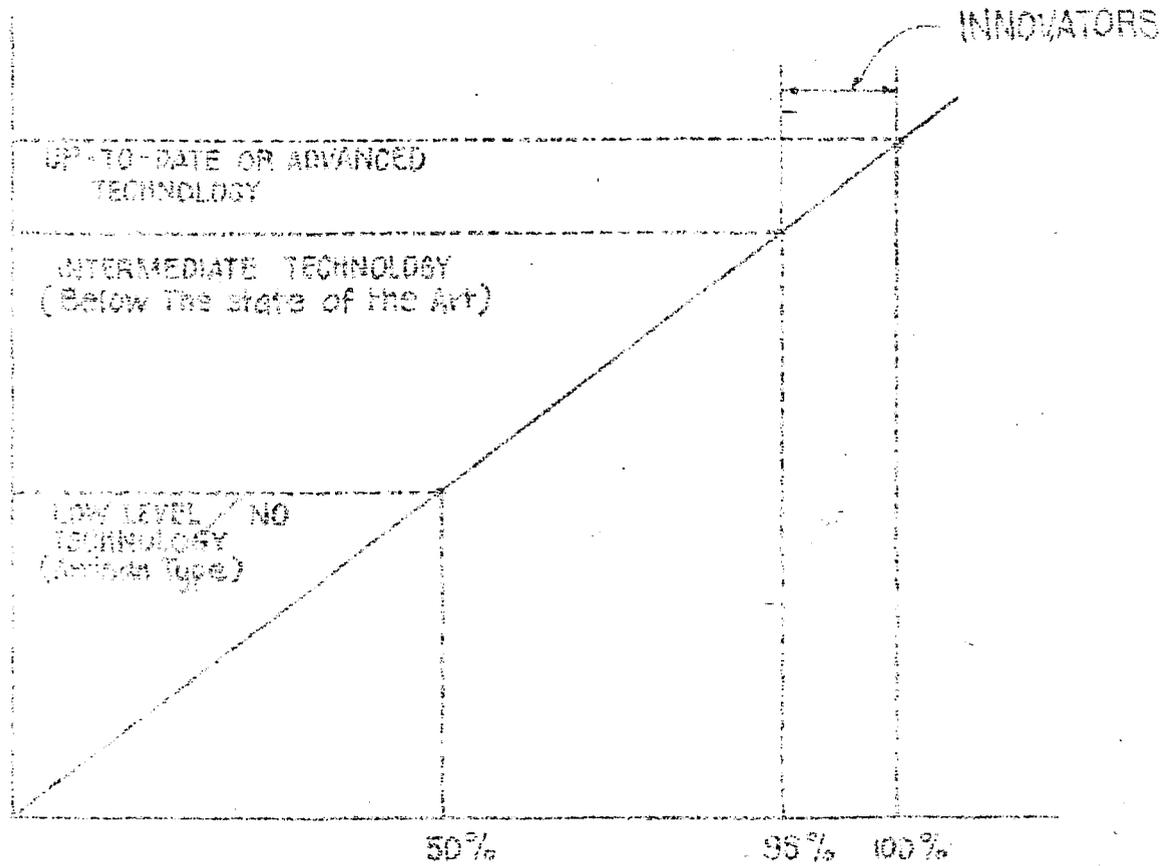
The Institute for Small-Scale Industries of the University of the Philippines, realizing the potentials behind the use of technology transfer agents in the overall program for developing entrepreneurship, has set up the Industrial Information and Technology Program. Presently on its experimental stage and staffed with ten engineers of varied specializations, the program aims to fill the technological gap and furnish small industrialists with appropriate technological assistance.

FIGURE I.



THE SMALL SCALE INDUSTRY AS A CHANGESUSCEPTIBLE MECHANISM

FIGURE II



TECHNOLOGICAL LEVELS PROFILE OF SMALL SCALE INDUSTRIES IN  
DEVELOPING COUNTRIES  
( A conceptual representation )

APPROPRIATE TECHNOLOGY  
FOR SMALL AND MEDIUM-SCALE INDUSTRIES\*

by

PATERNO V. VILORIA

1. INTRODUCTION

In the pursuit of technology as the Key to their quest for economic prosperity, developing economies must search in a novel way for "appropriate technology" -- one that will be relevant to their own unique needs, economic resources and socio-economic and political environments.

In the Philippines, the present widespread attention on adaptive technology is largely based on its potential contribution towards generating employment to a growing population and increasing labor surplus. However, the prohibitive cost of basic research and development necessary to generate and upgrade technological innovations have proven to be a major constraining factor. This lack of financial resources as well as of technical knowhow, limit ideal research and development capabilities. It is for these reasons that "research," if done is mainly directed towards the application of previously developed technologies abroad, notably those of American and Japanese origin. Following the same premise, development is limited to the application of knowledge gained from the research for the production of useful materials, devices, methods or processes, exclusive of design or production engineering.

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\* Paper presented by Director, Paterno V. Viloria of the Institute for Small-scale Industries, University of the Philippines, during the Symposium on Transfer of Technology, held at the Philippines International Convention Center, Manila, Philippines. on May 20, 1977 under the sponsorship of the National Research Council of the Philippines.

To catch up with the growing need for a competitive, advanced and efficient technology, the local industrial users resort to borrowing or adopting technology from other sources. This practice which is popularly known as "technology transfer" usually takes place between two parties- one supplying the technology known as the source or donor and the other getting or receiving the technology known as the recipient or donee. The transfer is usually effected in any of the following ways:

1. Direct investment in a subsidiary, joint venture or other type of enterprise;
2. Direct purchase of operative technology like the purchase of equipment or the employment of a consultant;
3. Management contracts of varying scope and duration and covering pre-investment and post-investment services and the management of enterprise;
4. License agreements concerning know-how patents, trademarks, designs, etc.;
5. Turn-key contracts;
6. Efficient dissemination and utilization of published technological information; and
7. Training of personnel at research and development institutes/ laboratories in developed countries.

It is generally acknowledged that the multinational corporations are

the leading exponents in the application of technology from foreign sources. Parent companies from the developed economy use their subsidiaries in the developing countries as dumping grounds for technologies which to their (developed countries) standards are already becoming obsolete and not competitive due to increasing wages and shortage of labor. This results in an overnight technology transplant which has certain ramifications. On the part of the multinational firm, the use of capital-intensive technology here means lower production cost and higher productivity. A consequence of this is that the local markets are flooded with relatively cheap and mass-produced goods which usually work to the detriment of the local entrepreneurs relying on the use of indigenous and usually labor-intensive technologies. The practice also gives rise to the "follow the leader" attitude among our local entrepreneurs who in their desire to catch up with these corporate giants, similarly import technologies and transplant them overnight. The result is unsuccessful technology transfer due to incompatibility traceable to the following causes:

1. The technology is too advance for or not adapted to the country;
2. Differences in the labor vs. capital factors found in developing and developed economies are not given due consideration
3. Inadequate infrastructure, insufficient trained manpower, inadequate markets, or other social, cultural or economic barriers to high technology transfer;
4. Technology is not in keeping with national development goals.

Outright transfer of technology is not uncommon in the form of complete plants and equipment of purely foreign design. In a desire to avail of the economies of large-scale production, an entrepreneur would import entire plants fully equipped with machineries and equipment of foreign origin and have it installed with little or no attempts at adaptation or modification of processes and production techniques to suit local conditions. If efforts are ever made at modification, these are usually aimed only to modify the production technique to suit local material in order to meet local content requirements.

II. APPROPRIATE TECHNOLOGY DEFINED

As a developing economy, the present developmental efforts are aimed at dispersing industries in the countryside and generating more employment opportunities for more people. In its approaches to solve the intractable problems of employment, it has been the standing policy of our government that in the acquisition of technologies, utmost consideration should be given to "appropriate" ones. By "appropriate technology," we would refer to that level of technology which is best suited to the specific cultural, economic, social and political climate found in the various countries of the world. This, therefore, varies from country to country.

There are certain basic criteria to be considered in the selection

of appropriate technology. These are the following:

1. Technology is seldom directly transferable. More often than not it must be adapted to different environmental conditions. For example, dry land rice growing country;
2. The various cultural, political, economic and infrastructure conditions must be considered in suggesting the appropriate technology. For example, a high electric power-using technology would be inappropriate for an area devoid of reliable electric power;
3. To the maximum extent possible local materials and natural manpower, and man-made resources should be utilized;
4. Appropriate technology should encourage and foster indigenous initiative and innovation. It is not sufficient to buy technology and know-how and transfer and install it without encouraging in the productive system flexibility and a willingness to change with changing markets and other factors;
5. Appropriate technologies must have or develop logistical support systems, such as maintenance services and spare parts availability.

III. SMALL AND MEDIUM-SCALE INDUSTRIES DEFINED

Which is a small and medium-scale industry? A devinition of small

and medium-scale industries is necessary. The UP- Institute for Small-Scale Industries defines a small-scale industry as a "manufacturing or industrial service enterprise in which the owner-manager is not actively engaged in production but performs the varied range of tasks involved in guidance and leadership without the help of specialized staff officers."

For statistical purposes, small-scale industries are those enterprises employing more than five but less than 100 workers. In point of total project cost they are those enterprises that have total assets not exceeding 1,000,000.

The Commission on Small and Medium Industry has adopted this definition, which as of date is generally accepted in the Philippines: "Any enterprise with total assets of less than 1M but less than 4M is a medium-scale industry."

The small-scale industry is usually characterized by a one-man manager-entrepreneur set-up with relatively little specialization in management. The manager with few assistants normally handles production finance, purchasing, personnel, sales and all other aspects of the business. There is also a close owner-worker relationship as well as handicaps in obtaining capital and credit.

IV. APPROPRIATE TECHNOLOGY FOR SMSI

On the one hand, the technologies which industrialized countries have been trying to promote in an effort to develop the poorer economies of the Third World, including the Philippines, are largely sophisticated, large-scale and capital-intensive. On the other, the Philippines has small markets -- seasonal, dispersed, largely rural. These technologies are, therefore, inappropriate, particularly where the small and medium industry application is concerned. They bypass the rural areas and aggravate their problems by driving traditional manufacture out of existence. They increase dependence on imports from industrialized countries. They carry with them systems on management, administration, financial arrangements, education, forms of infrastructure and pattern of consumption of a kind that widen the gap between urban and rural lives. Above all, they fail to provide employment on anything like the scale required by rapidly growing populations. In short, the result of relying almost exclusively on advanced technologies has been mass migration into urban slums, mass unemployment and a growing threat of mass starvation.

The Philippine government has set certain criteria in all its assistance programs in the promotion and development of small and medium industries. For a certain technology to be considered appropriate for

small and medium-scale industry, it must be able to adapt itself to the following yardstick:

1. The industry must be labor intensive;
2. It must be export oriented;
3. It must utilize as much as possible indigenous materials; and
4. It must be dispersed to rural areas.

Since small industries are by nature labor intensive and considering the availability of cheap skilled labor plus the fact that the government's assistance program is directed towards maximum employment-generating projects, a suitable technology would be one employing more of hand labor and less of machines. The proportion of labor and machine utilized will be such that the methods required will multiply workplaces and create more new jobs.

The great Mahatma Gandhi once said: "The poor of the world cannot be helped by mass production, only by production by the masses. The system of mass production, based on sophisticated, highly capital-intensive, high energy-input dependent and human labor-saving technology, presupposes that you are already rich, for a great deal of capital investment is needed to establish productive work place. The system of production by the masses mobilizes the priceless resources which are possessed by all human beings, their clever brains and

skillful hands, and supports them with first-class tools. The technology of mass production is inherently violent, ecologically damaging, self-defeating in terms of non-renewable resources, and stultifying for the human person."

A form of technology which we feel is appropriate for small and medium industry is "intermediate technology." It is that level of technology where extensive adaptation could be implemented to produce a technology that is cheap, simple and small.

E.F. Schumacher, in his book, "Small is Beautiful", coined the term "intermediate technology" to signify "technology of production by the masses, making use of the best of modern knowledge and experienced conducive to decentralization, compatible with the laws of ecology, gentle in its use of scarce resources, and designed to serve the human person instead of making him the servant of machine."

The adaptations are normally done from two directions. The first involves the upgrading of existing traditional manually-operated and labor-intensive operations to a higher level to improve existing productivities. The other approach consists of the widely-raging activities of "modification," "repackaging," "disassembly," and "adjustment" wholly or in part of an imported technology to involve a package

of intermediate or appropriate technology adaptable to local application. The technology makes use of local materials and is less dependent on imports; hence, it is cheap. The production methods are relatively simple so that they are more appropriate to locally-available labor skills and capacities for management, organization and maintenance. In terms of size, the appropriate technology is also "intermediate" dependent on such factors as size of market or purchasing power, transport facilities, marketing knowhow, managerial skills, manpower supplies and availability of capital. It is intermediate in size as between the hoe and the tractor, or the sickle and the combine harvester.

V. ADAPTIVE TECHNOLOGY IMPLEMENTATIONS

Several institutions in the Philippines undertake evaluation and modification of the transfer of technology process in terms of adaptiveness and appropriateness of the technology transferred. In the field of agricultural technology, the International Rice Research Institute (IRRI), a Ford Foundation-supported institution, has come up with several adaptive agricultural machinery designs as most suitable to Philippine climatic and soil conditions. The IRRI has made significant contributions towards generating intermediate technology type farm implements and machinery performing single functions or simple combination of functions and requiring low skill in operations and maintenance. Its success in developing high-yielding varieties of rice may well be a reflection of its accomplishments in adaptive technology.

The Metal Industry Research and Development Center (MIRDC) has extensive resources to design appropriate technologies for the metal industry. Certain technologies now in use in the Philippine light engineering industries have been modified through the Assistance of the Center to take into account local economic conditions, including the availability of cheap labor.

The University of the Philippines Institute for Small-Scale Industries (UP ISSI) has been extensively promoting a very basic and simple adaptive technology known as the Low-Cost Factory Automation (LCA) program. LCA, which is applicable to any and all industries, is normally used to upgrade existing machines and equipment. This enables industries to improve existing operations with considerably less cost involved than in replacing old vintage machines with sophisticated and modern but highly-expensive ones. LCA necessitates, of course, training of technical people of the industry to do the design and implementation of above-mentioned innovation. Already, several companies in small and medium industries have successfully availed themselves of and implemented this form of adaptive technology.

A case in point is the successful application of LCA techniques at PHILPARTS, Inc. a medium-scale firm. At PHILPARTS Manufacturing Company, where majority of the equipment for the manufacture of engine bearings and piston are general-purpose machines, the need for improving productivity shortly after compartment operations was felt. At that time, the company felt a pressing need to compete with similar articles produced by more advanced manufacturers of Europe, Japan and the United States. Faced with a fragmented local market which cannot justify the use of high-cost production machines, the plant had to develop sufficient flexibility to produce small lot orders at cost that must be equal to, if not lower than,

the imported counterparts. Modification in small steps of already existing machines was undertaken to insure that the innovations or improvements done would be most relevant to the process and reasonable in cost while at the same time yielding immediate results. At the beginning, most of the innovations were made in the area of work-holding or work-positioning. Later on, tool or work-feeding modifications were carried out using electro-pneumatic-hydraulic circuits. These adaptations and innovations were initiated by no less than the General Manager of the company who had the chance of training under the LCA program at the UP ISSI. Although most of the components needed for the modification processes were still imported, the overall cost of the improvements was still very much lower than when the machine performing the above-mentioned functions was imported. The cost of this particular modification work was roughly P16,000, including the book value of the existing "World War II-vintage" machine. Importing the same machine would have cost P100,000 (roughly US\$26,700) as of 1968.

A fine example of appropriate technology that has been implemented in the rural area is the drum mixer designed by the extension office of the UP ISSI in Tacloban City for a small poultry feed producer. Originally, mixing of feeds was done by the owner manually through the use of shovels. The operation yielded low productivity and was time consuming and tedious. A feed mixer was designed analogous to the concrete mixer

used by big construction firms. Using a drum being made to rotate manually by an operator, productivity was increased. Additional workers had to be hired to take care of added work brought about by the increased output such as packaging and ingredients preparation.

Recycling and reclamation technologies are fast becoming attractive to small and medium industries. These adaptive technologies create a demand and economic value for garbage and junk aside from minimizing ecological imbalance brought about by pollution. Small firms engaged in recycling of scrap plastics and scrap rubber are finding a lucrative business. Recycling of used garments into baby dresses, slippers, pillows, place mats, pillow cases and multi-colored table runners, is giving employment to many people in the depressed areas. Another form of recycling that is worth looking into is the bio-gas technology. Poultry and swine raisers could solve the problem of disposing their foul-smelling animal wastes and at the same time obtaining energy in the form of methane gas generated from the digester and organic fertilizer. The Maya Farms in Antipolo, Rizal has made extensive application of this appropriate technology, having the biggest digester unit in the country and developing various machineries and equipment powered by bio-gas such as generators, waste heaters, flat irons, stoves and coleman lamps.

We could also profit from the experiences of other developing countries in technology adaptation. In the recently-concluded conference on "Adaptive Technology and Small Industry Development" sponsored by the Economic Development Laboratory of the Georgia Institute of Technology and the UP ISSI, specific examples were given which could be adapted here.

In rural Kenya, the Machakos Rural Industrial Development Center, realizing the need for more effective materials handling equipment, designed and produced a wooden wheelbarrow. Since the people were accustomed to transporting materials on their heads, the introduction of the wheelbarrow involved a cultural change which took time to implement but nevertheless became successful. It obviated the need for importing steel wheelbarrows and reduced the need for foreign exchange.

Again, the experience of another developing country in developing an agri-based industry in area where electric power is non-existing is worth relating. A manually-operated corn sheller was designed where the bars of corn rotated manually at the top of the device and the kernels abraded off on turned-over nails which have been driven into planks. The corn kernels and cobs fall into a container at the bottom and the cobs were manually separated and discarded. This rudimentary but effective device is an appropriate technology where the mechanization infrastructure is not developed.

## VI. CONCLUSION

In the light of the common goals and needs of Asian developing countries, they will do well to pool their resources together and work towards the objective of solving Asian problems with Asian solutions. In this context, the technologies development of each Asian country can be catalyzed by the establishment of a central regional body that will oversee, supervise, monitor and coordinate a network of technological information system. The information generated by this network such as the technological advances and experiences of each member country would serve as an input in determining the adaptability of one country's technology to another. This body could also develop a sense of technological independence of Asian countries from Western technologies and create a spirit of oneness and self-reliance on their indigenous capabilities and resources.

It is heartening to note that the Association of Southeast Asian Nations (ASEAN) has taken the lead in this regard. The proposed organization could be created in the pattern of the working mechanism of Technonet Asia, an IDRC (International Development Research Centre) - supported organization of Asian countries involved in the dissemination of technological information. The Technology Resource Center could well be an answer to this requirement.

As a second measure, developing countries must consciously formulate a national policy for scientific and technological development linked explicitly with industrial requirements.

In the local setting, a national clearing house or network of information on appropriate technology developments may be set up to avoid duplication of efforts, facilitate information exchange among the technology users, particularly in the rural sector and the national technology development agencies.

Secondly, as seen the industrial research institutions and the public would effect a better dissemination and application of proven researches in technology.

Positive incentive should be given to encourage the spread and adaptation of appropriate technologies. Since appropriate technology may require higher initial costs than using the existing system, positive incentives are often necessary to make it worthwhile for our small and medium-scale entrepreneurs to adopt these technologies.

Finally, it will be desirable to establish in our country a regulatory set-up similar to that operator in Korea where all technologies to be transferred to local industries are first assessed by the Korean Institute of Science and Technology (KIST) as to adaptability and appropriateness before a green light is given to acquire said technology.