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on the Construction Industry\*

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CONSIDERATIONS FOR THE PROMOTION OF THE  
CONSTRUCTION INDUSTRY IN THE DEVELOPING COUNTRIES  
AND INTERNATIONAL COOPERATION

Discussion paper\*\*

Prepared by  
the UNIDO Secretariat

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\* Organized by UNIDO in cooperation with the University of California, Berkeley, and the California Foundation on the Environment and the Economy (CFEE).

\*\* This document has not been edited.

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## 1. INTRODUCTION

The Second Consultation on the Building Materials Industry held in Athens, Greece, in November 1991, recognized that existing government policies in developing countries, in most cases, fall short of addressing the problems of meeting the demand in the housing and building sectors. The situation calls for new policy initiatives at national level for a more effective production system <sup>1/</sup>.

Owing to many constraints affecting the development of the building materials industry, the Second Consultation recognized that improving the production system of building materials alone is not enough to address the problems of housing and infrastructure works. Due consideration should be given to policy makers to integrate the construction industry in their national planning process in order to give full significance to tackling the issues confronted by the developing countries vis-à-vis the increasing demand for housing and infrastructure works.

Proper integration of the construction industry in the planning process of governments could bring about a significant contribution to the development of the sector as well as to the economy in these countries.

Based on this background and as part of the consultation programme for the biennium 1992-1993 approved by the Industrial Development Board in its Sixth Session (28 May-1 June 1990), the System of Consultations of UNIDO is organizing the First Consultation on the Construction Industry. The Consultation, sponsored by the Tunisian Government, will be held in Tunis, Tunisia, from 3 to 7 May 1993 in cooperation with the United Nations Centre for Human Settlements (HABITAT).

As part of the preparatory work for the Consultation, background studies were undertaken to analyse the different aspects of the industry and identify the major constraints, the solution of which would call for innovative approaches to its development in a more responsive manner, according to the needs in the developing world in particular.

The background studies undertaken by UNIDO cover key areas of the construction sector analysing its structure and functions including constraints and shortcomings mainly in those countries. The aspect of management and operational structures for efficient construction operations is stressed in another study based on the North American experience.

Another important study relates to the mechanisms necessary for the construction of social housing including the role of the main actors from institutionalized sponsors to professionals. This study was carried out based on a comparative analysis between France and Italy due mainly to the experience of these countries in the social housing sector.

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<sup>1/</sup> Report, ID/380(ID/WG.510/5), 18 February 1992.

In addition, a country case study on social housing and financing has also been carried out in Tunisia on account of sustained promotional support given for more than two decades by the local authorities to the housing sector.

Habitat has also undertaken a study on policies for sustainable development of the construction industry in the developing countries based on environmental considerations.

Through these analyses and the case studies to be presented by the participants from different regions, the Global Preparatory Meeting will discuss strategies and innovative approaches to develop the construction industry particularly where they could assist developing countries in their efforts to promote their local construction industry. The meeting will also select the key issues for discussion at the Consultation scheduled for 3-7 May 1993 in Tunis, Tunisia.

## 2. SUMMARY OF THE BACKGROUND PAPERS

A brief summary of the main papers is as follows:

### 2.1. Structure and function of the construction industry with emphasis on the developing countries

This study is an attempt to highlight the importance of the construction industry relating to socio and economic activities as well as the key role the industry plays in economic development in general. Different areas are examined, such as for instance evaluation of the demand for construction from both the public and the private sectors, as well as the role of government, town-planning policy and land-use policy. Major constraints common to the developing countries due to inadequate financing are also examined, along with the lack of housing policy and infrastructural support mechanisms for the promotion of the industry.

The analysis is carried out in relation with other relevant areas such as contracting procedure, quality control, standards and certification. Relevance is also given to managerial capabilities, know-how and research in addition to continuous education and training necessary for improving the performance of the sector.

Due to the instable nature of the demand, the construction industry is extremely vulnerable, particularly in the developing countries. As a consequence of this instability, both the public and the private construction sectors are confronted in most cases with disproportionate increases in operational and final costs.

The challenge in converting centrally-planned economies to market systems is also examined. Newly-created demands from the private sector will have an impact on the restructuring process of large state-owned construction firms as well as smaller and more competitive units.

Although the importance of the construction industry is recognized, it is not given any relevance in the development planning process. The construction of civil works as well as housing are both key sectors in terms of employment-creation owing to the linkages of construction activities with other sectors of the economy. The contribution of the industry to gross capital formation is also stressed.

As part of a strategy to develop the industry, proposals call for a national body including professionals and entrepreneurs that would be responsible for promoting the industry. Assistance from international agencies is also sought.

## **2.2. Improving the performance of the construction industry: Issues and opportunities.**

The purpose of this paper is to evaluate trends in the construction industry, particularly those influencing or influenced by management and organization structures which affect the efficient delivery of construction services.

The trends in the construction industry's output and productivity come basically from North and South America. More long-term trends in productivity are analysed in different areas such as economies of scale of production, labour demographics, skills and productivity, unionization; codes and regulations; management organization; structure of the industry and construction cycles. Factors impeding growth in the construction industry are also examined.

In addition, the rates of technological innovation, professional training, research and capital investment are also covered as well as the linkages between construction sector productivity, technological innovation, organization of the industry and company management. Based on a survey of different firms in the United States of America, a number of recommendations is made on how best to promote high levels of construction efficiency and productivity. The role of government, the financing of projects, in addition to education, research and management assistance are also indicated.

To complement the analysis of the construction industry, a number of emerging construction technologies are identified in areas such as insulation, walls and windows and surface race for electrical systems. Relevance is also given to new construction management, design-built techniques and new approaches to project financing.

### 2.3. Construction procedures and the role of the sponsors participating in the provision of social housing. A comparison between France and Italy

The mechanisms in the construction process of social housing and the role of the main actors are analysed through a comparative study between two industrialized countries, namely France and Italy, where the housing policy is a major element in the response to market demand from their low and middle income working population.

In France social housing represents 25 per cent of total construction in the housing market. In Italy the percentage is 10 per cent, the private sector taking the rest. The percentage of social housing ownership in these two countries is 50 per cent and 70 per cent respectively. The average areas for occupancy of between 5 and 6 persons is in the range of 77 sq.m. to 85 sq.m.

Appropriate autonomous institutions such as HLM (Habitations à loyers moyens) in France and IACP (Istituto Autonomo per le Case Popolari) in Italy, are the main sponsors of social housing. In line with government housing policies, their objectives are to promote the construction of social housing nation-wide. These institutions are integrated with their own professional and technical services for all matters relating to the main objective including land acquisition, programming, project study and development, tendering and selection of contractors and building management.

In France, a project is studied and developed by a private architect on behalf of the sponsor - "le maître d'ouvrage". Professional services in both France and Italy ensure the proper application of quality standards and safety regulations, in addition to control of execution of the construction phase.

The financing of an operation is provided by specialized institutions, including some commercial banks in the case of long-term credits and specialized state-owned banks. Financing is generally provided to enterprises for the construction phase. Fiscal incentives in terms of tax concessions are also provided. Based on level of income, the new owner of a house or a flat also has access to financial assistance from these institutions.

Depending on individual cases in each country, the sponsor or the professional determines the technical choice as well as the selection of building materials appropriate to the project. The increasing utilization of manufactured components and products plays a major role in keeping construction within costs as well as timely execution. Research is particularly encouraged by governments through appropriate institutions, universities and professional technical centres. Thus, the participation of industry and the interaction with sponsor, professional and research institute alike have gained increasing importance in the construction sector in general and for the benefit of social housing programmes in particular.

In order to be successful, social housing programmes must be institutionalized with a view to responding more adequately to market demand for low and middle-income earners. A housing policy must also be part of the mechanism of governments, including access to financing and incentives to both entrepreneurs and new owners. In addition, professionals and industrialists can play a key role in their selection of construction techniques that keep costs at affordable levels.

#### 2.4. Social Housing Policy in Tunisia

The long-term housing policy which has been implemented in Tunisia since 1956 has responded satisfactorily to the housing demand nation-wide. The demand, however, remains high and costs keep increasing.

Between 1956 and 1974 the SNIT (Société Nationale Immobilière de la Tunisie) became the main sponsor of social housing construction programmes. This institution was also responsible for the financing of the operations. In 20 years about 60,000 housing units were built.

In view of the increased demand whereby 25,000 units per year should have been built during the period 1974-1982, and to cope more adequately with the demand, other institutions were created in line with a government policy to provide social housing to the working population. SPROLS (Société de promotion de logements sociaux) is among these institutions, as are AFH (Agence foncière d'habitation), CNEL (Caisse nationale d'épargne logement) and FNAH (Fonds national d'amélioration de l'habitat), created for the promotion of social housing at the national level.

In view of the demand, and to avoid abusive speculation, the authorities formulated a new approach regarding land-use and urban planning policies. Administrative decentralisation was also part of the new strategy in order to respond more rapidly to the clients.

During the period 1982-1991 the production of housing reached 500,000 units, an annual average of 50,000. The ratio was about 6 units per 1,000 inhabitants during that period. The peak period experienced was between 1982-1986, during which time 54,000 units were built annually. The informal sector was also quite active considering that between 1982 and 1986 13,000 units were built annually.

Finance institutions have over the years played a satisfactory role in promoting the social housing sector in Tunisia. However, major problems still exist such as increased costs, proliferation of spontaneous construction which is beyond control of the authorities, and in many cases inadequate solutions vis-à-vis the proper needs of the customers. The deterioration of the



environment is also a major negative element arising from these spontaneous construction activities.

After a slump in construction in 1986, measures were taken to revitalize the sector. The sponsoring institutions were given increased control of new construction programmes including rehabilitation, land acquisition and division of plots, and the newly-created (1988) Banque de l'habitat replaced the CNEL.

Despite the constraints that are common to many developing countries, the housing crisis has been avoided in Tunisia mainly as a result of long-term assistance and the creation of proper instruments to implement government policies related to the housing sector. Dynamic interaction between the main actors within appropriate regulations has also played a key role in responding to market demand.

#### 2.5. Construction sector policies for sustainable human settlements development

Construction sector policies for development of sustainable human settlements are considered in Habitat's paper based on the contribution of this sector in achieving national socio-economic goals. Environmental impacts created by the construction industry are also scrutinized on account of the enormous demand on the natural resource-base for building materials which constitutes the single most important construction input in the developing countries.

In general, developing countries fail to exploit properly their natural resources and continue to engage in the production of energy-intensive materials for the construction industry. Small-scale technologies provide the best solution for the exploitation of local deposits of raw materials but the small-scale sector is hampered by lack of financial resources or investment credit. This is the result of the lack of a coherent strategy for expanding the sector.

The construction industry relies basically on energy-intensive, high temperature process industries which, for instance, produce steel, aluminium, copper, glass, ceramics and chemically-based products. The production of these construction materials, however, requires vast amounts of energy and creates polluting waste. Developing countries have shown only a modest interest in using alternative sources of materials, such as recycling of waste and used materials, thus reducing the demand on natural resources.

The diversified nature of construction works makes it difficult to monitor the disruption caused by construction activities. There is increasing concern regarding land dereliction as a result, for instance, of quarrying for building materials. Pollution caused by construction activities, especially in the production of building materials, is a topic that needs urgent attention. Production of cement, lime and bitumen claimed a significant share of this

pollution. In developing countries, building material industries rely excessively on the use of firewood for energy, thus adding to emission of carbon dioxide.

Sustainable development calls for a policy framework for the construction industry that requires proper management of construction resources as well as control of degradation of the biosphere. A coherent strategy should include the optimization of natural-resource, energy-efficient and clean production technologies, in view of which developing countries in conjunction with developed countries should closely cooperate for a coherent development of the construction industry. The international community should also provide assistance to support national initiatives, and promote multilateral funding to meet environmental-protection expenditures relating to development of human settlements.

### 3. MAIN CONSTRAINTS AFFECTING THE DEVELOPMENT OF THE CONSTRUCTION INDUSTRY

To face the demand for housing and other types of construction, the industry must be in a position to participate fully with governments and the private sector alike in the development efforts of the sector. However, the construction sector in Africa, Asia and Latin America is confronted by a number of major constraints which are hampering its development.

3.1. There is in general a lack of policies for improving and developing the multifaceted aspects of the industry. The industry may work efficiently in the execution of a project itself in the short-term; nevertheless, due to the fragmented nature of its operations, there is no operational policy for improvement in the long-term. In this context the demand for housing for instance cannot be met satisfactorily.

3.2. The construction industry is not integrated in the development planning process in most of these countries. National development plans rarely consider the capacity of the local construction industry to mobilize the necessary resources to support the proposed development programme.

3.3. In addition, in many cases there is a lack of an institutional framework which could assist the industry. Government-funded institutions, for instance, for training that could enhance skills and increase the qualified workforce for the benefit of all construction firms at the national level are noticeably absent in many countries. On the other hand contractors are rather reluctant to invest in training of their staff <sup>2/</sup>.

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<sup>2/</sup> Building for Tomorrow: International experience in construction industry development, by D. Miles and R. Neale, International Labour Office, Geneva, 1991.

3.4. As a result of the lack of assistance, the industry is not structured to respond quickly and efficiently to the needs of the clients. The execution of the work tends to take longer than expected, thus creating cost overrun. In addition, costs are distorted by frequent shortages of material and the lack of coordination in contract administration, procurement and/or subcontracted services.

3.5. Investors and governments alike have the major share in the demand for construction. The demand is not always stable and varies with economic trends. Due to the instability in the demand, construction enterprises find it difficult to justify expenditure beyond the immediate demand of individual projects. Market fluctuation therefore inhibits research and development including standardization of components and products in addition to procedures <sup>3/</sup>.

3.6. The importance of the construction industry is increasingly recognized as a key growth sector. Clearly-needed innovative strategies including housing policies, for instance, should be developed in order to exploit the full potential of the sector in terms of economic development and employment generation and to respond more efficiently and cost-effectively to housing needs.

3.7. Assistance to the housing sector does not rely essentially on the construction industry which provides the necessary services in building either single units or high-density housing complexes. Appropriate institutions specializing in the promotion of housing are also necessary for the financing of enterprises as well as new home-owners. Such institutions are operational in many industrialized countries. These autonomous institutions are primarily state instruments whose objective it is to facilitate access to housing ownership within specific regulations mainly to the low and middle-income working population. Land acquisition is another key objective of these institutions with the view to keep operational costs under control.

3.8. Another area for consideration relates to appropriate technologies essential in the application of energy-savings in construction. As environmental issues have become an international concern, energy-intensive production of basic materials for construction often draw upon significant non-renewable resources. The management of resources for construction and the control of the environment are other key elements to take into account in the development process of the construction industry.

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<sup>3/</sup> ILO, op. cit.

#### 4. OTHER CONSIDERATIONS

On the strength of these short-listed basic constraints, the meeting is expected to make concrete recommendations for viable solutions for the promotion of the construction industry. The meeting is also invited to take into consideration the following points:

##### 4.1. Entrepreneurship and management

The construction industry, due to its diversified nature, offers many opportunities for entrepreneurship and management development. Irrelevant to the size of the firm, efficient management constitutes one of the key elements to ensure efficient company performance, cost-effective results and timely completion. Through which mechanisms could know-how be imparted to improve entrepreneurship and enhance management capabilities in the industry?

##### 4.2. Professional associations

The major sponsor of construction works, particularly in the developing countries, is the State. The State, therefore, has a major role to play in the promotional efforts to improve the efficiency of the sector. Currently the construction market is structured in such a way that enterprises are employed simply as suppliers and managers of resources. How could professional associations, trade associations and decision-makers associate themselves within an institution-building framework and assist sponsors and entrepreneurs for a coherent and balanced development of the construction industry?

##### 4.3. Role of specialized services

Contractors and professionals cannot be left on their own in the search for appropriate technologies. Specialized research institutions as well as professional technical centres, in addition to quality-control institutes, are instruments geared to the advancement of the industry. How could these institutions be part of an integrated operational system for national building policies which could be more beneficial to sponsors and clients as well as the construction industry?

#### 4.4. Programme of cooperation

A programme of cooperation between countries of the same region in Africa, Asia and Latin America could concentrate on the identification of common areas of interest and complementarity in the sector of construction including research institutions, technical and quality control centres. In this connection, how best could regional cooperation be developed among these institutions and international cooperation and technical assistance be encouraged among these local institutions and similar institutions from industrialized countries?

#### 4.5. Selection of issues for the First Consultation

Based on the conclusions drawn by the meeting, the experts are invited to select and propose the key issues to be developed by UNIDO and HABITAT for the First Consultation on the Construction Industry to be held in Tunis, Tunisia, from 3 to 7 May 1993.

4.6. Without prejudice to the conclusions and recommendations that will be reached by the meeting, the experts may wish to consider the main issues for the Consultation in the following areas:

- a) Management and efficient organization for improving construction productivity;
- b) International cooperation for research and technology exchange and development;
- c) Financing through specialized instruments for the promotion of the construction industry;
- d) Development of know-how and skills;
- e) Incentives and regulations for improving the performance of the industry.