

WORKING OUT A RATIONAL INSTITUTIONAL FRAMEWORK FOR THE DEVELOPMENT OF THE CONSTRUCTION INDUSTRY

Jorge Lopes¹ and Francisco Loforte Ribeiro²

¹ *Department of Construction and Planning, Polytechnic Institute of Bragança Quinta de Santa Apolónia, Apartado 134, 5301- 857, Bragança, Portugal*

² *Instituto Superior Técnico, Departamento de Engenharia Civil e Arquitectura, Secção de Estruturas e Construção, Av. Rovisco Pais 1, 1049 Lisboa, Portugal*

It has long been recognized that contracting procedures and contracting practices have had a major effect on the efficiency and performance of construction projects (World Bank, 1984). In order to face the demands of the Economic and Monetary Union, coupled with the globalization of the construction market, unprecedented institutional reforms pertaining to the construction industry and related sectors in Portugal have been implemented. However, a recent study (E & T, 2000) has emphasized the lack of an adequate information flow among the different parties of the construction process.

This paper is part of a wider research project that attempts to investigate the impact of contractual arrangements, and of the role of the client's representative on the performance of construction projects in Portugal. The methodology comprises a questionnaire supported by a literature review, and in-depth interviews with client's representatives, consultants and top managers of construction enterprises.

The first part of the research, which is presented here, reviews the Portuguese legal regime on the construction industry activity concerning both the construction and design stages, and the property market. Additionally, the insights gained from a pilot study are also presented. Preliminary findings are that the functions of the client's representative are not clarified in the Portuguese legal regime, and its role is not well perceived by both clients and other contributors to the construction process.

Keywords: client's representative; contracting procedure, economic and monetary union; Portuguese legal regime.

INTRODUCTION

The Portuguese construction industry is composed primarily of a large number of small companies, some of which being individual members. In 1998, the industry comprised over 63,000 contractors (civil engineering, building and installation companies) with more than 93% being enterprises with less than 9 employees. Construction employment contributes about 10% to the national employment and the share of construction in gross domestic product (GDP) is about 6.7%.

As a country that successfully participated in the Stage Three of the Economic and Monetary Union (EMU), Portugal took advantage of the economic and institutional convergences of the pre-EURO process. The easing in interest rates and increasing demand in all segments of the construction market has been the pattern since the beginning of the last decade. A more complete account of the impact of the EMU on

¹ email: lopes@ipb.pt

² e-mail: loforte@civil.ist.utl.pt

the construction industry can be found in a paper by Lopes and Ribeiro (2000). In the legislative front, unprecedented reforms pertaining to the construction industry and related sectors have been implemented. Despite this apparently bright picture, additional reforms and policy measures are needed to tackle the drawbacks and market deficiencies of the industry. Globalization of the construction market and construction services, the slowdown in construction growth rate, changing structure of the construction market, the challenges derived from quality, health and safety and environmental aspects are major concerns for the industries pertaining to the built environment.

To take into account these changes, the industry needs the cooperation of all its participants- government, construction enterprises, consultants, property companies, financial institutions, etc. However, it is generally unchallenged that the government in its three-fold role - main regulator, major client and a catalyst for the modernization of the sector - is a key player in this process of change. The role of government in promoting the national construction has been long recognized (UNIDO, 1969; World Bank, 1984, to name but a few). The World Bank (1984) went further and suggested that contracting practices and contracting procedures in the World Bank member countries have a significant impact on the Bank-promoted projects. More recently Tilley *et al.* (1999) provided evidence that the quality of design and documentation has a major influence on the performance and efficiency of construction services. As regards public procurement procedures in Portugal, the developments pertaining to the World EXPO' 98 in Lisbon were a case in point. The organizational structure of Park EXPO, which combined in an effective way the enforcing roles typical of government bodies with a private project management structure, was a key factor in the successful development and upgrading of the eastern area of Lisbon (Resolution of the Council of Ministers 26/2000). Drawing on the experiences of the EXPO 98, the Government decided to implement a similar organizational structure in the implementation of the programme POLIS (Programme for Urban and Environmental Renewal and Upgrading of Towns).

The role of the Government and of the institutional regulations is also emphasized in a new approach that has been emerging for the study of the construction industry – the 'construction industry mesosystem'. This method of analysis "consists in using an unifying concept, the economic mesosystem, to study the construction industry based on the concepts of structuring characteristics, segments, groups of activities, operational configurations of players and institutional regulations" (Carassus, 2001).

It is then appropriate to investigate the way procurement procedures and contractual arrangements (including clear definitions of roles and responsibilities of different parties) impact on the efficiency of construction services. This paper describes the research methodology adopted in the study. Secondly, it presents an outline of the Portuguese construction industry mesosystem. Thirdly, it reviews the institutional framework pertaining to the procurement procedures and contractual arrangements in construction projects. The paper concludes with the summary of the results of the study, and proposes further developments.

RESEARCH METHODOLOGY

As earlier referred, the study presented here is part of a research project that seeks to explore the impact of contractual arrangements, and of the role of the client's representative on the performance of construction projects in Portugal. Although the

research is at an evolutionary stage and the research approach needs to be refined, the intended methodology comprises a questionnaire supported by a literature review, and in-depth interviews with client's representatives and industry associations' representatives (consultants and contractors).

As a first step of the research, this study reviews the legal framework pertaining to construction industry activity concerning both the construction and design stages, and the property market. Relevant account in media and the study of documentation regarding five public work projects are also used. Additional information stems from a pilot study consisting of in-depth interviews conducted on five client's representatives of state-owned projects (including a client's representative of the POLIS Programme).

THE PORTUGUESE CONSTRUCTION INDUSTRY MESOSYSTEM

According to Carassus (2001), the construction industry mesosystem consists of segments, which are professions or sectors. In construction, there are three main groups of activities.

The first group of activities concerns the continuous management of the existing stocks of structures and property transactions. Continuous management of structures or facilities is a three-dimensional service: asset management (strategic stock management by decisions to purchase, sell, renovate, demolish, build); property management major repairs and administration), facilities management (management of services provide to the end-user, operations, day-to-day maintenance). As a means of simplification, these activities are associated with another kind of service activity: real estate activities- the purchasing and selling of new or existing facilities.

The second group of activities refers to the short-lived design and management and production assembly on sites. These activities cover on the one hand, service activities involving project management (order, design, co-ordination and control of new construction and major repair operations) and, on the other hand, the implementation of these activities on sites.

The third group of activities evolves around the industrial production and distribution of materials, components, equipment and plant, which are implemented, assembled and installed by construction firms on sites.

The Portuguese construction industry mesosystem is characterized by the important role played by central government, the relatively significant role played by local government and professional associations, and the almost insignificant role played by trade unions and users associations. Another player is becoming increasingly influential- the European Commission (see e.g. the directives on construction products, health and safety on worksites, and on public procurement services).

The principal promoters in the construction market are the central government and local private housing investors, but international investors and financial companies have been increasingly playing an important role, namely in the commercial property sub-segment and construction works in the concession regime.

The construction firms segment is highly fragmented though a distinction may be drawn between civil engineering and building sub-segments. The former is mainly the domain of larger construction companies due to its higher technical level and the need of large amount of financial resources. The recent development of capital markets influenced the operation environment of major national construction enterprises

through merger and acquisitions. Another recent feature is the market diversification of these companies, namely in the property segment (particularly housing sub-segment) and utilities services. It is also worth noting that according to Portuguese Law, the concession consortiums must include at least one construction company.

The design sub-segment is a distinguished characteristic of the Portuguese system. All graduate construction professionals, except architects, are civil engineers. The civil engineers act as quantity surveyors, and urban planners are either architects or civil engineers. The main association of the designer profession is the Portuguese Association of Consultant and Designers (APPC).

Although the enforcement of the rules regarding the built environment pertains to the central and local governments, there has been an increasing concern for the part of industrial and professional associations for the safety and environmental aspects of the built environment.

A REVIEW OF THE INSTITUTIONAL ENVIRONMENT OF THE CONSTRUCTION INDUSTRY

Law of Contracts, Competition and Procurement Systems

The Portuguese law (art.1207° of the Civil Code) defines a project as a contract whereby one of the parties guarantees to the other that he will undertake certain work for an agreed price. According to Martinez (1990), there are three essential features of a construction project: the parties; the execution of a job; and the payment of a fee. Thus, according to the legal definition, the same features also apply with restrictions to other construction services (design services, project management services, subcontracts, works in concession regime). In public works contracts, the owner of the project may be the State, a public association, a public institute, a public enterprise or a municipality (art.3° of the Decree Law 59/99). The Civil Code and Decree Law 59/99 for, respectively, private works and public works, state the rights, duties and obligations of different parties. For example, the contractor is liable not only for infractions against his duties under the terms of the project contract (e.g. defective compliance) but also for failure to comply with any legal requirements which directly affect a third party. As regards the owner, he has the right to supervise the execution of the work but he must not interfere with the ordinary progress of the job - the notion of good faith. Or the owner's right to make alterations on the works with the ensuing obligation to pay an indemnity to the contractor. It is worth noting that in some cases the contractor's liability is excluded pursuant to those legislative provisos. For instance, the impossibility to carry out the work at the present state of art or if the defects shown in the work appear in work of its nature, or if the defect could not be avoided on account of the degree of accuracy that can be demanded from the contractor.

The characteristics of construction influence the competition of the construction market. Construction in Portugal is mainly a local market. Any company that wants to compete outside its own local market are charged with transportation costs for labour, material and equipment. This is the case for small companies, which generally carry out their activity in the house-building segment of the construction market (low - capital intensity and less complexity of works). There are, in general, few barriers to entry, with the exception of some segments of the industry, namely in civil engineering works, office and retail markets, which are the domain of major national companies. As regards the latter companies, there is a growing trend in diversification

of services, which have been enhanced by the participation of banks and financial institutions in the capital of construction companies. According to INOFOR (1999), the quotation of construction enterprises in the stock exchange can only be potentiated if the barriers to entry are sufficiently effective, in conjunction with structural changes that differentiate trademarks and enterprises with high profitability (implying necessarily stability and recurrence in profits). According to the Decrees Laws 60/99 and 61/99 (Regime of Entry and Permanence in the Construction Activity) the construction enterprises are classified as either public work contractors or private work contractors.

In both categories, there are further the division in classes: from class 1 to class 10. Thus a class 1 enterprise can only undertake works up to 125,000 Euros and in a class 10 enterprise there is no limited value for its activity. Besides financial and economic capacity, the enterprises are differentiated by technical capability.

As far as the qualification of the design professionals, the legal regime is far more ambiguous. It is worth noting that all graduate construction professionals are either architects or civil engineers. According to the Decree Law 73/73, the architects are the sole qualified for undertaking architectural designs in restricted areas and those concerning historical buildings. In other kind of architectural designs, these professionals compete either with 'technical civil engineers' or with civil engineers, the first of the latter two being educated with a three- years degree, the second with a five-years degree. In terms of engineering design and direction and management of construction works, technical civil engineers and civil engineers are the ones that are entitled to carry out these activities. However, the Decree Law 73/73 stipulates that in construction projects of great complexity both the design and execution of works 'should' be under the responsibility of a civil engineer, but no definition of 'great complexity' is given. As regards project management and real estate professions there are no educational provisions or any legal regime that regulates the activities of these professionals. It should be noted, however, that some design consultants act also as project managers, particularly those that are members of the Portuguese Association of Designers and Consultants (APPC).

The traditional approach on procurement practices is by far the most commonly used in construction projects, even in public ones. This may be derived by both cultural reasons and the latent conflicting objectives of different parties in the construction process (interview). Owing to the changing industry structure, new contracting practices such as design-build and build-own-operate-transfer are being adopted. In 1999, the investment through the involvement of private sector accounted for 32% of the country's total investment in the civil engineering segment (ANEOP, 2000). Instead of the traditional reliance on tight prescriptive specifications and low-price selection criteria, those practices, allow, according to some advocates, best value for money. Several authors have already referred to the resistance to their use among some clients, many of whom are concerned about the quality of the finished project, inaccuracies in the clients brief, conflict between the brief and the contractors proposal, and the dubious quality of the work done by some firms (for a more detailed account on this subject see e.g. de Valence, 2001). As regards Portugal, account in media with reference to the concession of road projects points to the risks associated with this kind of procurement practice, particularly the excessive weight given to the price factor in detriment of safety.

As regards the tender procedures and selection criteria, there are different ways to invite tenders for project contracts: open tendering, invited tendering, and negotiated tendering. The most favoured way in public work contracts is open tendering according to the stipulated in the Decree Law 59/99. According to EU directives, if the estimates of the value of the works are equal or higher than 5 mn Euros, the invitation to tender shall be advertised in the *Official Journal of the European Communities*. The art.105° of the Decree Law 59/99 also stipulates that the works shall be awarded to the most ‘economically advantageous’ tender, i.e. implying the weighting of different factors, namely ‘the price, time, the cost of utilization, the profitability and the technical value of proposal.’ This appears to be somewhat contradictory to the stipulated in the art. 67° of the same Decree Law, which states that ‘the certificate of public work contractors constitutes a presumption for the capacity to trade, technical capacity and economic and financial capacity’ As regards the price factor, it is interesting to note that the Ministerial Order 15 / 72 (as amended in 1986) from the Ministry of Public Works provides instructions for the establishment of the fee level of project designs in public works (it is debatable whether the ministerial order applies to all public projects or only to those promoted by this ministry). What is unquestionable is that the price factor is one of the criteria for the selection of designers in public work projects (Decree Law 197/99) and the fee level rarely is higher than 5% of the price of the projects (interview). The value stipulated in the Ministerial Order varies from 7 to 8%.

As earlier noted the quality of design and documentation has a major impact on the performance of construction projects. The consequences are well known: cost overruns, delays, litigations, which are of no interest to all parties. A distinguishing feature of the Decree Law 59/99 compared to the previous legal regime of public works is the insertion of the section “Cost Control Regime on Public Works”. The legal procedure for the control of extra- works in public work contracts is schematically represented in Fig.1. It can be seen that a tender procedure is required to proceed with the extra -works when their value are either higher than 5mn Euros or higher than 25% of the value o the contract. When the value of the extra works varies from 15% to 25% of the value of contract, the competent authority to approve the former is the representative of the concerned government department. Besides the effective control of the State accounts, it can be argued that the purpose of this legal procedure is to ensure a fair competition practice in the tender stage of construction projects. Meritorious as it may be, this regulation should be accompanied by two other important legislative measures: i) the regulation/ clarification of the legal regime concerning the design and project management professions; and ii) clarification of the selection criteria for designs in public works projects (interview).

The Exceptional Procurement Procedures of the POLIS Programme

As earlier noted, the POLIS Programme is an integrated programme for the urban and environmental renewal and upgrading in eighteen Portuguese medium towns. The main objective of this programme, which seeks to disseminate the urbanistic and organizational experience of the EXPO 98, consist in “the improvement of the quality of life in towns, through interventions in the urban and environmental spheres, with the aim to enhance the attractiveness and competitiveness of urban poles.” (Resolution of the Council of Ministers 26/2000), Thus the Government recognizes that although urban areas are the ‘gears’ for national economic and social development, their role might be compromised if the problems derived from the quality of the environment are not properly addressed.

The investments in the programmes, which amount to 800 mn Euros and span the period 2001- 2004, are financed partly by EU structural funds (460 mn Euros) and partly by Government and municipalities (340 mn Euros). In order to achieve the stated aims a series of institutional measures were devised. In each of the 18 towns, a public company (partnership between Government and municipalities) was created to implement the programme. Other exceptional measures that concern the POLIS programme companies are: the power to implement the process of land expropriation; the exemption of property transaction taxes and other taxes in the respective areas of intervention; the competence to issue licence permits in the areas of intervention; the selection by open tender of a project management company to manage the developments of the programme. In terms of organizational structure, the POLIS companies are in direct dependence and accountable to the Minister of the Environment through the National Coordinator of POLIS Programme. For reasons of uniformity, the Government decided to choose a public company (Park EXPO- Project manager of EXPO'98) to undertake the strategic plan of all 18 programmes. As can be seen in Fig. 2, this company was also directly selected to provide project management services in 9 interventions of the POLIS Programme.

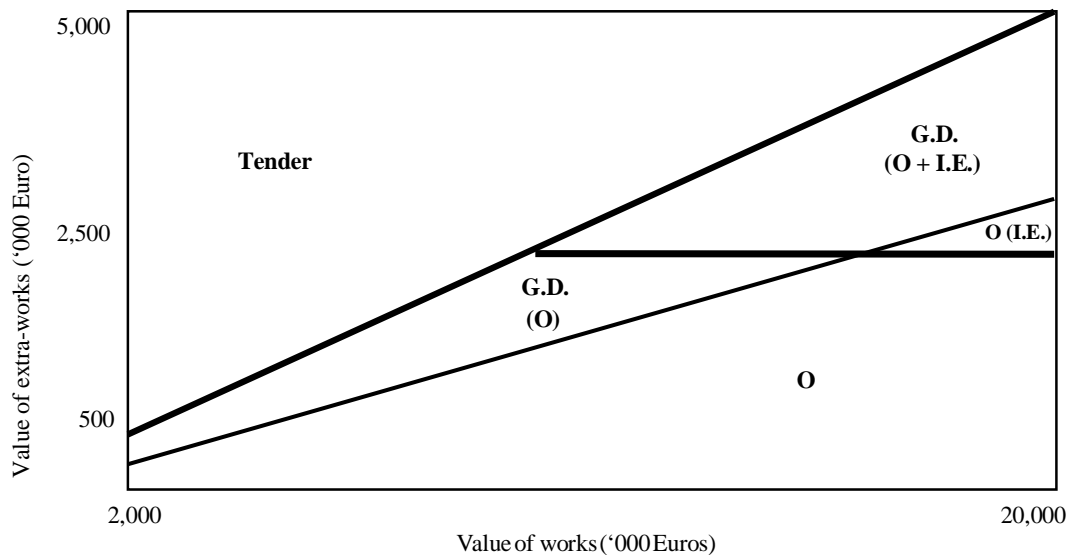


Figure .1: Control Procedures of Extra- works in Public Works

- Ö – Owner
- G.D. – Government Department
- I.E. – Independent Expert
- () – Based on recommendations of ...

A distinguishing feature in this procurement procedure is the existence of project management services, which constitute rare situations in both public and private work contracts. The minimum standard to bid for these services is the company's certification with both ISO 9001 Standard and with the highest level of LNEC (National Laboratory for Civil Engineering) Trademark in Quality management. The weights of the selection criteria were: price – 30%; technical quality of proposals - 70%.

Other considerations can be drawn, which are derived from the study of the contract documents and also from the interviews:

the procurement procedures comply with the legal framework of public work projects as well as relevant EU directives

the role of the client's representative is typical of an executive project management structure (see Walker, 1996) . He is in charge of the coordination and control of all services in the intervention, as well as the selection and the establishment of criteria selection of all participants in the process. Furthermore, in the selection of designers, he must act pursuant the stipulated in the above mentioned Ministerial Order.

the client's representative must comply with the provisional budget of the project and is responsible for the control of the provisional budget of the other parties (designers, consultants, contractors, suppliers).

The roles, duties and obligations of the project managers in the POLIS programmes are clearly defined, and the eventual penalties derived from infractions of its duties are unambiguously established. This contrasts with the role of the client's representative in normal public projects, which seems to be merely that of a supervisor of the client's works.

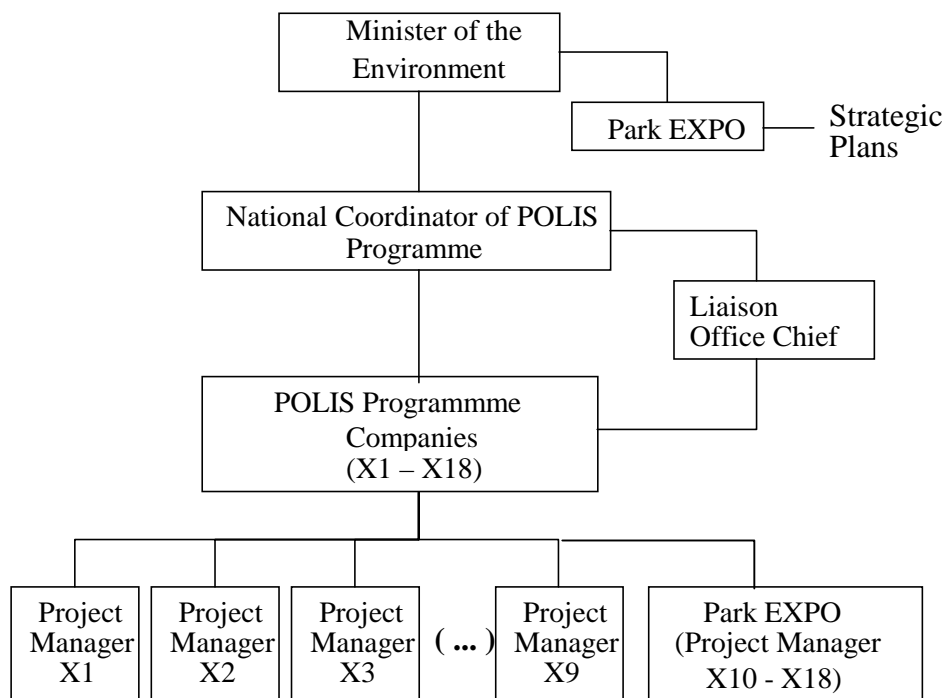


Figure 2: The Organizational Structure of POLIS Programme

CONCLUSIONS AND FURTHER DEVELOPMENT

This study presents an overview of the procurement procedures and contractual arrangements pertaining to construction projects in Portugal. It constitutes an attempt to digest and present, though broadly, the dispersed legislative material in a way more suitable for industry analysis and international comparisons. Although recent

legislative initiatives pertaining to the construction industry, in conjunction with those that stem from the convergence process within the EMU, have produced positive results, other important policy measures are needed to prepare the industry for the changing environment.

Although the research is at an evolutionary stage and the methodology needs to be refined, it appears that an integrated approach that sees the industry as a “complex” of varied and inter-related segments, and the regulation /clarification of different participants in the industries pertaining to the built environment is a primary step to overcome some of the drawbacks of the industry.

The investigation of the impact of contractual arrangements, and of the role of the client’s representative on the performance of construction projects is the scope for further development.

REFERENCES

- AECOPS (2000) *Relatório Anual da Construção*, AECOPS, Portugal
- ANEOP (2000) *Construção e Obras Publicas, Relatório Trimestral*, ANEOP, Portugal
- Carassus, J. (2001) Innovation and ‘Construction Industry Mesosystem Analysis. *CIB World Building Congress*, Wellington, New Zealand
- De Valence, G. (2001) Trends in Procurement of Urban Infrastructures: Implications for Developing Countries. *CIB World Building Congress*, Wellington, New Zealand
- E & T (2000) *Engenharia & Tecnologia 2000 - Relatório do Sector de Construção*, Portugal
- Impresa Nacional Casa da Moeda – INCM (1972) *Ministerial Order 15/ 72*, INCP, Portugal
- INCM (1973) *Decree Law 73/73*, INCM, Portugal
- INCM (1999a) *Decree Law 59/99*, INCM, Portugal
- INCM (1999b) *Decree Law 197/99* INCM, Portugal
- INCM (1999c) *Decree Law 69/99* INCM, Portugal
- INCM (1999d) *Decree Law 61/99*, INCM, Portugal
- INCM (2000) *Resolution of Council of Ministers 26/2000*, INCP, Portugal
- INOFOR (2000) *Sector de Construção e Obras Públicas*, Portugal
- Lopes, J., and Ribeiro, F., (2000) Construction Industry in Portugal: Macroeconomic Analysis and Future Trends. *Proceedings of the Sixteenth Annual ARCOM Conference*, U.K.
- Martinez, P., (1990) Legal Aspects in Building Liability during and post Construction. 2^o *Encontro Nacional de Construção*, Portugal
- Tilley, S. L. *et al.*, (1999) Design and Documentation Quality, and its Impact on The construction Process. *CIB W55 & W65, Joint Triennial Symposium*, Cape Town, South Africa
- UNIDO (1969) *Construction Industry: Industrialization in Developing Countries: Problems and Prospects*, UNIDO Monograph N°2, Viena
- Walker, A., (1996) *Project Management in Construction*, 3rd edition, Blackwell Science
- World Bank (1984) *Construction Industry: Issues and Strategies in Developing Countries*. IBRD, The World Bank, Washington D.C