

The Impact of Development on Society and the Built Environment

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Our examination of the impact of development on society and the built environment should begin with an explanation of the terms “development” and “environment” in the context of this topic.

Development has been defined as “growth plus change”. As broadly conceived, it involves an increase in national income, a rise in the standard of living, the adoption of new technology, the acquisition of new skills and capabilities, changes in modes of thought and behaviour, occupational diversity, socio-economic reforms, the establishment of new institutions, and broader participation of the masses in development processes.

The goal of development generally is espoused in policy declarations of national governments and in the international community. Thus we hear about “national development plans” and “United Nations development decades”. Countries often are distinguished as “more developed” and “less developed” or “developed” and “developing”. There is further general agreement that some countries may develop faster than others over a period of time, that both desirable and undesirable concomitants are associated with development, and that the desirable ones should be deliberately promoted through government policy. Additionally, it is widely accepted today that development is at the same time an economic, social and political process.

Two major concepts recur in all definitions of development: 1) increased productivity, which will lead to increased income; 2) social justice in terms of a more equitable distribution of that income. The former is concerned with the way a society utilises its available resources and produces goods and services. The latter is concerned with the ability of the members of the society to participate meaningfully in the development and share in the consumption of the goods and services produced.

When we speak of “environment” in this context, we generally mean the “built environment”, or man-made environment. This concept encompasses human settlements in the broadest sense of the term. Concern for the human environment has grown in response to the pollution caused by the industrialised, “developed” countries of the world, particularly Western Europe and North America. In addition to the problem of pollution, there are the “nuisances” that disturb or perturb life in society without necessarily entailing casualties: noise, ugly buildings and overcrowding, to name a few. Pollution and nuisances are among the negative effects of development, and their elimination would enhance the quality of life. In this sense we do not mean the quality of life that material goods and services can secure but, rather, unqualifiable benefits such as the pleasantness of large green spaces within urban centres.

For historical reasons deriving from the colonial era, however, economic interests have long prevailed over environmental concerns in the development efforts of countries, including those belonging to the Economic Commission for West Asia (ECWA). Despite good intentions, the results of "planned development" often have been to aggravate imbalances in the development of various regions of a country and to widen the social and economic disparities among different segments of the population. For example, the concentration of investments in a few centres has created several problems. Most significant has been rural-to-urban migration, which has had detrimental effects on agriculture and food production and has created pressures on housing, transport, public utilities and services, and employment opportunities in urban centres. With these definitions of development and environment in mind, let us turn to an historic overview of Yemen and how the unique Yemeni planning and architectural genius has evolved to reflect its Islamic society and culture.

The Yemeni civilisation is among the most ancient Arab civilisations. Situated in the strategic southwestern corner of the Arabian peninsula, astride the main caravan trade routes between Asia to the east, Africa to the west and the Mediterranean countries to the north, the Yemeni soil has been the stage for countless wars, conflicts and turmoil. It is clear that Yemen was very much in the centre of events. History identifies the great Sheba and Himyer eras as pinnacles of pre-Christian and pre-Islamic civilisation, best known for their engineering, irrigation and construction feats. All in all, no fewer than twenty-seven successive kingdoms, dynasties, administrations and governments have left their marks in the Greater Yemen, each event and era adding its share to the rich Yemeni civilisation. Through its soldiers and military leaders and through the use of engineering skills developed there, especially in the construction of fortresses, Yemen has made a significant contribution in the history of



A mountain-top village between Kohlan and Hajja, Yemen Arab Republic. Siting was dictated by defense considerations and the desire to conserve land for agriculture.

Photo: W.L. Porter.

Islam and of the world.

The conflicts and struggles that took place in Yemen during its long history, together with the scarcity of agricultural land and a varied topography, elevation and climate, have clearly left their mark on Yemeni town planning and architecture. The manifestations of military conflicts are the mountain-top towns and villages whose siting was dictated mainly by defence considerations and partly by the desire to conserve scarce land in the wadis for productive agriculture. At the level of the individual house, the lower storey was reserved for safe-keeping of animals and for storage of grain, fuel wood and equipment. Thus the house was capable of acting as a fortress against siege for prolonged periods of time.

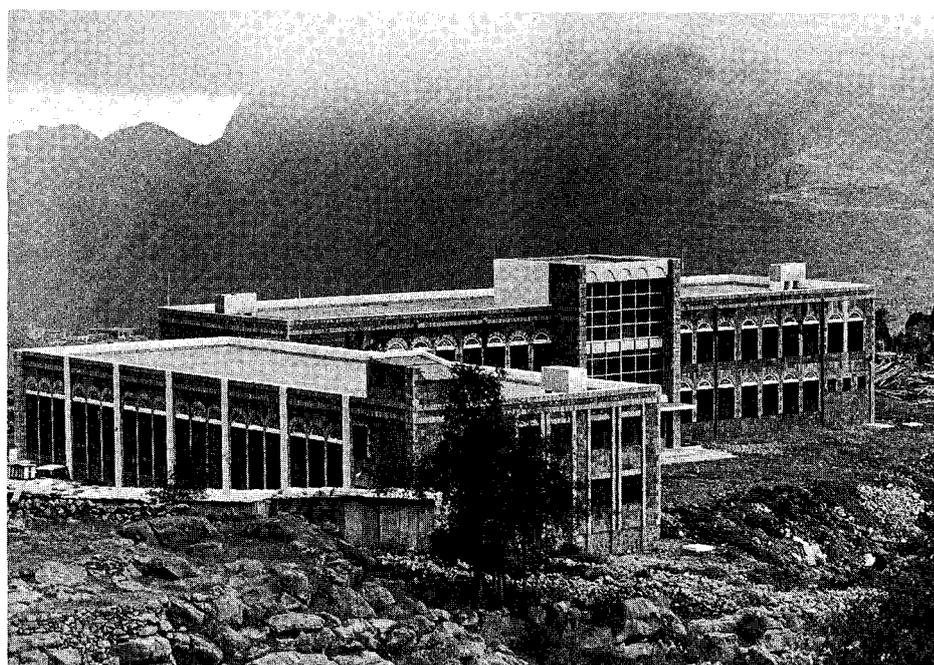
During the long period of isolation that preserved the splendid cities of Yemen, the vast majority of the population lived,

as they still do today, in widely scattered and isolated rural settlements, with urban areas serving as regional market and craft centres. But the Revolution of September 1962 opened a new chapter in the history of modern Yemen and initiated a process of development that has had far-reaching consequences.

The extent and magnitude of progress made can be gauged when it is remembered that until 1962 there were no modern secular schools, no hospitals, no clean piped water, no roads and, with the exception of the Imam's and a few others, no motor cars. Today the major population centres in the country are interconnected by a road network totaling more than 2000 kilometres in length, and an additional 2600 kilometres are included in the current five-year development plan. Tens of thousands of cars of all description are on the roads carrying goods and

passengers. Travelling between Sana'a and Ta'iz, which only sixteen years ago took four days by car and twenty days by camel or mule, takes only a few hours today. Health-care measures in urban as well as rural areas are helping to wipe out disease, decrease mortality rate, and increase life expectancy at birth. Concerted efforts at both the government and grass-roots levels are providing education to an increasing number of boys and girls from kindergarten to the university and are helping to eradicate illiteracy among the older segments of the population. There are many such development activities and taken together these activities are breaking down many prejudices and misconceptions that were holding sway over the souls and minds of people during the dark days of isolation. Now the people are better fed, clothed and housed than ever before, thanks to an increased per capita income. The freedom to move about in the country and the means to do so, combined with more education and a higher level of prosperity, will consolidate and strengthen national unity.

These are a few of what may be considered the positive aspects of development in Yemen. As regards the negative effects of development in the specific case of Yemen, there are no time series data to provide accurate indications of population growth, external and internal migration and changes in labour force. However, according to the 1975 census, still only about 7.5 percent of the country's resident population lived in the six large towns with over 10,000 inhabitants (Sana'a, Ta'iz, Ibb, Hodeidah, Hajjah and Dhamar); 3.6 percent lived in medium-sized towns of 2,000 to 10,000 inhabitants; and 2.3 percent lived in small towns of 1,000 to 2,000 inhabitants. But there are indications that the largest cities are expanding rapidly and that they will continue to grow at a rapid pace for the foreseeable future. Between 1975 and 1980, Sana'a is estimated to have grown at a rate between 7.6 and 8.8 percent, Ibb at a rate of between 5.4 and 7.5 percent, and Ta'iz at a rate of between 5.0 and 5.5 percent. The average annual rate



New cultural centre in Hajja, Yemen Arab Republic.

Photo: C. Little/Aga Khan Awards.

of all the cities with populations of 10,000 or more was between 6.1 and 7.7 percent.

With an overall natural population growth rate of only 2.9 percent, two factors helped to bring this tremendous change in urban population in the Yemen Arab Republic. First, the employment opportunities generated by government investments in development projects created a significant movement of rural people in to urban centres. Second, coinciding with Yemen's sudden emergence from isolation and opening up to its own self and to the world abroad, the extensive development programmes in the neighboring oil-rich countries had a tremendous magnetic pull on Yemeni manpower. The result has been the unprecedented migration of labour to Saudi Arabia and the Gulf states.

Remittances from these migrants have fuelled an unprecedented construction boom in the major Yemeni cities. As a result, the city of Sana'a has grown more

than five-fold in less than two decades. Most of this development is unguided by proper town planning, and Sana'a is in danger of losing its agricultural land as well as depleting its water resources, in addition to the fact that its infrastructure, essential utilities and social services would not be adequate. Environmental pollution is already a problem. Many questions beg to be answered. Unlike most developing countries of the world, the Yemen Arab Republic has been distinguished by the lack of overwhelming primacy of any one city. However, is that which we are witnessing today, the beginning of the end to that distinction? Is Sana'a on the way to becoming an uncontrollably large centre? Is there a limit beyond which a city should not be allowed to grow? What are the lessons to be drawn from similar situations in other countries?

The contrasts between the old and the new era are numerous and worthy of study. Confined for generations to their self-



Recent development on the outskirts of an established Yemeni town.

Photo: S. Özkan.

imposed isolation, the Yemeni people have evolved a particular brand of architecture that admirably suited their socio-economic, cultural, environmental and psychological needs. The following are some examples.

In Yemen the requirements of conservation of resources and security considerations gave rise to the need to expand vertically rather than horizontally and in the process to accommodate in one structure many members of the extended family. These houses traditionally were constructed of stone, bricks and wood, using local materials. The regulation of their environment is achieved by thick walls with a high capacity for absorbing the heat of the sun, which is then released to warm the inside of the building during the night. Ventilation to the top floors was provided through comparatively large windows, but the lower floors, where openings were small, were ventilated through the staircase and the lobby by means of specially designed projecting masonry boxes. These boxes have shuttered doors that can be closed in cold or windy weather. The width of the rooms was determined by the roofing wood available, and the women's quarters were provided with very small openings that admit some light but do not allow outsiders to see inside. In line with cultural values, no balconies or *mashrabiya* were allowed, at least in Sana'a. The sanitary installations, although elementary, were adequate under the prevailing climatic and other conditions.

It is natural that people who have been exposed to modern ways of living would find some faults with the traditional house — the sanitary arrangements, the narrow and high steps of the staircase, insufficient light in the women's and children's quarters, and the low doors everywhere. But are these really serious drawbacks that cannot be overcome? Is it possible to retain the best features of the traditional Arab city and the traditional Arab house and incorporate into them the latest features of modern living? Will the younger generation continue to move out of the old city to occupy the so-called



Typical housing in old Sana'a.

Photo: C. Little/Aga Khan Awards.



Low-density development in Sana'a. This architecture is a radical departure from tradition.

Photo: C. Little/Aga Khan Awards.



A housing project in Sana'a built in concrete with stone facing. It's verticality, treatment of opening, and materials recall traditional Yemeni architecture.

Photo: C. Little/Aga Khan Awards.

modern villas that have been built and still continue to be built in the new parts of Sana'a? Will the traditional crafts of the old city be allowed to stagnate and then die through neglect? Will the fate of other traditional Arab cities in other countries befall the beautiful cities of Yeman, so that they become reservoirs of poor migrants from the countryside, degenerate into slums, and slowly waste away?

Whether we like it or not, there are two realities in Sana'a today. On the one hand, there is the old city representing the Islamic physical model with its well-defined component parts of a centre (composed of the Grand Mosque and the market); its interesting axes representing the main thoroughfares that connect the city centre with the periphery and also with the surrounding hinterland through the city gates; and its hierarchy of streets, roads, and cul-de-sacs that branch off from the main axes and connect the residential

sectors with one another and with the rest of the city fabric. The whole city is an organic, cellular organization reflecting the religious, cultural and organizational values of Islamic society. On the other hand, there is the uncontrolled and almost haphazard increase in low-density development that has been taking place for some time and reached boom proportions in the 1970s. New material, such as the concrete block, reinforced concrete, metal doors and windows, have appeared for the first time, and a new breed of contractors have come on the scene. Nevertheless, the traditional method of building walls with stone still persists, as does the tradition of decoration with gypsum and stained glass. This is an encouraging feature and an indication that strong building traditions exist that need to be preserved and further developed.

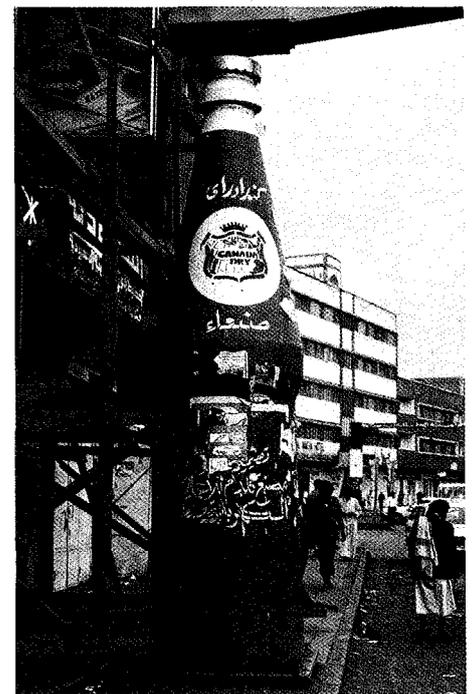
The traditional method of construction as practised in Yemen is not always perfect.

The earthquake of 13 December 1982, which devastated large areas of the Dhamar region, has demonstrated the weaknesses inherent in the siting, design, and construction of traditional buildings. Experts from ECWA, the World Bank, the Kuwait Fund, the Arab Fund and OPEC have recommended remedial measures that would improve the performance of buildings under seismic conditions. In this connection, action in two areas is imperative. The first involves training all professional and technical cadres in general and re-educating traditional artisans in particular on the correct methods of construction. The second area of action involves the production of local building materials with correct sizes that would lend themselves to earthquake-resistant construction. A step in this direction would be to integrate the mechanical stone quarrying, cutting and aggregation operations in order to increase the supply



A village near Dhamar destroyed by the 1982 earthquake. Weaknesses inherent in the siting, design and construction of traditional building were made apparent by the earthquake.

Photo: C. Little/Aga Khan Awards.



A view of Sana'a's "strip".

Photo: S. Özkan.

of these materials and to eliminate the high percentage of waste that results from the current primitive and mostly manual stone cutting practice.

The concern with research into and the production of local building materials, together with the training of manpower for its proper use, is significant also for energy conservation purposes in an energy-importing country like Yemen. Studies undertaken by ECWA show that in the oil-producing countries of the region, the human settlement sector has the highest share of energy consumption. In the name of modernity and under the influence of an alien life-style and culture, houses, schools, hospitals and other buildings are constructed of imported materials such as concrete and glass, which become unusable without mechanical air conditioning, day and night. Yet in some of these same countries there exist buildings constructed with traditional local materials that are

extremely energy-efficient and comfortable to live in without artificial conditioning.

The resurrection of proper urban development is contingent upon the ability to respond to local physical conditions and at the same time to meet the socio-economic, cultural and moral requirements of the Arab countries. Much has been written about recent developments in the Arab world, about the intellectual patronage and the wicked designs of foreigners who are bent on destroying the Arab cultural heritage, and about the unsuitability of importing models of planning and architecture into Arab countries. Unfortunately, no serious action has been taken to design and construct a contemporary Arab city based on Arab city planning and architectural principles that would meet all the requirements of the present and the foreseeable future. Although many Arab architects and planners have been advocating such ideas, their views have not been

taken into consideration by policy and decision makers. UNESCO has done, and is still doing, splendid work in studying, documenting and preserving some Arab and Islamic cities, and it is up to us to find the best practical ways of supporting such efforts that are aimed at preserving the Islamic heritage and character of Sana'a and the other Yemeni cities while at the same time adapting them to serve modern living needs.