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07858

Distr.
LIMITED

UNIDO/IOD.150
31 January 1978

ENGLISH

UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION

ACTIVATING THE POTENTIAL OF UNIVERSITIES FOR INDUSTRIAL DEVELOPMENT[1/]

prepared by

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1/ This document has been reproduced without formal editing.

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1. Academic Freedom and Industrial Development

The social responsibility of universities has always been the preparation of a nation's youth for its future leading role in society. The concept goes even beyond given societies and nations and involves the furtherance of the human race as such. Thus, it was rightfully thought, that no restrictions and no material purpose should intervene in the process of the search for universal truth, the principle aim of the institution.

Therefore, to many, the mere thought of training for specific skills, which can be used for a profitable purpose, has been rejected, although the reality of universities and even more so colleges is mainly that. Pure research is the exception and not the rule and the search for truth is largely in the hands of the individual student as it has long ceased to be considered the absolute and abstract purpose of a university.

Medical doctors, engineers, lawyers and economists are all prepared by universities for the practice of their respective professions. A lively exchange between researchers, teachers and practitioners takes plaoe continuously for the benefit of everyone involved.

The opening of universities to the material reality of life has been the reason for the explosive advances which have been made in practically all areas which are today comprised in the term development. Although it might have, human development does not appear to have suffered in the prooess, as strong enough forces have continued to persist in their aims directed to the acquisition of additional basic knowledge.

On the contrary, the unprecedented growth of universities and university activities directed to the improvement of the human situation have provided a larger base than ever before to the original thought which sparked their oreation.

Never have universities existed in a vacuum and their final purpose must be seen in social improvement - in every possible respect - as

out of them come most of the leaders of society.

One of the most burning problems in the light of the world population growth with its imminent dangers of starvation is the low degree of economic activities in the majority of the countries. As industrialization can be clearly identified as the single most important factor in the economic development of the last 100 years, a group of 77 developing countries proclaimed the high priority, which must be given by all nations of the world to raising the industrial share of 7% in the developing world to 25% by the year 2000.

The Lima Declaration and Plan of Action of 1975 postulated the "promotion of an integrated industrialization process based on the potential of each country", an objective which asks for an average annual real growth rate of approximately 5.2% above the world average in the developing countries, whereby the world growth must remain positive if any purpose is to be achieved, a very substantial growth rate to be sustained over a quarter of a century for all developing countries combined.

2. The present Role of Universities

Whereas in industrialized countries, most universities have taken an active part in industrial development, without necessarily neglecting other functions, in those countries where a concerted effort toward industrial development is most required, one still often finds a passive sometimes negative though rarely hostile attitude towards university involvement in practical industrial problems. Although universities could be among the most powerful potential contributors to industrial development, they are in a particularly disadvantageous position compared to universities in industrialized countries. They do not benefit from dynamic insights into an industrial surrounding but have to rely mostly on second-hand information about the conditions prevailing in other countries, where the vicinity of all types of industrial activities

represents a natural field for practice-oriented researoh, a basis for industrial consultancy of all types.

Such differences of conditions have led to the preference for business study programmes outside of the country. Students of Business Administration with a degree from US or other universities are given preference by local industry over students with a curricoulum of a local university in the same field. Some of these also remain definitely in their country of studies.

Braindrain has been the term most commonly accepted for this phenomenon.

Some universities have started to recognize their potential short-term and long-term contribution to accelerating industrial development, the benefits of which would be three-fold:

- Benefit to the university itself, the extension servioe of which becomes a practice-oriented institution muoh closer to the economic surrounding than a purely academic university.
- Benefit to the industry, which can thus obtain better trained personnel and specialized assistanoe in practically all fields of management and technology from the university.
- Benefit to the teaching staff and the students of the university:

  The professors directly benefit from day-to-day interaction with the subjeot matter of their teaohing;

  The students obtain a yardstiok for measuring the use of the knowledge they acquire by the exposure to practioal industrial problems.

3. Pioneering a University Leadership Role in Industrial Development

Many countries have by now recognized the important role universities can and must play if the industrialization target of the developing world is to be aohieved. Thus was the basic conclusion of a meeting organized by UNIDO on the subject in November 1976. The following observations in telegram style will illustrate some of the oases presented to this meeting:

- The representative of Ghana pointed in particular to the small group of indigenous entrepreneurs, who only represent 1/3 of the industry in the country and who do not have the support from outside resources as the subsidiaries of private foreign investors and multinationals. In his view, only the national universities and research institutes could fill this gap.

- The representative from India gave a number of successful examples of industrial activities of universities illustrating the highly advanced institutional framework which now exists in India for this purpose.

- The delegate from Britain emphasized the important role which was played by a joint national committee and subsequent liaison offices in the attention which is now given by universities to industrial development. Liaison as such was often found to be a basic requirement as communication and often attitudinal gaps required bridging.

- The speaker from Nigeria presented the example of the Research and Development Centre for practical training purposes at Lagos University and the incentives given by the Government to industry for letting students pass practical stages during their long vacations. Tax incentives were given under similar cicumstances for contract research and development also in other countries, as for instance in India.

- UNIDO has been involved in creating industry-oriented university institutes in a number of countries and an active technical exchange has been organized between these institutes in Egypt, Turkey and Yugoslavia.

Support to such activities within a country will have to be provided first by the industry itself. It has been observed that large public and private enterprises, management associations and also the Government administrations of industries have all given substantial assistance to

the dynamic participation of universities in industrial development.

Often also, the initiative has come from the universities themselves, which have started creating extension services, consultancy centres and sometimes institutes which have grown into their own powerful role as large-scale self-financed consultancy operations. In most cases, the emphasis in the beginning focused on technical aspects, on contract research and problem solving before also economic and managerial activities were integrated. There is, however, no universal role except that felt priorities and real priorities may more often than not require an integrated approach (technico-economic) when only a partial approach is taken.

Illustrative Examples

The Start-up of a Consultancy Centre

University A with a 20.000 student campus has started to develop some industrial consultancy activity to industry. However, it feels that a concerted effort will be needed to launch its centre into those industrial activities which involve among others the construction of new plants, the negotiation of licensing agreements, the subcontracting and execution of plant design and engineering, the preparation of bankable feasibility studies, short, all those activities which are part of the country's important development plan. Until now, universities have been solely in the role of observers as established, mostly foreign, engineering firms and investors were given turnkey contracts.

The Government, recognizing the great potential of university participation recently decreed, that universities should henceforth participate in the bidding and negotiating of future industrial ventures. This has brought the university mentioned in this example to think about how to establish an operational activity of industrial consultancy with the necessary basis for growth into a viable size and volume of activities.

Thought was given to the promotional,administrative, financial and technical aspects for such a centre and the first promising steps have been taken. International cooperation has also started and UNIDO has been invited to co-execute a large-scale project in cooperation with this university. UNIDO's assistance will cover basically those aspects which relate to the promotion and organization of an industrial consultancy unit, to the negotiation of supply and engineering contracts, to the creation of a data bank and to the development of consultancy skills in general.

The Initial Involvement in Industrial Development

A university with a campus of 2.000 students has decided to make its first steps into the direction of practice-oriented industrial activities directed to the local industrial community. It has decided to start a programme for its students in the last year which would operate as follows:

A group of 30 students will spend its second to last semester on a multi-team work approach to industrial problems of the local business community. Five teams of six persons each will be assigned to five specific industrial tasks taken from the areas of marketing, production management, plant design, financial administration, personnel management, employee suggestion schemes, general management or other.

These tasks will have been previously defined between the interested enterprises, a senior industrial consultant and the university. They will have been stated in such a way that a solution can be provided or at least a constructive proposal can be made within the time limit of a semester,applying to the task the imagination of graduating students.

The seminar - which is considered as part of the curriculum - would consist in weekly meetings of one to two hours with each team under the guidance of the senior industrial consultant and one or two professors of the university. The task of the senior

consultant will be to assist the team in finding the opportune cut-off points for the parts and to lead it gradually towards an attempted solution of the whole of the problem.

The university professors will assist with their own experience and contributions with a view of later organizing similar assignments and seminars themselves.

When a task is completed, the team will present its findings to the management of the company. It will issue a small and condensed report and the material may then become part of the case material of the university - in a disguised form if necessary.

Either at the end of the semester or during the next semester the 5 reports will be presented by the students and their professors and subjected to the observations by the other teams.

The quality of the different performances will be assessed among the different student groups under the guidance of their professors who will also take the opportunity of a follow-up visit to the industry at that occasion.

UNIDO has been requested to provide the senior consultant for initiating the joint programme.

The Activation of Dormant Technology and Innovative Capacity

A country where a number of technical research institutes had already grown into maturity, found, that much of the effort invested into research remained sterile because of a lack of exposure to practical industrial problems. It decided that an active programme should be started whereby a group of experienced consultants would attempt to identify a small number of industrial processes of potential use in the country for which all or most of the knowhow was readily available.

It would then translate these processes into easily understood manuals and make suitable companies aware of the inherent advantages with a view towards finding one or more companies for their implementation.

The group of consultants will then also assist in the implementation of these new processes.

UNIDO has been requested to provide international consultancy assistance to the programme and - where required - to organize study tours or fellowships on specific processes.

Invitation to a Dialogue

The initiation of an active dialogue on university involvement in industrial development has started. Your contribution in the way of informal notes, thoughts, experiences and observations are invited. Experiences communicated to us before the end of May will be reported in a circular which will be distributed in July this year. If interested in participating in the proposed exchange or in further information on this subject, please direct your contribution to:

Factory Establishment and Management
Seotion, Industrial Operations Division
P.O. Box 707
A-1011 Wien, Austria.

Please find annexed also a short questionnaire whioh you may wish to fill in and send on to us.

4. ANNEX

Selected Questions on University Participation in Industrial Development

Has your institute already started any of the activities mentioned below:

1) Sandwich courses part of which are carried through in class and part in practical work? (check if applicable) ☐

2) Technical consultancy assignments? ☐

3) Business consultancy assignments? ☐

4) Contract research? ☐

5) Who initiated these activities:

Your institute: ☐

The Government? ☐

The management association? ☐

The industry? ☐

6) Are these activities remunerated? ☐

7) Has the Government taken legislative steps to foster such activities? ☐

8) Have steps been taken to formalize (or institutionalize) your institute's involvement in industrial development? ☐

Comments (any observation on the start of these activities, their size, their future, their possible benefit from an international exchange, etc.) would be appreciated:

[redacted]

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