



Construction in Developing Countries

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Guest Editorial

Construction in Developing Countries

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A tribute

This special issue of the journal is in honour of Professor John Andrews, one of the major contributors to the body of knowledge on the construction industry in developing countries, which is the theme of this special issue. John died in Chichester, England, on 9 November 2003 at 79 years of age. With Professor Duccio Turin and Dr Patricia M. Hillebrandt, he pioneered studies on the construction industry in developing countries at University College London (UCL) in the early 1970s (see, for example, Andrews *et al.*, 1972). John coined the phrase ‘construction industry development’, developed one of the first Master’s level modules on it, which he taught on the MSc (Construction Economics and Management) programme at UCL, and established the Construction Industry Development Unit at UCL which was a vehicle for research and consultancy assignments.

John was a consultant to the World Bank and many governments of developing countries, notably those of Egypt, Ghana and Vietnam, and prepared several useful reports which provided insights into the industries in these countries. He was the Director of the Construction Management Programme of the International Labour Office which covered African countries, in its formative years in the 1970s. John had a deep understanding of construction in the UK—he worked in government before joining UCL as a lecturer, and was an adviser to Wilmott Dixon for several years. He wrote many seminal papers on construction, such as that on the history of the profession and its influence on the current roles of practitioners. He also had a special interest in the industry in Japan, which he tried to explain to other researchers—he was made an honorary citizen of the city of Osaka. Some of the major subjects of John’s research were: joint ventures and consortia; technology transfer; and cross-discipline issues in construction and

education (see, for example, Andrews, 1987; and Andrews and Derbyshire, 1993).

In his roles as Director of the MSc (Construction Economics and Management) programme at UCL, Director of the World Bank funded graduate programme on transportation and development at the Institute of Technology Bandung, Indonesia, visiting professor at the University of Sains Malaysia, and as a supervisor of doctoral theses, John influenced many students from several countries who studied under him, developing in them an interest in the improvement of the performance of the construction industry as a whole through strategic policies and central direction, and innovations in procedures and processes on projects.

John would have approved of the breadth of the topics covered by the papers in this special issue. They constitute a small addition to the body of knowledge on construction in developing countries, the foundations of which John had helped to build.

The critical need and the state of the field

The fight against poverty, illiteracy, high infant mortality, low life expectancy and other manifestations of a low level of socio-economic development has assumed a new urgency over the past few years. Practical steps are being taken at various levels. At the international level, these include the signing of the Millennium Declaration by all the leaders of the world and the monitoring of progress towards the attainment of its goals and targets; and the cancellation of some or all of the debts of some countries. Bilateral initiatives include increased aid and liberalisation of trade. There is also remarkable philanthropy by some major business organisations and individuals. Researchers in construction have a duty to contribute to the effort to lift billions of people who live in developing countries out of poverty. Work done so far has led to the establishment of some key attributes of the construction industry and its activities, and the relationships among them, which

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show the merits of, and provide a basis for, such research. These include:

- Construction makes a major contribution to national socio-economic development by building the infrastructure and productive facilities (Wells, 1986).
- Construction is a large bona fide sector of the economy, contributing a significant proportion of the national economy during each period (Hillebrandt, 2000).
- Construction creates employment as labour-intensive technologies are viable.
- Construction takes place in all parts of the country and can be used to develop entrepreneurship, and transfer technologies to all the citizens of the country (Turin, 1973).

The literature suggests that the role of construction in the economy reaches a plateau when a country attains the middle-income stages as it progresses in terms of socio-economic development, and then declines as the country attains 'developed' status (Wells, 1986). Thus, there is some urgency for the research to be undertaken to propose the necessary action which must be taken now in order for the developing countries to derive the greatest benefit from the contribution which construction can make to national growth and development.

Despite the urgent need for research work on construction in developing countries, its pace has slowed almost to a halt. This observation is not new; Ofori (1993) noted that research on the subject had reached a crossroads. Several reasons account for this. First, the donor agencies of industrialised countries and the multilateral lending institutions that used to fund such studies have lost interest. Second, as many of the existing publications on the field are rather old and no longer readily accessible (see for example, Turin, 1973), researchers today tend to cover the same ground that was comprehensively dealt with many years ago, and little that is new has emerged for many years. For example, 'country studies' are being undertaken now which do not follow any of the established frameworks for such analysis such as those proposed by the World Bank (1984) and Ofori (1994). Moreover, the work currently being undertaken on small contractor development does not draw upon the excellent body of work coordinated by the International Labour Office (see, for example, Relf, 1986). Third, and as a result of the last point, the field lacks a deep and solid foundation on which to build, with the result that the few works which authors produce or seek to publish are seldom profound. Many of the research agendas for studies on the field which have been proposed by authors (see, for example, Ofori, 1993) have seldom been taken up.

Many new issues have emerged which require the attention of researchers on construction in developing countries. These include: (i) private sector involvement in the provision of infrastructure and other major construction projects; (ii) internationalisation of construction in the advent of globalisation and liberalisation of economic regimes; (iii) formation of regional economic blocs and common markets, including among developing countries; (iv) global consensus on the need to fight poverty; (v) international concern with sustainable development, especially environmental issues; (vi) threats of pandemics such as HIV/AIDS and avian influenza; and (vii) cultural issues on sizable projects.

The papers in this special issue

The papers in this issue may be categorised under the following broad topics: (i) globalisation and business strategies; (ii) project management and performance; (iii) sustainable construction; (iv) industry structure; and (v) culture. The papers cover some of the topics which are of concern in the field of construction in developing countries today.

Globalisation and business strategies

Lewis discusses, in broad terms, the impact of globalisation on the construction industries in the developing countries. He considers the key question of equity in the relationships among the groups of industrialised and developing countries which constitute the World Trade Organization (WTO), and the direct implications for the construction industries in the developing countries. He highlights some of the areas in which global trade perpetuates economic underdevelopment and suggests that fairness is more important than freeness of international trade. Lewis affirms that economic orthodoxy is not always right. For example, he observes that asymmetry in information distorts markets, and it is equally clear that asymmetry in other respects also distorts markets, especially when that asymmetry involves power and wealth. He expresses concern that the developing countries are, in fact, not developing, but falling further behind their industrialised counterparts, and that the consequent dependency is a consequence of the globalisation of trade. Lewis also observes that the construction industry plays an important role in providing employment, especially for the least skilled members of society, and it cannot neglect the role it plays in international trade; the industry must try to protect the weak. The paper benefits from the use of relevant quotations to support

or illustrate the key points made, many of which are quite profound. As globalisation is a phenomenon which is here to stay, and which will deepen in extent and effect in future, it is in the interest of the developing countries that research is undertaken on how their construction industries and firms can participate fully in, and benefit from, this 'inescapable and irreversible' process (as Lewis quotes Nelson Mandela as characterising globalisation in 2000).

The potential of linking the development of a country's construction industry and firms to changes in its economy resulting from globalisation and other factors is discussed by Cheah. China's economy has grown strongly over the past decade, and this growth has been led by, and also resulted in, a high volume of construction activity. Cheah observes that despite this expansion in construction work, not all local (Chinese) enterprises have the vision, knowledge and resources to capitalise on the growth opportunities. He suggests that the reason is partly historical, as many large construction firms in China used to be state-owned enterprises that did not have to compete for projects. He focuses on large Chinese construction firms and examines the type of strategic components required to build up competitive advantage in the medium and long term. He proposes a conceptual model which comprises five competitive strategies and five other important resources and competencies as the research variables. These variables are drawn from the industrial organisation theories and the resource-based and competence-based views. As the transformation of China from a planned economy to a market economy proceeds, the model will help large construction enterprises in that country to track the dynamic interrelationships among the strategic components, and to formulate appropriate medium- and long-term action plans.

Project management and performance

The catalogue of problems which face the construction industries in developing countries is well known; these problems culminate in poor performance on projects undertaken in these nations (see, for example, Ofori, 2000). Mbachu and Nkado address the dissatisfaction expressed by clients as a result of the failure to achieve set project objectives due to identifiable constraints. Whereas this issue is not unique to developing countries, the level of performance is poorer, and its effect arguably more serious in these countries. Mbachu and Nkado study the factors which hinder the successful implementation of building projects in South Africa, based on questionnaire surveys involving registered construction project management consultants and contractors. They classify them into 'controllable' and 'uncontrollable' factors, and note that

most of these factors could be found in all countries although the influence of each of them would differ in various countries owing to socio-cultural factors. Mbachu and Nkado proceed to examine the magnitudes of influence and the frequencies of occurrence of the project constraints, and develop assessment methodologies for the identification and risk-level evaluation of typical project constraints. They suggest that their research shows that by addressing the controllable factors, 67% of the perceived discrepancies between expected and actual outcomes of construction projects could be eliminated, and recommend the use of an Influence-Frequency matrix for mapping and studying project constraints. This is a framework for identifying and classifying project constraints, evaluating their risk levels, and developing responses to risks on such projects. The framework is simple, and could be applied by construction project managers in developing countries although it must be fine-tuned to reflect the context in each nation.

Public organisations must have the executive capacity and capability to deliver programmes and projects for which they are responsible as most of these are vital to national or sectoral development, and are funded from scarce resources for which there are ever increasing and competing needs. Rwelamila notes that the project management competencies of public sector organisations responsible for infrastructure development in most developing countries are poor although these organisations portray themselves as being able to manage projects effectively. He reports on a study of a large infrastructure department in South Africa, a country where such public organisations are 'under pressure to improve performance in order to address developmental constraints facing the country'. The study scrutinised the management of a premier programme (the development of small construction firms) by the department in order to establish its project management competence. This was done by evaluating the performance of the department in relation to its (the department's) mandate in relation to the programme, and the set objectives. Rwelamila adopted the case study approach, and used structured interviews of the officers of the department, the clients and other stakeholders to collect the necessary information. He found that in its current form, the programme does not have an appropriate organisation structure or suitable and adequate personnel to undertake its tasks and meet its objectives (owing to a reduction in the number of civil servants in the country, and limited budgets). He also found the programme's management system to be poor and at the lowest level of maturity. He suggests that, in its current form, the programme cannot fulfil its mandate without a fundamental overhaul which specifically addresses its organisational structure and the

quality of its personnel, as well as its overall management system. The delivery systems for national programmes should be integral parts of the design of such programmes. The design should be based on local circumstances, and also consider possible changes in the situation. The delivery system should be continually monitored based on feedback from the stakeholders, and necessary changes effected.

Sustainable construction

The peoples of the developing countries bear the brunt of environmental stress as many of them rely on the natural ecosystems for their livelihoods. Moreover, the governments of these countries lack the wherewithal to deal with the stress. Du Plessis suggests that, as a matter of urgency, action should be taken to ensure that the high volume of construction that will be undertaken in the developing countries in the process of urbanisation is done in ways that are 'socially and ecologically responsible'. However, there are numerous challenges to the introduction of more sustainable technologies and practices in these countries. These challenges range from the need to develop appropriate technology to that for supporting the formulation and delivery of professional educational curricula, enabling institutions and private and public sector buy-in. Du Plessis draws on the *Agenda 21 for Sustainable Construction in Developing Countries* which was drawn up by an international group of experts in a project funded by the United Nations Environment Programme (UNEP) and the International Council for Research and Innovation in Building and Construction (CIB) (CIB and UNEP, 2002). She presents a framework for a coordinated response to the challenge of limiting the social and ecological impact of construction. The framework puts stress on collaboration among all the stakeholders. The framework will guide a dialogue among the different levels of government, the broader construction industry, universities and research centres and civil society at national, regional and international levels towards the development and implementation of national and regional action plans for sustainable construction.

Yorucu discusses the causes and various aspects of the impact of the construction boom in the Turkish Republic of Northern Cyprus (TRNC) in 2002–05 which resulted from a peace plan brokered by the United Nations ('the Annan Plan'). He notes that the boom is driven largely by speculative demand for real estate, and has led to high prices. Yorucu notes that a similar construction boom which took place in Taiwan in 1991–93 was followed by numerous bankruptcies and market withdrawals, market mechanism failure, increasing levels of housing vacancies and falling unit

prices. Yorucu models price speculation by using aggregate supply and aggregate demand for real estate. He applies a macroeconomic framework to analyse the principal causes and impacts of the construction sector on the TRNC economy, particularly in terms of income and employment. Yorucu compares developments in the construction industry in the TRNC with global construction trends, especially other small and island states, such as Hong Kong, Trinidad and Tobago and Singapore. The aspects considered include the relationship between construction value added and GDP per capita; construction output per person employed, and its effect on overall performance of the economy in terms of employment and wages. The construction boom caused environmental damage in the TRNC. Yorucu notes that as the TRNC possesses a unique and rare ecosystem in the Eastern Mediterranean, special attention should be paid to the environmental impacts of construction activity, highlighting environmental costs and deficiencies in land zoning regulations. Yorucu suggests that there is an urgent need for rigorous environmental legislation, especially at local government level. Like du Plessis, Yorucu notes that effective implementation of such initiatives will require collaboration between policy makers, researchers and practitioners.

Industry structure

There is inadequate knowledge of the structure of the construction industries in developing countries; even less is known of the changes in this structure over time. The informal sector is of special interest to the developing countries owing to its size and importance but it is not well understood. Wells notes that there is an increasing diversity in the interpretation of 'informal' construction activity, and that this is leading to confusion. She attempts to 'bring some clarity to the debate'. She suggests that there are four 'frequently interrelated' 'areas of informality': the informal sector of enterprises; informal labour; the informal construction system; and informal buildings/settlements. She notes that reports from many parts of the world (both developed and developing) describe increasing 'informality' in the construction industry. Wells investigates the various dimensions of informality. She argues that the essence of informality is the absence of regulation and since construction is subject to a wide variety of regulations different interpretations of informality are inevitable. It is important for the informal sector to be clearly defined in order to avoid misunderstanding as well as derive full benefits from the sector for the construction industries in the developing countries. The definition and clarification offered by Wells

provide the platform for further research on the sector such as the relationship between the formal and informal sectors which could be studied in order to gain synergies from practical combinations of the two sectors; the causes and effects of increasing informality; and measures that could be taken to address the adverse consequences.

Culture

The need to recognise, and deal with, cultural issues is critical in developing countries where sizable projects often involve foreign companies and/or professionals. Wong notes that the high demand for infrastructure and other major construction projects in South-East and East Asia in the past few decades has attracted a large number of professionals from several countries to the region. Many projects are, in effect, multicultural workplaces comprising expatriates and host-country nationals. To assess the potential influence of the intercultural interactions among project participants on the working styles of professionals, Wong investigates the leadership perceptions of, and power relationships among, Hong Kong Chinese and expatriate project managers from Western countries in the multinational construction firms in Hong Kong. Wong found that both manager groups place equal emphasis on task performance and interpersonal relationships. However, there was a difference between the two manager groups in the power relationships with their subordinates. Wong concludes that although both local and expatriate project managers are making some intercultural adjustments in their leadership perceptions, part of the dominant deep-rooted cultural values and beliefs cannot be easily modified. He suggests that there should be further research to investigate the influence of organisational culture on leadership perceptions as well as the impacts of the ingroup/outgroup distinction on project performance in the construction firms. The findings from the study by Wong are useful for senior management of construction corporations which operate in multicultural working environments as they would facilitate the appreciation and consideration of culture in the relationships among their employees from different countries, as well as their interactions with personnel from other firms, and, equally important but seldom appreciated, with the local population in the host countries in which they operate.

The future

The papers in this special issue hardly make an impression on the sheer volume of work required to

enable the construction industries in developing countries to be provided with the proper guidance to improve their performance and contribute to the economic progress which will lead to improvements in the quality of life of the people in these countries. Two areas where the need for action is, arguably, most urgent are globalisation and environmental issues. On globalisation, research should aim to equip firms in developing countries with the ability to adopt a strategic response to the presence of foreign firms in their home markets in order to benefit from doing business with them, learning from them, competing with them, collaborating with them, and adopting them as role models and benchmarks. On sustainability, work is required to reduce the contribution of the construction industry to environmental stress in the developing countries, for example, following the proposals in the *Agenda 21 for Sustainable Construction in Developing Countries*.

Researchers on construction in developing countries should take concerted action to ensure that the field does not become marginalised. The poor people of the developing countries are entitled to expect better from these researchers, most of whom, including me, have been educated by their indirect taxes, levies and other sacrifices.

What is to be done? The topics that require investigation are already highlighted in the many research agendas already available (including some recent ones such as Hillebrandt, 2006; and Kumaraswamy, 2006). The following set of coordinated actions could be taken: (i) formulation of, and agreement on, definitions of key terms in construction in the context of the developing countries; (ii) development of, and agreement on, frameworks for studying national construction industries and aspects such as human resource development, technology development and corporate development; such common frameworks would enable comparability and further development; (iii) maintaining continuity in the research on each of the topics in the area until a clear understanding of the topic has been established; and (iv) coordinated international research projects on selected topics. This programme could be spearheaded by an international group such as CIB W107 on Construction in Developing Countries. Another relevant point was made by many of the authors of the papers in this special issue: they proposed collaborative action by several stakeholders in, or relating to, the construction industry. There should also be a championing effort which brings research and practice closer together and ensures that the proposals are implemented to bring about the change and improvement which is urgently required.

I believe that the future of this field is bright. Greater focus by both governments and their international

partners on a development agenda will result in attention on the role of construction in such programmes. Debt relief and cancellation, and rising commodity prices will provide more funds for developing countries to invest in building and infrastructure projects, providing local industries with opportunities for sustainable growth. The improved economic conditions and prospects will also compel foreign firms to view these markets from a longer-term perspective, and develop strategies which involve alliances with their local counterparts in the host countries. In the medium term, the development of China, India and Brazil will, at last, provide the time series data which are required to build appropriate models of the role of construction in national progress, and strengthen the argument on the importance of the industry. What is necessary is high quality research which builds up the body of knowledge, and also leads to the formulation of policies and initiatives that lead to real improvements in the lives of the citizens of the developing countries.

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