<table>
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<th><strong>A DESIGN STUDY OF THE MARKET IN NIGERIA</strong></th>
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<td>JAMES HOBART PIATT</td>
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<tr>
<td>Bachelor of Architecture, University of Illinois, Urbana, June, 1972</td>
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<tr>
<td>Submitted in partial fulfillment of the requirements for the degree Master of Architecture in Advanced Studies at the Massachusetts Institute of Technology, May 7, 1976</td>
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| **Certified by** | Donald Prizio, Assistant Professor of Architectural History, Thesis Supervisor |

| **Accepted by** | Eduardo Catalano, Chairman, Departmental Committee on Graduate Students |

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I especially thank my brother Tom, my friends Alison Quoyeser and Patrice Yager, and Susan Piatt for constructive comment, encouragement and interest in the project.
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ABSTRACT

This study is an attempt to understand the nature of Form through architecture, that is to explore the nature of environmental experience and the nature of the design experience. The study rests on the speculation that architecture and design are ways of knowing the meaning of things and how they come to have significance. This study involves an empirical exploration of the relation of practice to critical thought -- the dialogue of action and reflection.

This exploration is based on evaluation of a design experience: a design study of marketplace architecture in East Central State, Nigeria. The study includes development of issues in market planning and design, criteria for future market development in East Central State. The emphasis of the study is on the physical and spatial planning and design aspects of market development, though management and operational considerations are also considered. These criteria will ultimately be tied into an ongoing regional and master planning study of seven urban areas in East Central State.

This regional and master planning project is being conducted by Ecodesign, Inc., a combination of architects, planners, and engineers, which is contracted to the Ministry of Economic Development (MED), East Central State (ECS), Nigeria. Though the market occupies a central position in the social and economic life of the ECS, due to immediate priorities of the MED for development of urban roads and water supplies, market problems will be considered at a later stage in the planning. This allows time for the criteria developed in this thesis to be integrated into the long-term planning directions to be established during the course of the project.
METHODOLOGY

METHODOLOGY (Proposed November 1975)

The Investigation concerns three categories of questions which may collapse into each other in the course of the work, but which are nevertheless described as distinct aspects of the study. The categories are: 1) the critical context for design, 2) the design problem and process itself, and 3) the problems of form and architecture.

1.) The critical context for design

To become involved in designing, and particularly in designing in cross-cultural situations, it is necessary to define the critical context for the work. This also becomes important to the reader, who will use the market study as it raises problems of cross-cultural work and interaction which uncover the broader question of the nature of rationality (what makes sense, anyway? and why? and to whom?) Who is the client or the user; how are goals established?

2.) The design problem and process

The problems of the market will be further elaborated upon and substantiated in the thesis itself, but a brief sketch of the situation will serve to introduce the market problems. The discussion of the problems and opportunities of existing markets and new market development will be based on personal observations, interviews with administrators, some field interviews with users and evaluations of existing and proposed markets.

The market in ECS is important for its traditional and on-going role as the locus of life in the urban and rural areas. Generally, people must visit the market periodically. Many people are involved as market traders, either full or part-time. Furthermore, the major urban and inter-urban circulation nodes are in the market. In some large urban markets, up to 20,000 people are engaged at one time, buying, selling, eating and drinking, or moving, making and processing produce or manufactured goods. In most markets, the activity takes place in the open air, on mud paths, beneath leaking canopies and between close-packed rows of traders’ stalls. Open drains filled with septic water, open refuse piles, few conveniences and no fire controls contribute to potentially dangerous, unhealthy or undesirable conditions. The problems of urban growth and development do not appear to have been taken into account as new market developments continue to occur in the congested urban core areas, disregarding problems of service and supply, pedestrian movement, parking and the effects on other urban functions.

In order to arrive at the design and planning issues involved in market development, this analysis will progress in two ways: a) to describe and evaluate typical market patterns of form and formation, based on specific examples, and b) to use design as a critical tool, to further explore characteristic market qualities and suggest design and planning criteria for market development.

a) In order to examine market architecture, it is necessary to describe its physical characteristics, the pattern of activity and circulation, and the nature of the market experience. One must also evaluate those aspects of the market phenomenon in a context of their interactions with external forces that create and alter those internal aspects. The market patterns will therefore vary in scale from specific internal characteristics of the market to patterns of urban context or fit, and will include patterns of development and operation as shaped by users, government authorities, or urban development pressures. The market examples used in the study are Ogbaete Market, Enugu, main markets in Onitsha, Umunna, Owerri, Nkoka, Abakaliki, and Akwa/Amaobla. These are all daily markets (rather than the periodic 4-day, 8-day, or evening markets as found in villages or rural areas). As complete, comparable information is not consistently available for any of the markets -- data is more or less comprehensive, covering varying aspects in each case -- the markets patterns will be developed by describing, for example, ways markets are constructed, or the different ways markets are managed. This descriptive listing will provide a range of feasible alternatives for future market design and development. The descriptions will hopefully begin to define what is essential to the market as form and as an institution.

b) Design proposals will be developed out of the issues uncovered in the market pattern description through study of historical parallels, comparative structures (buildings, concepts), traditional market construction standards, and speculative market design studies.

3.) Form in architecture

The study of form and architecture will depend for its structure and its medium on the development of 2a) and 2b) above. This aspect of the study will be integrated with the tools and discussions of the design process. "Conclusions" may be evocative or delimiting. The problem might be to surface the implications of form from the data or the design products or from their transformative relationship.
In order to define the issues involved in planning and designing markets, it is necessary to examine diverse types of information:

1.) What markets are presently like (where they are located, how they are built, and so on)

2.) Needs of various bodies who have a stake in market operations (users and their organizations, market managers, government authorities)

3.) General standards or models (number of toilets or water taps, building types, size of stalls and so on)

While each of these constitutes a research problem in itself, a potentially unlimited body of facts, values, or data, in design it is necessary to determine what information is critical or relevant to the problems at hand. The kind of filter or process used to screen out less useful information thus becomes a design problem itself, as well as the question of who designs the filter. The filter corresponds to a system of values, a particular perspective on what is important in a given situation based on communal aspirations or an individual’s unique experience and explained in terms of economic development, functional necessity, structural efficiency, symbolic or expressive intention, and so on. Ultimately, decisions in favor of particular actions, as expressions of a system of values, are political - the result of interaction between diverse groups of people with varied...
interests (and different ideas about what makes sense, or is rational). The "rational" alternative, as it is often described, is a myth. The real solution is politically defined somewhere between many of the possible alternatives, whether expressed or not.

Market development is similarly a result of political initiatives and decision-making processes. Also, the C-E Tec contract with the MED, E.C.S., is concerned with defining opportunities and issues involved in realizing them, not making development decisions. The regional and urban planning project constitutes only one aspect of the development process. The primarily technical assessments of resources developed in that project will be eventually integrated with existing developments and plans, and will be further evaluated according to the aims and processes of government authorities, community and village councils, cooperatives and individuals.

Similarly, this market study, to fit into this framework, is a preliminary stock-taking (given the early stage of the overall project and the limited time available for the thesis): a preliminary outline of issues related to market development. Design choices (culled from built or proposed market schemes and field observations) are hypotheses generated to uncover the issues and design criteria which should be considered in the process of building markets. It is assumed that
such issues and criteria will serve as a starting point for planning markets, to be further evaluated and amended according to the realities of the design and implementation processes: a handbook to inform discussion, not a prototype for construction.

The study is based on several assumptions about the nature of development in general:

- Development should be incremental (and small-scale) as much as possible, rather than instantaneous and large-scale, to allow ongoing evaluation and adjustment of plans and designs.
- Development should be largely based on generally available methods and resources.
- Perceptions of environmental conditions (for example, what constitutes an adequate level of sanitation?) differ due to different expectations; such expectations are based on different levels of technological and economic capability more than on culture-bound traditions or beliefs.

Market issues and design choices will be incorporated in this study with the descriptive discussions both to structure information gathering and at the same time to help make explicit the assumptions and values which that structuring implies.
Specifically, proposed market planning and design Strategies and Comments on those strategies will be juxtaposed, as much as possible, with the description of existing conditions to which the strategies respond. In this way, specific proposals or standards can be used to further refine descriptive data and discussions, suggesting new strategies and so on.
The Niger River, the transport link for Gnitsha until the advent of a road network and motor transport.
Market development can be seen as an important factor shaping urban activity and development patterns. A brief sketch of some other factors which have influenced the growth of the urban areas, and their resultant form, will help to understand the relative impact of the market on urban form. These factors are physical barriers to growth, land availability, and the location of important facilities or institutions. The shape of any particular town could be a result of some or all of these factors; examples from the different urban areas are intended to illustrate the general factors with concrete cases and provide a basis for future work in any of them.

Some physical barriers which have constrained or directed growth include the River Niger in Onitsha (which simultaneously was Onitsha's initial impetus for growth), the 600-foot high escarpment to the west of Enugu, and the ravines west of the ridgeline upon which Umuahia developed. Enugu expanded onto an eroded plain, which resulted in growth of distinct districts isolated by deep stream ravines -- all areas of the town being tenuously linked by roads which dip and wind over the topography. Traffic becomes congested at the bottlenecks which result from the limited access points. Onitsha, located in the midst of the Niger River floodplain, and Abakaliki, in a flat, seasonally water-logged drainage basin, are both limited roughly on the north and south edges of the urban areas. Owerri, Nsukka, and Awka, due to their relatively smaller overall size and generally flatter and drier landscape, have been, at least for the time being, unconstrained by physical factors.

The availability of land for urban development has been determined by the land tenure patterns resulting from both native ownership and British rule. Native settlements in the urban areas have remained essentially intact -- frequently becoming islands in the grid pattern of newer development, or if large enough, as in the case of Inland Town, Onitsha, have deflected urban expansion. The British took control of certain areas (known as Crown Lands), where development of the urban areas could occur without having to deal with native owners. The Crown Lands were divided into Government Residential Areas, (G.R.A.), for colonial administrators -- now occupied by Nigerians -- and Native Residential Areas which were laid out in dense grid patterns (8-10 plots per acre) for construction of housing for laborers and lower level government workers. Past and proposed growth has continued in the Crown Lands as those areas offer somewhat less resistance to urban development schemes which often include new urban markets.

Finally, early administrative institutions and commercial firms, and facilities like the railroad in Enugu and Umuahia, which formed the core of the early
urban areas, established these points as important growth centers and destinations. The main urban markets, located at an early stage in these centers of activity, have become lodged there with progressive market development and upgrading. Thus, though the towns have expanded outward, frequently non-concentrically, the markets have remained in their historical locations without consideration of the relative merits of alternate sites with regard to population centers, interregional movement patterns, or geographical potential for expansion. Facilities like the railroad in Enugu and Umunno have acted as a barrier separating newer residential development from the original commercial and institutional focal points of the towns, creating circulation bottlenecks at the limited on-grade crossings. Further, the railroad contributes to the congestion of the urban cores as the crossings are frequently closed as trains pass.

These diverse factors have resulted in basically two patterns of growth in the urban areas:

1.) Concentric growth through planned and unplanned development, usually at the urban periphery. Over time this pattern leaves the main markets at the center of an ever-growing built-up area. This urban core is the commercial focus of an ever-larger population which has to travel farther on the radial road network to conduct business or to purchase goods. The ring of residential development around the commercial and market districts becomes an impediment to traffic moving to the market.

2.) Growth in distinct districts (delimited by geography, for example) which are scattered further and further from the original urban core existing in a more dispersed population which still depends on the main market located at the center of early development. Enugu is an example of such a pattern, with access between districts limited by topography and the railroad. To make a comparison, both Enugu and Onitsha have populations approaching 300,000, but in Onitsha that population is concentrated within approximately 4.5 square miles, while in Enugu it spreads out over 8 square miles. Also, in Enugu the adjacent administrative and commercial district generates commuter traffic which competes with market traffic at the few intra-urban links. This congestion is further aggregated by periodic train passage at these same links.

One final aspect of the urban growth patterns is when geographical constraints force growth in a single direction (Enugu and Onitsha). This increases travel distances through ever-larger residential zones, as the market is located to one side of the built-up area. In Onitsha, the main market was originally served by river transport, but as trucks began to carry more of the country’s goods and as the Niger River depth was reduced by the Kariba Dam, truck transport came to carry the bulk of goods moving to Onitsha Market. Though it must be kept in mind that the river traffic never constituted a similarly predominant portion of the trade because of a regional distribution center, people always had to approach from the land side to do business in the market. But interestingly, the large landing steps on the river side of the market, which formed the “front” of the market, have . . . been abandoned and fenced off as market activity increasingly became oriented toward Bright Street on the land side.

**COMMENT**

- Are alternative functions (such as services, administrative or retail) for the urban core conceivable given the traditionally central role of the market in Igbo Towns?
- To what extent do urban cores depend on market for spillover traffic and convenient supply of goods?
- What are the costs of new market construction and the problems of recycling existing market structures?
- What other strategies exist to ameliorate traffic conditions (“integrated motor park”, eliminate motor park, widen rights of way and provide parking for different modes, prohibition on parking at market edges, one-way circulation loops)?

**STRATEGY**

- Relocate Main Markets to urban periphery in situations where market is located to one side of urban area, far from primary approaches to the urban area, to reduce unnecessary movement through urban core area, and to help equalize travel distances for rural zones relative to urban zones.
- Relocate wholesale functions of Main Markets to urban periphery.
While this study focuses on the main urban markets, the "marketplace" is actually a network of markets which are differentiated according to scale, periodicity, tradition and specialization. Two market systems will be described: 1) Onitsha's market (as the major trading city in West Africa), and 2) Owerri Market, a small urban market.

An Initial distinction between markets can be made based on scale and periodicity. Market scale corresponds to the area served by the market: village, urban area, region or nation. The main urban markets draw petty traders from up to thirty to forty miles away, and bigger traders from all over the E.C.S. - and in the case of Onitsha and Abakaliki (with its rice surplus), traders come from all of Nigeria. The village markets (whether in Onitsha or in rural areas) provide convenience shopping - garden produce, herbs and spices, smaller manufactured commodities - in contrast to bulky retail goods or wholesale lots supplied in the main markets. Periodicity generally corresponds to the market scale or area of influence. The main markets are all daily markets, open year-round, while the smaller markets in villages or rural areas are periodic markets, open either every four or eight days (according to the Igbo calendar) or in the mornings or evenings only.

Tradition may be important in maintaining a market's status - in concert with other factors such as economics or constraints on redevelopment such as land availability. For example, Onitsha attracts traders from Abakaliki past the large Ogbe Market in Enugu (which remains primarily a retail market), apparently due to the generally acknowledged lower prices in Onitsha. Onitsha serves as a distribution center for Nigeria, such that textiles produced in Lagos (10 hours by lorry from Onitsha) are cheaper in Onitsha than next door to the factory in Lagos (according to the Market Authority, Onitsha, and popular consensus). However, the popular consensus about this fact, a tradition itself, probably helps maintain the primary status of Onitsha. Market development or reconstruction seems to occur where pragmatic factors dictate - on main roads, available land - but also where symbolic factors dictate - such as the new location of Awka main market, in the center of Awka (in competition with the traditional main market in neighboring Amawbia) in order to assert the increasing status of Awka. Also, but in Akwa and other towns, markets have been summarily moved to facilitate reconstruction or integration with other markets. The "marketplace" as activity seems to carry the weight of tradition, while the specific location (except in the case of Onitsha) seems less significant.

### Onitsha Market Network

**Main market**
- 15 acres
- Manufactured goods
- Textiles
- Meat and fish
- Produce
- Cooking herbs
- Retail

**Ose Okwodu market**
- 13 acres
- Staple foodstuffs
- Firewood
- Industrial
- Wholesale

**Ndende market**
- 60 acres
- Lumber
- Building supplies
- Motor parts
- Medical supplies
- Industrial
- Wholesale

**Ochanja market**
- 9 acres
- Firewood
- Raw building materials
- Staple foodstuffs
- Motor parts
- Service
- Wholesale

### AMAWBA/AWKA Market Network

**Main market**
- Population approx. 85,000
- Located on major road between Enugu and Onitsha
- Land varies from flat and marshy to broad hills with stream valleys
- Continues historic function as travelers' wayside, also noted for woodcarving and metalsmithing industries
- Residential compounds are clustered immediately behind commercial corridor

**Ochanja market**
- Population approx. 150,000
- Located on the banks of the Niger River, on a gentle ridge which projects onto the Niger floodplains
- Historically important market due to conjunction of Niger and major population belt
- Still a West African trading center in spite of change from riverine to highway transport of goods
- Some new large scale light industrial development
URBAN CONTEXT

Specialization occurs at all scales of markets. Small village markets may be predominantly herb or palm wine markets. Larger markets in the urban areas provide a full range of goods, but they may also specialize. While a market may specialize in certain goods, or be primarily wholesale or retail, a variety of goods and scale of services is obtained in many cases, due to the necessity of providing a range of services and products in all parts of town (both to serve local residents and one-stop itinerant traders), and due to the initiative of many petty traders and vendors. This same initiative also can augment what is primarily available at any one market; a buyer often hears, “If you don’t see what you want, wait just 15 minutes and I can get it for you.”

Wholesale stocks are similarly broken down within market premises by smaller traders for retail resale within the market perimeter or in the immediate vicinity. While retail sides are often the function of petty traders, the relatively new phenomenon of the permanent retail shop is becoming an important part of retail marketing in the urban core areas. Urban marketplaces “are only part of the total complex of institutions which comprise the central business districts of urban centres.” There is a “long-term trend towards strengthening of the institutions in the central place sub-systems relative to market places.” (Kwu, Markets in West Africa, p. 232). What is meant by “central place sub-system” are the permanent warehousing, large-scale wholesaling and retailing functions and facilities (including department stores) which are developing due to the assured daily traffic adjacent to the urban markets. The markets in the Onitsha market network provide complementary services and goods with some overlap of everyday foodstuffs and significant spillover of commercial activity into the streets all around the individual markets. This forms dense commercial corridors or zones composed of both temporary and permanent businesses.

MARKET NETWORK

OVERWEN population approx. 75,000

Lies on generally flat plain, occasionally cut by river canyons. Traditionally sub-regional market and administrative center, centrally located relative to other urban areas. New state capital of Imo State. A few new light industrial developments, much small-scale industry.

STRATEGY

- As population growth and urban growth demand market expansion -- disperse increasingly specialized markets in particular commodities or services (timber market, textile market, motor parts market, drug market, etc.). Perhaps create a specialized market “park” at urban periphery or decentralized market “nodes” around city or throughout the state.

COMMENT

- Belt roads around town would be required to facilitate access to dispersed markets from different approach directions.
- What is the effect of dispersion on one-stop petty traders?
- How would decentralized smaller market “outlets” throughout state contribute to rural development?
- What is the relationship between the market system and the trend to permanent shops, including shopping centers?

STRATEGY

- Restructure regional distribution patterns of non-perishable goods (ultimately all goods) to replace centralized wholesaling with dispersed wholesaling at production centers and direct delivery to retailers to reduce redundant transport and costs of middlemen.

COMMENT

- What extent of regional wholesaling function of markets (Onitsha, Enugu, Umuahia, Abakaliki)?
- What facilities or services are required to permit change (widespread telephone service, commodities market)?
- Are reduced costs of middlemen perhaps balanced by increased overhead of permanent retail institutions?
Activity in the urban areas is often focused around the market network. Traditionally, the village marketplace provided the setting for diverse social, cultural, and economic activities; however, the large urban markets have become primarily commercial institutions. The various markets in the urban area have become specialized markets either with regard to scale of service or range of products. In Owerri, the facilities in the market network are 1) Main Market, 2) Timber Shed, 3) the Proposed Cattle Pen, and 4) a new market, nearing completion approximately 1 kilometer south of the Main Market.

The Main Market is located in the center of the Central Business District, edged on three sides by dense shopping streets (Douglas Rd., Osu/I Rd., School St.) and adjacent to craftwork and cottage industry zones on Old Market Rd. and Christ Church Rd. The timber market, on Wetherel Rd. is at the edge of the built-up area, surrounded by undeveloped land on three sides. The New Market is surrounded by low density residential, undeveloped land and Emmanuel College.

The market began as an open space surrounded by the indigenous villages. Major reconstruction occurred in the late 1950's when the Shell Co. headquarters were established in Owerri. The motor-park was also constructed at that time. Douglas Road was cut after Independence and as it became the main through route, the prominent position of the market in the urban circulation network was assured. New lock-up stalls were completed in 1975 at the southern edge of the motor-park and at the rear of the market on School Rd. Private shops and trading stalls fill all the buildings and available spaces along the streets which define the Market and Motor Park perimeter.

Recently, the timber market, selling only lumber products, has been built. Other building supplies are sold nearby on Wetherel Road. The New Market will apparently be a small feeder market to relieve pressure on the Main Market and service buyers coming from Aba direction and adjacent residential zones.

The proposed cattle pen will likely be sited outside the urban built-up area to regulate cattle shipments to the Main Market.
URBAN CONTEXT

MOVEMENT PATTERN

Modes — Goods are transported to and from the market by a wide variety of means depending on the type of produce and the bulk and rate of the ability to pay for transport by individual traders.

Bulk goods are carried on 5-ton lorries, typically a truck with wooden cargo body added on top of a frame and cab. After goods are loaded to the top of the cargo space, passengers climb on top of the load for the most economical motor transportation. Mini-buses (VW's, KIA-cars, or compact station wagons with add-on passenger cabin) carry passengers with smaller loads intended for small scale retail or home use back in the villages. Lorries and mini-buses can be owned by independent trucking businesses, or village cooperative societies. In the first case, they generally cater to long-distance and interregional trade; in the second case, the travel distance is usually from the village to the nearest major market, generally 30-40 miles. Along with taxis (compact autos) these two modes serve as an efficient and flexible jitney service for the bulk of the population and its produce to and from market. Commercial bus-lines are too expensive for the small trader and also have fixed routes and stops, aspects unsuited to the dispersed pattern of habitation in E.C.S.

Bicycles are used more and more for market transport by small traders, but given the size of loads, bicycles are more popular in the flat topography around Owerri, though could be exploited more around Abakaliki for the same reason.

Head-portaging of goods by pedestrians is the most prevalent mode of transport and travel and forms a significant part of the traffic in the urban areas. People walk up to 10 miles one way to come to market.

Within the urban areas bulk goods are often transported by men pulling or pushing large specially made wooden hand trucks. In Onitsha, for example, lorries often unload at Ochanja Market and transfer goods to the hand-trucks for final portage to the Main Market, where head-porters or wheelbarrows move goods into the market itself. In Abakaliki rice is similarly transported after milling to the rice milling site about one mile east of town and then back to the market for sale. The truck porters themselves are often successful middlemen, actively involved in trading for and with the goods they carry.

A major characteristic of movement to and from the markets is the modal mix. Given the long distances traders walk and the long range of taxis (up to 50-60 miles) relative to trucks, there is an overlapping of modes relative to distance from market. This means that most roads (inter- and intra-urban) are used by all modes simultaneously. The deteriorated condition of the narrow paved road itself, the unsurfaced shoulders, and the open drainage ditches bordering the edge of the urban roads, force all the traffic into the same two land routes. This results in all traffic in the urban areas often being slowed to the pace of the pedestrian. Proposals to reduce congestion by developing paved pedestrian/bicycle/handtruck right of ways separate from motor vehicle right of ways require widening of existing right of ways in some cases, and extensive construction and paving in all cases.

Circulation System — The circulation patterns, resulting from the generally radial development of the urban areas, funnel traffic into the core of the town. The market is perhaps the most important activity in the urban areas, and as such is the most important single destination. This means that all movement to the main markets must penetrate the growing built-up areas, mixing regional and local market traffic with through traffic and other business and commuter traffic. As previously discussed, the traffic congestion is increased where terrain limits alternative routes. Further, traffic intensity varies throughout the day. Larry traffic is heaviest in the morning and early afternoon, while smaller traders and retail traffic are spread throughout the day. But a final rush around commuter rush hour in the late afternoon compounds traffic congestion resulting from lack of alternate routes due to the urban configuration.

Road Conditions — The generally poor condition of roads and the narrowness of roadways impedes all traffic. In some of the worst situations (Onitsha included as of this writing), the main approach roads are either so severely pot-holed or even unpaved as to be impassable to motor traffic during the rains and an impediment to movement even during the dry periods.

ABAKALIKI

Population approx. 75,000

Located near E.C.S. border, 50 miles from Enugu, on a low, somewhat marshy plain. Surrounded by rich farmland for rice and some root crops. The major activity in the town is rice processing (boiling and milling), distribution and related truck repair services.
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<td><img src="image" alt="Lorry (or Mammy Wagon) stopping to load passengers and their bundles" /></td>
<td><img src="image" alt="Fully loaded &quot;kit-car&quot;" /></td>
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- Lorry (or Mammy Wagon) stopping to load passengers and their bundles.
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<td>Cattle moving to market on major inter-urban highway</td>
<td>Handtruck moving to market, mixing with motor vehicle traffic</td>
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URBAN CONTEXT

Trader head-portaging a stock of textiles

MOVEMENT PATTERN

Transport within the market: the wheelbarrow
OPERATIONS
&
USERS

20
OPERATIONS & USERS

Authority -- Markets in the E.C.S. are under control of the Urban Councils or the Community Councils in smaller towns. The councils direct and enable market development and construction. A Market Authority, accountable to the Urban Council, is responsible for market administration. The Market Authority collects fees for use of stalls and shops and the motor parks. The fees usually are a source of revenue for the Urban Councils whose projects can include market construction, upgrading, and of course market operations. In Onitsha, until recently, the Market Authority had more autonomy, reserving control over the market revenues and contributing approximately 10 percent of the revenues to the Council.

Financing -- Market construction and operations depend for the most part on revenues derived from stall and motor park fees. While fees in larger markets such as Onitsha may range up to Naira 100-200 ($100-$300) per year for a 10 foot square stall, this is primarily a wholesale market for bigger traders; the figures for Awka market may give an idea of the costs to traders in smaller, retail markets. An 8 foot square open stall rents for 50 kobo per month ($0.80), lock-up stalls which provide storage and selling areas rent for Naira 1 per month ($1.60). The motor park controller collects 10-20 kobo ($0.15-$0.30)
from each lorry as it leaves the park. These costs are in line with the users' incomes. But, the market fees are generally too low to support market construction and, as costs of initial construction obviously cannot depend on anticipated market fees, market development costs are met in some cases by direct contributions. In cases where the indigenous population is too small to support a market which must serve a large stranger population, either the state government or the Urban Council funds the development. Often, market funding is either inadequate or occurs in piecemeal fashion so that market development can usually only take place incrementally; provision of water taps, drainage ditches, power and other amenities often is put off until stalls are constructed.

Operation -- The Market Master is responsible for daily management, maintenance and security, including refuse collection and disposal, after hours clean-up, policing the market to prevent too much encroachment of displays into the aisles, security patrols after market hours, and collection of fees. The effectiveness of the Market Master depends on the adequacy of funding which translates into whether there is adequate water to wash down stalls, abattoir, and food processing areas, whether there are enough refuse receptacles and the means to service them regularly, etc.
Operations & Users

Staging -- Market reconstruction is usually staged in phases to accommodate traders displaced during the work, with temporary roadside stands and smaller district or village markets providing places for anyone not accounted for. The mode of reconstruction for simple open stalls is incremental; a section of stalls being built a few at a time as needs determine. In contrast, the proposed reconstruction of Ogbete Market in Enugu, an elaborate scheme including all two story, concrete market structures in a revised configuration, also include an already completed temporary market at another site nearer the western access point into the town. All market activity will move there while the new facilities are being built in the present market site.

Users -- Women constitute the majority of market users. They trade in their own farm produce, their husband's, or in some manufactured goods. However, as agriculture becomes less and less profitable (due to population pressure on exhausted soil), more and more young men are becoming traders. They generally deal in bulk food commodities in interregional trade or special manufactured goods such as textiles (Ukwu, Markets in West Africa, p. 174). As data for markets in E.C.S. is not available, a study of the market system in Ibadan, in western Nigeria, can provide comparable information on the typical market population. In these figures it is important to notice the percentage of people
under eighteen. While this certainly includes some teenage traders, there are also many younger children who begin trading in small articles, nuts, or fruit much earlier. Further, while the following figures aren't specific, in all marketplaces there are always many younger children still cared for by their mothers who are trading in the market.

In the whole Ibadan market network, 68 percent of the traders are female and 32 percent male, and this same breakdown was found in a survey of shoppers, although in specialty markets such as cattle and timber markets, males predominated. 5.5 percent of the traders are under eighteen, 31.2 percent are between eighteen and twenty-nine, 50 percent between thirty and fifty, and the remaining 13.3 percent are over fifty.

The definition of trader and shopper is not a rigid one. A person may arrive in the morning with produce to process and sell, or perhaps sell direct to a middleman, and later in the day purchase commodities for retail back in his or her village or simply in preparation for the evening's meal. (Vagale, Traditional Markets in Nigeria, pp. 50-53).

Groups that have an interest in market development and operations include 1) the traders and market patrons, concerned primarily with shelter and services es-
essential to conducting business, 2) the Market Master, concerned with market orderliness and upkeep, 3) the Market Authority or administrating Urban Councils who derive significant revenue from market operation and must also evaluate market development in light of benefits to and impact on the urban community as a whole, and 4) state and federal government authorities concerned with socio-economic development of the region and nation.
Livestock market within Ogbete Market in Enugu. Thatched roof stalls for livestock and steel roofed stalls beyond for manufactured goods.
The schematic plans of the various markets (not including Abakaliki) illustrate general market layouts. The markets typically have two major zones, the Motor Park and the selling zone, or marketplace proper. [See Building Types section for description of market elements on key].

Motor Park

Motor Parks are typically near the front of the market, directly accessible to the major road in town. Exceptions are 1) Awka, which while still having its motor park at the front of the market, is entered from secondary Achalla Road just off the main Enugu-Onitsha Road, and 2) Abakaliki, whose market is reached by a commercial street which loops around the market hill so that access is isolated from the major road. Smaller vehicle (mini-bus and taxi) loading zones — either planned or ad hoc — usually occur across the main road from the main lorry motor park. This results in a steady stream of produce-carrying pedestrians crossing the main highways, creating a hazard for themselves and contributing to the general slowdown of traffic in the urban cores. In Awka, parking on the main road is prohibited — forcing drivers to use the main motor park. While this seems to reduce congestion somewhat, the explanation could easily lie in the lower population of Awka relative to the size of its market.

The market is both a retail and wholesale clearing house and the motor park obviously provides a space for loading and unloading of goods and passengers; it also is a site for a substantial amount of trade in its own right. Goods which are destined for interregional markets are often traded right in the motor park without entering the market. However, this applies more to retail markets as large wholesale markets like Onitsha handle bulk goods within the market premises. The motor parks are generally unorganized — vehicles parking and unloading wherever space is available. Sometimes an attempt is made to enforce some sense of order by parking in rows; however, the mix of pedestrians carrying goods, pushing wheelbarrows, riding bicycles or motorcycles, lorry or buses and taxis backing in and out while others try to find a space to park frustrates most attempts at organizing movement. The un-demarcated surface doesn’t define parking zones and ruts and pot-holes in the unpaved surface frequently force moving traffic into intended parking and loading zones.

Sometimes there is a zone between the parking area and the main selling zone of the market where goods are temporarily stored in the open in bulk quantities — large sacks of grains or other produce, prior to shipment or the reverse, breakdown of bulk packages for resale in the retail market.

KEY

- Temporary selling zone
- Open stalls: bamboo/thatch
- Open stalls: steel or concrete
- Lock-up stalls: steel or zinc
- Service road
- Urban road
- Motor Park with access zones
- Drop-off or loading zone
- Wall or fence
- Vegetation

STRAIGHT STRATEGY

- Provide clearly defined transition zone between motor parks and selling zone for loading, off-loading, lorry transfer trade, and temporary bulk storage.
- Maximize interface perimeter between pedestrian and motor zones to increase loading zone capacity.
"Jobbers" waiting for portaging work in motor park

Storage and transfer zone between motor park and market stalls
produce or merchandise are moved from the motor park or storage zone into and out of the market mostly by head porterage and sometimes by smaller wheelbarrows. The "jobbers" who carry bulk merchandise generally wait for work in clusters near the market entrance around the storage zone. Onitsha Market, which has a relatively small motor park, has an area within the main building where large packages are wrapped and tied together before being portaged to waiting taxis or lorries for loading.

Previous design or policy recommendations concerning motor parks have resulted in contrasting recommendations, implying different evaluations of the role of motor parks and problems of operation or layout. For example, the existing motor park at Umuahia Main Market is not large compared to other markets, and due to the size of the market, might even be larger to accommodate the traffic. In spite of this, the proposed plan to redevelop the market omits the motor park altogether (E.C.S. Department of Division Administration, August 6, 1973).

As overflow transfer of goods now takes place on the streets which form the market perimeter, it is likely that traffic would only increase if there were no motor park whatever. Similarly, one study of urban development in Cwerri says that congestion in the urban core area is worsened by the lack of separate right-of-ways for vehicles and pedestrians. Also, the motor park is usually so crowded that neighboring streets and petrol stations serve as overflow loading zones for vehicles. The author suggested that traffic conditions could be considerably eased if the motor park were relocated, somewhere outside the core area. "Removal of the motor park from its present place will create more room for market expansion, direct traffic away from the core area, and thereby ease congestion," and reduce the hazard heavy traffic constitutes for pedestrians and cyclists (Cwerri - A Study of Urban Morphology, Agu Koronye, p. 27).

These two suggestions assume that the specific location of the motor park is not critical to the functioning of the market: 1) its role could be absorbed in an informal undefined manner on the adjacent city streets, or 2) that its functional relationship (direct transport of goods) could be taken over by smaller shuttle vehicles or hand trucks from an isolated motor park.

In Onitsha the importance of the motor park activity is clearly recognized in proposals for an "integrated motor park" on the site of the existing Ochanje Market (Onitsha Market Authority). The plan is to develop a transfer node where heavy lorries could transfer their loads to smaller shuttle vehicles and hand trucks for final transport to the Main Market and perhaps other markets in the market network. The "integrated motor park" would incorporate warehousing facilities, motor vehicle service, and places to eat and sleep for traders. The aim of this proposal is to reduce the amount of traffic in the urban core, but it seems just as likely that while the size of vehicles may change, there would be proportionately more of them relative to the different capacities of the larger and smaller vehicles. The proposal might signal a trend to decentralize market activities, and might serve the development of satellite markets as well as the Main Market. If that happens, congestion in the core could be substantially eased.

**STRATEGY**
- Provide several dispersed lorry parks near major commodity zones to reduce portage distances — disperse traffic congestion around market perimeter.

**COMMENT**
- Consider overlap of traders and buyers in any attempt to separate modes.

**STRATEGY**
- Develop idea of "integrated motor park" (as proposed by Onitsha Market Authority) to include eating, drinking, sleeping facilities, light trading, goods transfer, storage and bulk breakdown zones, motor vehicle repair.
- Provide small vehicle access and parking separate from lorry parking (auto, motorcycle, bicycle).

**STRATEGY**
- Provide small vehicle access and parking separate from lorry parking (auto, motorcycle, bicycle).
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MARKETPLACE

SELLING ZONES

The selling zone is a rather simple name for all the activity that occurs there. This zone is the marketplace proper, and edges the motor park.

The layout and organization of the various commodity and activity zones follow a typical pattern for all markets. Manufactured articles (books, textiles, tools, etc.) are located toward the front of the market nearest the motor park and main road, and generally in permanent lock-up stalls. Foodstuffs are located toward the rear of the market, mostly in open stalls, sometimes of impermanent materials such as canvas or thatch. Palm wine is sold in the rear of markets along with other foodstuff. The meat and fish markets are sometimes near the rear edge of markets, probably so that it is possible to deliver cattle without passing through the market, and to locate the abattoir or slaughterhouse near an open area for waste disposal.

This pattern, which gives primary exposure to luxury goods or things purchased only rarely, and little or no exposure to staple items, conforms to the layout of commercial facilities in general. It is probable that while the agent of design is different for different commercial situations (many individual traders vying for space in the market, or the "typical" supermarket manager in a grocery store), the reasons for such a pattern, in each case, are similar:

1. Trade in staple goods is assured by the fact that purchase of food is a periodic necessity (especially where private cold storage is not generally available) and people will seek out the food areas. Consumer goods such as manufactured items or textiles must rely to a greater extent on the occasional purchase and must therefore compete for attention of fewer daily buyers. Therefore, location at the leading edge of the market guarantees exposure to both people along the main road or in the motor park and the stream of people who must penetrate through the market to make necessary purchases.

2. Many foodstuff traders come to the market only occasionally to market their own produce according to the seasonal harvest patterns. Therefore, there is a turnover of smaller traders who generally have lower need for permanent stalls. Given their periodic use of the market, there is no organized interest to press for facilities, for example. And, as produce is brought in daily, there is less need for lock-up storage facilities.

The marketplace is a place to sell and buy raw materials or foodstuff, finished or prepared goods, a place to process or package or assemble manufactured goods or farm produce. While economic functions may be the purpose of the market, traditionally it has also served as a site for ceremonies and celebrations, "a place to meet a girl-to marry, to negotiate a divorce, to make love, to collect one's debt, pay or collect one's contribution, and have a drink with one's age mates, friends, and in-laws." (Uchendu, Igbo of Southeast Nigeria, p. 27), though these functions may only occur presently in the village markets; the urban markets are primarily commercial institutions.

In the same stall where it will be sold, food is peeled, diced, cooked, pounded, butchered, and wrapped by the same person who may have grown the produce. Palm oil is boiled in 10 gallon vats or old paint cans. Yams are grated and rolled into small green balls on temporary stands along the main aisles. Snuff can be purchased at any stage in its production in adjacent stalls; from tobacco leaves and large chunks of potash to finely ground snuff in small glass bottles. Grains such as rice or maize and other sauce ingredients such as melon seeds, or beans can be brought to the market to be milled, then to be sold, either to retail shoppers or to eating houses in the market for immediate cooking and consumption. Cooking, which takes place in the aisles or in eating houses dotted through the markets, is done over open wood fires and has been the cause of fires which are difficult to control in the densely packed mix of flammable market structures and the merchandise itself. Firefighting equipment and adequate water to fight fires is lacking. In proposed plans for Ogbete Market in Enugu, the cooking activities have been consolidated in separate zones at the rear of the market, and edges the motor park.

STRATEGY

- Provide access for fire trucks with 15 ft wide major lanes and turnaround at ends.
- Restrict cooking to special zones separated from rest of market by firebreaks and adequately provided with water.
- Provide distinct pedestrian right-of-ways and waiting zones in motor parks and market access points.

COMMENT

Is there any problem combining cooking related to food processing with that related to consumption? What are products or facilities that require cooking?

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Grain traders on off-day in Amawbia market. Note dedication (on concrete foundation) of row of stalls, paid for by an Age Grade club in Amawbia.

Grain selling area in Ogbete Market. Note unpaved aisle, eroded drainage ditch in center.
MARKETPLACE

Manufactured goods are similarly fabricated, assembled and sold often in the same stall. Market industry is small scale: clothing or shoe fabrication, tin-smithing and ironworking, wood-working, bicycle assembly, motor parts and machine components. In primarily wholesale markets like Onitsha, only components (bicycle parts, for example) are available in the market itself, but the finished product can be purchased in the district immediately surrounding the market, or even at the market perimeter. Large manufactured goods such as autos or farm equipment, or sophisticated office machines, are found outside the market in department or specialty stores and firms. Lately there has been a trend to consolidate manufacturing and service industries in special markets: timber and industrial markets are often located at the urban periphery, where land is available and where what is seen as undesirable environmental effects can be isolated away from residential zones.

Meat is brought to the market on the hoof, usually from staging or distribution markets outside of the urban areas (though in Onitsha there is no meat market as such, and cattle are trucked direct from the railhead in Enugu to the meat sheds in Onitsha market). Meat is slaughtered and cleaned in the abattoir, and butchered and sold the same day in the adjacent sheds of the markets. There are no cold storage facilities in the markets. The meat is butchered by up to one hundred small meat traders who often deal in only five pieces of meat at a time. In fact, the high number of traders in relation to the amount of goods traded in the markets in general has been cited as a stumbling block to economic development, in the sense that any proliferation of middlemen removes many people from potentially more productive occupations (Stapleton, Wealth of Nigeria). Though this analysis may correctly describe the relationship between national productivity and producers, it doesn't say what else the growing number of traders should do instead. And it is probable that a decrease in traders will only occur as better opportunities become available, as the notion develops.

The market is also a place for recreation. The stalls where palm wine is sold serve as places to meet friends and drink palm wine. A meal or a snack can be obtained at the various temporary stands throughout the market in small one-stall "hotels" or occasionally larger eating houses. Non-economic functions which traditionally occurred in the marketplaces no longer overlap in the main markets with trading activities both because market management has become a business in its own right, requiring stricter controls considering the value of goods stored in permanent stalls, and because the urban markets have a constituency much larger than the traditional village group and its particular customs or traditions.

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<table>
<thead>
<tr>
<th>MARKETPLACE</th>
<th>SELLING ZONE</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Market industry" />, grinding grain</td>
<td><img src="image2" alt="Carpenters in Timber Market" /></td>
</tr>
</tbody>
</table>

Market industry, grinding grain

Carpenters in Timber Market
In order to design markets it is necessary, first of all, to know what materials are generally available and used, and for what reasons. In practice, markets are constructed with varying combinations of materials and building systems. The choice of materials primarily depends on functional characteristics, availability and cost, workability (relative to local skills and tools), and appearance.

While it is possible that other materials may be more suitable than those used presently, this list was compiled in order to explore the issues and problems involved in selecting materials, and to describe the range of materials presently available for construction. For example, while the problems associated with wood construction (rot, fire, etc.) are clear, nevertheless, until a better material (concrete, steel) is generally available, market improvements must employ the standard materials (except in special cases where there is a powerful interest and source of funding to support more durable construction).

### BASE MATERIAL

<table>
<thead>
<tr>
<th>Material</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>mud (unformed or formed)</td>
<td>muddy, rutted and pot-holed in rainy season, hard to maintain, clogs drainage ditches</td>
</tr>
<tr>
<td>concrete (steel or bamboo reinforced)</td>
<td>durable, easily cleaned, steel reinforcing bars produced in E.C.S. in limited quantity</td>
</tr>
<tr>
<td>*clay tiles (6&quot; x 6&quot;)</td>
<td>durable, easily cleaned, increasingly available</td>
</tr>
<tr>
<td>*terrazo</td>
<td>durable, easily cleaned</td>
</tr>
</tbody>
</table>

### SUPPORT MATERIAL

<table>
<thead>
<tr>
<th>Material</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>bamboo or wood logs</td>
<td>light loads, vulnerable to fire, insects, rot</td>
</tr>
<tr>
<td>lumber posts and joists</td>
<td>moderate loads, vulnerable to fire, insects, rot</td>
</tr>
<tr>
<td>*fired clay, brick</td>
<td>durable, heavy loads</td>
</tr>
<tr>
<td>concrete or sandcrete block bearing wall (4.5&quot;-6&quot;-9&quot;-18&quot;) blocks)</td>
<td>durable, heavy loads, possible on-site production</td>
</tr>
<tr>
<td>*cast-in-place concrete (steel or bamboo reinforced)</td>
<td>durable, heavy loads, steel reinforcing bars produced in E.C.S. in limited quantity</td>
</tr>
<tr>
<td>*ironstone, rock</td>
<td>durable, heavy loads, very limited use</td>
</tr>
<tr>
<td>steel pipe columns</td>
<td>durable if maintained, heavy loads, fire resistant, rusts</td>
</tr>
<tr>
<td>*steel framing</td>
<td>durable if maintained, heavy loads, fire resistant, rusts</td>
</tr>
</tbody>
</table>

### WALL MATERIAL

<table>
<thead>
<tr>
<th>Material</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>bamboo screening,</td>
<td>protects from sun and wind only; vulnerable to fire, insects, rot</td>
</tr>
<tr>
<td>palm or grass thatch</td>
<td>requires minimal maintenance; vulnerable to fire, insects, rot</td>
</tr>
<tr>
<td>mud (bamboo reinforced)</td>
<td>erodes if unprotected</td>
</tr>
<tr>
<td>mud wick</td>
<td>erodes if unprotected, on-site production possible</td>
</tr>
<tr>
<td>salvaged wood, metal</td>
<td>non-uniform appearance; performance vulnerable to fire, insects, rot, rust</td>
</tr>
<tr>
<td>lumber planking, plywood</td>
<td>durable if maintained; vulnerable to fire, insects, rot</td>
</tr>
<tr>
<td>*fired clay brick</td>
<td>see support materials</td>
</tr>
<tr>
<td>concrete or sandcrete block (4.5&quot;-6&quot;-9&quot;-18&quot;)</td>
<td>see support materials</td>
</tr>
<tr>
<td>*asbestos cement boards (4' x 8')</td>
<td>see support materials</td>
</tr>
<tr>
<td>*ironstone, rock</td>
<td>durable, lower heat gain than corrugated steel pan fire proof</td>
</tr>
<tr>
<td>*cast-in-place concrete</td>
<td>see support materials</td>
</tr>
<tr>
<td>corrugated steel (occasionally galvanized)</td>
<td>see support materials</td>
</tr>
<tr>
<td>glass</td>
<td>durable, discolors and mows with age, filters light</td>
</tr>
<tr>
<td>metal windows and doors</td>
<td>durable, discolors and mows with age, filters light</td>
</tr>
<tr>
<td>fiberglass</td>
<td>durable, discolors and mows with age, filters light</td>
</tr>
</tbody>
</table>

### ROOF MATERIAL

<table>
<thead>
<tr>
<th>Material</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>split bamboo screening</td>
<td>see wall materials</td>
</tr>
<tr>
<td>palm or grass thatch</td>
<td>see wall materials</td>
</tr>
<tr>
<td>canvas or plastic tarps</td>
<td>generally used in small pieces, unsuitable for adequate rain protection, tends to discolor, rip</td>
</tr>
<tr>
<td>salvaged wood, metal</td>
<td>see wall materials</td>
</tr>
<tr>
<td>corrugated asbestos-cement (3' x 4' sheets)</td>
<td>see wall materials</td>
</tr>
<tr>
<td>*cast-in-place or precast concrete (steel or bamboo reinforced)</td>
<td>see wall materials</td>
</tr>
<tr>
<td>corrugated steel (occasionally galvanized)</td>
<td>see wall materials</td>
</tr>
<tr>
<td>*fiberglass</td>
<td>see wall materials</td>
</tr>
<tr>
<td>toilet equipment</td>
<td>most manufactured equipment is imported - supply of manufactured products and parts is often a problem in E.C.S.</td>
</tr>
</tbody>
</table>

* NOT TYPICALLY USED IN MARKET CONSTRUCTION
The materials and construction system used depend initially on the status and size of the market. Periodic, rural markets generally have bamboo and thatch shades erected by the village to attract traders. Daily markets usually have stalls constructed with more permanent materials (thatch sometimes has to be repaired two to three times a year due to the rains) which can stand up to the weather and the daily heavy use. Also, daily markets, with permanent shops, require lock-up facilities to store non-perishable, manufactured goods.

Secondly, the type of construction corresponds to the wealth of the town and the traders. A daily market is composed of people who are traders for their livelihood, their market crops. For the food trade, especially in the smaller urban areas, stick and thatch shades are still in use. Whereas full-time traders can afford the rents for more permanent construction.

Finally, construction systems have been determined by other factors less easy to rationalize. The large roof shed over part of the market in Onitsha provides a sophisticated shelter for the traders it covers. But the larger part of the traders at Onitsha occupy standard one-story stalls, and in the case of the small herb market, temporary stick and canvas shelters. The question raised is whether there might be a construction system which would provide adequate protection from the
Improvised burlap sunshades over stockfish stalls

These permanent lock-up stalls disappear behind and beneath the array of various manufactured articles (bicycle parts, small tools, etc.)
MARKETPLACE

rain, with ventilation, as the Onitsha market building does, but at a cost which would allow it to be used in all zones of the market.

The section on selling zones gives an idea of the diversity of activities which occur in the marketplace. Yet the market structures themselves, the stalls and shops, are not correspondingly differentiated. Benches and tables are moved into a stall for drinking palm wine. A rigid hinged awning closes to make a lock-up stall. Textile traders use their display racks as partitions between adjacent stalls. Bamboo screens are hung over the front of a stall to provide a sense of enclosure for a small eating house. But the simple stall with minor modifications is the basic frame for all uses (larger stalls for building materials and lumber are major exceptions).

The typical arrangement of buildings is in a grid pattern with major aisles (10-15 feet wide) and minor aisles (3-8 feet depending on encroachment by traders into the original right of way), though in special markets (lumber) aisles may be 30 feet wide and stalls may be deeper to accommodate handling of lumber. The grid is rarely uniform due to 1) markets were built over a period of time, accommodating different building types and modules, and 2) the grids are shifted or rotated to conform to the shape of the site or barriers to expansion.
Onitsha Main Market building, exterior

Well sheltered and ventilated interior of Main Market building
MARKETPLACE

Open stalls at Onitsha Main Market. Note improvised rain tarps over aisle.

BUILDING TYPES

Improvised rain tarps shelter aisle in open stall area.
MARKETPLACE

AD HOC. SUNSHADES, RAINSHIELDS (NOT REALLY EFFECTIVE SHELTER)
MADE FROM SALVAGED MATERIALS - PLYWOOD, STEEL PAN, PALM FROND,
CANVAS OR PLASTIC SHEET, BAMBOO SCREEN
SUPPORTED ON BAMBOO OR STICKS
NO PROVISION FOR DRAINAGE
PRODUCE COVERED WITH PLASTIC SHEET WHEN RAIN BECOMES TOO HEAVY

SOMETIMES STICK & CANVAS OR PLASTIC SHELTERS BECOME A SMALL STALL AS IN THE HERB MARKET AT ONITSHA.
A SIMPLE STAND FOR SPICES, FRUIT, PRODUCE IN SMALL QUANTITIES

TEMPORARY OR MOVABLE STANDS INVOLVE NO MORE THAN A SMALL TABLE & STOOL TO SELL PELED FRUIT OR A LARGE PLAT BASKET TRAY TO HOLD JEWELRY, GROUNDNUTS OR BANANAS.

BUILDING TYPES

AD HOC SHADES ARE OFTEN USED TO EXTEND SHOP SPACE (USUALLY LOCK-UP STALLS ONLY)
SHADES CAN CLOSE DOWN TO HELP LOCK UP SHOP

DIFFERENT MUSIC PLAYED LOUD FROM EACH SHOP'S OVERSIZE LOUD SPEAKERS TO TURN THE HEADS OF PASSERSBY
**MARKETPLACE**

- Typical market aisle with plastic rain tarps over aisle, concrete stall platforms, wood joist and corrugated steel roof.

**BUILDING TYPES**

- Temporary traders at roadside near market.
MARKETPLACE

STRATEGY
○ Base construction:
  1) designed to drain rainwater and cleaning water
  2) incorporates closed drain ways
  3) potential for adding and enclosing water pipe, sewage pipes

COMMENT
○ Research lighter, more flexible paving systems (such as concrete paving blocks)

○ If rainwater is collected by roof (greatest volume of water run-off) then perhaps market drainage could be simpler drain swales with block paving rather than elaborate cast-in-place concrete drains.

STRATEGY
○ Support and wall system:
  1) overall support structure for roofing both stalls and aisles
  2) durable, re-usable, fire-resistant materials
  3) temporary awnings
## MARKETPLACE

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<td>4) integrate with service infrastructure, transport rainwater piping, electrical, water supply</td>
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### COMMENT
- Mortarless concrete block for lock-up stalls
- Maintain and paint steel pipe and wood surfaces regularly to prevent corrosion and rot.

### STRATEGY
- Roof system:
  1) durable, fire-resistant, non-corrosive
  2) provides natural light and ventilation
  3) design for rainwater collection

### COMMENT
- Need alternative to corrugated steel pan as it corrodes away in time, has limited re-use value and is undesirable for water collection system. Perhaps asbestos/concrete panels or translucent fiberglass.
- Research other configuration and materials which reduce heat gain, promote air circulation without turbulence, provide natural light and collect rainwater.
**STRATEGY**
- Develop meat and fish stalls which can be maintained easily and ventilated:
  1) hard materials and surfaces
  2) adequate water supply
  3) daily maintenance and inspection
  4) open air shelter

**COMMENT**
- Unenclosed meat stalls at Onitsha maintained by daily cleaning of concrete benches and floors, the idea being to eliminate the attraction of flies and rodents rather than to fence them out of enclosed buildings which cannot easily be washed down.
INFRASTRUCTURE AND SERVICES

Information on levels of services and amenities in the market is not complete at this time. While some general observations can be made, data on levels of service relative to the market populations are approximated from diverse sources in order to give a rough idea of the existing conditions. This will help to define practical standards for market construction which are presently feasible due to community development priorities and constraints. Utilities discussed include water supply, drainage system, refuse handling, power, and communications. Services include toilet and washing facilities.

WATER

The level of water service ranges from none in rural and smaller urban markets to a complete in-house water system (with bore-hole, treatment and storage facilities) at the Main Market in Onitsha. Awka is a medium-sized urban market built in 1971 by the community council and therefore is somewhat indicative of market development in smaller urban areas (i.e., Nsukka, Abakaliki, Umuahia, Owerri). Awka has approximately 3200 stalls (including open and lock-up stalls) and a trader population of 6400 (assuming 2.0 traders per stall). At present there is one water tap in the market, supplying potable water from the town's supply. This tap gets preferential service from the urban water supply during market operating hours to ensure reliable service at that one tap. Five taps are proposed by the Community Council (when water pipe can be purchased) which would give a ratio of one water tap to 640 stalls or 1280 traders. The total daily market population (assuming 5 buyers per stall) is 22,400, giving a ratio of one tap per 4480 people. While comparable figures are not possible to derive at this time, Onitsha Main Market, with a population of 8100 traders (assuming 2.5 traders per stall and a total daily population of 28,000 - 6 buyers per stall) has a 100,000 gallon water storage tank to service its latrines, market cleaning operations, and water taps (number presently unavailable). If the market uses that amount of water each day (to be replenished by the borehole at night), the average consumption (including market maintenance) would be approximately 3.5 gallons per market user (including traders and buyers). In comparison to these figures, one water tap per 250-400 traders and buyers was recommended for markets in Ibadan, Nigeria. Six to ten gallons of water per market user (including traders and buyers) was recommended (Vogale, Nigerian Markets, p. 90). Another problem in markets is water for fire fighting. Fire hydrants are usually not provided, though fire departments, slowly being developed in major urban cities, are not generally available anyway.

MARKETPLACE

STRATEGY

- Provide potable water supply: 6-10 gallons per capita per day, one stand pipe per 250-400 traders at 220'-330' on center (Vogale, Nigerian Markets, p. 90). Provide water supply for cleaning drains, market stalls. Facilities for washing food, tools, bathing.

COMMENT

- What services or product zones require water for processing? Number of stalls in each zone? Market population (traders, buyers)? Population increase due to market expansion? When market renovation is considered, it is necessary to be aware of the effect of higher stall rental fees, which encourage doubling and tripling up by traders, dependent on the realities of regulations and enforcement. This is important in any attempt to estimate market population to determine amount of services or infrastructure required.
- Urban water supply capability relative to market demand?
<table>
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<th>MARKETPLACE</th>
<th>INFRASTRUCTURE</th>
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<td>A limited number of water taps serve large market populations.</td>
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![Image of people gathering around water taps](image-url)
MARKETPLACE

DRAINAGE
The range of development for drainage will be indicated by a description of specific examples. The markets in Nsukka have no planned drains and rain runoff ensues its own path to the urban drainage pattern. Similarly in Awka, where although raised concrete pads have been built to keep the stalls off the ground, the aisles between are unpaved and often not graded to drain. An earth-formed drainage ditch presently follows the two lower edges of the market perimeter and drains into a nearby stream. The ditch is filled in many places to the top with mud, refuse, and septic water — it is bridged where necessary by rough boards.

There are plans to line the ditch with concrete as funds become available, but no plans to pave the market as a whole and reduce the mud deposits in the ditch. This same condition exists in Umushia (where the urban outfall system is inadequate also), Enugu and Owerri. Onitsha Main Market, by contrast, is concrete paved throughout. Drainage ditches are covered with perforated removable concrete covers to prevent their being congested with refuse. The paving facilitates cleaning of the market and minimizes the worst effects of heavy rain. Also, the market, located directly on the Niger, is adequately pitched to assure effective drainage of rain runoff into the natural outfall provided by the river.

STRATEGY
* Provide drainage system: covered drain ditches in market base with removable covers for cleaning, repair. Consider possible integration of utilities and service lines with covered drains. Also consider separate rainwater drainage and collection, which could be stored in cisterns to augment urban supply for market cleaning.
* Must pave selling zones and aisles to avoid clogging drains with mud.
* Might roof entire market to reduce size of floor drainage system — while providing ventilation of stalls and aisles.

INFRASTRUCTURE

EXISTING DRAINAGE

EXISTING OPEN DRAIN

PROPOSED DRAINAGE

ENCLOSED DRAIN

RAINWATER CISTERN TO AUGMENT WATER SUPPLY IN CONJUNCTION WITH ROOF COLLECTION SYSTEM ONLY

DRAINWAYS INTEGRATED WITH EROOF OR BASE, ENCLOSED TO PREVENT CLOGGING

"BLACK WATER" (FROM TOILETS, ABANDONED DRAINS TO URBAN DRAINAGE SYSTEM OR MARKET TREATMENT FACILITY

FERRATED DRAIN COVER, CONCRETE PAVING

BOARD BRIDGE

RAINWATER, SEPARATE STREAM, SEPTIC WATER

REFUSE & SLIP DRAIN

EARTH
Open earthen drain ditches clogged with refuse and mud from adjacent unpaved aisles, often creating septic conditions in resulting standing water.
**MARKETPLACE**

**REFUSE**

Refuse is collected and disposed of with varying degrees of effectiveness in the different urban areas. It is clear that lack of funds, as with all services, is one of the main obstacles to effective operation of refuse collection. Though in this case, the operational expenses for daily collection and maintenance are greater over time than the initial costs of equipment (as opposed to centrally controllable system like water). Presently refuse barrels are provided throughout some markets and maintained by the urban council, though adequate maintenance must depend on adequate staffing and ultimately on funding.

In other markets, refuse piles develop at the market edges, to be removed sporadically by the urban council. In Anaka, the refuse is being deposited in a land fill area to create space for market expansion.

In Onitsha, the Main Market has small refuse barrels throughout the market and larger central collection points where the smaller barrels are dumped. The urban council then is responsible for removing the assimilated waste. In contrast, Ose Okwodu market in Onitsha is marred by untended, sprawling mounds of refuse which spill over and cover the banks of the Niger.

One refuse receptacle (4.5 cubic feet) per 20-25 stalls was recommended for Ibadan markets. They are to be flyproof, washable, with attached lids. Central collection points were also suggested (Nigerian Markets, Vogale, p. 90).

**STRATEGY**


**COMMENT**

- Volume of refuse?
- Who services receptacles and how often?
- Consider recycling of waste (for example, offal from abbatoir is collected in settling tanks and sold for garden fertilizer at Nsukka Market, or perhaps collect sawdust from timber markets to board fabrication).
- Provide access for service trucks -- 15' major lanes with turnarounds.

**AMENITIES**

- Latrine or toilet facilities are often not available in the markets. Onitsha is somewhat of an exception by providing comfort stations in several corners of the market. The actual number of latrines is presently unavailable. Sewage is typically collected in septic tanks with soak-away pits in the urban areas -- urban water-borne sewage systems being undeveloped at present. Other amenities such as specialized food processing areas with water and working facilities are not available (except for the abbatoirs in all markets). Washing facilities are similarly not available -- due to both the problems of supplying water and perhaps demand, although people occasionally use the Niger River to bathe at Onitsha Market.

**POWER**

No specific information is presently available regarding power supply. Electrical lines supply power to some of the larger, lock-up stalls for lighting. But at the markets typically close at 6 p.m., there is little need for area lighting. Street lighting currently exists only on more important streets in the towns, often provided only by single bulbs hanging on the front of permanent shops. Most machines or tools in the markets are hand or foot powered, though power is available for power machinery in the timber markets to mill the lumber. Cooking is done over wood fires. So, at this point, there doesn't seem to be a significant need for extensive power facilities in the markets. Increased power is not included as an objective in the recommendations for Ibadan markets (Vogale, Nigerian Markets).

**COMMUNICATIONS**

At present there is no direct telephone or mail service to the markets. The central P & T (Post and Telegraph) office in each town will handle pre-arranged calls by delivering messages of incoming calls to specified locations and individuals in the market. However, telephone service is not generally convenient for most communication. Personal contacts and interaction in the marketplace for buying and selling is unavoidable, to a certain extent, given the level of communication services.

**STRATEGY**

- Provide Post and Telegraph (including telephone) branch exchange in market to facilitate trade and reduce travel needs.

**COMMENT**

- Need for parallel development of exchanges throughout state and country.
Open refuse dump adjacent to fruit selling area

Open refuse dump along Niger Riverbank at Ose Okwodu market in Oritsha
### MARKETPLACE

#### SUMMARY OF MARKET DESIGN STRATEGIES

Design strategies or criteria are loosely summarized in categories which are ordered from most to least critical, in regard to physical safety and convenience. The categories inevitably overlap -- a solution to one problem can also influence other problems. Strategies should be viewed as explanatory: specific standards mentioned will be adapted to situational constraints in the actual market design process. Design problem groupings to be considered when developing design strategies and their implications are as follows:

1. hazards (i.e., fire)
2. services and amenities (i.e., water, drainage, toilets, etc.)
3. activity zone conflicts (i.e., waste disposal near food selling zones) or potential opportunities (i.e., open space)
4. facilities construction (i.e., new buildings, more durable materials, integration of infrastructure, etc.)
5. legibility (i.e., intra-market orientation, urban landmarks, etc.)

#### HAZARD PREVENTION

- Provide access for fire trucks with 15 foot wide major lanes and turnarounds at ends
Marketplace

- Restrict cooking to special zones separated from rest of market by firebreaks and adequately provided with water.
- Provide distinct pedestrian rights-of-way and waiting zones in motor parks and market access points.
- Use fire-resistant materials for market construction.

Services and Amenities

- Provide potable water supply: 6-10 gallons per capita per day, one standpipe per 250-400 traders at 220'-330' on center (Vagale, Nigerian Markets). Provide water supply for cleaning drains, market stalls. Facilities for washing food, tools, bathing.
- Provide drainage system: covered drain ditches in market base with removable covers for cleaning, repair. Consider possible integration of utilities and service lines with covered drains. Also, consider separate rainwater drainage and collection which could be stored in cisterns to augment urban supply for market cleaning.
- Provide and maintain toilets: approximately 1 w.c. per 150-200 traders, grouped evenly around market.
MARKETPLACE

- Provide refuse receptables: fly-proof, washable, attached lids. 1/20-25 stalls at 3-4.5 cf. Provide central collection areas coordinated with urban collection systems and schedule, isolated from public zones.

- Provide electrical service with multiple metered power outlets. Night-lighting for security and off-hours activities (i.e., cleaning, delivery).

- Provide Post and Telegraph (including telephone) branch exchange in market to facilitate trade and reduce travel needs.

ACTIVITY ZONES CONFLICTS OR OPPORTUNITIES

- Provide several dispersed lorry parks near major commodity zones to reduce portage distances -- disperse traffic congestion around market perimeter.

- Provide transition zone between motor parks and selling zone for loading and off-loading, lorry transfer trade. Maximize interface perimeter between pedestrian and motor zones to increase loading zone capacity.

- Develop idea of "integrated motor park" (as proposed by Onitsha Market Authority) to include eating, drinking, sleeping facilities, light trading, goods transfer, storage and bulk breakdown zones, motor vehicle repair.

- Provide small vehicle access and parking separate from lorry parking (auto, motorcycle, bicycle).
**MARKETPLACE**

- Locate palm wine stalls and other eating houses near edge zones in integrated motor park, in open spaces, service areas, or perimeter zones (along Niger River in Onitsha, for example -- Onitsha Market Authority).
- Leave public entertainment or recreation zones open after market hours.
- Provide landscaped open spaces for recreation, meeting places, perhaps combine with other amenities such as eating houses, bars, or cafes.

**FACILITIES AND CONSTRUCTION**

- Base construction:
  1) designed to drain rainwater and cleaning water
  2) incorporates closed drain ways
  3) potential for adding and enclosing water pipe, sewage pipes

- Support and wall system:
  1) overall support structure for roofing both stalls and aisles
  2) durable, re-usable, fire-resistant materials
  3) temporary awnings
  4) integrate with service infrastructure, transport rainwater piping, electrical, water supply
### MARKETPLACE

- **Roof system:**
  1. durable, fire-resistant, non-corrosive
  2. provides natural light and ventilation
  3. design for drainwater collection

- Develop meat and fish stalls which can be maintained easily and ventilated:
  1. hard materials and surfaces
  2. adequate water supply
  3. daily maintenance and inspection
  4. open air shelter

### MARKET LEGIBILITY

- Provide orientation in market through intra-market zone definition, landmarks -- emphasis of landmarks and entry point would also improve legibility of market in urban context. Existing pattern of market network could be expressed and reinforced by parallel development of neighborhood or special markets along with main markets (i.e., similar construction systems, or entry zones).
MARKETPLACE DEVELOPMENT ALTERNATIVES

Development of the marketplace and the transformation of marketing activity itself occur in conjunction with parallel developments in the regional and urban physical framework (urban growth, land use patterns, roads, water supply, communication systems, etc.) and socio-economic trends (consumer buying power, development of central place commercial institutions (Ukwu, 1965), absorption of new technologies, etc.). For example, the development of shopping centers in Nigeria would be affected by the development of communication systems and distribution networks and facilities. Also the particular problems of designing shopping facilities would be determined by the role private autos come to play, as the country develops, necessitating more or less parking, for example. The interdependence and variable rate of development of many systems and conditions makes precise long-range planning difficult, as factors affecting development can change unpredictably. Therefore, given the uncertainty surrounding any planning assumptions about the future, a range of market development alternatives is described. These range from 1) specific recommendations which are presently feasible for upgrading existing market facilities (the recommendations for upgrading market facilities may be implemented all at once or incrementally, as funds permit), 2) schematic plans for total market reconstruction (based on existing pro-
The proposals or plans for markets in Enugu and Onitsha), and 3) a speculative scheme integrating new market facilities with shopping center type of commercial development (as proposed for Owerri, and many other Nigerian cities). This last scheme raises more questions than it answers about the parallel development of permanent shops and market facilities, and should be viewed as a vehicle for exposing some issues which may become important for urban development in the future.

The proposals were developed for Owerri Main Market to show how several development actions might be realized together in a specific situation. But the particular patterns suggested could be applied in part or in whole in other markets.

Finally, the timetable for implementing any of the alternatives would depend not only on general cultural or economic trends, but in large part on the present level of development. The specific rate of growth and the absolute size of any urbanized area; the population served and tax revenue available for development projects would be a major factor in what could be built and when. Therefore, the distinction between Immediate, Near, and Distant Futures is relative, rather than originating in the historical present, as the base conditions vary for the different urban areas or towns.
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<th>MARKETPLACE</th>
<th>DEVELOPMENT ALTERNATIVES</th>
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<td>(FEASIBLE)</td>
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<tr>
<td>ALTERNATIVE</td>
<td>Upgrade existing markets</td>
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<td>MARKET</td>
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<td>FUTURES</td>
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<tr>
<td>PARALLEL</td>
<td>Increase in permanent retail shops and department stores</td>
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<tr>
<td>TRENDS</td>
<td>Increasing importance of central place – commercial institution</td>
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<td></td>
<td>Improvement of urban infrastructure</td>
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<td>Increase in per capita income and purchasing capability</td>
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OWERRI MAIN MARKET
EXISTING LAYOUT
**STRATEGY**

This proposal is the most probable course for market development, especially in smaller urban areas like Owerri, but also for feeder markets or expansion markets even in the larger urban areas. Assumptions are 1) that the means to realize elaborate reconstruction projects will not be available in the near future, and 2) that the role of smaller traders (who provide competitive service to local retail as well as wholesale customers) would be threatened by higher rents implied by expensive market reconstruction.

The proposed scheme could be implemented in part or in whole, if the means exist. The idea being that any of the suggestions, alone, would help improve environmental conditions in the markets.

- Pave all market zones (motor parks, aisles, stalls) pitched to drain with enclosed main drains pitched to the urban outfall system
- Define separate vehicular parking, pedestrian, and storage zones in the motor park to eliminate modal conflict
- Develop serviced pedestrian open space at convenient entry points to the market. Upgraded services (water taps, toilet facilities, tree-shaded open space for petty traders) could be shared with the surrounding neighborhood
- Major aisles covered with translucent roof for rain shelter
COMMENT
Few problems would be associated with this alternative — as a radical reorganization of market facilities is not proposed, the impact of the redevelopment would be minimized. The condition of traffic in the urban core or character of neighboring land uses would be affected little, if at all. Improvements would be primarily internal and increased pressure on urban services (water, power, possibly road system) would be accommodated as the scale of any construction can be adapted to constraints at hand.
This alternative is based on proposed plans for redevelopment of Enugu Market and plans for development of an "integrated" and separate lorry motor park in Onitsha. It involves total market reconstruction, and temporary relocation and facilities for the market activity during construction. As per the Enugu plan, the main motor park has been restricted to passenger vehicles only. While transport lorry parking may be correspondingly relocated to the rear of the market as one alternative, another possibility is creating a new motor park on the urban periphery as an interception point where large, heavily loaded lorries would transfer their goods to either smaller mini-vans or pedestrian handtrucks.

The plan includes development of adequate water supply, storm and wastewater drain and refuse collection.

- All fire-resistant, easily maintained concrete construction; well ventilated; improved rain shelter
- Two-story construction to reduce the area taken up by the market somewhat while increasing the number of stalls
- Special zones for cooking and food processing
- Landscaped serviced open spaces

*All fire-resistant, easily maintained concrete construction; well ventilated; improved rain shelter*
While many improvements over present market conditions are proposed in this alternative, some problems are raised at the same time.

- The two-story construction, with space for more traders, would attract more traffic to the urban core area, perhaps increasing traffic congestion.
- The separate integrated motor park would limit lorry traffic, but would proportionately increase the volume of pedestrian traffic and small vehicle traffic to the market.
- Unless diverse lorry motorparks were located around town, or a by-pass road provided, many lorries would still have to pass through the urban core to reach the motor park.
- The high cost of construction (relative to simple market upgrading) would imply higher stall rental fees. This would either drive out smaller retail traders, or cause traders to double or triple up in one stall (to split the costs), causing unexpected increase in overall number of traders and resultant pressure on utilities and traffic volume.

- Temporary market relocation might be used as an opportunity to experiment with decentralizing market activities — possibly providing better service to different parts of town, and improving access from various directions outside the urban area. However, this raises the question of the central function of the market in the urban area. If the main market is scaled down, will other institutions or facilities develop to compensate for the decentralization of activity? And can surrounding commercial facilities survive without a large main market to attract traffic?
This scheme is much more speculative than the previous alternatives. It is also more conceptual, as it raises not merely the question of what happens to the existing market site, but what is the course of commercial and economic development in the future. It would incorporate primarily retail market functions in stalls and permanent or lock-up shops with on-going development of larger stores to create a shopping center (which is, in fact, already proposed in Owerri).

While this scheme is proposed on the existing site of Owerri Main Market, the concept of combining market and other commercial types could be applied as commercial facilities are planned in areas of urban growth (such as the new residential and administrative capital district envisioned for Owerri).
Typically in Nigeria, shopping centers and larger permanent stores are more expensive than the marketplaces, and attract a different clientele than the markets. However, as the country develops, some mixing of traffic might be expected in order to take advantage of the market's generally low-cost perishable and general manufactured goods and the department stores' specialty consumer items at fixed prices. In this light, some integration of the two types of facilities might be desirable.

On the other hand, other possibilities exist for commercial development. One is that markets and other commercial facilities will undergo parallel and separate development. This has happened in Mexico City, for example. A permanent commercial district developed around and eventually supplanted the central market, but satellite markets serving other urban districts have remained separate and distinct from the expensive downtown shopping district, in terms of client-group and goods and services provided.

Another possibility is the development of small-scale cooperative retail stores serving urban and rural districts. Such stores could be run by small traders cooperatives associated with a large scale distribution organization (such as farmers' cooperatives or Independent Grocers' Association in the U.S.). This commercial type would provide a combination of fixed prices and convenient services available to all client groups.

Integration of the shopping center with market facilities could be related to relocation of wholesale market activities more convenient for heavy transport networks. Wholesale food markets have been removed from the urban core in many cities, for example, in Paris and Boston. Centralized distribution centers were set up on the urban periphery near transport terminals and only small, convenience retail markets preserved in the urban core. This pattern exists as a possibility in the distant future in Nigeria.

However, it might require a deliberate effort on the part of market development authority to effect an integration of Shopping Center and Market. As more and more permanent, more expensive facilities are built in the urban core, land values may rise and pressure markets to move (similar to Haymarket in Boston). The economics of the marketplace in its present form may be difficult to resolve with permanent commercial development, as it has occurred in other countries.

Finally, depending on the rate of the increase of auto ownership in Nigeria, a shopping center may require more or less parking space which could determine the ultimate feasibility for location of a shopping center in the central business district.
FORM

This study began with the aim of exploring the nature of form through architecture. Since the form of environment, at the surface level of appearances and at the deep level of structure, is a central aspect of the phenomenon of architecture, it seemed that an understanding of the concept of form itself would illuminate the discussion of form in architecture. It was implied that such an understanding lay in perceiving the nature of the design experience relative to the everyday experience of environment, (or perhaps more broadly, against the background of other modes of experience in general). What was left out of that relationship was the question of values, especially critical in design practice. Not only, "what is design?", but also, "what is good design?" The original hypothesis of this study was that design experience and environmental experience are related, and that it is useful to the practice of design to understand the nature of that relationship.

Presently, it seems I can only suggest a further hypothesis about the nature of the design experience: the way design fits in with other activities (perceptual, social, etc.), and how design comes to have significance or value. Design is bound up with a particular mode of consciousness, a way of perceiving, in which one sees or intends an environmental situation. A modification is projected which simultaneously defines the situation as capable of change. This is in contrast for example to our everyday attitude toward environment where we accommodate ourselves to conditions rather than think of adapting the conditions to suit us. A situation subject to change might be perceived as a problem or not depending on the values held by the perceiver. In this sense, problems exist in the eyes of the beholder (and in the way of beholding); though environmental conditions which support the perception of a problem might exist regardless of the perception. A design can only be perceived as an improvement after the fact of its creation, in the course of subsequent evaluation. It is generally assumed that the aim of design is to improve the quality of
environment. But the actual experience of design, its underlying movement, seems less deliberate. The Market Design Study, as a handbook, expands the normal design experience so that one can see what happens in abbreviated form in the designer's mind.

Alternatives are suggested, initially, to generate discussion, to help formulate opinion. Design strategies are not random gestures, they respond to a specific site, and a specific aspect of that site - in the present study, the physical configuration of the market. But the strategies are nevertheless experiments which at their conception are untested. Considering a wide enough range of alternatives as a whole, the design is not weighted toward a particular strategy (even a "no-build" alternative is included as the first Development Alternative could be developed bit by bit or not at all). Design itself is play, though design products may be value laden.

In the case of the market study, the alternatives will become progressively more value laden as discussion is generated around them, and they are ultimately modified or replaced. Goals and criteria for evaluating strategies are complex and consist at any one time of a combination of economic, functional and political factors to varying degrees, for example. Goals are properly established in a dialogue between users, administrators and designers. The concept of the handbook, juxtaposing a particular view of environmental conditions with an initial set of responses to those conditions facilitates such a dialogue. Whether the conditions described really constitute problems, or the strategies appropriate responses to those conditions, can only be established by comparing the two in a dialogue between the parties involved.

The design process is one of perceiving and describing conditions, generating design responses, and comparing the two in an attempt to simultaneously refine both; to better understand the conditions and improve the response to them. Just as initial perceptions of a particular
environmental setting are influenced by preconceptions, so description shapes design and design shapes description—there are few, if any, true "givens" in a design problem. Similarly there are no problems until we define situations as problematic. Values moderate the dialogue between design and our perception of environment.
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<td>Aggor,</td>
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