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FEPAC - AV. RIO BRANCO, 124 – 13ER PISO – EDIFICIO CLUBE DE ENGENHARIA
CEP 20148-900 – RIO DE JANEIRO – RJ – BRASIL.
www.fepac.org - fepac@fepac.org

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Engineering Company & University: Competition or shared cooperation?

A major problem for Consulting Engineers in Latin America Countries

The competition of Universities and S&T Research Institutions with Engineering Consultants for consulting-specific assignments – pre-investments feasibility studies, conceptual, basic and detailed designs, projects management, implementation supervision and other technical specialized tasks – is growing.

Those organizations, which in principle are expected to be focused only to education and S&T research, are established as public foundations or non-profit non governmental organizations and are not structured to act as private companies, subject to fiscal constraints and tax burdens of their country.
Due to their nature, these organizations and their directors can not be in any way technically and economically liable for their performance, as compared to the long term liability the Consulting Engineers private companies and their boards are compelled to assume.
The competition among those organizations and private consulting companies is therefore asymmetric and unacceptable.

Considerations

Universities, S&T Research Centers and Engineering Companies, especially those in Engineering Consulting, constitute the tripod that supports the technological development of any country.

In developing countries, this technological tripod has been seriously penalized due to the way through which these countries were inserted within the global economy, not having been prepared to deal with a competition with no rules and no limits, and being jeopardized by the historical technological gap existing with respect to developed countries, to which the globalization process opened the market, without any kind of protection.

Consulting Engineering Companies have already been deeply harmed by the economic crisis that affected quite every Latin America country along the 80-90's deep recession. Technical teams have been dismantled; occupation was reduced, earnings dropped. Furthermore, because of the globalization, foreign Consulting Engineering Companies were introduced in the market through the support of strong foreign investors, although not being always technically well prepared, and, certainly, not being much familiar with conditions and constraints of the regional environment, where the project would be implemented. In many cases the technology proposed to be applied was not the most advanced, being in many cases worst than that currently used in those countries. As result of this process, frequently, foreign Consulting Companies were contracted in place of National Consultants which capability was equivalent or even better than the one brought by the investors, sometimes extremely better from all points of view.

In the academic area, Engineering is resented by the progressive disinterest of the youth in the profession, due to lack of employment perspectives and due to the precariousness of resources available within National Universities, which may be a weak point for a competitive insertion of young professionals in the labor market, now borderless. It is certainly the most propitious time for a deep revision of the curriculum in university courses, and for a more efficient cooperation among Universities and Engineering Companies. It is about bringing the on job experience of the Engineering Companies to the academic education itself, and also trying to increase the number of opportunities for students staging in Engineering Companies, before their upcoming insertion in the labor market.

Nobody ignores today that the degree of progress and development in a country is measured by the level of investments in S&T research, and by the capability of the country to deal with advanced technologies that are essential for a qualified mutual cooperation with other countries, allowing thus some kind of balance in worldwide competition. This is not meant to deny the interdependency of countries regarding different technologies in frank and accelerated development. However, the decrease of the technological dependence of a nation is a mandatory factor for the preservation of its political and economic independence, having therefore to become a domestic and permanent goal.

The upcoming future S&T researches will be basically of two natures, which are many times mixed up: the investigation developed in Universities and S&T Research Centers that aims at technological innovation and the growing domain of scientific knowledge; and the investigation that aims at obtaining a high technology product for immediate application, in order to satisfy previously identified demands.
In some countries, the interest of the industrial sector to advance in the domain of new technologies or of those already existing, but not yet dominated in those country, looking to obtain technological products suitable for immediate use, makes the industries to support, with their own and/or governmental funds, investments in technological developing programs to be carried out by the Universities, S&T Research Centers and Engineering Consulting Companies, very often in a quite articulate mode. These companies end up "engineering" the technological product they developed, turning it into a tool to be used in the productive sector of the country.

Universities, S&T Research Centers and Engineering Consulting Companies have in fact different and complementary roles that should not be confused or overlapped. All the professionals acting in S&T investigation, in academic activities and in the development of engineering designs have their own identity, which must be preserved to generate synergy when cooperating mutually. All three players constitute a tripod which, if properly founded, will be able to lead to an integrated process of technological development that serves as a base for the economic and social development of their country.

Engineering Consulting is a strategic sector because its role is to establish long and medium term plans, to perform feasibility studies, to identify the most viable solutions, and to specify the most suitable technologies and process to be applied for the implementation of projects supported by public and private investments, including those related to the development of the physical infrastructure of any country.

Therefore, it cannot be admitted that Universities and Organizations which are dedicated to S&T Research on the one hand, and Engineering Consulting companies on the other hand, compete amongst themselves. The first are not entrepreneurial organizations that are capable of keep stable teams of multi-disciplinary professionals, fully focused to engineering services, which is the aim and focus of the

Engineering Consulting Company. Assignments of this nature demand a management model that lead to long-term technical, economic, legal and financial liabilities that only entrepreneurial groups are capable to assume.
Every country should have an adequate forum for healthy discussions to try to settle viable mutual cooperation and alliances among the Universities, S&T Research Centers and Engineering Consultants, to perform joint assignments through covenants that optimize their capacities, showing how these organizations must be complements to build up the required synergy. This forum may possibly enhance wider knowledge, experience exchange, establishment of a scenario where they are to play, identification of technological development requirements with the definition of priorities and goals of application of the S&T resources, in line with the development policies of every country.
On the other hand, another forum should be instituted to implement a frank and transparent dialogue among Engineering Consulting Companies and Contracting Parties, both from public and private sectors, having in view a definitive and permanent understanding about the strategic relevance of Consulting Engineers so as to achieve correct use and adequate treatment of the Engineering Consulting Companies for what concerns: (a) the criteria for the selection of consulting companies taking into account mainly their technical qualification; (b) the preparation of mature engineering studies and designs as previous indispensable step to take decisions regarding any public or private investment; (c) time frame and schedule to execute consulting services matched to their complexity; (d) fair compensation to ensure the quality required for the services contracted and to allow the company to invest regularly in some permanent training programs, to update its technology.

Permanent programs for technological development and training

Banks could fund studies about the existing programs in and off Latin America countries in order to provide proper authorities with suitable policies models and tools, to support fast and permanent development of technology in each country.

In Brazil, some laws have been approved for that purpose; they address the creation of non-returnable S&T Sector Funds to finance technological development or innovation. Financial resources are offered to Universities or S&T research institutions through periodic calls for bids to be picked by FINEP, a governmental S&T funding agency. The academic or S&T research institutions can contract private consultants to ensure the practical use of the result of the research by the industrial sectors, for which utilization the technology was developed.

These funds are fed by a part of the royalties created for the concession of public services or exploration of natural resources of energy, oil and gas, transportation, sanitation and other. Additional resources are also put by the industries, contractors and others, looking forward for innovations or development of a certain technology of their interest, chosen within the assignments proposed by the universities and research institutions. There are rules that address the intellectual property of the results.

These activities promote the technological update and development of Consulting Companies, Universities and S&T Research Centers eventually involved, while they seek to propitiate the improvement of the quality and competitiveness of the industrial processes or products within the sectors concerned.

Proposals to Banks

FEPAC proposes:
1. That Multilateral Banks include these considerations in their handbooks, so as to inform their borrowers in projects that are financed by these Agencies in regard to what is acceptable and positive – and what is not – when contracting consulting services through Universities and S&T Research Centers, either related to the contract asymmetry for what concerns fiscal, technical and financial responsibilities, being such asymmetry incompatible with the basic principles of public biddings, or regarding the relevance of a fair pursue of the adequate synergies resulting from the collaboration of Consulting Companies with Universities and S&T Research Centers, envisaging the success of projects and

optimization of public investments. The inclusion of these considerations in Banks' guidelines would mean a key support for the conversations of the National Consulting Associations with the governments of the countries to accept those concepts as mandatory also in the cases when Multilateral Banks are not funding the projects.

2. That Multilateral Banks analyze the feasibility to fund studies about the existing programs in and off Latin America countries, in order to provide proper authorities with suitable policies models and tools to support fast and permanent development of technology in each country, involving universities, S&T Research Centers, and Consulting Companies, by bearing their complementarities in mind.