

Interventions: Professional and User Inputs

Design for Adaptability, Change and User Participation

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Observations recorded by H-U Khan

Interventions: Balances of Power

To build is to exercise power and to change the environment.¹ The study of housing processes yields an understanding of the powers that bring about these changes. The exercise of power shows three characteristics: an inclination toward territorial expansion; an inclination toward the economization of labour, which represents the easiest path; and the inclination toward “quality,” in the eyes of the power.² The evaluation of the role of the dweller with respect to his dwelling is basic to an understanding of housing processes. My position is that the dweller should be recognized and understood as a power. Only when users themselves exercise power, by directly influencing and controlling a part of the physical environment, can we expect healthy, vital, steadily improving environments.

SAR has formalized this concept of power invested in the users by introducing the dual concepts of “support” and “detachable units.” Detachable units include all the building elements that can be decided upon by the dweller. Elements that lie outside the control of the dweller are the support. Therefore, the professional realm is primarily concerned with support. In other words, we professionals should work mainly to structure the environment in which non-professional powers must operate. We have to create spaces for others to change and add to at any level. The essence of structure, in whatever form, is that it is

empty, that it leaves space. This does not imply a desire for neutrality; it means that what we professionals decide not to do, and leave instead for others, is as important as are our more obvious contributions. To cite a practical example: a jar is not a neutral form, but its very emptiness is what makes it useful for storing various liquids.

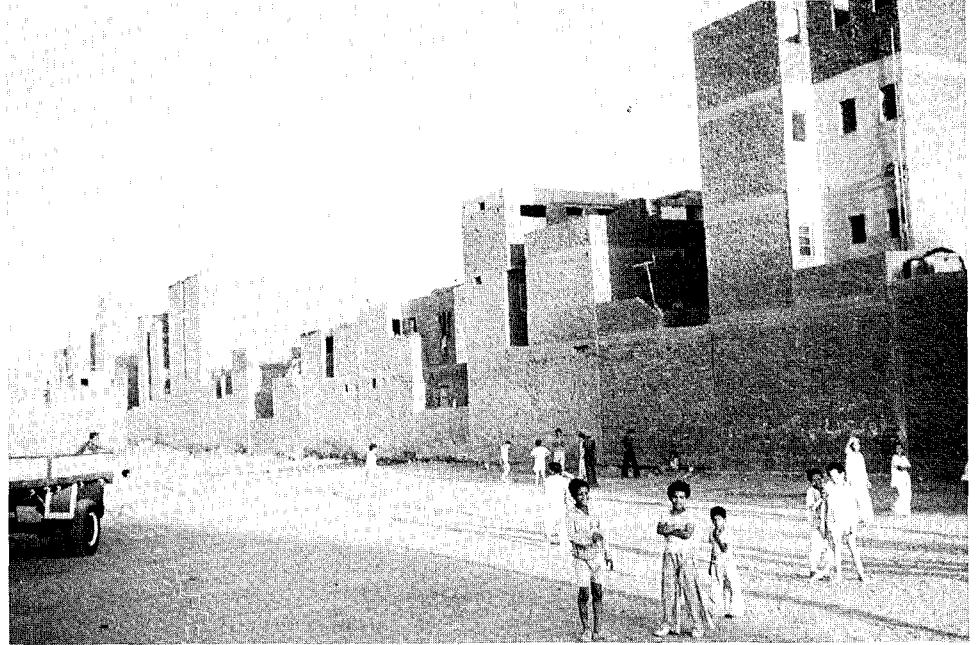
In really low cost housing projects in developing countries, such as the now popular sites and services schemes, professional assistance may initially be needed for the provision of basic layouts and services which users cannot provide for themselves. A physical structure has to be designed to allow for individual initiative, and to assure that the whole is more than merely the sum of its parts. Here the professional operates at the level of the urban tissue; everything beyond that is left to the user or individual builder.

In situations where higher densities are necessary, where professional intervention has occurred from the beginning, where for one reason or another we have to erect complete or partial structures rather than let them develop by user action, we professionals must still determine which paths can be left open for people. We cannot and we must not make all the decisions. All cases call for a duality of responsibility: the professional has to help create a physical environment that allows for change by usage, and the users have to act on their own behalf as well as participate in the “shared” or community aspects of their environment.

It is important to understand how powers interact. To achieve such an understanding, it is not so important to know who exercises power as to determine the position of the power to be exercised in relation to others. A person can assume other roles and have different judgments depending on his position in a given case. For instance, a planner may be designing for a municipal agency or he may work for a group of homeowners whose neighbourhood is about to be "redeveloped." His judgment will differ because he represents a different power. The level at which power is exercised yields its own set of dynamics and value judgments. Since the basic desire of all participants is to increase their power, we must understand the true relationships between the powers on different levels.

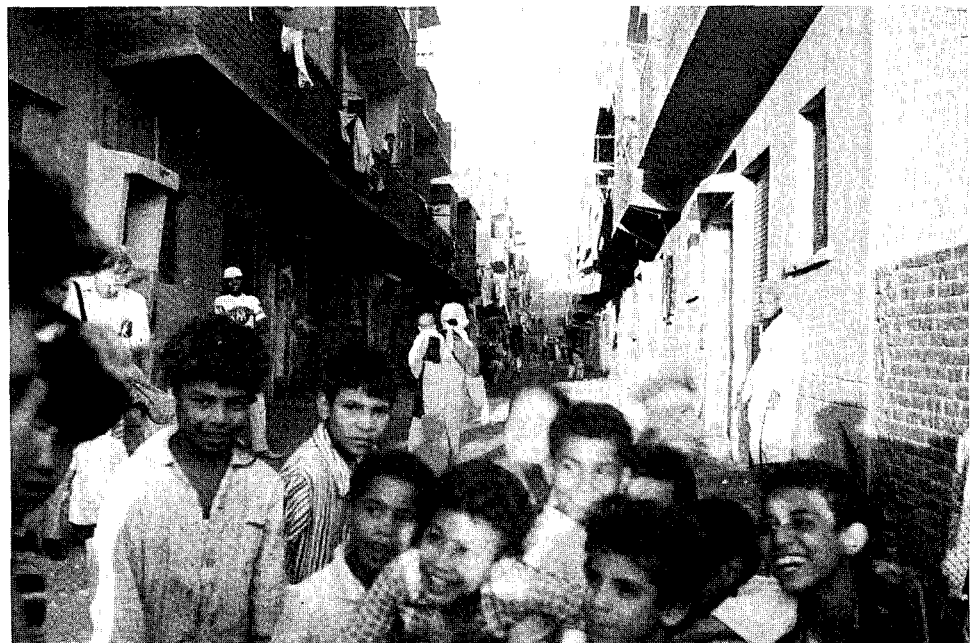
The balance between professional intervention and local initiative will vary as settings and situations differ. For example, in a sites and services scheme the areas of shared and individual responsibility must be determined. Studies have shown that when responsibilities are not precisely defined, individuals will encroach on public or shared space and those facilities will suffer. It has also been shown that projects incapable of growth and change will become failures. Similarly, if people are not provided with a basic infrastructure, sites and services schemes will not be able to develop beyond a certain point. They will need periodic interventions, even if these only occur after several years. European mass housing is at the other extreme: virtually every aspect of building is a result of professional intervention, and just about all the user can do is move around furniture! This second extreme is worse, because it stifles any exercise of small scale power.

The question, of course, is *where do we stop* with our professional intervention? We cannot argue that all initiative is better left to the people, as long as we provide minimal legal and economic security. Although such security is important, people must also have a means to act; they need a physical structure in order to develop their own. However, much less can we argue that the professional should make all decisions. In each case, the appropriate balance of power must be found between the professionals and the people.



Informal housing neighbourhood in Cairo: construction materials are brick and concrete. Photograph shows the backs of houses, against which other buildings will be constructed

Photo: N J Habraken



Children block access to homes in this same informal housing neighbourhood in Cairo

Photo: N. J. Habraken

Degrees of Intervention

There is a general belief that housing for different income groups requires different degrees of professional intervention. I am not certain that degree of intervention has a direct correlation with amount of income available. The wealthy suburb and the squatter settlement have something in common: both contain inhabitants who want to control their own lifestyles and are willing to invest in their property for the sake of future generations. This is the dynamic force which makes environments live. The professional has not yet learned to deal with it and to serve it on all income levels. There is no good reason to allow the rich to build for themselves while forcing mass housing on the poor. The process of housing provision should basically be the same in either case; it is only the results that will differ, based on disparities in available resources and situations.

The so-called "informal sector" in developing countries operates on land that has not been fully developed. This sector includes not only the poorest people but also government clerks, nurses and other professionals. Informal development usually begins on land sold to individuals by private sector speculators, without government permission. It may be "legal" in the sense that the land has not been invaded, but has usually been sold according to some pre-determined development scheme. However, everything is done outside official regulations, and does not fit into any formal governmental plans and principles. This informal sector cannot obtain facilities from the authorities, but once construction has begun it will eventually ask for services that the government is forced to provide.

Governments are tremendously reluctant to recognize the existence of the informal sector, but to ignore it is both foolish and dangerous. Official figures for production and planning cannot reflect actuality, since the majority of real housing production is often informal. Adequate planning for urban growth, development, distribution of materials and the realistic development of economic policy is impossible if one ignores the informal sector. In planning a cement policy for Egypt, the government does not

acknowledge the fact that a large percentage of cement destined for use in housing production goes through informal channels. Cement production, based on wholly unrealistic assumptions and data, is far too low. On the other hand, the shortage may be largely artificial; contractors apply for much more cement than they require for their projects, and then sell it on the black market. What this really implies is an informal mechanism to distribute the product—and also means that someone is getting rich. If the buying regulations were changed, the price for the informal consumer might decrease.

Planners always regard housing in terms of low, middle or high income groups, and divide population on that basis. It is true that neighbourhoods defined by class do exist; however, there is usually a symbiosis of rich and poor within a given area. In this mutually complementary relationship, the poor comprise a service group for the rich. What is needed is a more thorough meshing of attitudes, incomes and jobs. In the informal sector there is meshing only within certain ranges. Mixing and interdependency are social necessities, but in our formal bureaucratic way we divide society into income groups and build differently for each group, on discrete territories with disparate regulations and financial mechanisms. The result is artificial segregation. We might even say that the present sites and services idea, as espoused by the World Bank, is a very dangerous precedent; it separates the minimum income people and defines them as yet another class of people to work with.³ The system creates the problems that it then sets out to remedy.

The whole dilemma of formal intervention is perhaps best illustrated in the current debate about so-called "core houses"; there was a conference on this topic in Cairo in January 1979. It revealed the confusion that reigns over the question of how much the government should intervene in what is supposed to be a process of incremental growth and development. The issue is thorny and full of contradictions, mainly because it mixes the public realm with that of the private user.

If we recognize the existence of two realms of power, then clearly the user should decide

about his own dwelling. The professional, representing the public or shared environment, must think of the streets, lot sizes, sewage, etc. The division of decision-making power creates a physical structure (streets, lots) within which lower-level powers can act. The core house means, in effect, that the power on the higher level makes a decision on the lower level. Elements that have thus far been part of the lower-level responsibility have here been incorporated into the higher-level structure. We are talking about the delicate balance of powers that professionals generally do not understand very well. However, we can only hope to merge the lower-level elements within the shared physical structure if we have a complete understanding of the dynamics involved.

To build a core house implies more than the mere provision of a physical context in which other (lower) powers can operate. One has already been making decisions for them in building such a structure. There can be an entirely legitimate reason for doing that. In a new town in the desert, for example, one cannot expect people to start building from the ground up if they have no roof overhead; it is difficult enough to move into a new and hostile area with minimal social and physical support anyway. How much has to be built by outsiders, before people can move in to develop the environment on their own initiative and at the appropriate level, must be carefully determined in each individual case. It may well be that whole buildings, including high-rise structures, must be built before we can expect the process of lower-level cultivation to begin. But there is great confusion about how to determine that crucial point of transition between high-level and low-level intervention, and we have not even begun to seriously discuss this issue. Furthermore, the professional viewpoint in this matter is often ill-founded, due to ignorance of the problem and fear of lower-level decision making power.

Questions on the Industrialization of Building

The Egyptian government has invested in large prefabrication plants, and I consider

this decision to be disastrous. Such plants are totally inappropriate for the existing conditions. Their total production capacity is 20,000 units per year, far too small in comparison to demand. To date only a few plants are in working order, and of those not all are operating. Besides the fact that the product itself is questionable, it must be understood that prefabrication is always part of a much larger system: transportation facilities and roads are required, and potential sites must be ready in time.

It is also impossible for this system to compete with local and more traditional modes of building. Such schemes as prefabrication were developed in Europe after the Second World War, and could not compete with the traditional building methods which were essentially open-ended. They had to operate with government subsidy or other protection, but for political and ideological reasons the economic forecasts never worked out. The industrial approach to housing no longer has a future in Europe. This has led to very aggressive overseas marketing, with pressure on developing nations to buy prefabricated or other industrialized systems. Such systems also have an image of being modern and progressive, so some governments are inclined to purchase these plants although they are neither economical nor appropriate. They promise to produce visible end products very quickly, which can be most attractive to a Minister of Housing who has elections coming up in two or three years.

SAR has been looking at ways in which to simplify the construction process in order to minimize losses incurred. We propose to limit large-scale manufacturing to load-bearing walls, floors and roofs, leaving the other elements—doors, partitioning, windows and façades—to local manufacturers. Also, by removing all piping and wiring from within the walls, one can try to minimize the things that go wrong with the basic system. Our proposed prefabricated load-bearing structures make sense in new towns, because of the initial problems of housing and providing basic facilities for a new population; we hope to persuade the Egyptian government to use the components in this manner.

This broaches the question of industrialization of the building industry. Prefab systems actually have little to do with industrialization; they are not mass production systems. True industrialization occurs in the production of components such as doors and windows, bricks, nails, sanitary equipment, aluminum and steel extensions, etc. The smaller the element, the better its production can be "industrialized." The home building industry in the U.S.A., which offers a wide selection of materials, is a successful example of this.

But this is no coincidence: the American market has always been a vehicle for transmitting major decision making power to the individual homeowner, the small power. The question was whether economic production could serve so many small powers and still result in surplus profit. Because both variety and small scale intervention were mandatory, the mass production of standardized dwellings was impractical. Mass producing small construction elements instead of entire buildings is an attempt to capitalize on a large market of small-scale decision makers. Because the suburban American house does not look like an industrial product (nor is it one), people think that industrialization has not been introduced into the home building industry. On the other hand, European mass housing projects look like products of the age of industrialization, although they are much less the end result of mass-produced components. Industrialization in housing was never as successful in Europe as it is in the U.S.A., because the market consisted of a few centralized powers who were interested in standardizing the product, not the components. The industrialization of American home building, despite appearances to the contrary, is one of the country's best kept secrets. The relationship between the large scale production and the small-scale powers is only incompletely understood. Unfortunately, we cannot expand on this subject here.

The lesser developed countries abound in small powers, all ready and willing to intervene with their environment if they are given access to land and resources. How can they best industrialize for this process? Here

again we have to determine what people can and cannot do for themselves. They are likely to make concrete blocks, or windows, or doors, or tiles, for instance. In the informal sectors one finds small local entrepreneurs and craftsmen who make these elements, which are purchased one at a time. It would be worthwhile to see how these small-scale producers might be encouraged to improve their products and their productivity.

Other elements, like bricks, plastic pipes, electric wiring, sanitary facilities, nails, metal profiles, etc., cannot be produced locally; these require major investments toward mass production in a few places capable of serving large regions. All of these construction elements are readily used in the informal sector. There is no contradiction between sophisticated mass production technology and the user-builder market, in the developing countries or any other.

When professionals complain that industrialization is impossible, they usually mean that the mass production on one site of standardized dwellings, preferably prefabricated elsewhere, does not work. This is not industrialization, but the technology of centralized decision making that does not understand the multi-leveled balance of power that makes an environment successful. This attitude reveals not only a lack of understanding about industrialization, but also an ignorance of the forces which make environments something more than large architectural products.

Changes in Housing

The potential for change in a house during its use is an important factor in the design of housing environments. A great deal of urban European housing of the past few decades is a failure, and may have to be demolished while still technically sound, simply because it does not allow for changes in use within given physical settings.

Rapid building occurred in Holland after World War II, catalyzed by damage to existing structures. Instant new residential

areas were created, but with one critical mistake: these areas were ill-adapted to change during use. Projects which are only fifteen years old and well maintained are outdated, because they cannot meet either new standards or the new expectations of the users. For example, the houses lack central heating, which is now considered necessary, and the kitchen cannot physically accommodate refrigerators. These may be small and isolated complaints, but together they can make the house obsolete. For the same amount of expenditure but with a different attitude toward design, these houses could have been better adapted to alterations. Now the government either has to ignore the developing discrepancy between user expectations and reality, or must begin a renovation which will be almost as expensive as new construction. It is a no-win situation. We are only glimpsing the beginnings of the housing problem in Western Europe. It will begin to visibly manifest itself in the next twenty years, when the mass-housing schemes of the fifties and sixties become obsolete. This is a real time bomb.

We should make clear distinctions between public and private space in any attempts to keep an urban environment adaptable to changing uses in time. Change must occur on all levels, but particularly on the lowest if a healthy environment is to be maintained. Adaptability on the level of the larger urban tissue, however, is also important. The traditional urban block pattern, with individual user backyards invisible from the street, is the most adaptable high density scheme ever devised. But the modern movement ignored it completely. The frustrating high-rise block offers no possibility for change and adaptation without drastic alterations in the city fabric and its visual image. The courtyards of Mediterranean houses and Islamic residential architecture are evidence of a clear understanding of the relationship between public and private spaces. Because of this understanding, these houses can adapt to a variety of uses and innovations.

Investment in Housing

Housing investment poses a question of incentives. If new, unprotected environments are developed, even if jobs are available, people need a decent house. A case can be made in new towns for government subsidies at the beginning, tapering off as the community grows. For low income groups, it is almost inevitable that the developer will have to make an initial large investment. But to believe that investment in housing is always done in purely financial terms is incorrect.

The professional desire to see an end product is more psychological than economic in motivation. Settlements must be cultivated, and gradual investment over a longer period of time is more economically sound. The project which comes closest to this approach is now underway in Ismailia in Egypt. Infrastructure is scheduled to appear gradually, as houses are built by users (owners) on their individual lots. The initial investment is therefore minimal, and

priorities can be reexamined over time. This is, of course, the way cities grew in the past. We professionals are not used to that sort of slowly evolving process. We want to build as much as possible as quickly as possible. We want to complete a big project, not cultivate an environment. We are carpenters, not gardeners—although gardening is much more akin to the development of urban residential settings than building is.

The term sites and services suggests a definite sequence in time. This can be misleading; the services have to emerge gradually, as do the houses on the sites. When we look at the way an informal environment emerges, we do not see a sequential development of roads with their sewers and streetlights and then finally the houses. Instead, everything emerges slowly at the same time, like the latest photographs in which you see the image develop from nowhere. The photographic analogy—that everything is there from the beginning, but is invisible until it emerges slowly—holds true for urban environments as well.



Mass housing project in Cairo, built of large concrete prefab panels

Photo. N. J. Habraken



The same mass housing scheme in Cairo. The photograph shows the backs of the apartments, with extensions built illegally by residents. Note the four-story extension, indicating cooperation between occupants of different floors. This area was invaded by police charged with the demolition of illegal additions.

Photo: N. J. Habraken



Inhabitants of the top floors of the mass housing project in Cairo keep animals on the rooftops. Access is via holes in the concrete roof.

Photo: N. J. Habraken

This process of “simultaneous emergence” is interesting for a number of reasons. It appears impossible for formal housing schemes to reach those targets for which they were originally intended—they always end up one level above the ostensible goal. This is true at all income levels, both in developing countries and in the West. It seems to be the universal characteristic of centralized mass housing projects: these schemes always produce dwellings too expensive for their supposed inhabitants. The disparity is due, of course, to non-recognition of the power of user intervention over time. If you cannot view the dwelling as something that changes and improves with time, you worry about what sort of project will still be good in twenty, thirty or forty years. This is an unanswerable question, when designing for today within today’s economic constraints. A compromise is often sought: build for the future but make it payable now. The result is something that is too expensive for the target population, but fails to secure a good future product for those who can afford it.

Built environments come into existence by a process of addition and piecemeal gradual improvement. Every student of urban history knows that (But then, the modern movement does not encourage its children to study history.) What does it all mean? I can provide only a theoretical answer. I think we are at a very primitive stage in the understanding of the development of environments, and are only now recognizing the fourth dimension: time. Even in sites and services schemes, where user intervention is accepted as a positive development, projects tend to be frozen in time. We need to understand and use the process of time much more thoroughly and with far greater consideration in the formation of our future urban environments.

Role of the Professional

The professional architect, as that occupation is normally defined, has a very small role in the housing process. He must redefine himself in order to participate. Yet there is a definite need for people who

understand the physical environment and the consequences of certain physical and spatial actions upon future growth and change. We must begin to regard housing as cultivation. We cannot make end plants (or plans), but as gardeners we should know which plants will take root where and how we can encourage optimal growth. Architects, however, have not been trained with this attitude; they tend to think in terms of finished products. This is acceptable when designing a town hall or a theatre, but housing is a very different problem, and the process of change must be considered. But there is little in the architect's peer group concerns or in his training that would make him a good participant in the process of cultivation.

This conflict can be seen as a rather tragic misunderstanding by professionals, who thought that to do many houses meant doing a large building project. There is a basic difference between the two. In designing for a specific client, the relationship between architect and client guarantees the existence of a well-defined problem; the architect has to design something specific and complete. But in housing design the eventual individual users are not known, and a different attitude is necessary—one *cannot finish things; one can only make them possible*.

The most effective professional will be the one who lives within the community for which he is designing. In any case, professionals need roots over time in order to ensure maximum effectiveness. It is not only a question of having a team "going in" to survey the situation and then making proposals for "them"; it is also a matter of painstaking guidance of a complex social, technical and economic process that calls for time and strong commitment. The gardener cannot leave his garden; only the agricultural expert flies in and out.

The major issue is one of understanding. We are only beginning to question and to learn about the dynamics of physical transformations in the environment. We cannot yet deal with complexity and change, and we therefore simplify the problem and force a complex reality to conform to our narrow schemes. We architects may fancy ourselves

all-powerful because we are asked to do large projects, but the state of the art is woefully primitive, and the capacity of the profession to learn appears very limited.

Reference Notes

¹ The observations in this paper are based on the author's experience and involvement with SAR (Stichting Architecten Research); basic SAR data are included for those interested in this approach

² I have expanded on this in an essay entitled "The Limits of Professionalism," in the *Architectural Association Quarterly* 8, No. 1. This article is an edited version of the first John Denny's Memorial Lecture, presented at the A A in London in 1975

³ Lisa Peattie, Professor of Urban Anthropology at MIT, has pointed this out in an unpublished paper