SUMMARY OF THE RESEARCH PROJECT

Working Paper # 2. March 1982.

Farokh Afshar: Mass. Institute of Technology, Cambridge MA USA.
Currently at: 30-Main Gulberg, Lahore. Pakistan.

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1. Introduction.

2. Research Objectives.

3. Methodology.

4. Time Table.

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SHELTER & RURAL DEVELOPMENT: "THE ROLE OF SHELTER TECHNOLOGIES, CONSTRUCTION AND MATERIALS INDUSTRIES IN IMPROVING HOUSING AND COMMUNITY BUILDINGS, AND GENERATING EMPLOYMENT & INCOME IN SMALL TOWNS AND RURAL AREAS. A CASE STUDY OF A MARKAZ/TEHSIL IN RURAL PUNJAB"[1].

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1. Introduction:

Shelter technologies that maximise the use of rural resources, for example un-skilled, semi-skilled labour, earth and timber building materials, can not only reduce costs of public and private building construction but also help generate employment and income in the rural areas. These technologies are applicable to most low-income building needs, (housing, schools, health facilities etc). The research will identify and offer guidlines for the development of such technologies, the rural industries in which they create a demand, and the institutional frame work for promoting both. The results of the research will be useful for such, programs as the building component in integrated rural development and the construction and upgrading of small towns and villages as part of an overall rural development endeavour

2. Research Objectives:

The central objective of the research is to compare

dominant shelter technologies in rural areas to assess which types:

i) Are most affordable to the rural poor[3] (cost and affordability assessment) while providing a minimum acceptable shelter (Benefits as assessed through some measures of durability, comfort and health offered by the shelter[4]).

ii) Generate the most income and employment in rural areas and particularly amongst the rural poor (through 'first round' construction employment and 'second round' employment in materials industries in which construction generates demand).

3. Methodology:

The project will undertake the above assessment through a technological, economic and institutional analysis at the core of which will be a comparision of three to five shelter types, each representing distinct technologies prevalent in housing & community building construction in a particular rural micro-region- a Tehsil or Markaz.

The technological analysis will compare the performance of the shelter types in providing a defined minimum standard of durability, comfort and health considered adequate for most dwellings and community buildings upto two storeys. Amongst other issues, this analysis will identify instances of over-design and thus waste in building construction.

The economic analysis will:

i) Compare the cost effectiveness with which these shelter types provide the defined measures of durability, comfort and health. The costs will include those incurred in initial construction (Table 1.1, 1.2) as well as in subsequent upgrading and maintenance costs (Table 1.3) over the required lifespan of the building[5].

ii) Compare the employment and income generated, and its nature and location (skill level, within region or outside etc.) both directly though the construction process (Table 1.4) as well as indirectly in materials industries through demand created in them by each shelter type (Table 2.1, 2.2 & 2.3).

iii) Assess the proportion of total public and private investment and employment in rural areas that is building related (Table 3.1, 3.2 & 3.3) which will indicate the impact a shift in technologies used will have on the regions' development.

The institutional analysis will address such questions as:

i) What are the formal (government) & the informal (private) institutional arrangements within which rural buildings are constructed and materials industries developed? (Table 4.1, 4.2, & 4.3) In particular, what institutional, and cultural influences

promote some shelter technologies and materials industries as opposed to others?

ii) What institutional changes are required to implement the policy recommendations of the study regarding the promotion of particular shelter technologies and materials industries and what are the potentials and constraints in making these changes?

The technological and economic aspects of the study will use quantitative data from previous studies (such as Housing, Economic and Demographic Surveys undertaken in 1973 and 1980 by the Census organization, and construction industry surveys), analyse construction drawings and documents relating to typical government buildings such as rural schools and clinics, as well as information gathered through interviews with house-owners, builders, contractors, building professionals and government officials (planners, architects, engineers, district commissioners, union councillors etc.), owners and workers of building materials industries etc. The institutional analyses will be primarily qualitative relying more heavily on the latter interviewed sources. Anecdotal information will also be used.

For the most part a case-study method will be used in which particular shelter types and materials' industries in a specific micro-region-a markaz or tehsil-in rural Punjab will be studied.

These levels constitute the two successively smallest rural planning units (Table 4.3 Map). By setting itself, and thus its policy recommendations, within the context of these units, the study takes a spatial and regional rather than sectoral planning approach and assumes that these lowest levels are most critical for rural development.

4. Time Table:

Two alternative timetables are envisaged for the project. The first aims to complete field work in Pakistan by August' 1982 followed by analysis and writing up of the results between September and December' 1982. The second timetable assumes that after initial analysis of field material between September and November' 1982, a second period of field work will be undertaken from December' 1982 to February' 1983. Final analysis and writing up of the results will then occur from March to May' 1983.

FOOT NOTES:

1. The term 'shelter' specifies the focus of the research, that is those parts of the building that primarily provide shelter - the floor, walls and roof, 'Rural Areas' here include small towns, perhaps upto 25,000 population, whose predominant function (health & educational facilities, agro-industries, repair of agricultural equipment etc.) link them closer to their surrounding rural hinterland than to the system of larger urban centres. These settlements are thus the rural service 'markaz' or 'agrovilles' centres etc., that are part of Pakistan's rural development effort.

2. This is a summary and update of more detailed and comprehensive research plans and proposals written between September 1981 and March 1982. I have undertaken preliminary research, including two visits to Pakistan and the writing of one working paper in this period. During the visits I met with several government officials, and professionals concerned with housing and rural development and also made brief visits to villages and towns in rural Punjab. The working paper was on "Population Growth Rates & Housing Shortages: A Comparison of Rural & Urban Areas, Provinces and Settlements in Pakistan".

3. Several studies have been carried out to identify the rural poor in Punjab, (notably by the Pakistan Institute of Development Economics) A Definition of 'rural poor' as arrived at in such studies will be used. These studies augmented by this present research should also establish 'affordability' that is the proportion, nature and scheduling of the resources (cash, materials, personal labour, periods in the year in which construction, repair and maintenance are undertaken etc.) that the rural poor can invest in their shelter.

4. A generally acceptable static minimum standard may be neither possible nor desirable given the variations in physical conditions and tastes concerning housing. However, some measures for durability (for example minimum structural strength required for a wall of a 2 storey construction, frequency of maintenance and

repair) comfort (largely climatic) and health (for example the tendency of certain materials to promote disease) will be sought so that the trade-offs between costs and benefits for varying shelter types can be made more explicit and thus assist choices between these types.

5. All tables shown here are still under development & therefore merely indicative of their possible final form.

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1.1 Shelter Construction Stages and Inputs.

1.2 Shelter Types, Inputs, Costs & Sources.

1.3 Shelter Types: Comparing Construction & Maintenance Costs & Benefits over Building Life Span.

1.4 Shelter Types & Inputs: Comparing Amount, Sector & Location of Income & Employment Generated through Constructing one Unit.(First Round Effect)

2.1 Building Materials Sources & Industries: Number of Units, Scale, Capital, Labour & Location (For Punjab).

2.2 Building Materials Industries: Inputs, Source, Costs & Revenues.

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3.1 Private Investment in Housing within Micro-region (as embodied in housing stock).

3.2 Annual Private Investment in Housing Construction within Micro-region & Effect on employment and income of construction workers.

3.3 Public Investment in Rural Buildings within Micro-Region.

4.1 Institutional-Spatial Structure: National and Local.

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Shelter technologies that maximise the use of rural resources, for example un-skilled, semi-skilled labour, earth and timber building materials, can not only reduce costs of public and private building construction but also help generate employment and income in the rural areas. These technologies are applicable to most low-income building needs, (housing, schools, health facilities etc). The research will identify and offer guidlines for the development of such technologies, the rural industries in which they create a demand, and the institutional frame work for promoting both. The results of the research will be useful for such, programs as the building component in integrated rural development and the construction and upgrading of small towns and villages as part of an overall rural development endeavour

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The central objective of the research is to compare

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The project will undertake the above assessment through a technological, economic and institutional analysis at the core of which will be a comparision of three to five shelter types, each representing distinct technologies prevalent in housing & community building construction in a particular rural micro-region- a Tehsil or Markaz.

The technological analysis will compare the performance of the shelter types in providing a defined minimum standard of durability, comfort and health considered adequate for most dwellings and community buildings upto two storeys. Amongst other issues, this analysis will identify instances of over-design and thus waste in building construction.

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iii) Assess the proportion of total public and private investment and employment in rural areas that is building related (Table 3.1, 3.2 & 3.3) which will indicate the impact a shift in technologies used will have on the regions' development.

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ii) What institutional changes are required to implement the policy recommendations of the study regarding the promotion of particular shelter technologies and materials industries and what are the potentials and constraints in making these changes?

The technological and economic aspects of the study will use quantitative data from previous studies (such as Housing, Economic and Demographic Surveys undertaken in 1973 and 1980 by the Census organization, and construction industry surveys), analyse construction drawings and documents relating to typical government buildings such as rural schools and clinics, as well as information gathered through interviews with house-owners, builders, contractors, building professionals and government officials (planners, architects, engineers, district commissioners, union councillors etc.), owners and workers of building materials industries etc. The institutional analyses will be primarily qualitative relying more heavily on the latter interviewed sources. Anecdotal information will also be used.

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These levels constitute the two successively smallest rural planning units (Table 4.3 Map). By setting itself, and thus its policy recommendations, within the context of these units, the study takes a spatial and regional rather than sectoral planning approach and assumes that these lowest levels are most critical for rural development.

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