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Summary of the National Paper of The Republic of Lebanon submitted to the United Nations Conference on Science and Technology for Development Vienna, August 1979

SUMMARY

Lebanon in several ways is a unique country. Presently, Lebanon is not rich in natural resources, minerals, fossil fuels or an abundance of fresh water supplies, which might have contributed to its economic development. In contrast to many other countries in the Middle East, the traditional comparative advantage clearly reflects a highly skilled labour force with a renowned mastery in trading and entrepreneurship throughout the world, and also the strategic geographical position of Lebanon.

The very high dependence on the service sector - this sector contributed about 70 per cent of GNP in 1974 - has been related to the traditional open door policy: trade and exchange restrictions have been absent. However, foreign technology imports have neither been screened nor registered. At the level of the individual firm, there is reason to believe that, by and large, the absence of any controls in regard to foreign technology imports have not led to any negative effects.

Lebanese nationals and traders located around the world provide industrialists and entrepreneurs at home with an extended information network, serving both as a scanning device for identifying opportunities for the purchase of foreign technology and know-how and an efficient contractual acquisition of preferred know-how.

But a well functioning information network, and skills acquired in the very contractual acquisition of imported proprietary know-how, are but two necessary agents for stimulating effective demand for technology upgrading at the entrepreneur level. Guidance to enterprises at the national level is required to restructure effective demand; moreover, industrial promotion policy must be synchronized with tariff, fiscal and credit policies. For instance, there would seem to be ample opportunities for an import substitution programme in selected fields. The canning industry still imports a great deal of raw materials and intermediates that can be locally produced. Another example is the pharmaceutical industry, where surely there is scope for an import substitution programme and for technology planning at the firm level, and where one could draw upon research already initiated by the National Council for Scientific Research (CNRS).

The National Council for Scientific Research (CNRS) has already initiated research programmes that can help in this situation. It is true that a major problem that has faced Lebanon since the eruption of the war in 1975 is the lack of an adequate supply of skilled technical manpower, particularly at the technicians' level. This problem, in large part, reflects the lack of security or the war-like conditions in Lebanon of today; the high salaries and rewards offered technical skills in the Gulf countries is an additional factor. It seems a foregone conclusion that part of the present manpower shortage will remain, even when normal security conditions again prevail in the country. Therefore, it may be concluded that for most, if not all, parts of the Lebanese industry, the screening of foreign technology imports with the view to acquire labour intensive and employment generating industries rather than capital intensive units is not a foreseeable or pressing issue. Also in this regard, therefore, Lebanon stands out as a country in no particular need of a policy to screen or to administer guidelines vis-à-vis foreign technology imports.

In Lebanon, considerable progress has been registered in the building up of an institutional structure supporting advanced education and training and the research potential of universities and research institutes. The CNRS, in particular, has striven to establish a base for qualified researchers in Lebanon and to increasingly incorporate them in multidisciplinary endeavours and applied fields. To a large extent these efforts were handicapped by the advent of the war in 1975.

Nonetheless, once security and order are again re-introduced, this groundwork, the creation of an institutional infrastructure supporting research geared to national development objectives, is an asset. Given the creation of the Council for Reconstruction and Development (CDR) in 1977, with executive powers, the lack of guidance witnessed in years past in regard to a nationally co-ordinated science and technology planning no longer should remain. To continue to solely import foreign technology is very expensive and Lebanon can ill afford it.

The strategy to be pursued by Lebanon for future years, therefore, will be a two-pronged one, to

(a) Restructure effective demand at the enterprise level for the technology components of productive systems, and

(b) Restructure and extend the institutional infrastructure to accelerate the technological transformation.

In discussing the methods of achieving these objectives, of integrating science and technology policy in economic and social development, a number of proposals are made.

To begin with, the UNIDO proposed Industrial Information Centre is surveyed; the cost-effectiveness of this proposal need be studied. The Lebanese proposed World Data Bank also merits a serious discussion, particularly so since this plan apparently envisages a strengthening of the direct enterprise-to-enterprise information flows, rather than primarily drawing upon published sources or reference systems of international organizations.

It stands to reason that raising the effective demand for technology at the enterprise level would require additonal measures and action. Given a high risk aversion among businessmen which favours investment with high yields and a short time horizon, and, therefore, militates against the undertaking of new industrial ventures, a Technology Loan Fund is proposed. This Fund, providing medium and long-term finance at concessionary rates, when compared with commercial bank credit, and also extending technical assistance, would be an important instrument for upgrading technology and improving know-how at the firm level. The Fund would help to turn the disadvantage of war-damaged industry into a longer term advantage.

In Lebanon, two priority areas for the Technology Loan Fund would be to help modernize and restructure the already established engineering industry, with a view to starting a local manufacturing of machine parts and tools, accelerating

the transformation of the of the now common relativety simple assembly operations. Another priority area would be to examine the potential for the manufacturing of local low-cost solar heating equipment. Moreover, the already referred to possibilities of import substitution in the food product and pharmaceutical fields represent two other areas.

In the paper, considerable attention is devoted to the need for creating and/or strengthening the inexistent or tenuous links between the CNRS and other institutions supporting education, training and research and productive agents. In regard to industry, these links must be considered as non-existent, but less so in the case of agriculture. In the latter sector more applied research has been undertaken but too often, at least in the case of public research institutes, the proper extension of this research has been lacking. Moreover, there is evidence of a need for an improved co-ordination of agricultural research; presently the applied research conducted presents a fragmented and scattered picture.

The CNRS itself is intent on undertaking a number of measures so as to increase the possibilities for supporting applied research geared to the economic and social development of Lebanon. Hence the socio-economic evaluation of research projects will be improved: moreover, also applied research in the social sciences will receove support.

Still, it seems a foregone conclusion that the CNRS will need whatever assistance it can acquire in regard to the identification of problems and constraints, where the accumulated know-how and research potential within Lebanon can contribute toward feasible technical and economic solutions. For this purpose, CNRS administered viable technical assistance teams are proposed for rural and semi-rural areas.

To further improve the identification function for opportunities for applied research, it is proposed that with the help of CDR and the UNDP, a system for the retrieval of information acquired by expatriate experts (UN and others) will be set up. More often than not foreign experts come and leave without briefing by, or debriefing to, the local researchers and groups with know-how in the particular area.

Finally, an improved co-operation between universities and industry is proposed; the "proposal" embodies more outwardly looking universities, and the incorporation of case studies of local industry in the regular teaching courses. Faculties of engineering have an important pivotal role in this endeavour. Moreover, it is proposed that industry corporations be established with the view to be able not only to fund research projects but also to see to it that professional services are made available for the commercial exploitation of successful laboratory research and prototypes; in the absence of these ancillary services, applied research, albeit conducted with the best of intentions, too often will become an end in itself and a costly and ineffective exercise.