Consulting Engineering Practice in Pakistan

By

I. A. ZAFAR†

The consulting engineering profession is in its infancy in Pakistan. This question was seriously taken up for the first time in Pakistan in the annual meeting of the Institute of Engineers Pakistan during 1957 as a result of discussion on a Paper under the caption "Need for Consulting Engineering Profession in Pakistan" contributed by the author. This highlights urgency for encouraging the establishment of Pakistani firms of consulting engineers in the country and the manner in which this step will help development of the country. This Paper had given full details as to how other countries, like America and Canada requiring very fast rate of progress, had to adopt a similar course and how they had to undergo similar problems of opposition by the Government Departmental forces in the initial stages. However, the situation in those countries in that private enterprise is being supported by all concerned without which they could not attain the rapid progress as they have now achieved shows a creditable result which should be followed by Pakistan as well.

Since the publication of this Paper, encouraging development has taken place in the country. Due to progressive outlook and the healthy atomosphere created by the Revolutionary Government the pace of development projects has been increased many times more. Introduction of the Second Five Year-Plan has further created an incentive in the mind of all concerned towards rapid growth of economic development in the country. This has naturally led to establishment of a number of foreign organisations as the consulting engineering uncleus in the country. Most of these foreign firms continue to work through their head offices located out of the country. A few of them have set np their local branch offices. The most important and significant development is that about six Pakistani firms have since been set up ; about five in West Pakistan to operate as independent consulting engineering organisations. One of them is the

†*Resident Director WAPDA East Pakistan.*

largest pioneering firm in the country who are primarily interested in the field of water resource development and have also recently set up their independent unit for development of private industries in the country. This organisation is very well spread out in the country having its head office in Karachi and employs a strength of nearly 150 engineers. Most of the remaining firms in West Pakistan are also set up in Karachi and concentrate in the field of housing and structural civil engineering works only. The firm in East Pakistan is working in collaboration with a foreign organisation mostly for irrigation projects.

The lead for encouragement of private firms of consulting engineers has been given by autonomous and semi-autonomous organisations like P.I.D.C., W.A.P.D.As, P.I.C.I.C. and even the Planning Commission in the country. So far, various Government Departments, generally speaking, have not encouraged operation of such consulting engineers mostly due to the fear that the strength of such firms of consulting engineers may mean gradual depletion of the departmental engineering organisations. However, a few instances, where such consulting engineers have been employed even to work for various Government Departments have clearly demonstrated that such a step has definitely helped in raising the technical standards and imparting considerable benefits of large scale research and technological advancement in the foreign countries which would have been otherwise very difficult or costly. Working of consultants has been very economical compared to the departmental charges system wherever levied and also as demonstrated by the tender rates where contractors have not tried to protect their financial interest against the usual departmenral red tapism by pitching high prices.

Working of the two W.A.P.D. As has considerably encouraged setting up of firms of consulting engineers. This measure has been necessitated because of the major handicap due to deficiency of technical hands in the country and the rapid pace of development with which projects of these two organisations have to be pushed up. No doubt, efforts on the part of the W.A.P.D.As and other semi-autonomous organisations encouraging setting up of firms of consulting engineers has strengthened the consulting engineering profession in the country, yet our own Pakistani

firms of consulting engineers have not benefitted to the extent it was possible. East Pakistan WAPDA has been definitely alive to their responsibility in encouraging not only the existing Pakistani firms of consulting engineers, but also in the establishment of even new organisations wherever found feasible. Generally speaking, they have made it a rule to entrust the work to foreign firms only if inescapable especially where they have to be paid money through our own resources, only if they collaborate with a local Pakistani organisation. They have appreciated that this is the best form of training our own Pakistani nationals and retaining the useful experience of the foreign organisations in the country.

Attitude of private industrialists towards consulting engineering profession,

Our industrialists so far have not appreciated the usefulness of the consulting profession. They have been mostly approaching foreign manufacturers direct and believing in the false economy of doing away with the payment for the consulting engineers and basing their projects on invoice offers. However, in many cases they have realized after employing reputable consultants as to the final gain they have been able to achieve at the end. Similarly, private people in the field of housing have started appreciating services of consulting engineers and architects with an increasing degree particularly after being in a position to compare the two systems. It is hoped that the House Building Finance Corporation with its future aims and objects to act not only as a banking institution but also to promote development schemes will be able to utilise services of consulting engineers and architects. The establishment of P.I.D.C., P.I.C.I.C., P.I.F.C.O., Small Scale Industries Corporation, etc., have further helped in strengthening operation of the consulting engineers, especially in the field of industrial projects. There is, however, dearth of experienced and specialized workers in the field of industry, who can constitute the core of the profession, which needs benefit through and support of constant research and experimentation. For this reason it is necessary that our own workers and specialists in this field must have a proper collaboration with the foreign organisations because it is very difficult for our own country to compete with the foreign nations in spending large sums of money on industrial research, The best manner, therefore, to benefit from the results

of such a research is to enter into proper working collaboration with the foreign consultants in such a manner that our local organisations are able to discharge an important role.

Contracting profession and the consulting engineers

The private contractors in a large number of cases have started utilising the services of consulting engineers. This has been necessitated due to certain tendering rules by some of the departments. Such contracting organisations, who could not employ their own qualified engineers have been able to satisfy such clauses through the employment of consulting engineers. There are a few contracting organisations in the country who have their own design offices and who are keen to handle the jobs on the basis of design-and-build procedure. However, this practice is now gradually being minimized and both private as well as public projects are generally being executed on the basis of a competitive design to be fixed first and tenders to be called later. This arrangement has been found in the longer run to be less costly and less time consuming. It has also enabled the authorities to have a basic common standard according to which certain comparison could be drawn between different proposals.

General consultants

The two WAPDAs initiated appointment of general consultants who were primarily responsible for fixing the overall development programme for these organisations and determine priority of use of given resources for a sea of projects. They were debarred from having any interest in any specific projects for their detailed engineering. Their appointment was made on the basis of certain number of years and not restricted to any projects. Such a step was taken so that while giving views about the economic and engineering feasibility of some of the projects these consultants have no interest in the subsequent phases of detailed engineering of these projects and they may not be induced by their business interests to justify these schemes even in the border line cases.

Policy of the Government

The Revolutionary Government has at every step encouraged the establishment and utilization of the services of private firms of consulting engineers. In fact, the Finance Ministers' Conference convened during

1959 decided some of the policy issues according to which directives were issued to standardize as far as possible the working procedures according to which Pakistani fims of consulting engineers should be encouraged and also the manner in which agreements with the foreign firms of consulting engineers should be entered into with the basic aim of not supplanting but supporting our own firms of consulting engineers in the country. There has been a gradual change towards utilizing services of reputable firms of consulting engineers in preference over individual experts who used to be engaged under various technical assistance agencies from foreign countries. Such a step has automatically led to support of the idea of firms of consulting engineers rather than individual experts who come into the country and express their opinion without any serious responsibility. This, by the way, formed a major and strong recommendation in my Paper contributed to the Institute of Engineers during 1957. Even the foreign countries have started realizing the benefits in entrusting examination of various projects to firms of consulting engineers rather than individual experts.

Relationship between Consulting Engineers and Consulting Architects

The profession of consulting architects is even though a little older than the consulting engineers in the country, yet is undergoing the same teething problems as the consulting engineers. There are a few instances where the engineer-owner has employed architects in his organisation and *vice-versa* architect-owners have also engaged engineers on their pay rolls. However, the general feeling is to have the two professions separately set up and then have collaboration on specific assignments so that work of the engineers and of the architects is properly defined and not mixed together. In one or two cases, engineers and architects have set up jointly owned consulting firms which are functioning successfully.

Problems of honouring the agreements

There have been serious problems on agreements with the consulting engineers not being fully honoured by various agencies as a result of which a lot of time of such consultants has been spent in following up the non-technical and business clauses resulting in wastage of the time of their technical experts in the country. This is particularly true for the clauses of the agreements relating to the income-tax, duty on imported articles,

arbitration and relationship between the amount of fee to be paid and the phases of work to be done. The Government at present is, therefore, trying to standardize some of these clauses as far as possible. It is desirable that these agreements are seriously examined and thoroughly gone into with respect to all their details at the stage of signing them rather than being microscopically checked up at the time or their implementation. Some or the delays in honouring the financial commitments on part of Government and other agencies in the country and payments of dues to the consultants has served as a deterring element to the profession. It is hoped that such like problems in the initial stages of operation of this profession will be overcome pretty soon.

Repercussion of foreign assistance on the consulting profession

The future of consulting engineering profession and practice in Pakistan will be affected in a major way depending upon the regulations which govern the foreign assistance from different countries. So far very little recognition has been given by these foreign countries to the importance of encouraging our own consulting engineering profession in the country mostly because these firms are very young and they have not been able to establish their position with any strength on an international level. Moreover, the basic policy, according to which this aid programme is operated, requires encouragement of the nationals of these countries both in industry as well as consulting and contracting organisations. There are, however, international independent financing organisations, like World Bank, F.A.O., Ford Foundation, and International Development Authority recently established which do recognise consulting engineers without any restriction of political background or the national barries. The profession in the country has to clearly understand the system according to which foreign assistance or the credit from different countries is advanced to Pakistan. Any country will like to employ consulting engineers of their own nation whom they can hold responsible for the professional opinion which they express regarding the feasibility or the soundness of a given scheme. It is difficult for them to expect same reliance from nationals of another country on which they cannot have such strong hold. The Development Loan Fund and the I.C.A, regulations make it necessary to utilize those funds through firms of American origin. However, there is no bar for these firms themselves to associate with the prior approval of these organisations with Pakistani firms of consulting engineers.

Same is true regarding the credit facilities which are being advanced from U.K. or the continental countries. The Special Fund Programme which is being set up by the United Nations for which they are appointing various executing agencies also concede sub-letting through appointment or independent consultants, or direct appointment of consulting engineers as the execution agencies on behalf of U.N.O. Some of the projects which have been so far approved for Pakistan stimulate working of F.A.O. from Rome as the executing agency especially for the soil survey for of whole Pakistan and hydrological survey for East Pakistan. Similarly, the mining survey has to be carried out dy U.N. under arrangements with U.N./T.A.A. These projects offer an attractive proposition for Pakistani firms of consulting engineer. However, they have to build themselves up efficiently and to such a degree that they are able to create a good impression not only on F.A.O., but also on the likely firms of consulting engineers from abroad whom these agencies may select.

It is necessary for rhe consulting engineering profession in Pakistan to understand some of the typical problems through which the consulting engineering profession is undergoing especially in the continental countries where industry is established in a very strong manner. This is particularly true of Germany and Italy as well as of France. Most of the industrial organisations are established in these countries in such a manner that they have their own planning and design facilities directly controlled by the manufacturing interests. These countries do not believe so much in the utility of independent consultants which according to them is a young and infant profession lacking experience and know-how to create confidence in the mind of old established industry having their own background and traditions. However, the increased activity for operations on internationai level is making it necessary even for these countries to recognize the importance of independent consulting engineers in the same manner as America and U.K are practising. It has already been fully realized that the success of any credit programme depends upon how efficiently the given number of development projects are investigated and prepared because the attainment of such mutual programmes is really the multiplication of successfully implemented individual schemes. This is particuarly true of the private projects forming part of such financial assistance programmes. Therefore, it has become very important from the point

of view of international relations and to achieve success of such foreign assistance to the developing countries that the consulting engineering profession in those countries is really strengthened. Government of Pakistan themselves have to make best use of the opportunity effered by foreign assistance programme in simultaneously building up our own consulting engineering profession in the country. This is possible if at the time of obtaining such foreign assistance programmes or the loaning of such credit, we use such consultants within the country who will then automatically get a proper recognition of their existence by foreign Governments as well as the foreign independent consultants, who in due course of time have to act as the spokesmen for sponsoring such aid facilities. Holland is a good example in Europe where Government recognised the importance of the consulting engineering profession and who encouraged engineers even in the Government Department to be temporarily spared to work for private firms as consulting engineers so that these organisations of umbrella formation could assist private independent firms of consulting engineers on different projects in the foreign countries. This automatically builds up the industry of Holland and certainly strengthens the ties with various outside develepment countries. It is very important that our own consulting engineering profession in Pakistan should keep themselves in touch with the trends of developments in foreign countries which are dealing with us in matter of financial assistance on different projects to strengthen our economy.

Consultants to build up prestige of engineering profession

This profession, besides other advantages to assist in the speedy economic development of the country, will also help in creating attraction of capable young men to enter the engineering profession. Contrary to the practice in foreign countries our top brains are being atttacted today by non-technical services and administrative posts rather than the scientific and the technical fields. This is a serious handicap in the field of overall development of the country because we have not been able to create right atmosphere for proper research which can lead to solution of problems facing our country, preferably through our indigenous resources. There are many examples where young capable technical officers after getting training abroad are going out of the country and adopting foreign citizenship because they find rather disappointing state of affairs in the engineering departments in the country and the manner in which second rate position

is assigned to the technical profession. The strength of the consulting profession besides other things will play an important role in increasing the respectability of not only the contracting profession, but also of the engineer's in general and create a recognition of their importance and value to the Government for which first aim is economic development to create a welfare state and not build an empire through law and order alone.

Foreign investment

Consultants can play a major role in attracting foreign investment in the country. So far, Government has not given proper recognition and employed our consultants for this pursose. Most of the foreign missions which are deputed by foreign countries to assess our schemes do contain experts in different lines but our own Government has not made similar use of our consultants in the missions being sent abroad. It is definite that if our authorities make full use of our own consultants they will be able to create more confidence of foreign investors and flow of much needed hard currency will be stimultated in the country's economic development campaign.

Consulting Engineers as a means to strengthen our international relations

There are certain countries less developed than Pakistan where we can export our technical know-how in the shape of our own consulting engineering profession working especially in the field of irrigation and certain other sectors where those countries can certainly learn from our achievements. This is true of countries, like Saudi Arabia, Nigeria, Algeria, Ghana, etc. We can also establish good relationship with U.A.R., Iran and certain other countries of the Middle East so that our own engineers can help the Government in cementing their foreign relations with these nations in the best possible manner. This will help the export drive of our industrial products considerably. The establishment of this profession in the country is, therefore, not only necessary to encourage foreign investment and increase the level of foreign assistance, and its efficient utilization, but also to boost up our own industry and boost up the export drive to earn foreign exchange for the country.

Conclusion

No doubt the consulting profession in the country is going through teething difficulties, at present, yet the appreciation on the part of new Government and policy declarations on different occasions are a very healthy sign which should be fully utilized by this profession in organizing itself on very strong and well built foundations. The profession has really to be very cautious at this stage so as to create a good reputation around its manner of operation and then launch its expansion and careful working independently or in collaboration with the foreign consultants so as to derive the maximum benefit from foreign research. No doubt the Government must give proper support and patronisation in practice and not only in words but it is upto the profession also to watch its future and prove its worthiness and utility to the Government and, therefore, obtain proper recognition at all levels.