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**PROGRESS MADE IN THE IMPLEMENTATION OF
THE WORK PROGRAMME**

**STATUS OF THE BUILDING MATERIALS AND CONSTRUCTION
INDUSTRIES IN THE ESCWA REGION**

Note by the Secretariat

Introduction

The study entitled "The Status of the Building Materials and Construction Industries in the ESCWA Region" was undertaken within the 1984-1989 Medium Term Plan objectives of the Human Settlements major programme of ESCWA to survey and evaluate the existing situation within the construction materials sector with a view to identifying constraints limiting its efficiency. The study relied mainly on information collected through a literature survey because the other source of information, which was a questionnaire letter sent to various organizations ranging from ministries to specialized institutes, had a very low response rate, i.e. 7 answers out of 68 organizations contacted. The literature survey covered various national and international statistical publications, international periodicals, general scholarly works, proceedings of various United Nations and other international and regional conferences as well as specialized publications such as mission reports, private consultants reports, magazine articles, etc.

The study is divided into two parts. The first part consists of an overview of the building materials and construction industries in the region and of the factors affecting these industries: population growth, mineral resources, production consumption and import/export of main building materials, and economic performance of these industries are discussed. The second part consists of six in-depth country case studies which provide diverse instances and concrete manifestations of the general overall attributes, trends and evaluations discussed in the first part. The countries analysed in the case studies are Egypt, Iraq, Jordan, Kuwait, The People's Democratic Republic of Yemen and the Yemen Arab Republic.

Mineral resources for the construction industry

The ESCWA region is rich in mineral resources for the production of building materials. However, although a wide variety of minerals are known to exist the extent of the reserves is very often unknown. Geological surveys are being carried out in several countries of the region in order to determine reserves, commercial exploitability and type of technology required for their exploitation.

Among the metallic minerals used in the construction industry the most important is iron. Reserves of iron ore for the whole region have been estimated at about 2.4 bn tons. Deposits are also known to exist in Saudi Arabi, Egypt, Syria, Democratic Yemen, Lebanon, Iraq and Jordan. In spite of the existence of these deposits, no substantial exploitation takes place as yet and thus the iron industry in the region works on imported raw or semi-processed materials.

Non-metallic minerals are also abundant in the region. Limestone exists in substantial amounts in almost all the ESCWA countries with the exception of Bahrain, where no significant deposit has been found. Gypsum and clay are also widely spread throughout the region. The ESCWA countries are especially rich in good quality sand and in structural, ornamental and monumental building stones of which large deposits of great variety occur in several areas.

Main manufactured materials

Iron and steel products together with cement are the most important building materials in the ESCWA region in terms of consumption, production and imports.

In 1985 it was estimated that the designed production capacity of iron and steel products in the whole region was about 6.6 mn tons/year, 47.5 per cent of which is represented by Egypt and 33.9 per cent represented by Iraq, Syria and Saudi Arabia. Therefore, over 80 per cent of the total capacity is concentrated in these four countries ^{1/}. Within the ESCWA region, actual production per capita is much higher in the oil economies than in the diversified ones. In 1983, per capita production of iron and steel products for the region was 22 kg/person while in the oil economies it was 55.6 kg/person, that is, more than double the figure for the region as a whole. On the other hand, some of the ESCWA countries, especially Qatar, the United Arab Emirates, Saudi Arabia and Kuwait, are among the world's greatest consumers of iron and steel products per capita owing to the very high levels of construction activity and their small population. It has been estimated that in 1980, the apparent consumption per capita for the whole region was already 106.5 kg/person. Thus, it is clear that imports have played a dominant role in satisfying the demand for iron and steel products. The annual growth rates of iron and steel imports over the years 1980-1982 present a regional picture varying from country to country and, although no clear tendency has emerged, there seems to be a decline in the growth rate of this type of product. Qatar and Kuwait are the only countries exporting significant amounts of iron and steel products, especially Qatar, where in 1981 the ratio export/import was already 12. Exports from Kuwait are mainly re-exports.

Concerning cement, the situation is very different from the one explained above for iron and steel because of the following reasons. First, cement has been produced in almost all the countries of the ESCWA region since the 1970s. This has been possible because the raw materials for the production of cement are readily available throughout the region. Secondly, special efforts have been made to increase production capacity, which was expected to reach 83.7 mn tons/year in 1985, that is, 2.3 times the capacity existing in 1980. Thirdly, the expansion in production capacity which has been taking place since 1980 has brought the industry to the brink of oversupply. Fourthly, in spite of the fact that installed capacity is greater than apparent consumption

^{1/} Although recent figures on consumption are not available, it must be noted that by 1980, iron and steel consumption in the region had already reached 9.5 mn tons.

cement is still imported in considerable amounts, which thereby indicates a low output/capacity ratio. Nevertheless, imports have slowed down although this seems to spring not only from an increase in actual production but also from a decline in the rate of growth of demand. This slowing down which can, to a certain extent, also be observed in the consumption of iron and steel products is due to a decrease in construction activities in the whole region; diminishing oil revenues, unstable political situations in certain areas and completion or abandonment of large infrastructural projects have all contributed to a decrease in the demand for cement which, together with the expansion in production, may lead to a glut by the end of the 1980s.

Other materials are also consumed in large quantities in the region but the available information does not allow for a clear picture of their importance in the region as a whole. However, in certain countries materials other than iron and cement play an important role. For example, Iraq and Egypt produce vast quantities of bricks as this is one of the commonest building materials, especially for residential construction. In Kuwait, the emphasis on infrastructural construction has resulted in a high consumption of concrete products while in the Yemens locally produced stone blocks and mud bricks are commonly used.

On the other hand, available figures on foreign trade indicate that the import of glass, clay, refractory products, paints and sanitary appliances has been either increasing or maintaining 1979-1980 levels. Nevertheless, as with other materials and activities, consumption of building materials, whether imported or locally produced, reflects the general situation in the economy of the countries concerned and therefore the factors affecting the latter shape the tendencies in consumption of building materials.

Economic performance of the building materials and construction sectors

It is clear that all the countries of the region are being affected, in different ways, by several factors. Owing to the primacy of oil exportation in the area one of the major factors is the decline in oil revenues which has effected oil exporting countries since the beginning of the decade.

The construction sector has been especially affected by the drop in oil revenues owing to the fact that the public sector is the major investor in construction works in the region. Between 1977 and 1982 almost all the ESCWA countries registered at least one year of negative growth rate in construction at 1975 constant prices. At the same time it must be noted that, in real terms, the shares of construction in total GDP for the region as a whole started to increase in 1981: The reason for this is that the combined growth of construction in the area has been positive while, as mentioned before, GDP registered negative rates. Nevertheless, there has been a noticeable slowdown in the growth of construction. In 1977 construction grew in real terms by 17.6 per cent while two years later, in 1979, it was down to 7.0 per cent. By 1981 there was a slight recovery up to 8.1 per cent but that was still less than half of the 1977 figure.

Construction in most countries of the ESCWA region is directly linked to government expenditure. Therefore, the decrease observed in GDP at constant prices which has been estimated at -19.7 per cent for 1983 is bound to result in a sharp decrease in the level of government expenditure, and, consequently, in a continuous slowdown of construction activities. This decrease is also a result of the completion of large infrastructural projects in the region. From the end of the 1970s to the first years of this decade governments placed a major emphasis on infrastructural developments: irrigation systems, hospitals, roads, ports and airports, schools, service and government buildings, residential and industrial areas were built during this period. By 1985 many of these projects were finished while many others were shelved as a consequence of the non-availability of funds for their implementation. As this type of project played a dominant role in the performance of the construction sectors, it is evident that their completion or abandonment reflects directly on the situation of the construction sector. Although complete information is not available, the figures show that between 1978 and 1982 construction represented more than 50 per cent of the total Gross Fixed Capital Formation at current prices. However, investment in non-residential construction was much higher than for residential buildings. Therefore, the slowdown in construction is in fact a slowdown in the non-residential subsector. At the same time, a change in the structure of the Gross Fixed Capital Formation in construction is taking place, with housing becoming the main recipient of investment. Housing in most countries of the region does not meet the needs of growing populations and urbanization. Even when there is no big shortage of housing units in comparison with the number of households, in most countries of the region there exists a serious problem of affordability. The prices of houses presented to the public remain out of reach of a large segment of the population. In some countries the situation is aggravated by the existence of large numbers of obsolete and temporary dwellings which need to be replaced. At the same time, rapid urbanization is a widespread phenomenon and it is gathering speed in the whole area. Expanding population, internal and external migratory trends and the concentration of economic opportunities in urban areas have greatly increased the demand for urban housing with the consequent problems of planning the expansion of already crowded cities.

The building materials industry in the region, being specially sensitive to change in the construction sector, has also to cope with the changes described above. At the end of the 1970s, when the construction sector started to expand, the building materials industry in the region was not prepared to provide for the needs of this expansion. Therefore, large parts of the investment in the manufacturing sector were directed to this subsector. The same situation took place in mining and quarrying where the extraction of raw building materials rapidly expanded. Nevertheless, imports continued to meet the requirement for even the most basic materials such as cement. By the mid 1980s production capacity of some major materials had greatly increased to the extent that capacity was equal or very close to demand. This expansion, however, was concentrated on materials such as cement, bricks, building stone, etc.. and, consequently, imports still play a major role in the provision of a great variety of materials. Some countries, such as Kuwait, which lack adequate natural resources, depend almost completely on the imports of processed materials or on the imports of raw materials to be processed in the country. Other countries, such as Iraq,

expanded the production of materials available in the country but still depend on imports to satisfy their needs for other materials such as iron and steel.

The shift occurring in the construction sector poses a twofold problem for the building materials industry in the region. In the first place, the expansion of the industry was based on the assumption of a continuous growth in construction activities. In fact, most projections of future demand made during the first years of this decade surpassed by far the actual consumption after 1983. Secondly, the expansion of the building materials industry put a special emphasis on catering for the needs of the non-residential construction sector rather than those of the residential construction sector, owing to the fact that the former were much higher than the latter. In the face of the changes occurring in the construction sector, therefore, the building materials industry finds itself, on the one hand, with an overcapacity with regard to certain materials and, on the other hand, with the impossibility of providing some materials required by housing development. Thus, it is clear that this type of industry has to change in order to accommodate the requirements brought about by the shifts in the construction sectors.

Concluding remarks

The ESCWA region stands to have a substantial wealth of metallic and non-metallic minerals used as inputs into the building material subsector of industry and through it into the construction industry. The western part of the region is generally better endowed with building-related mineral wealth whereas the eastern Gulf region has some of the world's largest known reserves of oil and natural gas which are a source of great financial wealth both for the Gulf countries themselves and, through co-operation, for the whole ESCWA region.

Another essential condition for the region's unhindered development is, of course, political stability and peaceful co-operation in development.

A natural exchange of resources in construction and other fields has been taking place, to a large extent through the free play of market forces between the eastern and the western parts, i.e. between the oil economies and the diversified economies of the region. This process is observed mainly in the flow of expatriate workers revenue from east to west in exchange for cheap, largely, unskilled or semi-skilled seasonal or temporary labour.

A promising although partial institutionalization has also been taking place in development co-operation, such as that exemplified by the Gulf Co-operation Council.

At a more technical level problems appear to be posed by the emphasis on imported advanced technologies as against development of local-resource-based technologies, large size of industrial units and the small size of local markets in the building materials and construction subsectors of industry.

The region would greatly benefit from research into a local-resource-based appropriate technology approach in the building materials and construction fields. "Import substitution", which seems to be the main objective of current industrial development puts the region in competition with highly developed technologies but, because it relies on imported heavy machinery, also increases production costs. An example of this kind of approach is provided in the iron and steel industry with the "direct reduction plants" which are capable of working on a small scale using cheap natural gas or oil to cater for small national markets.

Another promising field of research is the development of local mud-brick technologies especially developed in Egypt. Mud-brick is the cheapest building material in the region capable of being developed into an acceptably strong structural or fill-in building material if treated with appropriate techniques. It has a wide range of potential uses in small scale residential and community architecture.

In large scale building materials production, especially in iron/steel and cement industries, accurate forecasting of demand plays an important role in preventing waste of resources manifested by unused capacities or over production. Forecasting on this scale for the region should not be based solely on extrapolatory techniques based on past trends, the widest possible context should be taken into consideration in determining future demand.

Although the region will probably always depend on imported iron ore, the region's capacity of production of iron/steel products appears to have reached roughly two thirds of its apparent present consumption and, with the current slowdown in construction investments, the region can be expected to reach self sufficiency within the decade, if the efficiency of production can be improved substantially.

The cement producing countries of the region appear to have been caught without warning by the construction boom of the late 1970s and most of them started importing during the boom years. The 1980-1985 development plans of most countries contained provisions for large investments in the cement subsector as a reaction to the serious gap between needs and local production. Thus a huge increase was observed in cement production during the first half of this decade, so that some countries of the region may actually have a problem of overproduction, i.e. production above the amount that can be consumed and exported.

The region also has a large capacity for production of other, secondary building materials, such as glass, sanitary appliances, paints, etc. which might well be sufficient to meet local and regional demand and be exported. This would be especially true if statistics could be included about Lebanon, which is known to have been a leading producer and exporter of such materials, in addition to iron/steel and cement, before the recent aggravation of the political situation.

One of the greatest difficulties faced in the study concerns the nature and timeliness of statistics. Standardization, reliability, clarity, frequency of collection, speed of processing and dissemination of data in the countries of the region appear generally to leave much to be desired. Research studies and forecasts have to rely on rough estimates, assumptions and conjectures and waste of resources or scarcities are bound to result if the present state of statistics in the countries of the region is not improved.