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MANUAL FOR
ATION PROGRAMMES FOR INFORMAL SETTLEMENTS
BASED ON THE ORANGI PILOT PROJECT MODEL

Arif Hasan



AN OPP-RTI PUBLICATION

Prepared for the Union of International Architects (UIA), Paris, 305.42-92MA-13410
the UNESCO sponsored World Decade of Cultural Development

**MANUAL FOR
REHABILITATION PROGRAMMES FOR INFORMAL SETTLEMENTS
BASED ON THE ORANGI PILOT PROJECT MODEL**

by

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Foreward

This Manual has been prepared by Arif Hasan, architect and chief consultant to the Orangi Pilot Project (OPP) since 1982, for the Union of International Architects (UIA), Paris (through its national chapter, the Institute of Architects, Pakistan), as an input for the UNESCO Sponsored World Decade of Cultural Development 1987-1997. It will eventually be published by UNESCO in its "Human Settlements and Socio-Cultural Environment Series."

The UIA and UNESCO have very kindly given permission to the Research and Training Institute (RTI) at the Orangi Pilot Project, Karachi, to publish this Manual on a non-commercial basis for circulation within Pakistan. The RTI is grateful for this permission.

The appendix to the Manual is an edited version of a monograph titled "The Orangi Pilot Project Programmes" written by Dr. Akhtar Hameed Khan, the perceptor and director of the OPP. It describes the OPP programmes in some detail, with statistics, processes and results.

It is hoped that the Manual will be helpful to professionals involved in community development work, community action groups, NGOs and national and international agencies, in understanding what has come to be known as the 'Orangi model' of urban development for low income informal settlements.

PERWEEN RAHMAN
Director OPP-RTI

Karachi: November 1991

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A. BACKGROUND AND CONTEXT

1. INTRODUCTION

1.1 Origins and objectives

This manual has been prepared for the Union of International Architects (UIA) Paris, as part of an input for the UNESCO-sponsored World Decade for Cultural Development. Its purpose is to assist architects and planners in developing effective projects for rehabilitating low income informal settlements. The manual is based on the methodology used and lessons learnt by the OPP in the process of helping the residents of Orangi (the largest squatter settlement in Karachi, Pakistan) and upgrading their neighbourhoods and improving their lives.

1.2 The definition of informal settlements

The term "informal settlements" in this manual, includes all settlements that have developed without the involvement of the state, or the regularised private sector, backed by professionals and/or contractors. This term, therefore, includes not only squatter areas but also those that have developed as a result of the ad hoc subdivision of agricultural land, on what was once the city fringe. These settlements, in most cases, have similar social and physical conditions where de jure or de facto tenure security is present. Where it is not, these settlements tend to stagnate. By and large, they lack proper infrastructure, social amenities and income generation opportunities. Their poverty makes them vulnerable to exploitation by state agencies, such as the police or even the development agencies that carry out sub-standard work in their settlements and then by powerful local vested interests such as land, drug and credit mafias.

2. THE KARACHI CONTEXT

Karachi is Pakistan's largest city and only port. It has grown from a population of 400,000 in 1947, to 8.2 million in 1988. By the year 2000 it will have a population of over 12 million. Karachi's development authorities and local government have not been able to

cope with this enormous growth. The formal sector has not been able to develop and deliver housing, physical infrastructure and social amenities, especially for low income communities. These communities simply cannot afford the cost of formal sector development and the state cannot afford to effectively subsidise development. As a result, most low income communities live in settlements which have been created by subdivisions of state land which has been illegally grabbed by informal sector operators. As such, the vast majority of the poor in Karachi are squatters. Social amenities, such as education and health, and most jobs in these settlements, are also provided by the informal sector operators, and social amenities are of a very poor standard.

In the last decade, the government of Pakistan has developed and promoted a Katchi Abadi (squatter settlement) Improvement and Regularisation Programme, which aims at providing residents with leases on their property and physical infrastructure, against an improvement and regularisation fee. The programme has failed to meet its targets: not even 10 per cent of residents have applied for ownership rights, or paid development costs for a variety of social, economic and political reasons (for reasons see paragraph below). The programme was based on a revolving fund for its operation and a record of 20 per cent default in recovery, makes it inoperative.

Not even 15 per cent of the residents of the katchi abadis have an underground sewerage system of any sort and as a result, the streets are full of waste water and excreta.

The scale of the problem of squatter settlements can be judged by the figures given in the table below:

Karachi	1978	1985	1988	2000 projected
Karachi population	5,800,000	-	8,190,000	12,000,000
Squatter population	2,000,000	2,600,000	3,400,000	7,070,000

3. THE ORANGI CONTEXT

Orangi is the largest squatter settlement in Karachi. It was created, for the most part, through the illegal subdivision of state land. It has a population of about 800,000 living in 94,122 houses which the people have constructed themselves, with the help of the informal sector. Health and education facilities are also provided by the informal sector. Piped water has been available for most of the settlement since 1984. Earlier, it was provided through tankers. The vast majority of Orangi residents are working class. They are poor but the majority is not destitute. (For a more detailed description of Orangi see Section - A Appendix.

4. THE ESTABLISHMENT AND OBJECTIVE OF THE ORANGI PILOT PROJECT (OPP)

The OPP was established as the result of an understanding between Dr. Akhter Hameed Khan, a Pakistani social scientist of international repute and the Director of the Project, and Aga Hasan Abidi, the President of the BCCI Foundation which is the sponsor of the project. As such, the OPP is an NGO.

The OPP considers itself a research institution whose objective is to analyse outstanding problems in Orangi, and then through prolonged action research and extension education, discover viable solutions. It does not carry out development work but promotes community organisation and cooperative action and provides technical support to such initiatives. In the process, it overcomes most of the constraints governments face in upgrading low income informal settlements.

5. OPP PRINCIPLES AND PROGRAMMES

5.1 The need for local level social and economic organisations

The philosophy of the OPP is summed up by its Director, Akhter Hameed Khan, in a note on welfare work written in February 1980. He says: "We are all living through a period of social dislocation. Where people have been uprooted from their old familiar environments, this dislocation is especially acute. They have to re-establish a sense of belonging, community feeling and the conventions of mutual help and cooperative action. This can be done chiefly through the creation of local level social and economic organisations. Without these organisations, chaos and confusion will prevail. On

the other hand, if social and economic organisations grow and become strong, services and material conditions, sanitation, schools, clinics, training and employment, will also begin to improve."

5.2 The need for replicable models

The OPP feels that the function of NGOs and pilot projects in informal settlement rehabilitation programmes should be to develop strategies that can be integrated into the planning mechanisms of the government. This is because the scale of the problem is far too large to be tackled without effective government participation. However, for this integration to become possible, there are three pre-requisites:

- a) The models developed should overcome the constraints faced by government agencies in the rehabilitation of informal settlements without requiring major changes in their structure and/or the development and imposition of any radical legislature.
- b) Overheads, staff salaries and related costs should be in keeping with government expenditure patterns and regulations and the strategy should respect established state procedures.
- c) Proper documentation of the processes of developing the model, the creation of a demonstration area, and effective training material has to be created without which replication is difficult, if not impossible.

5.3 The need for professional - community interaction

Most programmes developed for the poor in the Third World, in the opinion of Dr. Khan, fail because they are designed by professionals who belong to the upper classes and are not fully conversant with the sociology, economics and culture of "low" income communities or the causes of the conditions in informal settlements. On the other hand, the informal sector, that increasingly caters to the needs of the urban poor in Third World countries, and the urban poor themselves, do not have access to technical research and advice that qualified professionals can give. Subsequently, the development they bring about is sub-standard and fails to make use of the full potential of informal sector operators and low income communities. Therefore, an arrangement has to be made and institutionalised to enable effective interaction between qualified professionals and research institutions on the one hand, and the informal sector and low income

communities of the other. The OPP has succeeded in creating such an arrangement.

5.4 OPP programmes

Based on the principles mentioned above, the OPP has operated the following programmes:

a) A Low Cost Sanitation Programme which enables low income families to construct and maintain modern sanitation (pour flush latrines in their homes and underground sewerage pipelines in the lanes) with their own funds and under their own management.

b) A Low Cost Housing Programme which introduces stronger machine-made concrete blocks and batten and tile roofing, costing much less than reinforced concrete.

c) A Basic Health and Family Planning Programme for segregated, illiterate or semi-literate low income housewives which teaches them

- scientific causes of common Orangi diseases and methods of preventing them;
- methods of birth control;
- growing vegetables in their homes.

It also provides them with

- immunisation;
- family planning services.

d) A Women's Work Centres Programme which organises stitchers and other garment workers into family units dealing directly with exporters and wholesalers, thus escaping from the oppression of petty contractors. It also inculcates managerial skills and cooperative action.

e) A Programme of Supervised Credit for Small Family Enterprise units which increases production, employment, managerial skills and business integrity.

f) A School Programme which assists in the upgrading of the physical and academic conditions of schools established by private enterprise.

Footnotes to page 7

1. Low income families who earn 1,000 rupees (US\$ 40) a month in Karachi are expected to pay 26,000 rupees (US\$ 1040) for plots developed by the official agencies and private sector developers.
2. The House Building Finance Corporation (HBFC) of the government of Pakistan gives credit against mortgage of land. The low income groups do not own land and as such cannot make use of this credit facility. In addition, the HBFC gives a minimum credit of 20,000 rupees (US\$ 800). Poor families on the other hand seldom require credit of more than 5,000 rupees since they build their homes incrementally and small credit is all that they can easily repay.



Office of the House Building Finance Corporation, Karachi

5.5 Lessons learnt by the OPP from its programmes

During the process of facilitating the creation of community organisations the OPP has learnt a number of lessons related to the problems of housing and related issues for low income groups in Third World cities. These lessons are discussed below:

a) The state and the formal private sector in Third World countries can not deliver housing and related infrastructure and social amenities to low income groups through conventional models because

- the high cost of formal sector planning and development is unaffordable to the poor and the state does not have the resources to effectively subsidise development and services (1);

- the procedures for allotment, credit and delivery are not compatible with the sociology of the urban poor as they are based on First World models and in the absence of research into the social and economic dynamics of low income settlements, and the creation of effective institutions, appropriate models cannot be developed (2);

- except where fully subsidised, (such as the KIP programme in Indonesia) large scale rehabilitation programmes for informal settlements have not been successful, as they have failed to recover development and regularisation costs from the beneficiaries. This is because development and regularisation costs are high; procedures for regularisation are cumbersome and long; and there is a lack of trust and the existence of suspicion and hostility between the beneficiaries and the upgrading agency;

- in most Third World cities, local government revenues per capita are falling in real terms, whereas expenditures per capita, especially non-development expenditures, are increasing sharply with the result that local bodies are being forced to borrow finances, not only for development purposes, but also for maintenance and operation of services, with little or no possibility of repayment.

b) Health and education services, house building advice and credit - and increasingly - jobs in low income settlements, are being provided by the informal private sector. This sector is successful in servicing the needs of low income communities because it is affordable and its operational procedures are compatible with the sociology and culture of the people

it serves. However, its credit systems and the jobs it provides are both highly exploitative in nature and its health, education and house building advisory services are of very poor quality. Nevertheless, its functioning can be improved by

- creating a more equitable relationship between it and the community it serves by raising the awareness level of the community;

- improving its technical and managerial capabilities through sound advice and small short-term credit. However, this advice has to be preceded by proper technical, social and economic research into the functioning of the informal sector.

c) Low income communities have problems in developing services and infrastructure in their neighbourhoods themselves due to a number of constraints. Even where attempts have been made they seldom succeed. The OPP has identified four main barriers to success. These are:

- **The psychological barrier.** Communities feel that the provision of services and infrastructure is the job of the state. Local leaders often promote this feeling and promise these services and development free of cost. They make low income communities believe incorrectly that the rich do not pay for the development of these services. Except in a few isolated cases, these promises never materialise. In addition, the community does not have a vision of a community initiated, managed and financed development and of the manner of how it can relate to state promoted programmes:

- **The social barrier.** To undertake development, households have to come together and form some kind of an organisation. In the absence of a viable vision, personal, political and ethnic differences cannot be bridged to create and sustain such an organisation;

- **The economic barrier.** Poor households do not have the financial resources or the tools to undertake development using conventional engineering standards and implementation procedures, and alternative standards, procedures and tools do not exist or are not available to them;

- **The technical barrier.** Even where the psychological and social barriers have been overcome, and financial resources are available, community-managed development fails, due to a lack of technical knowhow, poor skills, absence of competent supervision and



The Civic Centre houses
the offices of the Karachi Development Authority



A neighbourhood in a Karachi
informal settlement

Footnotes to page 11

3. It was discovered in the Low Cost Sanitation Programme of the OPP that the cost of the underground sanitation system was reduced to less than 1/4 of the conventional cost by simplifying designs and removing middlemen and contractors in the construction process and leaving it to the communities.
4. The low cost sanitation system developed by the communities in Orangi through the advice and technical support of the OPP is maintained voluntarily by the communities that built it. When any part of it is damaged they replace it at their own cost.
5. After the Orangi communities had acquired some experience of managing and financing development work, they did not allow the contractors of official agencies who were working in their areas to attempt any substandard work. They immediately put a stop to such work and pressurised their elected councillors to improve standard of any poor work done.

proper construction tools.

d) The four barriers mentioned above can be removed through

- investigation into government programmes for low income settlements in general, and the settlement where work is to be done in particular, and social research into community structures, leadership patterns and interests etc. This research will create the necessary understanding required among community programme promoters to build an effective dialogue with the people to break the psychological barrier and create social organisations necessary for undertaking development;

- technical research. This is to find cheaper technological alternatives, develop more appropriate tools and to modify conventional engineering standards and procedures to make them compatible with the concept of community planned, managed and financed development. In this process, the economic barrier is also broken down (3).

e) Communities that have been involved in development acquire a high level of awareness which makes them receptive to non-conventional social sector programme initiatives. This degree of awareness is directly proportional to the extent of their financial and managerial involvement in the development process. In addition, as they have financed and managed this development, they are willing to operate and maintain it at their own cost which is considerably lower than the cost of similar formal sector operation and maintenance (4).

f) With organisation, management and financing of development, skills and awareness develop and as such, the community's political and economic relationship with the informal sector and local government undergoes a major change and becomes more equitable. The community can thus relate more effectively to the informal sector and effect the decision-making process of local councillors and representatives to their advantage. In addition, it can fight corruption, determine what constitutes substandard work, and set its own priorities (5).



Substandard work done by local bodies
in a Karachi informal settlement

B. OPPORTUNITIES AND CONDITIONS FOR UPGRADING WORK

6. OPPORTUNITIES

6.1 Current state policies in the Third World

In almost all Third World countries there has been a realisation that the state cannot bulldoze informal settlements and provide their residents with alternative planned accommodation of conventional or even minimal standards. As a result, informal settlement regularisation and upgrading is an important part of most national housing policies and city master plans, and an increasing budget allocation is set aside for this activity. However, the rate of growth of informal settlements in most major cities of the Third World is larger than the regularisation and upgrading effort and formal sector developments put together. In addition, most state-operated informal settlement upgrading programmes suffer from a lack of appropriately trained professionals.

6.2 International agencies and their involvement

International funding and development agencies such as the World Bank and the Asian Development Bank, are funding a large number of informal settlement upgrading projects at a national level in many countries of the developing world. They have also developed, or are in the process of developing, a number of pilot projects that depend increasingly on community involvement and NGO support. This is because their previous attempts at upgrading, which depended heavily on government institutions, did not meet their targets nor effectively recover development costs from the beneficiaries. In addition, in a large number of countries the UNICEF is also involved in the upgrading of informal settlements through its Urban Basic Services Programme, which involves both the local government and the communities in the process.

6.3 NGOs and their involvement

Both governments and international agencies have come to realise that the scale of the problem of providing infrastructure, social amenities and income-generating activities to rapidly increasing low income settlements is beyond their financial, managerial and technical capacity. They also realise that the structure of government institutions and the orientation of their bureaucrats and professionals are not, as yet, conducive to promoting development through the involvement of the community in the planning and

implementation processes. Thus, there is a growing dependence on NGOs and many governments and international agencies have a special fund for financing NGO activity. This fund has increased massively over the last decade and many large NGOs have been created in the Third World during this period. NGO advertisements for professionals of various disciplines who can work with communities are a major feature of the international and national medias.

6.4 The role of an architect in upgrading work

At present, the most successful upgrading work in the world is being done by architects. There are a number of reasons for this. Upgrading work requires an appreciation of physical, technological and socio-economic conditions, their inter-relationship, and the causes for them in a particular context. In addition, it requires a creativity that combines the three. The architect by his training is better suited to play this role than engineers who deal only with physical and technical issues, and social scientists and anthropologists who deal solely with social and cultural issues. This is in spite of the fact that the conventional training of an architect is not suited to the role he is required to play in the upgrading of informal settlements.

7. TERMS AND CONDITIONS BETWEEN THE UPGRADING PROJECT AND ITS SPONSOR

7.1 The setting of targets

An essential part of a project document drawn up by a funding agency, or a government programme, for the upgrading of informal settlements is a time and cost schedule related to meeting certain physical developmental targets. However, it is not possible to predict with any accuracy the quantum of development that can be achieved by a programme financed and managed by communities because

- the responses of communities and/or their leadership to motivational work by the project cannot be predicted;
- communities always work at their own pace and according to their paying capacity which cannot be accurately judged by the project staff, especially in the initial phase of the project.

7.2 Problems of having to meet physical targets

When project staff are forced to meet physical targets and spend allocated finances within a fixed period of time, and the community response is not adequate for it, then the staff often resorts to

- taking decisions without involving the community so as to speed up the development work;
- funding parts of development work that the community had to fund, from project finances;
- putting over pressure on the community to force it to meet the targets set by the project.

These actions alienate the community from the project with the result that, though initial targets are met, the project ends in failure.

7.3 Conditions that must be met

There are certain conditions that the project must meet to avoid failure. These are

- that all development work will be decided upon by local organisations created, or existing ones motivated, for this purpose;
- all development work financed by the people will also be managed by them, including finances;
- the project will provide technical support and tools to the community which it will develop through the best possible research (which will also involve the community) and in doing so will take into consideration the socio-economic conditions of the community;
- it will involve the informal sector in the process by understanding its functioning and supporting it through technical advice and small short-term credit;
- it will respond to the social, political and economic dynamics that the development process sets in motion and will be judged on this basis.

To meet the above conditions, the project, in addition to carrying out research, will have to develop an appropriate system of monitoring, documentation and evaluation.

C. SETTING UP A PROJECT

8. CHOICE OF A SETTLEMENT

Informal settlements fall into two distinct categories. These are:

a) Settlements without de jure or de facto security. These settlements are usually

- land rentals or squatter settlements on privately owned land of considerable commercial value;

- small settlements, up to 3,000 households, on state land or in ecologically dangerous zones such as dry river beds or zones prone to flooding, along railway tracks, below high tension wires, or on moving hillocks.

b) Settlements with de jure or de facto tenure security. These settlements are usually

- informal subdivisions of agricultural land on the city fringe, or agricultural land that has become part of the urban sprawl. Though informal, most settlements such as these, have a de jure tenure security;

- on state and/or private land that have been marked by the state for regularisation and development. Such settlements have a de facto tenure security;

- large settlements of over 5,000 households, on state land which have not been marked for regularisation. Such settlements have a de facto security due to their large numbers and demolishing such settlements now creates major problems for all Third World governments. This security is further enhanced if the residents are paying the local government for any services, such as water supply or electricity.

Settlements which do not have a de facto or de jure tenure security cannot be developed through community managed and financed programmes. Their main concern is momentary relief, which does not involve major investments, and/or the acquisition of some form of security. To cater to both these concerns, strategies and programmes have been developed, but they lie outside the scope of this manual.



A settlement in Karachi in an ecologically dangerous zone with no security of tenure



A settlement in Orangi on state land with a de facto tenure security

Footnotes to page 19

6. In Orangi, the local councillors were initially opposed to the OPP programme. In addition, the government agencies viewed the programme with skepticism. Therefore, the OPP tried its best not to carry out any activity that undermined the councillors position to begin with. It was only after the people became organised that the OPP raised issues that aimed at making the councillor people relationship more equitable.



The office of the Karachi Metropolitan Corporation

Therefore, a settlement that has a de facto or de jure tenure security should be chosen for rehabilitation. Preference should be given to

- those settlements which are most representative of the informal developments in the city, so that maximum replication of the development process can take place easily;

- settlements where government programmes at the local level are not operative nor are there any immediate plans for them.

9. REACHING AN UNDERSTANDING WITH LOCAL GOVERNMENT ATTITUDE

Before beginning a rehabilitation programme, the project should try and come to an understanding with the local government so that its support to the project, or its non-interference with it, is guaranteed. If such an understanding is not possible, then the project should know the attitude of the local government towards the project and the powers it wields in matters related to the project programmes (6).

10. THE LOCATION AND CHARACTER OF THE PROJECT OFFICE

The project office should

- be located within the informal settlement;

- be housed in an existing building that should be rented by the project. Constructing an office building gives the impression that the project is affluent and this creates a distance between it and the people;

- have a central space which is easily accessible to the informal settlement residents and where discussions and meetings can take place;

- the furnishings and fixtures in the office should be simple and inexpensive so that the office does not overawe the residents but helps to create an equitable relationship between local and external members of the staff;

- carpets and air-conditioning should be avoided at all costs. However, air-conditioning may be necessary in warm climates for rooms housing computers, and carpets for those regions where there is a culture of sitting on the floor. In such a cases carpets or rugs should be of the variety used by the residents of the settlements;

- the organisational culture of the office must reflect the culture of the settlement in which it is located. Elaborate refreshments, feasting, expensive crockery should be avoided.

11. PROJECT STAFF

11.1 Availability of staff

Trained staff for upgrading work is not easily available, especially at local level. A process has to be devised whereby staff training becomes an integral part of the whole process of development, and the process in turn involves the communities. For this a strategy is required whereby a close interaction is created between

- the community activist
- the community technician
- the programme professional (manager)
- the high level practitioner, who acts as consultant to the project
- the research and academic institutions involved in disciplines related to the subjects taken up by the project.

The project director will initiate, administer, institutionalise and sustain this interaction. In addition, only those skills that are not available or cannot be developed locally will be recruited from outside.

11.2 Types of staff required

Staff required by the project will be of the following categories:

- a) Director: a social scientist and/or architect planner with experience in development. As the project develops the need for professionally qualified support staff for the director may be necessary.
- b) Administrative staff: an administrator cum accountant/typist. If possible (s)he should be recruited from the community. As the project expands, the need for more administrative staff may be felt.
- c) Social organisers: these should be recruited from the community and should be chosen with great care.

They should

- have been involved as activists in social or political work at the micro-level in their own area of the settlement;
- not have been involved in partisan and/or ethnic conflicts in the area;
- not be, or have been, political or community leaders at the settlement level with vested interests in keeping the community in its present state;
- not be touts of the police, land grabbers, exploitative informal sector entrepreneurs;
- should be literate to the extent that they should be able to write, though this condition can be waived if all the other conditions are met.

In choosing these organisers, the director will have to rely heavily on his intuition, and if this intuition is backed by experience, he will make the right choice. A major test of the sustainability of a candidate is his ability to respond positively to, and understand, the need and concept of development through community participation.

Social organisers cannot be chosen through an advertisement or interviews. During the process of Getting to Know the Area (see paragraph 13 below) the director will meet with community members, hold meetings and talk to people informally. If he comes across persons who he thinks are suitable candidates for the job, he should cultivate them, and only after he has got to know them well should he offer them the job.

The social organiser's job will be:

- to motivate people to organise so as to undertake the management and financing of development;
- to take the results of social and technical research to the residents through an extension effort;
- to involve people in the decision-making, planning and implementation process by being the link between the project technical staff, consultants and the community;
- monitor community responses and report back to the project office regarding them;

Footnotes to page 23

7. OPP social organisers are now in the process of independently carrying out motivational work in various areas where the OPP's Low Cost Sanitation Programme is being replicated. In addition, they quickly identify the problems of the community and know the constraints of local government in dealing with them.



Motivation meeting in a replication project
in Manzoor Colony, Karachi

- coordinate his work with that of the technical support staff and in the process help identify problem areas in technology, procedures of implementation etc., that may need to be addressed by the professional staff of the project or the director.

The social organisers will not initially be in a position to fulfill these duties. In the process of project design, development and implementation, they will acquire these skills through association with the director and professional staff, and participation in the project process (see paragraphs 15 and 17). As a result, they will become a major asset to their community and will not only be armed with a knowledge of government planning and development procedures and the reasons for their failures and successes, but also with a vision of an alternative development methodology, and with tools to make it happen, provided professional support for it is available (7).

d) Technical support staff (technicians) will vary according to the programmes being pursued by the project:

- For a sanitation programme a plumber or a mason or both, depending on the scale of the Project will be required for giving technical advice to the community and supervising their work. He will work as a team with the social organiser and will interact with the professional staff member responsible for sanitation. He can also be involved in the housing programme, especially if he is a mason. He should be recruited from the community and should be able to work out quantities and estimates based on the local conditions of the settlement. If the community does not have a person with these qualifications, then the best that is available should be recruited and trained through the process of implementation and work.

- For the health programme, trained Lady Health Visitors (LHVs) are required. If they are not available in the community (as they are often not to be found in low income settlements) they should be recruited from outside the settlement. Their work will consist of extending the health package developed by the project.

e) Professional staff (programme managers):

- For sanitation, housing and related programmes, an architect should be recruited. It is preferable if the architect is a woman, for she will have easier access to women and homes and as such, the project will

develop a better understanding of physical and social conditions. The majority of hygiene, nutrition, family planning and economic issues are not only of greater concern to women than to men, but important aspects of these issues are overlooked by men. In addition, the association of a professional woman with a participatory planning programme enhances the image of women in the community. This is true for all societies, and especially so for societies where women are segregated or semi-segregated.

- It has been noted that architects with conventional architectural experience have difficulties in adjusting to the role required by a rehabilitation project. It is better to recruit a fresh graduate with a couple of years experience but with interest in community development and some relevant academic, if not practical experience. The lack of training and exposure can be overcome, provided the candidate is receptive, by close association of the candidate with the consultants to the project and the director. As the project expands, the architect will need assistant architects whom she can then train.

- For the health programme, a lady doctor is required as the programme manager. Even if she has been conventionally trained with emphasis on curative medicine, she should have some experience of looking after the health needs of low income groups. The LHVs of the health programme will work under her guidance.

With the expansion of the project and its activities, the project may require a sociologist, anthropologist, or adequately trained economist, for analysing the results and studies coming in from the field; documenting monitoring results and understanding the dynamics the project has set in motion. If the project is not a large one, this can be a part time input. Such a professional can also be used for developing and conducting an education and/or income generation programme through the social organisers.

f) Consultants. Local consultants who are experienced in the field of development through community participation and have easy access to academic and research organisations should be employed by the project to

- set up and supervise social, economic and technical research by the programme managers and develop conceptual plans;

- help the project staff to prepare detailed plans and develop extension materials and processes to take

such plans and other research results to the community. This they will do with the advice of the social organisers, technicians and the community;

- modify programme components and strategies, as and when necessary, depending on feedback from the field;
- help in the training of project professionals (programme managers) and other members of the staff;
- identify new programmes as and when they feel that the community can take them on;
- involve academic and/or research institutions in the project programmes as and when appropriate and necessary;
- participate in important meetings with local government and/or international agencies with the view of promoting project strategy.

Inputs from the consultants should aim at not being of more than one to two days a week, and if the project programmes are a success, the need for the consultant's advice should diminish with time.

11.3 Salary structures of the staff

Salary structures of the staff should be governed by two major factors:

a) Salaries should not be so high that they create a major disbalance between average community earnings and the project staff. If that happens, the community will be alienated from the Project. In addition, there should be no secrets within the project, or between the project and the community regarding pay scales. If there are any such secrets they will give rise to suspicion and rumour mongering, which will be to the detriment of the project.

b) One of the aims of the project, as mentioned earlier, should be to make the project's methodology a part of government planning processes and as such, easily replicable by relevant government institutions. For this purpose, staff salaries should be in keeping with the pay scales of similarly employed government employees. In most countries, these pay scales are well known and accepted by low income communities, and as such, there will be no resentment towards them.

11.4 Staff appointments

All staff members should be appointed provisionally for a period of six months except staff recruited from within the community. This is necessary as a number of professionals have difficulties in working with low income groups and develop an antagonistic or patronising attitude towards them, or have major attitudinal or cultural differences with them which are detrimental to the healthy development of the project.

Removal of staff appointed from within the settlement should be done with great consideration and must give the impression of being absolutely fair. If not, it may breed resentment towards the project from a section of the community, if not full-fledged resentment.

12. EQUIPMENT

Initially, the following equipment will be required by the project office

- a computer and printer: Both should be of good quality as they will eventually be useful in the extension effort;
- a photostat machine with reduction and blow up functions; this is essential for the extension effort;
- a jeep for mobility, and if the area is large, a motor cycle for the social organiser (or organisers). In many cases a bicycle will do;
- a slide projector with a generator so that it can operate in areas where there is no electricity;
- auto-focus cameras for the programme managers and for the social organisers once they have been partially trained to monitor the project.

As the project expands and the need for more sophisticated documentation, monitoring and extension is felt, the project may require

- audio-visual equipment such as a television, a VCR, and videos;
- an ammonia printing machine;
- tape recorders for the social organisers;
- sophisticated photographic equipment;

- additional vehicles.

None of this equipment should be purchased unless they are absolutely vital to the project at that stage.

D. PROJECT OPERATION

13. GETTING TO KNOW THE AREA

13.1 Initial contacts

The OPP does not believe in initially getting to know the area through physical or socio-economic surveys. The director should move about in the lanes talking to the people. Through these conversations he should try to determine

- the major problem that the residents feel needs to be addressed in the settlement;
- the reason why, according to the residents, the problem is not being addressed;
- what action is required, in the opinion of the residents, to address the problem;
- what social or community organisations exist, if any, in the settlement and how do the residents relate to them.

13.2 Determining the nature of existing community organisations

While talking with the people, the director should simultaneously contact local organisations and through conversations with them, and finding out the residents opinions regarding them, he will be able to determine their nature and mode of operation. The line of investigation should be as under:

- Why was the organisation formed ?
- Who constitutes its leadership ?
- Does it have a membership and does that membership participate in its functioning ?
- What work has it done so far ?

If the results of the investigation show that

- the organisation was formed by the influential members of the community for purposes of lobbying with

Footnotes to page 29

8. In Orangi, when the OPP began its activities, it was discovered that none of the various organisations that existed in the settlement was willing to participate in any activity other than lobbying. They tried to convince the Director of the OPP that he should join them in playing this role. When he did not, they lost interest in him and the OPP.
9. In Orangi, there were many informal sector land developers who had acquired a large number of plots. They quickly understood that improved environmental conditions would lead to an increase in the price of the land they held for speculation. By virtue of their economic standing, they were influential people and became the supporters of the project.



Informal land colonisation in Orangi

the government for benefits;

- the leadership consists of people who benefit financially and/or politically from the lobbying process, or from keeping the people dis-organised, or are touts of those groups which exploit the people, or are well established political leaders who hand out doles to the community and seek support in return;

- the membership does not participate in the functioning of the organisation;

- the organisation has indulged only in lobbying work;

then such an organisation cannot at the initial stage be a support organisation to the project as the project's participatory approach will be detrimental to its interests. At this initial stage, the director should be very careful that his programmes do not antagonise the leadership of local organisations in any way (8).

If, on the other hand

- the organisation has initiated any work which involves the people;

- set up any service through its own resources, even if it was formed initially for lobbying purposes;

- the leadership does not benefit, politically or financially, by keeping the people disorganised, and does not represent the interest of those who wish to keep them disorganised, but on the contrary feels it gains by their organisation;

then such an organisation, even if there is no major participation of the people in it, can assist the project in mobilising the people. The director should try and involve such an organisation in motivating people and organising them.

In addition, in most settlements, there are dealers in real estate and informal sector entrepreneurs who are influential and would gain economically by the upgrading of the settlement by whatever means. Such interests should be identified, to be used when necessary (9).

The method of investigation should be discreet, no direct questions should be asked and no opinions expressed by the director in this process, and neither

Footnotes to page 31

10. In Orangi, the elected councillors are given small, yearly funds by the local government to spend on some aspects of neighbourhood development. One of the by products of the development programmes of the OPP was that communities forced their councillors to spend these funds on items of work that the communities identified themselves. In addition, because of its detailed knowledge about local government functioning, the OPP has been able to involve the mayor of Karachi in its expansion programme.



The Mayor of Karachi at the OPP office

should he sound antagonistic towards any individual or section of the community. People should be encouraged to talk.

13.3 What the Project will not do, should be made clear

During initial contacts with the people, the leadership of the local organisations, and the local government representative, the director will be asked a number of questions. He should make it clear in absolutely unambiguous terms to every one who questions him that

- his project is not a charity and as such, will not dole out money or benefits in kind to them;
- will not finance or carry out development of any nature but will give technical advice and managerial assistance to people wishing to do so;
- will not lobby with government agencies for overcoming the problems of the settlement;
- will not participate in, or try and solve the internal conflicts within any community residing in the settlement.

13.4 The nature and role of local government

In most informal settlements, there is the presence of local government. Its representative for the settlement, or more than one representative for its various wards, is either elected by the people, or he is nominated by the state. It is necessary to

- understand the nature of local government in the city and the powers and functions of the local representative, especially in matters related to developmental issues (10);
- the relationship of the representative with the leadership of the local organisations, or with political parties and informal entrepreneurs operating in the area;
- the opinion of the people regarding local government institutions and the role of the representatives in their lives.

13.5 Identifying activists

In the process of contacting people and local organisations, the director will come across a number of activists whom he should cultivate and ask them for

Footnotes to page 33

11. The consultant appointed by the OPP after the communities had decided that sanitation was their Priority Problem, was an architect with experience of working with people. In addition, he had been a consultant to the Appropriate Technology Development Organisation (ATDO) of the government of Pakistan and was a part-time teacher at the Department of Architecture and Planning at the Dawood College, Karachi.



Sanitation conditions in Orangi in 1981
before the OPP began its operations

help and assistance in talking to people. He should, as his relationship with them develops, share his vision of development through participation with them and note their response. From among these he should identify those who can become the future social organisers for the Project.

14. DETERMINING PRIORITIES AND DIRECTIONS

14.1 The Priority Problem and community perceptions regarding it

Based on dialogue with the people, existing community organisations and the local government representatives, the director will be in a position to

- identify what the community considers to be the 'Priority Problem' of the settlement;
- find out what the settlement considers are the reasons for its not being tackled;
- find out who the settlement considers should solve the problem and how;
- consider what prevents the community from solving the problem itself (the psychological and social barriers can be clearly identified in this process);
- find out what technical and managerial skills are available in the settlement.

At this stage, the director should appoint a consultant whose expertise is related to the Priority Problem that the community has identified (11).

14.2 Checking the validity of the community's perceptions

After determining

- the Priority Problem of the community;
- the agency and/or organisation it thinks should solve this problem and the manner it should be solved;
- the reason why it is not solved

the director and his consultant should visit the agencies and organisations identified by the community as the ones responsible for solving the Priority Problem and ask from them the reasons for their not tackling the problem and their plans for the future, if

Footnotes to page 35

12. The Orangi residents, before the OPP began its work in the settlement, believed that the Karachi Development Authority (KDA) and the Karachi Metropolitan Corporation (KMC) were going to provide them with infrastructure development free of cost. Their leaders constantly told them that this would happen in the near future.
13. The study of the repercussions of the absence of sanitation in Orangi revealed that families who earned only 1,000 rupees a month were spending at an average over 250 rupees on substandard curative health-care. In addition, houses were being affected by damp and salinity and the filth in the lanes created social disputes.



Orangi houses affected by salinity and damp

any, regarding it.

Very often, local communities expect governments to provide infrastructure and amenities when governments have no plans for developing them. Often they feel that these should be provided free of cost, whereas not only most governments do not provide them free of cost, but at charges that low income groups cannot afford (12).

14.3 How the Priority Problem is serviced at present

The community, or a part of it, must in some way, however ineffective, tackle the problem it has identified as a priority. The consultant should study

- the manner in which the community deals with the problem at present, if at all;
- the social, economic (which includes health) and physical repercussions of the problem on the community and on individual households (13);
- the actors (households, paid artisans, informal entrepreneurs, politicians etc.) involved in tackling the problem and the constraints they face in dealing with the problem. These constraints can be political, financial, technical, managerial or absence of support from the people.

Based on the above study, the project should determine whether the present system can be improved upon by removing the existing constraints that the actors involved in it face, or whether an altogether new approach is required to deal with it.

15. THE DEVELOPMENT OF AN EXTENSION PROGRAMME FOR SERVICING THE PRIORITY PROBLEM

15.1 Ingredients of the extension programme

On the basis of the knowledge gained through the research and activities detailed in paragraphs 13 and 14 above, an extension package can be developed and taken to the people to help them tackle the Priority Problem determined by them. The ingredients of this package will be

- a system for motivating the community to organise;
- a system for facilitating the creation of a viable organisation;

- technical advice, tools, plans and estimates of material and labour.

In addition, the extension programme will require

- top supervision of the work being carried out by the people;

- a system of monitoring, documentation and evaluation of the extension effort so that appropriate modifications can be made to it as and when necessary;

- staff consisting of a professional (who will be the programme manager), social organiser, technician and consultant. The professional may also require support staff; for example, if addressing the Priority Problem needs a civil engineering or architectural intervention, surveyors and draftsmen may be required. If the area where the Project is operating is large, more than one social organisers and/or technicians may be required.

15.2 Motivating the people

Motivating the people will require the following:

a) Talking to the people informally in the lanes of the settlement.

- The social organiser will talk to the people regarding the programme informally. To the more active members of the neighbourhood (which have already been identified earlier and will be further identified in this process), he will talk in greater detail and discuss the possibility of holding a neighbourhood meeting.

- Discussions should be held at a time when the residents are relaxed. This is usually in the evenings after returning from work or on holidays. Discussions can also be held in tea houses or other places where people gather.

- Discussions are further facilitated if one of the members of the extension team is a woman, as this makes the women of the neighbourhood more responsive.

b) Holding a series of formal meetings, attended by all members of the community, in the lanes and/or neighbourhoods.

- The announcement to the community for the holding of such meetings should be made by the activists of the



An overview of Orangi



The OPP office

Footnotes to page 39

14. During extension meetings for promoting the Low Cost Sanitation Programme of the OPP, it was noticed that people reacted more positively if the description of the problem and its repercussions was made by a resident of the area.



A typical lane in Orangi

neighbourhood and not by the social organiser. This will create a sense of involvement with the meeting among the community members.

- The meeting should involve the people of a specific area of the settlement and not the whole settlement. Preferably an area of not more than 40 houses should participate in it. This makes it possible for discussion and interaction to take place and as such, the likelihood of a positive response increases.

- The meeting should be held in the evening when the people are relaxed or on a holiday.

c) How to conduct a meeting and what to say ?

- The lane activists should talk to the people and inform them that they have invited the project to participate in the meeting.

- The social organiser, who is from the settlement, should tell the people that the Priority Problem identified by them in the settlement is well understood. From his personal example, he should describe the adverse social, economic and physical repercussions of the problem that has been identified as the priority. For example, if the priority identified is sanitation, then he will talk about the incidence of disease related to it; the cost of curative medicines and doctors fees; the economic loss due to inability to work while unwell; and the affront to human dignity due to the continuation of this problem. He should also mention that tackling sanitation will raise the price of property in the area. He should point out the previous local level efforts, if any, of tackling the problem, the causes for their failure and the constraints faced by the various local actors in dealing with it (14).

- The director and/or programme manager should explain the position of the actors (usually government) whom the community holds responsible for tackling the priority problem, the reasons why they cannot address the issue, and the cost to the residents if they do undertake to address it through formal sector procedures involving engineers and contractors, and whether the residents would be able to afford this cost. Furthermore, the director should clearly inform the people of the problems that they face in overcoming the problem themselves.

- Discussions will then take place on how, given what has been discussed, the problem be tackled.

Footnotes to page 41

15. The representatives chosen by the lane organisations in Orangi had two things in common: one, they were trusted by the residents and two, they had a lot of spare time. What better quality for leadership !



Distribution of extension material
by OPP activists

Maximum participation in this discussion must be aimed at. This can be done by the social organiser addressing various people in the gathering by name, and talking of past development related activities in the area in which he, along with other members of the community who are present at the gathering, have participated.

- In response, the director will present his programme and state that the programme will give clearly identified physical entities in the settlement - such as a lane or a small neighbourhood - technical assistance and tools for overcoming the Priority Problem, provided

o they create an organisation in the area in which all the households are members;

o they choose their organisation representatives (manager) who on their behalf will apply for assistance to the project and who will collect, and manage the money collected, from the people for development work. The director must make it clear that the project will not handle the money of the people. This principle will effect the decision of the organisation regarding the choice of its representatives (15).

- The programme manager will then explain the technical assistance the project will provide (see paragraph 11.4) to the organisation and the approximate costs of development involved.

d) Promotional materials:

Various forms of promotional material can be used by the project staff during motivational meetings. These materials should explain

- stories of other development work undertaken by communities;

- details of existing conditions in the settlement and their causes;

- details of the technical solutions being promoted by the project to the problem.

Such promotional material can be in many forms, such as

- slide presentations. These are especially effective provided the presentation is not linked to an audio cassette so that people can react and interrupt during the presentation;

Footnotes to page 43

16. The OPP had elaborate plastic models made of its proposed underground sanitation system. Before these models were made, the response of the communities during extension meetings was less enthusiastic as they did not understand what the OPP was promoting.



This plastic model of the OPP sanitation system was developed for promotional activity

- posters and hand bills which can be distributed after the meeting or in follow up contacts. These are effective where the population is literate. Alternatively, where a poster is graphically strong and arresting people will ask other people to read it out to them;

- models. These are especially useful in explaining technical issues and designs as most community members cannot understand two dimensional drawings (16);

- films. At the initial stages films are the least effective means of communicating ideas. They are still considered to be entertainment and unreal and no dialogue is possible while they are being staged.

e) Follow-up contacts:

The social organiser, the local technician and the programme manager should continue to meet with the lane or neighbourhood group after the meeting so as to discuss their responses to it. They should not pressurise the community to form an organisation, but limit their dialogue to clarifying the issues raised at the meeting and answering questions.

f) Frequency of meetings:

Only one formal motivational meeting should be held in a neighbourhood. However, initial contacts, meetings and follow up contacts should be held all over the settlement. Special attention should be given to those areas which show an interest in the programme. Time should not be wasted on areas where the response is negative. Such areas will respond only after they see that other areas have responded, or after they have seen the results of development.

g) Role of the consultants:

Consultants should attend some of the motivational meetings so as to understand the issues that are being raised by the community. In addition, the social organiser and the programme manager should keep them aware of any significant development during the motivational effort. Based on these community responses the consultant may feel the need to periodically modify programme technology and implementation procedures or parts of them.

Footnotes to page 45

17. During the implementation of the Low Cost Sanitation Programme in Orangi, people went ahead and laid their lane sewers even when there was no outlet for them. Subsequently, various lanes sat down together and linked these sewers to a disposal point through an intermediate drain. The social process and its physical expression of how lanes came together to create larger linkages varied from neighbourhood to neighbourhood. The OPP did not try to impose a model but over time, the communities developed a standard approach which functioned better and was based on experience of earlier coordination attempts.
18. Households that were not willing to become members of the organisation were in some cases by-passed. Once work began and they saw that they were outsiders to all the activity taking place in their lane they joined in.
19. Because of the small size of the organisation, lane residents knew the households who were not capable of paying their share for development. Different arrangements to deal with this issue were developed. Some organisations made such residents contribute in kind through extra labour. Others subsidised their financial inputs by making the better off residents pay a higher price. Yet others arranged to have their poorer members pay in small affordable instalments and adjusted their speed of work accordingly.
20. For the implementation of the Low Cost Sanitation Programme many community organisations related the financial contribution from a household to the size of the plot they held, others to the number of waste water and latrine outlets that the house had. Yet others had a flat rate charge.

15.3 Social organisations and their relationship with the Project

a) Size of community organisation:

The unit of community organisation should be small so that it can be cohesive and its members can directly control its representatives and effectively participate in the development effort. Ideally, the unit should not consist of over 40 households. Even where technical solutions demand a coordinated plan for areas larger than 40 households, they should be broken down into smaller units and a system of coordination between representatives of different organisations established as and when necessary (17).

b) Choice of representatives:

The project should not interfere in any way in deciding the process the community adopts in choosing its representatives, or in effecting its choice. The decision whether the community is going to make this choice through elections, consensus, or even through overt pressure on the part of some individual, is its own affair, and should be respected.

c) Social organisation - project relationship:

During the process of the formation of the community organisation, and during its subsequent functioning, a number of problems will be faced by the community, and these will be referred back by the community to the project for its intervention in solving them. The project should not intervene at any cost, and should insist that these matters should be solved by the community, even if it means that, as a result, the community will not be able to form an organisation, or the organisation thus formed, will not be able to apply for assistance. Some of the issues that can arise are that

- some of the households are not willing to become members of the organisation (18);

- some of the households are not willing to or are not capable of making payments towards development work (19);

- some houses are on much larger plot areas or have major commercial activities related to them and as such, some residents feel that they should pay more than others for the development work (20);

Footnotes to page 47

21. After organising for implementing the Low Cost Sanitation Programme, many communities were able to force out pollution creating activities from their neighbourhoods. Thus, many poultry farms and soap manufacturing units were forced to leave. These issues were never successfully tackled by the communities before they organised themselves for development work.
22. The OPP helped to arrange coordination between various community organisations by involving the elected councillors of the area. However, this was not always successful. In most cases organisations saw that without coordination they could not develop the means to take their lane sewerage to a disposal point. Therefore, they all had a common interest in developing a coordination system and quickly took the initial steps to do so.
23. In carrying out research for the Housing Programme the OPP discovered that there were cheap sources of aggregate which were considered by engineers and contractors as inappropriate for concrete work. Intensive investigation into these sources revealed that they could be used and that the impression regarding them was not based on any scientific reasoning. These aggregates are now in use and cost less than 40 per cent of the aggregates from sources approved by the formal sector.
24. Making manholes with block masonry and plastering them was proved to be an expensive item for the communities building their sanitation system because of the use of expensive skilled labour and plastering. The OPP replaced this method by developing cylindrical steel shuttering so that the manholes could be cast in situ. This reduced the concrete section, and eliminated the need for plastering and skilled artisans.

- there is some pollution producing activity in the neighbourhood and in spite of the fact that development to tackle the Priority Problem may take place, this activity will remain to pollute the neighbourhood (21).

If the community tackles these problems and finds solutions to them itself, its awareness levels, managerial capacity and confidence will increase considerably.

15.4 Technical research and its application

a) Aims and principles of technical research:

The aim of technical research should be to develop a technology that can

- effectively deal with the Priority Problem identified by the people;
- is low cost enough to be affordable by the people.

To fulfill these two objectives, it is necessary to

- question and modify conventional engineering standards and develop a method by which the problem can be tackled incrementally over time, according to the investment capacity of the people;
- develop ways and means whereby the technology and the procedures of its implementation can be made compatible with
 - o community-managed and financed development, without the use of the formal contracting system;
 - o the size of the basic community organisation;
 - o the coordination of a number of community organisations for the purpose of area development (22);
- use local materials and if they appear unusable, to initiate a research and development programme to overcome this constraint (23);
- use local skills and if
 - o they are not available, initiate training programmes for developing them locally;
 - o they are too expensive to be used for a low cost technology, then develop tools which can be used by unskilled workmen so as to replace them (24);

Footnotes to page 49

25. For its Housing Programme, the OPP supported building component manufacturing yards through technical advice for developing new and cheaper components for roofing. In addition, for upgrading their yards, the OPP identified government credit systems which the yard owners were unaware of. The systems required a guarantor and the OPP took on this role.
26. All plans developed by the OPP project office were discussed with the residents at length. A number of changes were made in the plans to accommodate the requirements of social attitudes; incremental development so as to overcome economic constraints; and implementation mechanisms that the community wanted to follow.
27. In Orangi there were a number of small manufacturers of concrete pipes. Their product was of substandard quality. The OPP contacted these manufacturers and told them that if they would improve their quality then the OPP would agree to promote their produce with the community organisations, otherwise, it would tell them that the quality was substandard and should not be used. The OPP advised those manufacturers who wanted to improve their quality on how to do it.

- provide the community with all tools (on loan) required for the development work as the hiring of tools from builders and contractors constitutes a fairly large part of the development cost;

- study all viable (affordable) informal sector support possibilities to the programme, and if necessary, develop support activities to the possibilities identified, so as to improve their quality (25). Such support should be advisory in nature and based on research and investigation. Credit support should not be provided until the project has firmly established itself;

- make use of all existing research and/or academic institutions for developing the technology and having its results tested by them.

b) Extension of technical research and programme implementation:

Once a request has come from a community organisation the project should follow the under mentioned procedure:

- The project technical staff should survey the area and determine its larger linkages, if any, with other areas of the city.

- If the priority problem is a physical one, the project should draw up a plan for the area and its larger linkages in its office.

- The application of the technology and decisions regarding it should be taken only after discussing the plan with the organisation in an evening meeting and on that basis modifications should be made to it (26).

- Quantities and estimates of labour (in financial and time terms) and materials should be prepared and handed over to the organisations and sources for the purchase of materials identified. If materials of proper standard are not available in the settlement, they should be purchased externally and research for developing a programme or improving local supplies / manufactured materials undertaken (27). This will promote self sufficiency, increase incomes and improve skills in the settlement.

- Written specifications and directions of work should also be supplied to the representatives of the community organisation, and explained verbally in the meeting, along with what the repercussions will be if

Footnotes to page 51

28. Within two years of the commencement of the Low Cost Sanitation Programme the social organisers were able to give proper advise on sanitation technology and on the repercussions if the advice was not followed.



Where OPP advice was not followed, often bad work was done by lane organisations

they are not followed. Initially, the consultant and/or programme manager should make these explanations but once the technicians and social organisers have learnt to do it, they can take over this function (28).

- The community organisation should be free to determine the manner in which it wishes to implement the programme. It may wish to contract out the work, or part of it; it may wish to do all unskilled work itself and employ an artisan on a daily wage basis for the skilled work that is required; or it may be a mix of both.

- The technicians should supervise the work being done by the community with the help of regular visits from the programme manager, and occasional visits from the consultants. The function of the technicians should be to

- o constantly tour the areas where work is being done and give assistance to the people;

- o identify discrepancies in the work and the reasons for them;

- o report back to the programme manager and the consultants;

- o report back to the weekly meetings (see paragraph 17).

c) Problems that may be encountered:

A number of technical problems may be encountered during the course of extension and implementation. Some of these are described below.

- Most community organisations hire skilled artisans for the work they cannot do themselves. Often the work of these artisans is substandard and if the technology being used and its implementation procedures are unconventional, they have problems with the community organisation. To overcome this, the project should

- o initiate a training programme for artisans working with the community organisations. The training should be held in the evenings after work and no stipend should be given to the trainees. The fact they will get more work (see below) as a result of this training should be incentive enough;

- o the names and addresses of artisans who have been trained by the programme should be handed over to the

29. The OPP trained masons in low cost sanitation technology. These masons were employed by the community organisations. Due to them, the quality of work improved and the supervision problems being faced by the OPP were reduced considerably. In addition, these masons also started taking up individual contracts for sanitation work in non-OPP areas, thus taking OPP sanitation technology beyond Orangi.
30. A number of lanes did substandard work while implementing the Low Cost Sanitation Programme. The OPP printed many posters explaining the shortcomings of the work and the reasons for it. In these posters, which were pasted on walls in the lanes, the necessity of curing concrete, of having a proper water content in it, and of mixing it in a manner that no earth becomes a part of it, was emphasised. In addition, metal mixing platforms were given to the organisations so that earth would not be mixed with concrete. The result of this extension effort not only improved the quality of the community's own work, but the community also started interfering in the work being done by the local government contractors and telling them the faults in it. This improved the quality of local government development work as well.

representatives of the community organisations, along with other extension materials before they undertake work (29).

- People who are financing and managing development themselves, have the freedom to take any decision regarding the work being done and to ignore the advice being given by the project. The project, on the other, hand does not have the power to have its directions implemented or have substandard work stopped. Thus, it may happen that organisations carry out substandard work and do not listen to the directions they are given. In such a case, the programme manager and social organiser should

- o call a meeting of the community organisation, if possible, and publicly point out the discrepancies, explain their causes and repercussions, and disown any responsibility for the future problems that may arise due to the substandard or irregular work being done. If a meeting cannot be convened, then a written note on the subject should be given to the representatives and an acknowledgment that they have received it should be obtained from them;

- o carry out a massive extension effort through corner meetings, posters, hand bills, and arrange visits of community members to areas where work is upto the required standards. The emphasis in this extension effort should be to make clear that the communities' money is being wasted because of substandard work and because of the repercussions of substandard work. In addition, there should be an emphasis on explaining how good work should be done (30).

No attempt should be made to bully or penalise the organisation representatives, but to educate the community as a whole.

- Surveys, physical and/or social, may be required to create the larger linkages to micro-level development being done by the community with settlement and city level development requirements. In addition, the participation of the people and their organisations in effectively dealing with this problem of linkages, is necessary. A pre-requisite to such participation is the understanding of the problem by the community and its proper quantification. This problem can be overcome by

- o adequate staff training and its extension to the community (see paragraph 17);

31. All physical surveys of the settlement, including land use surveys for the Low Cost Sanitation Programme were carried out by students of the Department of Architecture at the Dawood College and the Engineering University. In addition, the socio-economic study for the Housing Programme was also carried out by students of architecture. The health profile of Orangi was developed through a survey by students of the Aga Khan Medical University.
32. The extent of staff mobility has to be related to the size of the settlement. Orangi is 8,000 acres and without motorbikes and suzuki vans the OPP could not have answered requests, supplied tools or supervised the programme.



OPP's mobility

o the involvement of professional teaching institutions (see paragraph 18) in the development effort (31).

- As work expands, especially if the area is a large one, the social organisers and technicians will find it difficult to move around and transport tools at a pace required by the communities.

- To facilitate this movement the staff should be made mobile (motor bicycles) and a transport vehicle (suzuki pick-up) should be provided for the transportation of tools (32).

16. MONITORING, DOCUMENTATION AND EVALUATION

16.1 The need for monitoring, documentation and evaluation

Monitoring, documentation and evaluation is very necessary so as to

- identify the problems in the technology and development processes, the causes for them, and to modify the programme to overcome them;

- develop an understanding of the dynamics of development, the problems and potentials of the actors and of the processes involved, so as to facilitate replication; inform academic institutions about the Project's work and effect research directions in related institutions;

- keep in touch with the changes in the community and its capacity and capability of involving itself in development work so as to build on it;

- to develop self criticism in the project staff and to prevent stagnation and complacency. For this evaluation by external agencies/individuals is especially useful.

16.2 Levels of monitoring, documentation and evaluation (MDE)

The various levels of the monitoring, documentation and evaluation activity are given below.

a) MDE by social organisers and field technical staff:

Social organisers should

- keep a diary of all their contact activity with dates;
- keep brief minutes of all formal community meetings;
- present in writing before the weekly project staff meeting (see paragraph 17)
 - o highlights of the week;
 - o social, economic and technical problems encountered in the course of work; their location; in their opinion the causes of the problems and their possible repercussions; and the solution adopted by the community/staff/consultant towards the problem, if any;
 - o addresses of all representatives of community organisations, neighbourhood activists, trained masons, and informal sector operators. The social organisers should prepare with the advice of the director/programme manager, profiles of some of these individuals so as to identify common social or political traits among them. The director and other senior staff members would help identify such individuals during discussions at the weekly project meeting;
 - o photograph in slide and in print form
 - o the problems created by the Priority Problem;
 - o conditions in the area before commencement of work;
 - o condition after the work has been completed from the same angles as before work was begun so as to show the differences;
 - o work being done at different stages of development both by the community and the project staff;
 - o different stages of inputs by the project such as surveying, plan drafting, estimating, the plan itself, tools etc.;
 - o organisation representatives, activists etc.
- b) Documentation by the project office:

The project office should keep a full record of

 - minutes of the weekly meetings;

- applications for assistance received from organisations;
- survey maps, technical proposals, estimates and quantities supplied to the organisations;
- extension materials developed;
- all materials, photographs and documentation prepared by the social organisers, technical and professional staff and the consultants.

Each community organisation should have a separate file with its relevant documents in it.

c) MDE by the programme managers:

Based on the feedback from the field and discussions with the consultants, the programme manager should prepare a brief monthly report giving

- the highlights of the month including developments in the area not directly related to the project but which may have a bearing on it;
- work done (in quantifiable and financial terms);
- problems encountered, their causes and how they were overcome or not overcome, and why;
- new techniques, tools or initiatives introduced by the project and why.

d) The director's quarterly report:

The director will prepare a precise quarterly report about the

- activities of the project for the quarter;
- highlights such as visits of representatives of various agencies, professionals, evaluators etc. to the project and/or discussions with them;
- quantum of work done, problems encountered, initiatives taken;
- social, technical and economic dynamics observed
- detailed financial accounts for the quarter.

This report is basically for external consumption and should not be so long that people do not read it. It

Footnotes to page 59

33. The OPP Director's reports when put together, read like a story. These reports are sent to over 120 agencies, institutions and/or individuals.



A weekly staff meeting at the OPP

should be strictly factual so that the credibility of the project should not be affected in any way. It should be posted to all relevant academic and research institutions, government and international agencies involved in the rehabilitation of informal settlements, and individuals in the development field. It should also be sent to all funding agencies to make them aware of the project so that when the project requires funds for new programmes it can easily approach them. The administrative staff should keep a list of all such organisations and individuals (33) and the director, programme manager and consultants should add to it whenever they discover new agencies/individuals who might be interested or useful to the project.

e) Consultants' monographs:

The consultant should participate in the weekly project meetings, in addition to carrying out field visits, so that he can prepare monographs at appropriate times for use by academic, research and teaching institutions, and development agencies involved in similar work. These monographs should detail the concept, sociology, technology and economics of the model being developed through the project. An annotated list of these monographs should form part of the director's report so that they can be ordered from the project by interested organisations and individuals who receive the director's report.

f) External evaluation:

The project should encourage professionals, academic and research institutions, and other individuals and agencies to evaluate the project concept and operation, or any part of it. Students doing research dissertations and/or thesis in disciplines related to low income settlements, should be provided access to all information available with the project and support of the project staff. The social organisers, in addition, should help to find them accommodation on rent if they wish to stay and work in the settlement.

16.3 The role of video in MDE

At an early stage of the project one of the staff members, preferably from the office support staff to the programme manager, should be trained to handle a simple video camera. In the initial stages, a camera can be hired from the market and training given by a local video shop, which are now common features in informal settlements. When the project is well established, video equipment can be purchased. The

Footnotes to page 61

34. In the case of the OPP a draftsman in the drawing office of the OPP sanitation and housing section was trained to use a video camera. He now does this professionally for recording weddings and other social events in different areas of Karachi.



OPP staff establishing benchmarks in a lane

video operator should film all activities of the project that the social organisers photograph, so that these shots can be used at a later date for making a professional film (or films) about the project (34).

16.4 MDE staff and library

Although MDE activity can initially be carried out by the programme staff, a stage will come when a special staff member will be required to catalogue and maintain MDE material and help analyse it. In addition, this member should also be in charge of the project library which should consist of

- project reports, monographs, profiles, plans, technical proposals etc.;
- government, NGO, and/or international agency policy proposals, and/or documentation and reports on ongoing projects which are of relevance to the project, or to any aspect of informal settlements;
- technical research papers and text books for use by the project staff;
- newspaper clippings that are of relevance to the above;
- minutes of the weekly meetings;
- journals that cover the items mentioned above.

17. STAFF TRAINING

17.1 Interaction

The interaction between the social organisers, technicians, programme managers, consultants, the director and the people, supported by the MDE described in paragraph 16 above, will train the project staff and professionals and educate the consultants and director. As a result

- social organisers and technicians will become aware of the social, economic and technical issues of development and their larger linkages and planning processes, in addition to acquiring technical knowledge and expertise;
- professional members of the staff will get a first hand understanding of the social, economic and political issues related to the development of informal settlements, the problems of low income households and

their attitudes and relationship with the rest of the society. No academic training can impart this knowledge and it is crucial for any appropriate planning that such knowledge is acquired.

17.2 The weekly meeting

Interaction by itself does not necessarily train people. The awareness that this interaction is imparting some knowledge, developing some expertise, and the clear understanding of what this knowledge and expertise is, and what purpose it serves or can serve, can be described as training. To facilitate this awareness a weekly meeting of all project staff and consultants should be held under the chairmanship of the director.

17.3 How to conduct the meeting

- The meeting should begin with the reading of the minutes of the previous meeting so that all actions that were to be taken during the week and who was to take them, are made clear. The minutes of the meetings are to be kept by the administrative staff and read out by them.

- The director should brief the meeting regarding developments within the project; his new initiatives or proposed line of action; any important local, national or international level events, policy decisions, political matters, that may effect the project or the settlement in particular, or the condition of informal settlements and low income communities in general. The cause of such events and the reasons for the anticipated effects should be explained as clearly as possible.

- The programme managers should give a detailed report on the operation of the project; local level social, technical or economic problems encountered and the solutions sought to them and the effectiveness and ineffectiveness of the solutions. Community, informal sector and other responses to the programme should be identified and the causes for such responses.

- The social organisers should give details of their activity; persons they have met in the course of their work and whom they consider useful to the project and why; details of new requests for assistance and the nature of the locality from where they have come; and details of initial dialogues that have taken place.

In addition, any problems the community faces and



Motivational meetings in Orangi lanes

35. Apart from training the staff, the major achievement of the weekly meeting and the manner in which it is conducted, is that it places every one on the same wave-length and very little scope for disagreement or misunderstanding (unless it is on purpose) between staff members, remains.
36. One OPP social organiser has received formal training in surveying with the result that he has been able to train a number of lane residents in the use of survey equipment and theory.



Attempts by communities at solving their sanitation problems without technical advice

wishes to address should be mentioned along with the constraints in addressing them.

- The director and the consultants should then open discussions with the meeting and in them

- o rationalise the reports submitted and make the staff see them both in the context of the larger social reality and in the context of the settlement and project;

- o correct the perceptions of the staff as expressed in their observations;

- o identify further actions or programmes that might be beneficial to the settlement or may overcome the constraints current programmes are facing;

- o identify further research, extension and training activities required for making a programme successful;

- o identify the need for abandoning a programme, appointing new staff, purchasing new equipment, establishing new relationships, determining attitudes to local governments etc.;

- o allocating work to the staff for the future (35).

17.4 Formal training

During the course of the programme a number of skills required by a particular programme of the project will be identified which are not available with the project and which can be acquired through a short part time training course. For example, the need for a physical surveyor or a vaccinator for the health programme may be felt. In this case, a local member of the staff, or an appropriate resident of the settlement, should be helped to acquire such training rather than employing a qualified person from outside. This would help in making the programme self sustaining in the long run (36).

18. THE INVOLVEMENT OF TEACHING INSTITUTIONS

18.1 The necessity of involving teaching institutions

Appropriate planning for low income communities or for upgrading informal settlements, can only take place if the planning, architectural, engineering and medical professions develop an understanding of the physical and political conditions of informal settlements and

37. The whole nature of interaction between students and local communities in Orangi is different from that in other low income areas. The reason for this is that the social organisers have been educated to understand the importance of professional inputs in the development of their settlements. Due to this, their whole attitude to students and the work they do, has undergone a change.
38. A major change was discernible in the Orangi lanes after architecture and engineering students had carried out a physical survey of the settlement. It is doubtful if, without the involvement of students, the concept of collector drains could have registered with the people as quickly as it did.
39. Since 1985, a number of architectural theses at the Department of Architecture and Planning, Dawood College, Karachi, have been on low income settlements and have been made use of by the OPP in understanding housing issues in Orangi. In addition, a number of dissertations on Orangi have been prepared by foreign students and their professors which have made the OPP look at itself critically through other's eyes.
40. Graduates who had worked as students with the OPP have come back to it to work as professionals. Much of the library cataloguing and drawing up of aerial survey maps of the settlement have also been done by architecture and engineering students.

the attitudes and sociology of low income groups. This can only happen if there is a base in low income areas from which the professionals can operate and an organisation which can be a link between them and the people, and which can create between them and the low income groups, a relationship of trust and security. The structure described above for the project can provide such linkages with low income communities to professional, educational institutions and other academic agencies (37).

18.2 Assistance from teaching institutions

a) Teaching institutions, through their students, can carry out socio-economic, health and physical surveys of the settlement as part of their formal training programmes. These surveys can help the project in its programme planning and monitoring and in developing a better understanding of certain aspects of the dynamics of informal settlements. In addition, it has been noticed that surveys carried out by students always result in the development of a higher level of awareness and participation in the community. This is because students interact with people, are fond of discussions, and make friends easily as compared to professional surveyors who are only interested in completing their work (38).

b) Project designs for health, housing, urban space, and/or sanitation technology, for the settlement can also be taken up by teaching institutions as part of their formal teaching courses and can help the project with inputs to these programmes. In addition, these in these disciplines can deal with the problems of the settlement, the project itself, or any of its programmes or part of them (39).

c) Graduates or students of the institutions involved with the project can then work for the project as it expands (or for new similar projects), or can be called to assist part time as and when the need arises for assistance varying from cataloguing of documents and books in the library to being a part time director of a programme (40).

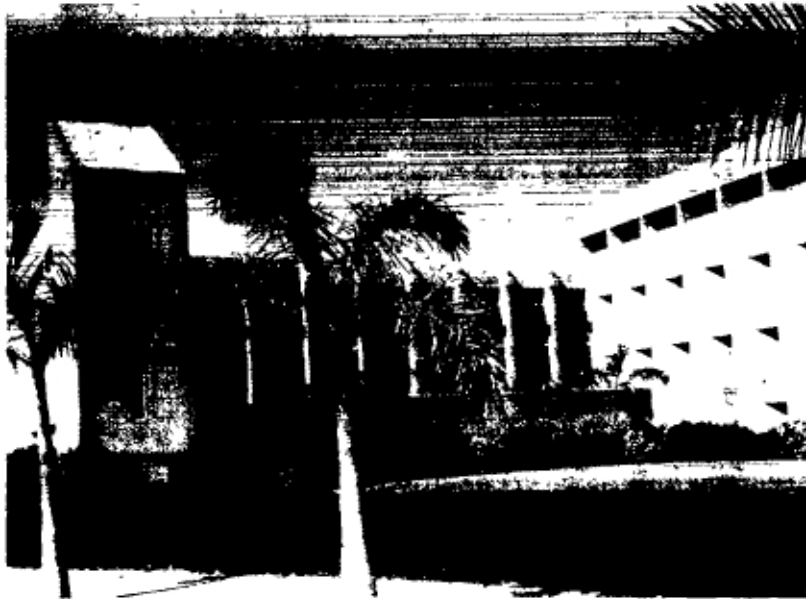
d) All documents, plans, surveys etc. prepared by the teaching institutions should be given to the project free of cost and should be part of its library.

18.3 Assistance to teaching institutions

a) All material relating to the project should be made available to the students and staff working on

Footnotes to page 69

41. A number of academic teams from foreign universities and other institutions have visited Orangi. The OPP had to hire a house in the settlement and convert it into a hostel so that these visitors could stay there.
42. Attempts at involving those teaching institutions where OPP professionals and consultants were not teaching, or did not have access to, has not been successful except for the Aga Khan Medical University.



The Aga Khan Medical University, Karachi

teaching or research programmes related to the settlement.

b) The project staff should guide the programme participants and arrange their interaction with the local community. However, this should not consume so much time as to affect the project adversely.

c) If the institutions require work space in the settlement, then this should be arranged (hired) by the project at their expense, within the settlement (41).

18.4 How to involve teaching institutions

a) It has been noted that only those teaching institutions have been effectively involved with upgrading projects where

- consultants or professionals working with the upgrading project teach on a part time basis (42);
- an established tradition of field visits and interaction to and with low income settlements exists.

b) The project director, consultants and professionals should try and

- arrange presentations of their work at teaching institutions after the project has had some successes;
- send their reports, monographs and films to the teaching institutions;
- invite staff members to all major events such as seminars, workshops, etc. which are or may be organised around the work of the project.

E. EXPANDING PROJECT ACTIVITIES

19. RESULTS OF OPERATING THE PROGRAMME TO ADDRESS THE PRIORITY PROBLEM

In the process of operating the programme for addressing the Priority Problem in the manner described above, the project will develop a number of assets and gain valuable insights and knowledge into the social and economic dynamics of the settlement. These are described below.

- The project will have a base in an informal settlement to which it will have access by virtue of the fact that aware and active members of the community will be working for the project.

43. Social organisers of the OPP are now as conversant as the technicians regarding technical aspects of the sanitation and housing programmes. Some technicians have also acquired the techniques of motivating and organising communities. In this process, the capacity of the OPP has had a manifold increase.
44. The information that the OPP has in terms of plans, topography, land use, photographs and economic and social conditions of Orangi is not available with the local government or the city development authorities. For identifying existing physical conditions for certain development programmes in Orangi, they rely heavily on the information the OPP possesses.



Sanitation work in progress in a lane

- The social organisers will have been partially trained in the techniques of mobilising people; will have developed some understanding of larger development issues related to their settlement (such as government plans and constraints, role of local government representatives etc.) and have acquired some knowledge of technological issues; the dynamics of development through community participation; and the link between social and economic issues and technical matters. The technicians from the settlement who have worked with them will have also have developed a similar understanding (43).

- The programme manager will have acquired an understanding of the social issues in the settlement; perceptions and aspirations of the residents; the role of government in, and the politics of development of low income settlements; the skills available in the settlement; and the need and manner in which the development process can be made compatible with these issues. If he has been trained conventionally, he will have been effectively de-schooled in the process.

- The project will have acquired an understanding of the area in physical terms. Natural drains, slope of the land, main link roads to the city, access roads, house typology, materials of construction available etc. In addition, it will have maps of the settlement and plans of its various localities (44).

- The project will also have acquired some knowledge about the economy of the area; its larger linkages and local relationships; the job market and its operation; made contact and established relationships with local entrepreneurs; and understood the manner in which social amenities are provided to the people.

- Local activists will be known to the project and through the community organisations the project will have access to them and visa-versa.

- If the programme has succeeded in successfully tackling the Priority Problem in the areas from where requests have been received, there will be the development of a relationship of trust and respect between the project and the community. In addition, the servicing of each request will help create further awareness and managerial and technical capacity in the community.

- The project will also become aware of what people can finance and manage themselves and what governments will have to do. In addition, it will also have gained

Footnotes to page 73

45. The success of the OPP's Low Cost Sanitation Programme, along with its lobbying to involve elected councillors in it, led to the involvement of a number of councillors with the Programme. Initially, some of these councillors had been major opponents to the Programme.
46. The demonstration effect of the Low Cost Sanitation Programme of the OPP led to its massive adoption. Not only did communities not require motivation but they were able to secure technical guidance from neighbouring lanes that had laid their own drainage lines. With support from organisations that had already carried out development work, and with the passage of time, requesting formal assistance from the OPP was not even considered important by a number of lanes.
47. Once the demonstration effect caught on, the social organisers were free to involve themselves in the housing and health programmes of the OPP. This freedom was crucial for the success of the new programmes.

an insight into government programmes for the area and the inputs required, and from whom, to make them more appropriate.

- A demonstration area will have been created in the settlement where other groups/settlements can see the results of community financed and managed development.

- Skepticism of opponents to the programme and/or lack of involvement of local government representatives with it, will be replaced with a desire to help out or identify with the project (45).

The project must capitalise on these major assets and insights and launch new programmes that can build on the first programme of the project. The decision to expand should only be taken when the director feels that the above assets and insights have been achieved.

20. CAPITALISING ON THE DEMONSTRATION EFFECT

With the creation of a demonstration area, the project should change its motivation strategy for the settlement. Activists and community members from other areas of the settlement should be encouraged to visit those areas where the Priority Problem has been addressed and talk to the activists and the residents. In this process, they will be motivated and will understand the manner in which development has taken place. This will also reduce the inputs required of the social organisers into motivating people in addressing the Priority Problem and they will be freer to involve themselves in new programmes (46).

The technicians will also be freer to involve themselves in new programmes since a large number of people in the settlement will have learnt to deal with the Priority Problem and a number of artisans will have been trained (47).

Representatives of relevant agencies and individuals who have been receiving the director's quarterly reports should also be asked to visit the project. There they will see the problem in the areas that have not requested assistance and will see the solution in the demonstration area. NGOs and community organisations should also be invited (see paragraph 22, publicising the project).

Footnotes to page 75

48. The Health Programme was initiated immediately after the Sanitation Programme since there is a close relationship between health and sanitation. Advice on hygiene practices, and the proper use of the sanitation facilities involved, was crucial to maximise on the benefits that a sanitation system brings.
49. During the implementation of the Sanitation Programme, the Orangi communities continuously expressed the need they felt for a housing programme in the settlement. This was clearly identified as their second priority after sanitation.
50. The OPP did not have the knowledge regarding the problems related to housing in Orangi. It decided to conduct a study on the sociology, economy and technology of the housing sector in Orangi so that it could decide whether or not to intervene.



A typical Orangi thalla or building component manufacturing yard

21. NEW PROGRAMMES

21.1 Deciding on new programmes

The project should, given its assets and the insights it has gained, develop new programmes. In choosing the nature of these programmes, the project should take into consideration a number of issues. These are discussed below.

a) Programmes related to the first programme may be required to consolidate it, or make it more effective, or help expand it further (48). Such programmes should be the priority. It may be that these new programmes may be social sector programmes which require considerable investment from the project and support of the community, or require a lobbying effort with government. Given the standing of the project in the community and the knowledge it has acquired about the settlement, its linkages with the rest of the city, and its residents, it can deal with both these aspects from a position of strength which it could not at the initial stages of its existence.

b) The community may have its own priorities for new initiatives. Such priorities should be studied, and if the expertise the project has developed, and the skills present in the community, are suitable to promoting and sustaining such a programme it should be taken up (49). If on the other hand, the skills and knowledge are not available, then a new research and development effort would be required to develop them (50) and should be undertaken.

c) A major problem of low income settlements is the exploitation of cheap labour that residents can provide to informal sector and formal sector manufacturing and other economic activity. The most exploited section of the community are women since their earnings in most societies are considered as "supplementary incomes", and as such, their wages are much less than the wages of men. Programmes that can create more equitable relations between the residents (especially women), and the exploitative capitalist economy should be a priority. However, a full understanding of the economic sector and its labour, production and marketing linkages should be established through a research effort before initiating this programme (see appendix - sections E and F for the OPP programmes for Women's Work Centres and Income Generation).

d) All programmes should begin on a very small scale and expand only when the approach developed for them

Footnotes to page 77

51. The OPP has shelved two of its very important programmes after discovering that they were unworkable. One was a tubewell programme for water supply and the other was a credit programme for Banarsi weavers (they weave textile fabrics which has golden threads in it) in Orangi.
52. Although sanitation and housing at the OPP come under the same programme manager who is an architect, the Health Programme is operated by a medical doctor. However, there is a close linkage between the two programmes.
53. Coordination between programmes is possible only in an atmosphere of mutual respect and a common larger vision which transcends individual programme parameters. In the absence of these pre-requisites it is difficult to coordinate programmes without some friction between them.
54. At the OPP, through association with older social organisers, a number of new staff members have acquired skills in motivating and organising people. Somehow most of these staff members already had technical knowledge and/or entrepreneurial skills.

has been tested and found effective. If it is discovered that to be effective the approach requires inputs and/or managerial and technical expertise that the project cannot develop without adversely affecting its other programmes or compromising its basic principles, it should be immediately abandoned and the expenses incurred on the programme should be written off. However, lessons learnt from the shelved programme should be carefully recorded and the reasons for abandoning it discussed at length at the weekly meeting so as to further develop the consciousness of the project staff (51).

21.2 Coordination between programmes

Programmes falling under different disciplines should have separate managers. However, there are bound to be overlaps in certain components of separate programmes (52). The nature of coordination to deal with these overlaps and its monitoring can be arrived at and done through the weekly meetings. Procedural details should be arranged between the programme managers. A short regular meeting (fortnightly) of the staff of both programmes to facilitate this procedure would be helpful (53).

New programmes would require inputs from the social organisers who are involved with other programmes. This is because these organisers are trained; they have been a party (through the weekly meetings) to the decisions and reasoning that has led to the initiation of the new programmes; and are well versed in the philosophy of the project. However, new social organisers should be inducted if the work load so requires. They should work in close association with the old social organisers until the programme manager/director feels that they can work on their own. However, supervision of the new organisers by the older organisers should continue and they will increasingly take on the role of trainers (54).

21.3 Funding of new programmes

Funding agencies who have been receiving the director's reports and other literature of the project should be approached for funding the new programmes. Initially, funds should only be asked for carrying out the pilot phase of the programme which would include finances for research as well. It should be made clear in the funding proposal that the funds are for research and a pilot phase which may not yield any major results. Only when the pilot phase has been successful should larger funds be asked for. The adoption of this

Footnotes to page 79

55. The OPP has constantly refused funds from international agencies for implementing development in Orangi. It has insisted that special autonomous projects for carrying out these developments should be created in which a management committee consisting of representatives of local government, the funding agency and the OPP should look after the project and the role of the OPP should be one of a consultant to the project.



A UNICEF team at the OPP

process further builds up the project image of integrity and seriousness.

21.4 No funds should be taken for development

No finances should be taken by the project for development purposes (even if they are offered) or for handing out to local communities for any development work. Apart from being against the project principles, financial involvement in development work and doling out of finances/ grants, invariably results in the project being accused of dishonesty and favouritism by the local communities. Such accusations have been the undoing of many community development projects (55).

21.5 Obligations towards donors

The project must understand and fulfill its obligations towards its donors as this will help guarantee the continuation of funding. These obligations entail

- sending detailed accounts for the funds received and regular reports regarding the programme that is being funded to the donors. This will be part of the directors quarterly progress report;
- sending any literature that is prepared on the programme;
- inviting them to visit the programme and when they do visit it, nothing should be concealed from them;
- any shortcomings of the programme or failures of any part of it, should be openly admitted and scientific reasons given for it rather than excuses;
- letters should be promptly answered and a regular communication link established.

21.6 Capacity of the project and its expansion

The project should not take on any work that taxes its capacity or capability in any way irrespective of any pressure on it to do so or desire on the part of its staff. Sometimes it is hard to resist such pressures and giving in to them has undermined the position of a large number of projects.

The project should clearly understand its capacity and capability and this should be discussed at the weekly meeting before commencing any new programme. It must be understood that the project staff should have enough leisure time if they are to work efficiently.

56. Some of the finest journalistic writing on political unrest and ethnic strife in Karachi was produced by journalists who had close links with the OPP. This journalism was unique in Pakistan's history and created a considerable awareness about effects of political unrest on low income communities.
57. Development work, especially in volatile communities, creates both friends and enemies. At difficult times in the life of the OPP its journalist friends have lent it considerable support.



Results of the 1987 ethnic riots in Orangi

22. PUBLICISING THE PROJECT

22.1 The need for publicising the project

One of the expressed aims of the project is to have the models it has developed replicated by other agencies and communities and especially by the government. The first step towards achieving this aim is the publicising of the project methodology and its various programmes.

22.2 Manner of publicising the project

a) Circulation of the director's reports:

This has already been discussed in paragraph 16.2 (d) above.

b) Newspaper articles:

In the initial stages the consultants to the project should write articles for the national press regarding the project, its philosophy and the problems of the settlement where it has been established. Later on, they should write about its programmes and their achievements.

c) Inviting journalists:

The director and/or other staff members should identify journalists who write about development work and/or are likely to be interested in the project. Such journalists should be invited regularly to the weekly meetings and introduced to the social organisers. If they are good journalists they will immediately realise that the project can give them access to the community, its leaders and activists, and hence to a whole world of politics, sociology and economics of low income settlements (56). They can then develop their understanding as the project develops and become its close friends. In times of need they can be called upon for help (57).

Once a demonstration area has been created other journalists should be invited to visit it and should be properly briefed regarding the project through talks and slide shows. The briefings should be designed to involve the social organisers, and if possible, community activists, and should be followed by a field visit.

Footnotes to page 83

58. Students involved in programmes with the OPP have brought other students to the Project. A number of them have taken up post-graduate studies at foreign institutions which specialised in community development. They had no idea of the importance of such courses before they came to Orangi. In addition, they have all excelled in their academic studies abroad and the OPP likes to feel that this is because of their association with it.



Students of architecture and engineering
working at the OPP office

a) Involvement of academic institutions:

This has already been discussed in paragraph 18 above. The consultants and programme managers who have links with academic institutions will play an important role in this process. In addition, students working in the settlement or with the project programmes will take the message of the project back to their fellow students, teachers, and the society to which they belong. As such, their training needs that the project can fulfill, without disrupting its work, should be catered to (58).

f) Personal contacts:

Staff members and consultants should use their personal contacts with government agencies to promote the project. Social organisers, for instance, could invite the local government representatives of the settlement for a briefing and discussion. The director and/or consultants could invite the director of the city's development authority, etc. who, if he thinks the project is worthwhile, may send his professional staff for an orientation programme.

g) Project magazine:

Once the Priority Problem begins to be addressed, the project should start producing a magazine in the local language. The magazine should deal with the problems of low income informal settlements; their causes and repercussions and peoples responses to them; and the manner in which the project is dealing with them. The social organisers should be encouraged to write for the magazine and recount their experiences of working with the project and the community. Lane activists and community representatives should also be asked to write (or their interviews published) about how they organised the people; managed the development work; and how this has changed their lives and the social and economic conditions of their neighbourhood. Non residents of the settlement, or even the professionals and consultants to the project, cannot have the insights into these matters that the community members possess. In addition, the process of thinking, writing, and seeing one's name in print, will bring about further changes in the activists and community representatives and hence in the community itself. Writings of the social organisers and community activists should be edited as little as possible and certainly not to make them sound alien to their culture.

The magazine should be in simple language and should

59. The OPP magazine was responsible for creating the first links between the OPP and various community action groups in the rural areas of Sindh (the province in which Karachi is located).



Baba Island in the Arabian Sea was one of the first places to contact the OPP for assistance

primarily be aimed at residents of low income informal settlements and NGOs and community groups involved in upgrading informal or other low income settlements. A list of all such known groups should be compiled, and the project staff asked to look out for and identify new ones, so that the magazine can be sent to them (59). In addition, the magazine should also be sent, along with the report, to all local recipients of the directors report.

The magazine should be sent free of cost and therefore, it will have to be fully subsidised. As such, it should be a simple black and white affair on cheap newsprint.

23. PRESENTING THE PROJECT

23.1 Repercussions of publicising the project

The result of publicising the project will be that a large number of visitors will descend on the project. These will include NGOs, community action groups (CAGs), residents of other informal areas, international development and funding agencies, government agencies, and academic institutions. A system of presenting the project will have to be devised with a different emphasis for each group that corresponds to the nature of its interest with the project or any of its specific programmes. In addition, presenting the project is a time consuming affair and if visitors are frequent, then it can mean that the project staff will end up spending a disproportionate part of their time in catering to them. Therefore, it is necessary to develop efficient and brief presentation techniques.

23.2 Presenting the project

a) Slide presentations:

- A short slide presentation of not more than 15 minutes that covers all aspects of the project and its programmes should be prepared. This is suitable for international development and funding agencies and government departments, politicians and state decision-makers and should aim at developing a general understanding of the project. The director and/or the programme manager should conduct these meetings. If the meeting is with agencies that can facilitate the replication of the project, the consultants should also be asked to attend, if possible.

- Slide presentations of not more than 15 minutes each of

- o general conditions of low income settlements and their causes;
- o the project philosophy and approach to the problems of informal settlements;
- o separate slide shows of each programme of the project.

These slide shows will be for academic institutions; funding agencies, especially those funding some of the programmes of the project, NGOs, and community groups. The shows relevant to the discipline and/or involvement of the academic institutions and NGOs to whom the presentation is being made, should be chosen for presentation.

c) Field visits:

Field visits should also be devised to suit the requirements of the visitors and their interests:

- A brief one to two-hour general visit as a follow-up of the slide show for representatives of international and government agencies and state decision-makers. The programme manager and/or the director should participate in this visit.

- Detailed visits to separate programmes for:

o Academic institutions. Programme support staff can take over, after the programme manager has introduced the programme in the field.

o Agencies funding programmes. The director and/or programme manager should give full attention to the visit unless the agency representatives wish to see things for themselves.

o NGOs, CAGs, and residents of informal settlements. Maximum interaction between these visitors and the social organisers, lane activists, artisans and communities is required. The social organisers should be responsible for arranging this.

d) Feedback session:

After the field visit, the visitors should be encouraged to go back to the project office and discuss what they have seen with the senior project staff. The staff should note observations, and if they are of any relevance to any aspect of the project, or to any of its programme components, they should be taken up at



Sanitation work being carried out
by the lane organisations

60. To promote its Low Cost Sanitation Programme the OPP carried out a physical survey of every ward of an elected councillor in Orangi. It tabulated this survey and identified the location of collector drains and their costs and handed these over to the councillors. It also informed the people of this. Some wards were able to force their councillors to spend their yearly grant on building these drains, or part of them, although under government regulations the councillors could only spend this grant on open drains and/or road paving.



The Lyari river carries Karachi
sewerage to the sea

the weekly meeting.

24. STRENGTHENING THE LOBBYING PROCESS

24.1 Lobbying with local government representatives

Most local governments in Third World cities make investments in informal settlements through programmes operated by the elected or nominated representatives. Most of these programmes are decided upon by the representatives themselves, have very little technical support, and no participation from the community. As such, many of these programmes are of an ad hoc nature and of very substandard quality. In addition, there is very little coordination between different representatives of a settlement even where the proposed developments should be physically inter-linked. To deal with this issue the project should:

- Carry out a survey (through students so that communities know about the surveys and can participate in carrying them out) of the ward of every representative in the settlement and identify work items in it (with the communities help) that communities cannot undertake themselves or have difficulties in undertaking due to financial and technical constraints. The cost and phasing of these items of work should also be worked out. The representative should then be given the details of the survey, the costs involved, and the manner in which the work can be implemented. They should be told that the project will be willing to give any assistance that may be required in terms of technical advice, supervision and tools.

- The community should be informed through extension meetings of the preparation of such surveys and the items of work identified for their areas.

They should be encouraged to contact their representatives regarding these items of work and involving themselves in seeing to it that such work is done satisfactorily (60).

In this process, the community is able to establish a more equitable relationship with the local government, affect its decision-making, and through the project provide technical support to it.

All representatives will not respond positively to this kind of involvement by the people. However, when the areas where this procedure is accepted by the representative develops faster and more appropriately, the other representatives will be forced by their wards

Footnotes to page 91

61. In Orangi to begin with only one elected councillor, collaborated with the OPP's Low Cost Sanitation Programme. He invested his grant from the local government in carrying out support activity to the Programme. As a result, conditions in his area improved much faster than in the other areas.
62. In the beginning, the OPP did not think that people could come together to construct collector drains. It felt that investment from the local government would perhaps be required for this activity. However, during the building of sewer lines in the lane the OPP realised that the people could construct collector drains and that only the trunk sewers and treatment plants were beyond their capacity.



Councillor Afaq Shahid and lane activists

to follow this procedure as well (61).

The social organisers can play a crucial role in creating this community - local government representative link.

24.2 Lobbying with urban development agencies

By the time the process of addressing the Priority Problem has caught on, the project will have developed a clear idea of what cannot be done by the people themselves or by the local government representatives at the settlement level (62). Perhaps linkages are required between what the communities are doing at the neighbourhood level and between settlement level developments and city level developments. Development agencies are often unaware of these linkage requirements of informal settlements and often do not even have detailed plans for these settlements. Even if they are aware of the needs of informal settlements, often these issues are not priorities for them because they consider the poor to be politically unimportant.

Most lobbying efforts, for this type of input from government agencies, that are carried out by the poor fail because:

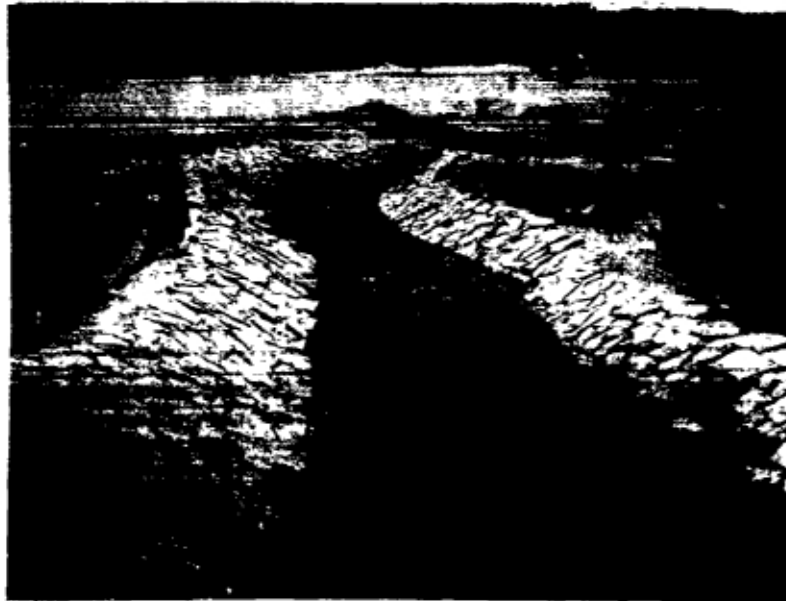
- The poor do not know the laws and hence their rights or the duties of the organisations that they are lobbying with, towards them.
- They cannot offer a technical solution for addressing the problem, or an estimate of its cost, and if they can, then they cannot defend it in the presence of the professional staff of the development agency involved.
- If they do succeed in getting the need they are lobbying for met, they cannot oversee its successful completion. Most programmes sanctioned in this manner are of substandard quality or are abandoned before they can be completed.

To deal with such settlement-level issues, which require the intervention of development agencies, the project should

- study such needs and through action research produce a technical proposal that is inexpensive, and if necessary incremental, and with an element of community participation in it so as to make it affordable to the resources available with the local government;

Footnotes to page 93

63. The OPP has prepared details for the development of the natural drains into which its sanitation system disposes itself at present. In addition, it has developed a small demonstration area where it has implemented its proposal. Photographs of the demonstration area form a part of the promotional material for the proposal. The cost of the OPP proposal is less than half of the conventional cost. The OPP's proposal and its lobbying with the local government has led to the appointment of the OPP as consultant to the local government for its development plans for the area. The OPP has also carried out studies of the effects of floods during the rains on people living along the drainage channels and the causes for the floods and is lobbying with the local government to tackle this problem. Such a study is not available with the local government for any other squatter settlements of the city.



First stage of incremental low cost solution to the problem of providing trunk sewers

- draw up a detailed plan with cost estimates of labour and material;
- prepare a small demonstration area where the community and the development agency representatives can observe the mechanics of the solution;
- give details of the problem and of the solution developed by the project in the press, emphasising the cheapness of the solution, and the incremental manner in which it can be implemented. This will make the development agencies take the proposal more seriously.

Armed with these plans and details, the relevant programme manager should hold a series of discussions with the representatives of the development agencies. It has been noted that the elected representatives of these agencies are more receptive to these proposals than their professional staff (63).

25. PROJECT REPLICATION

25.1 Requests for replication

The publicising of the project will lead to requests from various organisations working in informal settlements, community groups and/or government and international agencies, for having the project, or one or more of its programmes, replicated in another settlement or even in another town.

25.2 When to replicate

The project should only agree to help in replication when it has a programme that is fully developed; has been tested by time and to the satisfaction of the community that has participated in its development; there is a demonstration area; and there is a trained staff available with the project for helping in its replication. If these conditions do not exist, the project should flatly refuse to participate in the replication effort.

25.3 Constraints in assisting replication

There are a number of constraints on the part of the project when taking on a replication exercise, especially in another town. These are:

- The project staff does not have the time to go and motivate communities in other areas because of their involvement with the project and for the same reason, cannot give technical support and supervision.

Footnotes to page 95

64. In 1989, the OPP's Sanitation and Housing Programmes were converted into a Research and Training Institute (RTI) for the Development of the Katchi Abadis. Since then, the RTI's work has included the training of local government officials, NGO and community activists and staff of various international agencies.
65. In the areas where replication work is being carried out, it has been noticed that the major problem is the non-availability of tools. This problem has been overcome by acquiring funds from donor agencies for purchasing tools for the organisations where replication work is being carried out.



The RTI building under construction

- The social organisers of the project are not members of the community of the area where replication is to take place and as such, cannot perform the same functions effectively as they did in the project settlement.

- The professional staff and consultants would overstretch themselves if they were to work with new projects.

25.4 How to overcome the constraints

The above mentioned constraints can be overcome if the project becomes a research and training institution for dealing with the development issues of informal settlements (64). In such a case, if requests for replication come from NGOs or community groups then

- project staff should make a presentation in the replication settlement of their programmes and the strategy they have followed in their project area. The social organisers should establish contacts with activists who have asked for replication;

- the community should identify its Priority Problem;

- activists from the replication settlement should visit the project area, talk to the residents and activists there, learn the manner in which work has been implemented, and go back and start motivating the people in the same manner. They should identify technicians in their own settlement and send them to the project area for training;

- the project should initially prepare plans, carry out physical surveys and develop solutions for the replication settlement. If, however, there are people in the replication settlement, or the NGO that has applied for assistance that have experience in surveying, drafting and/or contracting, they should be sent to the project for training and after the initial stage, should manage the planning aspects of the replication effort;

- the project should give the replication agency tools on loan and provide guidance (65).

In case government agencies wish to replicate the project then

- the agency should appoint one technical person (engineer and/or architect) and one social sector staff

Footnotes to page 97

66. The OPP is currently a consultant to a number of replication programmes. These programmes are being sponsored by UNICEF, the World Bank, the Karachi Municipal Corporation (KMC) and the provincial government's Katchi Abadi Authority.
67. The staff of the replication project must acquire auto-focus cameras and be encouraged to talk informally with the residents using the photographs that they take. They should also be explained how change can be recorded and how such a recording can be used for promotional work.
68. The role that the OPP has decided for itself in the replication efforts was arrived at through monitoring, documenting and discussing the initial replication process continuously.



The site of the UNICEF sponsored project in Sukkur to which the OPP is consultant

member to the replication project. Both these members should receive training at the project in its philosophy, development strategy and implementation procedures;

- the technical staff member should then develop the necessary surveys and plans for the settlement and the social sector staff member should locate community organisations and activists in the replication settlement who can participate in the development process. These activists should be sent to the project to meet the activists there and receive training in mobilising people and getting work done;

- the project should act as consultant to the replication project and its staff should visit it regularly to identify directions and problem areas (66).

The replication project staff and activists should be trained to monitor and document their project (67). The project should also carry out its own documentation and study constraints and potentials so as to develop better procedures for replication (68).

F. SPECIFIC PROGRAMMES

26. **OPP PROGRAMMES AND THE ROLE OF ARCHITECTS**

OPP programmes are described in detail in the appendix to this manual. Two of these programmes, the Low Cost Sanitation Programme and the Low Cost Housing Programme, have had major inputs from architects. The managers and consultants to these programmes have been architects, and architecture students have participated in physical and socio-economic surveys related to them and submitted dissertations and theses regarding them. In addition, the Health Programme has been closely related to the Low Cost Sanitation Programme. The lessons learnt from operating these three programmes are given in the paragraphs below.

27. **THE SANITATION PROGRAMMES**

27.1 **Sanitation as a priority**

In all the informal settlements, the major problem is the absence of sanitation and drainage. Governments do manage to push in piped water into informal settlements but a sewerage system is a far more costly and complex affair to install, and requires linkages to outlets and a disposal system. Where piped water has been supplied, the problem is more serious as much larger quantities of waste water has to be disposed of. Thus,

most informal settlements discharge their sewerage through unpaved lanes, into large ponds that often overflow, or into natural gullies and drains that, in the absence of trunk sewers and linkages to treatment plants, pollute a larger water body such as a canal, river or the sea. In addition, excessive waste water creates waterlogging, which in turn, damages the houses of the residents, and foul water makes movement in the settlement lanes difficult, and is the main cause of bad health conditions in the settlement. Due to these reasons, in all the settlements the OPP has come into contact with, the Priority Problem that residents have identified has been sanitation and the disposal of excreta.

27.2 Government and NGO attitudes to sanitation in low income informal settlements

Governments and NGOs all over the Third World have been promoting the concept of pit latrines for excreta disposal and open drains for the disposal of waste water. The reasons given for this are usually that

- the system is a low cost one;
- the pollution of water bodies is considerably reduced because of the exclusion of excreta in the effluent;
- it is considered especially suitable for areas where piped water has not yet arrived. In such areas, a water borne sewerage system cannot operate. The OPP, however, has developed systems whereby an underground system designed as a water borne one can work in an area of water shortage. This requires the construction of a small, cheap and easy-to-construct 1 M3 interceptor chamber between the latrine and the sewerage line. This acts as a small septic tank;
- the system of pit latrine and open drains is considered a provisional arrangement pending the installation of a sewerage system.

Small bore systems for areas of water shortage which keep out the solids have also been promoted by engineers. Such systems cannot be upgraded to water borne sewerage systems at a later date and have to be replaced.

The OPP has discovered that

- the residents of low income settlements aspire to an underground sewerage system and are more willing to

invest in it than in open drains and soakpits;

- the cost of the open drains and well constructed pits is not less than an underground sewerage system in the lane plus intermediate infrastructure, but is less if trunk sewers and treatment plant costs are added to it;

- number of residents connect their latrines directly to the open drains thus negating the whole argument to providing this system;

- open drains are not maintained and invariably become the dumping area for garbage, creating environmental pollution and social disputes;

- people do not see the reason for spending money to construct this system and then pay again at a later date for an underground sewerage system;

- often sewerage systems of upper income areas are disposed into water bodies. Why then, discriminate against informal settlements? Should not the answer be the creation of linkages and treatment plants rather than two different policies for the rich and the poor?

27.3 Technical aspects to the programme

a) Disposal point for an underground sewerage system:

The programme manager and/or consultants should first determine the point where waste water and sewerage is currently being disposed of and on that basis, decide their future course of action. The slope of the land will invariably be towards this disposal point.

- If the disposal point is a pond, which cannot take more effluent, then

- o the nearest location to it of a more suitable disposal point such as a river, canal or sea, should be located, and the means (gravity flow or pumping) to take the effluent to such a point, determined;

- o a simple non-mechanical treatment system should be designed by the best possible engineering advice and be located between the pond and the final disposal. An engineering consultant should be appointed here;

- o the cost of developing such a disposal should be worked out for both labour and materials along with the cost of the treatment system;

Footnotes to page 101

69. In a replication project for the town of Sukkur, 450 kilometers from Karachi, the OPP identified a disposal point and developed the engineering drawings for the disposal and the details of the treatment plant. Lobbying for funds for the implementation of this "external development" yielded results which were completely unforeseen when the project was being designed.
70. In settlements on the coast, where OPP's sanitation programme is being replicated, there is no possibility of the sewerage system being linked to the city's treatment plants. As such, oxidisation ponds are to be constructed and the water pumped out through wind-mills to be re-used for tree plantation and gardening rather than go into the sea and therefore pollute it.
71. In Orangi, the neighbourhood sewerage flows directly into the creeks and seasonal natural drainage channels and links up with other similar channels carrying sewerage from other settlements, and then to the sea. The under-preparation Karachi sewerage plan is proposing to construct sewers in these creeks and drainage channels and a treatment plant before they get to the sea.

o armed with these plans the project should lobby with government agencies, local bodies, NGOs and other funding agencies to get the necessary finances to get this work done, or get them to do it. Without such an input from them, the people cannot develop their own underground system (69).

- If the disposal point is a seasonal, natural drainage channel then

o determine if other settlements, formal or informal, discharge into it. If they do not, then follow the same process as mentioned above for the pond, and place a treatment system between it, and the final sewerage outlet (70);

o if other settlements do discharge into it, then do not construct a treatment plant, but get the people to develop the internal sewerage system of their settlement and discharge their raw sewerage into the natural drainage channels. The logic being that it is the job of the local government to develop trunk sewers in or along such channels and connect them to treatment plants if they exist, and/or to create such plants if they do not exist (71);

o at a later date, when the project is well established and the sewerage system of the project area equally, the project should lobby, with facts, figures and plans, to get trunk sewers laid along the channels, and develop low cost options that local government and development agencies can follow.

b) Availability of water:

The project should determine whether there is enough water available for the functioning of a proper water-borne sewerage system. If there is not, then a small interceptor chamber of 1 M³ should be placed between the sewer and the latrine, to prevent solids from entering the system and blocking it. This chamber acts as a simple septic tank and can be by-passed once sufficient water is available.

c) Secondary drains:

The project should carry out a physical survey of the area and determine the exact locations of the secondary drains that have to be constructed, and the invert levels of their manholes. These drains will link the lane-level sewers to the final disposal point. The cost of labour and materials involved in the construction of these drains should also be worked out,

Footnotes to page 103

72. The decision to lay the sewerage line in the centre of the lane was taken by the community. The engineering and technical staff of the OPP put up every possible technical objection to this but in the end were forced to see the logic of the decision and have adopted it for all replication programmes.



The cast in situ OPP manholes

and the construction of each such drain should be the responsibility of those in the lanes that connect with it. If the drain is very large, then its construction can be divided up between many groups of lanes.

d) Simplification of conventional designs:

Conventional engineering designs of various components of the sanitation system can be considerably simplified, or made more appropriate, through a research effort, so that people find it easier to implement the work themselves.

Some of the simplifications carried out by the OPP are described below.

- Manhole depth was considerably reduced (to about 75 cm, along with sewer depths) as the lanes were neither large enough, nor well-linked enough to access roads, to have to cater to heavy traffic.

- Once the depth was reduced, the diameter of the manhole was also reduced to 75 cm. The manhole was made cylindrical, so that the concrete section could be reduced, without lowering the strength.

- The manholes were in 7.5 cm concrete and were cast in situ, in steel shuttering, so as to avoid plastering and the use of expensive skilled masons and plumbers. The concrete was vibrated by hammering the shuttering with timber mallets.

- The lane sewer was laid in the centre of the lane because it was financed and laid collectively by the residents, but connections to it from the houses were the responsibility of individual households. If it had been laid on one side of the lane, the arrangement would have benefited the houses on that side as they would have required less pipe length and work to connect to the system. Given the fact that these lanes were free from heavy vehicular traffic, it was quite safe to lay it in the centre (72).

- It was noticed by the consultants and the OPP programme manager that in informal settlements which had been provided infrastructure by the development agencies, people lifted up the manhole covers and dumped their garbage into the manholes. For this reason, heavy concrete slabs were used as manhole covers so as to deter people from using the sewerage system as a garbage dump. However, people rejected this design and instead, took it upon themselves to prevent garbage dumping in manholes.

27.4 The social aspects of the programme

The social aspects of the programme are described in detail in paragraph 13 above. They consist of

- motivation of the community by the project staff through meetings and follow up contacts;
- formation of an organisation at lane or neighbourhood level;
- the organisation elects, selects and/or chooses by other means, its representatives;
- the organisation sorts out its organisational problems before applying for assistance to the project;
- the organisation applies to the project for assistance;
- it receives technical assistance from the project in the form of plans and estimates of development work to be undertaken by it;
- it collects money for commencement of development work and sorts out social problems connected with collecting money, such as who gives how much, how, when and why;
- it decides on how work is to be done and the responsibilities of various community members for carrying out the work;
- it coordinates with the project so that supervision is effective and regular.

27.5 Role of the project

During the process described above, the project staff fulfills the functions described in detail in paragraphs 11 to 18 above, and provides motivation and technical guidance to the community organisation. This staff activity consists of

- surveying the lane and establishing benchmarks;
- preparing plans and estimates of the work to be done by the community;
- supplying tools for construction purposes;
- supervising and monitoring work and identifying shortcomings and removing them through a research and

extension effort;

- training technicians in sanitation technology;
- raising skills of local pipe manufacturers to improve their products;
- modifying designs and procedures of implementation as and when necessary through feedback and contact with the community.

At a later stage, the project assumes the role of research and lobbying for dealing with the larger aspects of the sanitation and drainage question on the lines detailed in paragraphs 19 to 25.

27.6 Results of a successful sanitation programme

- The community gets organised and develops managerial and technical skills.
- Develops self reliance, a new vision of development and the confidence to pursue it.
- Establishes a more equitable relationship with local government and development agencies.
- Real estate prices go up.
- Health conditions improve and as such savings increase.
- Academic institutions involved with the project develop an understanding of the objective conditions in informal low income settlements, and a new type of professional who understands these issues starts to be produced by them.
- Government agencies study the programmes of the project.

28. HEALTH PROGRAMME (for the OPP Health Programme see appendix, section E)

28.1 Preventive and not curative health systems are required

Residents of low income informal settlements suffer from a large number of diseases. Most of these are the results of massive environmental pollution because of an absence of proper disposal facilities for excreta and waste water; bad public and personal hygiene practices, due to a lack of awareness; absence of

population planning, due to a lack of access to it; and poor nutritional intake, due to lack of knowledge about what constitutes proper food. The cure for diseases related to these causes is a good sanitation system and health and family planning education. However, all health practitioners in informal settlements, as in formal ones, practice curative medicines and preventive programmes are seldom very successful, apart from immunisation programmes. The reasons for this are

- the failure to develop sanitation systems in low income informal settlements;
- the difficulty to gain access to communities, especially women, for health education programmes;
- the refusal of women to visit health centres if they exist in the settlement, due to the inconvenience of giving up housework.

28.2 Overcoming the constraints

The development of a sanitation system removes the main source of environmental pollution and disease. In addition, if developed on the OPP model, it creates lane and/or neighbourhood organisations which have acquired managerial and technical skills and are as such open to new ideas. The health programme should build on this asset and address itself to the women of the community organisations, for it is they who are responsible for most activities related to family planning, nutrition and hygiene. The project should therefore

- ask the representatives of the community organisations who have built their sanitation systems, to arrange a meeting of the women of their area with the health programme's mobile health team;
- this health team should consist of 2 LHVs and a lady doctor.

The team should develop a package of advice on

- o major diseases in the settlement and their causes;
- o personal hygiene;
- o domestic hygiene and the disposal of garbage;
- o family planning practices and their importance;
- o nutrition and the development of vegetable

gardens, if there is space in the house.

- The women of the area should be encouraged to form a group and select a representative. Supplies for family planning and seeds for vegetables should be given on credit to the representative for sale to the members of the group.

- A weekly meeting of the group with the mobile team should be arranged in the lane or in the representative's house, and the package of advice should be extended, discussions held and results monitored and further discussed. The weekly meeting can, with the passage of time, become a bi-weekly, and then a monthly meeting, before the need for it is no longer felt by the women's group.

29. THE HOUSING PROGRAMME

29.1 Understanding the housing drama and its actors

Before planning an intervention in the housing sector in the settlement, the project should identify the various actors and their respective roles in the housing drama, and their relationships with each other on the one hand, and with materials, skills, technology and culture on the other. Such a research study should be designed by the consultant to the programme, conducted by students of architecture, and supervised by their teachers with help and assistance from the programme manager and the project social organisers.

29.2 Methodology and scope of the study

The study should initially aim at establishing

- different housing types in the settlement and identifying the dominant type;

- the materials used in construction, where they were purchased, from whom, and their climatic suitability;

- the cost of the different house types and their various components;

- the nature of incremental building and technical problems faced by the people in it;

- the role of any informal sector entrepreneur, such as a supplier of raw and/or manufactured materials or a local building component manufacturer;

Footnotes to page 109

73. The OPP, through its technical research, in which the best possible engineering and architectural consultants were used, has been able to develop superior building blocks, pre-cast roofing systems and staircases, which can all be manufactured at the local manufacturing yard. In addition, the OPP discovered that there were formal sources of credit for small entrepreneurial activity, which could be used for upgrading the manufacturing yards, about which the manufacturing yard owners were unaware. The credit terms required a guarantor of standing and OPP became such a guarantor.
74. A roofing system developed through the technical research carried out by the OPP has replaced the conventional RC slab being used in Orangi by a pre-cast RC batten and tile roof that costs over 30 percent less. This roof is marginally more expensive than an asbestos sheet roof on which a first floor cannot be constructed. In addition, the OPP researched for and discovered cheaper sources of appropriate aggregates for concrete work.

The OPP did not build a manufacturing yard of its own, but came to an agreement with a yard owner. Under this agreement, the OPP carried out experiments at the yard and helped the owner upgrade his manufactured items.

- the role of skilled artisans in the design and building process or any other design input;
- the relationship between the owner, entrepreneur, and/or skilled workman employed;
- defects in housing and the social, economic, artisanal and/or technical reasons for them;
- the people's own perceptions regarding their houses, the defects in them, and their relationship with the other actors in the housing drama and the effect of this relationship on the final product;
- credit systems available to the people and entrepreneurs.

29.3 Results that should be derived from the study for further research and extension

On the basis of the above study the following results can be derived:

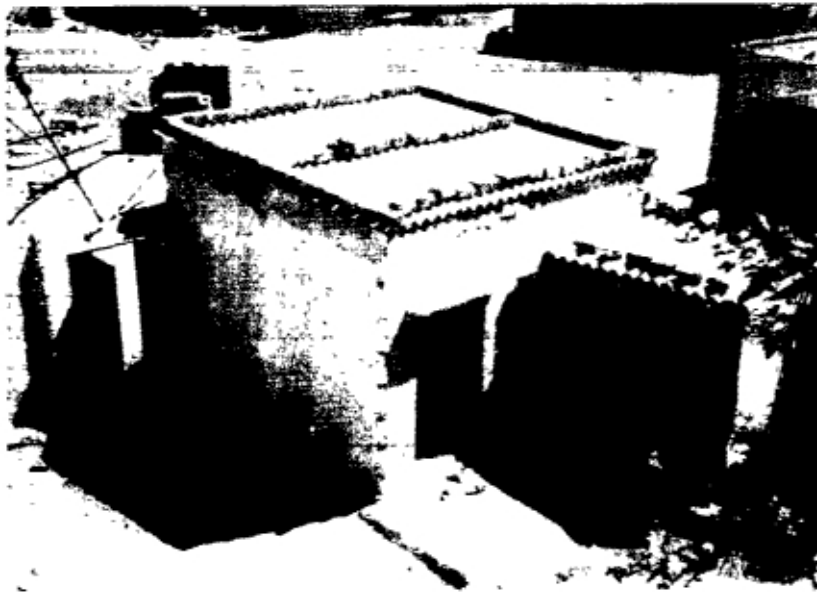
- Design defects and who is responsible for them: on the basis of this a programme of educating the design actors in the drama, and above all the house owner, can be undertaken.
- Defects in constructional details: These can be because of
 - o poor artisanal skills, in which case, a training programme for masons and/or other artisans should be undertaken;
 - o poor manufactured components, in which case a research, extension and credit programme for improving the manufactured items of the entrepreneur should be undertaken (73);
 - o attitudes like, "anything goes since it is a poor man's house." This can only be raised by pointing out to the owners that with the same amount of money, a better house can be built.

Other reasons for bad housing are:

- Lack of finances on the part of the house owner: This can be overcome by carrying out action research on new materials and techniques by using the yard of a local manufacturer and introducing them to the public through him (74). In addition, a study of the existing credit systems which may include some formal sector

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75. Orangi houses are initially constructed to carry a tin roof. However, as the means of the household increase, the residents wish to construct a first floor. This floor cannot be carried by the old structure, and the house owners are forced to demolish it. A major research issue for the OPP was the manner in which existing structures could be made strong enough for carrying a first floor without being demolished. A major extension effort was to explain to owners beginning new construction that they should take into consideration the possibility that they might require a first floor at a later date.



Typical Orangi houses =

credit systems, that the community is unaware of, or cannot get to due to procedural complications, which the project can help in removing,

- The development of relations of suspicion and hostility between the artisan, manufacturer and/or supplier and the owner: This can be overcome only if the owner is aware of what to expect from the other actors, their duties, and the correct costs due to them. A more honest and better technical performance on the part of the other actors is also required. This can be achieved by consumer education and artisan / supplier training.

29.4 Problems of incremental expansion

One of the major problems in informal settlements is related to the structural changes required when houses are being upgraded. Often walls are not strong enough to take a concrete roof which replaces a tin one, or a structure cannot take another storey which has been planned. Research into these issues is necessary, and the results should be taken to the relevant actors through extension education (75).

29.5 Actors in the research and extension work

Initially, the social organisers and the technicians of the project will be the main extension agents. However, later, upgraded manufacturers and trained masons will also play an extension role. In the research and surveys required to develop the extension package, the project should find a role for, and establish contact with

- academic, architecture and engineering institutions;
- building and materials research institutions;
- social research and development institutions.

29.6 The housing programme and the Priority Problem

The housing programme described above, cannot succeed without trained social organisers and technicians and the existence of trust between the communities and the project. Both these pre-requisites to the success of the programme cannot be created through this programme, as it does not call for the creation of any social organisation. A housing programme, therefore, has to follow a programme that tackles a Priority Problem which needs the development of community organisations.

76. The OPP has motivated schools and local communities in planting trees in public spaces. Recently, it participated with the World Bank's consultants in developing concepts and proposals for reclaiming the flood areas of seasonal channels as urban spaces and getting Orangi communities to protect these areas from encroachment.



A school building in Orangi

30. OTHER PROGRAMMES OF THE OPP

The programme for Women's Work Centres, the Economic Programme and an Education Programme of the OPP, are described in sections 4,5 and 6 of the appendix. There has been no input of architects into these programmes. However, for the education programme, the OPP consultants and architects have given advice to the informal sector school owners and teachers on how the school can be improved physically, with little financial input from them, especially with regard to light and ventilation. In addition, they have supervised the changes the school owners have undertaken on their advice. Again, development of this advice and its acceptance is possible only after the project has gained access to the community and has developed a relation of trust with it.

Another role the architects could have played, but have not, is to devise a curriculum for the schools regarding sanitation, house design and the creation and protection of urban space. This would help produce environmentally educated future residents of the settlement who would respond more positively to community development concepts.

31. ARCHITECTS AND THE URBAN SPACES PROGRAMME

Once the sanitation programme has been successful, and the housing programme is in the process of developing, the project can give attention to the issue of creating, protecting and maintaining urban spaces (76). This can be done by:

- a) Reclamation, which requires
 - identifying spaces which can be reclaimed (such as garbage dumps, seasonal flood areas of natural drainage channels, waste water ponds);
 - working out the cost and other inputs that are required for such reclamation if it is arranged by the neighbourhood community organisations;
 - armed with those facts and figures, lobbying with local government, through the community organisations and local body representatives for funding such reclamation;
 - once the area has been reclaimed, planting trees and/or cheap and appropriate paving developed by the housing programme, on the reclaimed area;

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77. The OPP has been operating a social forestry programme. The programme has received assistance in the form of advice and visits from the forestry department of the government of Sindh. The International Union for the Conservation of Nature (IUCN) has also been involved in the programme.



OPP's social forestry programme nursery

- developing an organisation or using the existing activists, to arrange to protect and maintain the area.

b) Creating cul-de-sacs, which involves

- motivating the area community organisation to taking up and financing this work;

- through discussions with the people, closing through-traffic in certain areas to create a "pedestrian" area;

- paving this area appropriately and/or planting trees.

The tree planting can be done through a social forestry programme which entails (77)

- creation of a nursery in the settlement for the supply of tree saplings to the residents of the settlement. In most countries state assistance and subsidy is available for such programmes, including training for foresters. Such assistance programmes should be identified and utilised;

- identification of a person, or persons, in the settlement who can be trained to operate the nursery;

- motivating people through their activists to purchase trees from the nursery, receive advice on them and to plant them; providing residents with cheap saplings and advice on how to plant trees and look after them.

Both the urban spaces programme and the social forestry programme are inter-linked, and architects, more than any other professionals, are qualified, with assistance from the forester, to organise and operate them.

G. CONCLUSIONS

32. GENERAL CONCLUSIONS REGARDING UPGRADING WORK ON THE OPP MODEL

32.1 The importance of access to the community and its organisation

The OPP model has succeeded in bringing about major physical, social and economic changes in Orangi. The key to its success, is that its methodology has succeeded in creating access to the community, based on voluntary action and trust and in mobilising it. Without these ingredients, the research and extension

Footnotes to page 117

78. The OPP's sanitation model makes it possible for communities to build their own sanitation system at the neighbourhood level, thus reducing government investment by upto 60 per cent. This saving can be utilised by the government for developing extra trunk infrastructure and for financing the research and extension model by which communities can be aided to finance and implement development themselves.



An upgraded thalla

effort, that has led to the awareness-raising of the community, and the building up of its technical, managerial and entrepreneurial capacity and capability, would not have been possible. In the absence of this capacity and capability building, a more equitable relationship with the local government and development authorities would not have been possible, and nor would there have been a positive response to innovative social sector programmes. Most upgrading programmes fail because of the absence of such access, trust and community mobilisation, and not because of a lack of technical and/or research expertise with government agencies or NGOs that promote these projects. Furthermore, the involvement of communities and the informal sector in development decisions and planning, creates models that are affordable to the people (78).

32.2 The OPP model and new approaches to planning

Technically supported, mobilised communities can take care of the planning, financing, construction, maintenance and operation of their neighbourhood infrastructure and spaces, provided trunk and in some cases, intermediate infrastructure, is available. Governments, therefore, should develop trunk and intermediate infrastructure only, and leave the rest to the communities. This will reduce their development costs substantially (by over 72 per cent in the case of Orangi) and cut down on their ever increasing operation and maintenance costs. The research and extension method should be incorporated in their official planning process to facilitate the role of the communities in development. The extension of this concept will develop a totally new attitude to city planning and lead to the creation of new institutional arrangements and relationships which will respond more favourably to the growth dynamics of Third World cities.

Footnotes to page 119

79. Audited OPP expenditure since April 1980 till 31 May 1991:

- OPP's research and extension cost:
 - Sanitation Programme : 3,059,180 rupees =
122,367 US dollars
 - Demonstration : 767,719 rupees =
30,708 US dollars
 - Total : 3,826,899 rupees =
153,075 US dollars

- People's investment in sanitation construction in Orangi upto 30 September 1991 (47 Programme Report page 13):
 - 4637 sewer lines : 15,708,443 rupees =
628,337 US dollars
 - 348 secondary drains : 1,702,504 rupees =
68,100 US dollars
 - 69976 sanitary latrines : 35,562,000 rupees =
1,422,480 US dollars
 - Total : 52,972,947 rupees =
2,118,917 US dollars

Note: The cost was reduced by self-management and OPP's technical guidance to 1/5th of the conventional contractors' cost. Thus the official value of the sanitation construction done by the people themselves could be calculated at $(52972947 \times 5) = 264,864,735$ rupees = US\$ 10,594,589.

- A rough calculation of OPP costs against peoples investment can be made as follows:
 - Opp's research and extension cost : 3,826,899 rupees =
153,075 US dollars
 - Peoples investment in sanitation construction : 52,972,947 rupees =
2,118,917 US dollars

(Continued on page 120)

32.3 Low cost of development and programme overheads

By following the OPP model, costs of development are reduced by one-fifth of formal sector development costs. In addition, the administration, research and extension costs of the programme are so low that all Third World governments, given their top heavy institutional structures and budgetary allocations, can easily accommodate them. Details of OPP expenditures against peoples investments are given in footnote (79).

33. THE ROLE OF THE ARCHITECT IN UPGRADING WORK

At the OPP, by far the most important role after that of Akhter Hameed Khan, who is the preceptor of the project, has been played by architects. The main reason for this is that the link in architectural education between sociology and technology is more developed than in other disciplines that deal with physical development. However, the OPP experience has shown that for professionals to be effective in upgrading work, the approach to education for all professions needs to be restructured. Such restructuring, in the case of architecture, requires that an architect should be trained to understand how to play the role of an enabler and facilitator of buildings and the environment, rather than a producer. To play this role, he will have to innovate professionally and pressurise politically. He will have to understand processes rather than axioms; sociology and economics of technology rather than its theory; and the need to arrive at an optimum relationship between needs, resources (in the larger context) and standards, and to understand that all these three are dynamic entities governed by social and economic factors. This is a tall order, but it can be achieved if from the very beginning, a student architect is

- made to critically observe the built environment, break it down into its various components, and identify its plus and minus points;
- made to identify the social, economic and physical benefits and/or problems created by these points;
- aware of the factors that have led to the creation of this environment. These may be political, social, administrative, economic and/or technical;
- relate these factors to larger national-level planning and administrative issues.

Architects working with the OPP, and a number of

Footnotes to page 119 continued

Ratio of OPP cost to
peoples investment : 1:13.84

- However, if the calculation is made at official or conventional cost it would be as follows:

OPP's research and : 3,826,899 rupees =
extention cost 153,075 US dollars

Official cost of :264,864,735 rupees =
peoples investment 10,594,589 US dollars

Ratio of OPP cost to : 1:69.21
peoples investment

- The demonstration effect of Orangi pattern of self-managed and self-financed sanitation construction is now visible in similar low cost construction in other areas. Work amounting to 729,899 rupees (US\$ 29,195.96) has been done in Manzoor Colony in the last few months.

Besides the skill acquired by the OPP teams in the technical and social guidance of basti dwellers is being used by foreign donors and also by Pakistani official agencies.

- All other programmes (health, family planning, womens work centres, and family enterprises) have their separate budgets like the sanitation and housing programmes. However, there is also expenditure on central services. The central expenditure since April 1980 till 31 May 1991 is:

	Rupees	Annual average Rupees	US\$
- Central Office	3,967,978	360,725	14,429
- Research and Evaluation	670,162	60,923	2,436
- Meeting and training	303,077	27,552	1,102
- Publications and audio-visual	965,334	87,757	3,510
Total	5,906,551	536,959	21,478

(text continued from page 119)

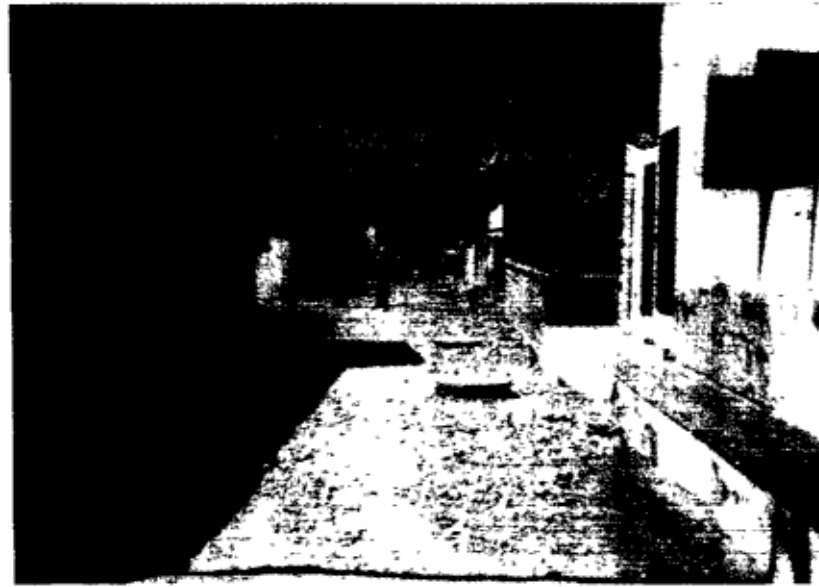
students from the Department of Architecture and Planning at the Dawood College of Engineering and Technology, Karachi, have been put through this exercise. It has been discovered that after going through it they

- develop a rapport with the residents of the locality and can talk to them at their level;
- quickly see the problems of the locality in the larger city level or national context;
- that their designs undergo a major change and respond (unlike earlier) to social, economic, artisanal and technical constraints and potentials.

The development of these traits makes them suitable candidates for doing upgrading and rehabilitation work in low income informal settlements. However, for such educational programmes to be successful, teachers who are aware of the social, political and economic dynamics of low income informal settlements are required. These are not always available.



An Orangi lane before



and after it acquired a sanitation system

APPENDIX

ORANGI PILOT PROJECT PROGRAMMES

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A. <u>THE ORANGI PILOT PROJECT (OPP)</u>	
1. THE ORANGI PILOT PROJECT	

The OPP was sponsored by the BCCI Foundation. It has been working in Orangi since April 1980. It publishes a quarterly progress report which contains financial statements and quarterly and cumulative tables of work. The 45th report has come out in April 1991.

The OPP considers itself to be a research institution whose objective is to analyse outstanding problems of Orangi, and then, through prolonged action research and extension education, discover viable solutions. The OPP itself does not construct sewerage lines, or set up clinics or schools or industrial homes etc. It only promotes community organisation and self management. By providing social and technical guidance, it encourages the mobilisation of local managerial and financial resources, and the practice of cooperative action.

The OPP is very fortunate, thanks to the BCCI Foundation and other donors, in possessing both the resources and the autonomy required for innovative research, experiments, demonstration, and extension.

2. THE OPP'S MODEL PROGRAMMES

During the last ten years, the OPP has patiently analysed some basic problems of Orangi and evolved the following model programmes.

- A Low Cost Sanitation Programme
- A Low Cost Housing Programme
- A Basic Health and Family Planning Programme
- A Women's Work Centres Programme
- A Programme of Supervised Credit for Small Family Enterprise Units
- A School Programme

The performance of these programmes in Orangi is described in the following sections.

3. THE KATCHI ABADI (SQUATTER SETTLEMENT) OF ORANGI

Orangi is Karachi's biggest katchi abadi. A survey made in November 1989 shows that it has a population of about 800,000 living in 94,122 houses in 110 mohallahs or neighbourhoods. The settlement process began in 1965. Average family income is about 1,000 rupees or US\$ 40 per month. This is on the poverty line.

4. THE INFORMAL SECTOR

Official agencies have provided some facilities such as main roads, waterlines, electricity, a few schools, hospitals and banks. However, the people of Orangi have to depend much more on informal sources for their needs. 6,347 lanes have been laid and 94,122 houses have been built without any official assistance from Karachi Development Authority (KDA). Without any assistance from the government Directorate of Education 509 private schools have been established. The same sustained energy and wide scope is seen in transportation and medical arrangements.

Neither have the working classes waited for government planners, industrialists, or investors to create jobs for them. In fact, only a small percentage are employed in offices, mills or factories. Most of them earn their living in hundreds of family enterprise units set up with their own savings. Thousands of their women and children also work for wages.

In contrast to what the poor people manage to do for themselves, government planning for the poor seems slow and sterile. Familiarity with Orangi reveals that a township larger than Colombo receives scanty services from official agencies. The people of Orangi depend mainly on "informal" sources. Land is obtained through dallals (middlemen); credit, materials and advice for housing is obtained from thallawalas (block manufacturers). Self-supporting schools teach their children. Quacks (physical and spiritual) treat their ailments. They continuously resort to the black market or the bribe market for business facilities, welfare amenities or peace from harassment.

That the informal sector and its black market is many times the size of the official sector, indicates the weakness of government planning for the poor. At the same time it indicates the resilience of the poor and their skill in the art of survival. Their vitality is demonstrated by the presence everywhere of anjumans (associations) which lobby intensely all the time, presenting claims and guarding gains. It is further demonstrated by the growing consciousness, specially among the younger generation, of their collective vote power and street power.

B. THE OPP'S LOW COST SANITATION PROGRAMME

5. THE DILEMMA OF SANITATION AND SEWERAGE

The sanitation and sewerage problem in the katchi abadis presents a dilemma:

- On the one hand without sanitary latrines and underground sewerage lines, both the health and property of the residents is endangered.
- On the other hand, the current conventional cost, official or commercial, cannot be paid by them.

This dilemma cannot be solved by foreign aid. The hope of optimistic planners to upgrade katchi abadis with foreign assistance ignores the fact that the beneficiaries are in no position to pay the conventional cost, (which becomes higher in foreign aided projects). Besides, foreign donors themselves are in no position to pay the total astronomical cost.

6. THE PROBLEM OF SANITATION IN ORANGI - 1980

Poor sanitation is the chief characteristic of slums. In 1980, in Orangi, bucket latrines or soakpits were being used for the disposal of human excreta and open

sewers for the disposal of waste water. It was not far removed from medieval sanitation. Medieval sanitation was damaging health: typhoid, malaria, diarrhea, dysentery and scabies were rampant. The children who played in the filthy lanes were special victims. Substantial portions of family incomes were spent on medicines. In addition, poor drainage was causing waterlogging and reducing the value of property.

The OPP's investigation showed that the residents were quite aware of the twin problems of sanitation and drainage. They clearly saw the causes of damage to their health and property.

Why then did they not exert themselves to construct their sanitation and drainage as they had exerted themselves to build their lanes and houses? (They had built 94,000 houses).

7. THE FOUR BARRIERS

OPP research discovered four barriers:

- **The psychological barrier:** Orangi residents firmly believed that it was the duty of official agencies to build sewerage lines as a free gift. Their leaders encouraged and confirmed the belief in free gifts or "free lunch", as the Americans say.

- **The economic barrier:** The conventional cost for sanitary latrines and underground sewerage lines built by official or commercial agencies was beyond the paying capacity of low income families.

- **The technical barrier:** The low income families had indeed built their houses, mostly with the advice of masons, and they had also built bucket latrines and soakpits. But neither the people nor their advisors, the masons, possessed the technical skill required for construction of underground sewerage lines.

- **The sociological barrier:** Construction of underground sewerage lines requires not only high technical skill but also social organisation for collective action. This did not exist in Orangi lanes in 1980, when the OPP began its work.

8. ADOPTING THE RESEARCH AND EXTENSION APPROACH(R & E)

The OPP's task was to remove the four barriers. As a first step a small office was set up with a team of social organisers and technicians.

The OPP, in fact, presumed to become the research & extension (R & E) wing of the KMC (Karachi Metropolitan Corporation) and the KDA, hoping that one day not only KMC, but all municipal corporations would recognise the need for such a wing to assist low income house owners. R & E has been extremely successful in the case of small farmers. Its assumptions are that

- small farmers can and should manage and finance their own farms;

- but assistance should be given to them in three respects

- o research, e.g., high yield (HY) varieties, improved methods and implements, plant protection, animal husbandry etc.;

- o extension, i.e., dissemination and demonstration of research findings to small farmers;

- o provision of adequate and reasonably priced (some-time even subsidised) services and supplies.

The position of low income house owners in a katchi abadi is analogous to small farmers and the above assumptions are quite valid in their case. The OPP has successfully tested the R & E approach for introducing low cost sanitation and low cost housing in Orangi.

There are four levels of a modern sanitation system

- inside the house: the sanitary latrine; -
- in the lane: underground sewerage lines with man-holes and house connections;
- secondary or collector drains;
- main drains and treatment plants.

The OPP found house owners willing and competent to assume the responsibility of constructing and maintaining all sanitary arrangements at the first three levels with their own finance and under their own management. The main drains and the treatment plant must remain, like main roads and water lines, the responsibility of a central authority.

Through the R & E approach, it became possible to reduce drastically the cost of construction and to persuade house owners to accept full responsibility.

Research consisted of

- simplifying the design
- fabricating standardised steel shutterings
- surveying and mapping
- preparing models, slides and audio visual aids
- preparing instruction sheets, posters etc.

Extension consisted of

- finding activists in the lanes
- training lane managers and masons
- providing accurate plans and estimates
- loaning tools and shutterings
- social and technical guidance and supervision

9. REMOVING THE ECONOMIC BARRIER

Of the four barriers, the most formidable was the economic barrier: the high conventional cost of sanitary latrines and underground sewerage lines.

Yet for densely populated sectors, there was no alternative to the modern sanitation system. To insist that slum dwellers should remain content with medieval sanitation (i.e. bucket latrines, soakpits, and open sewers) is adding insult to injury. It is doubtful if the medieval system can be safely retained even in thinly populated villages. To impose it in congested townships like Orangi causes disaster to health and property.

For a whole year, the focus of the OPP's research was on the basic question: is it possible to lower the cost of sanitary latrines and sewerage lines to such an extent that the house owners of Orangi can afford to pay it?

It was found that the cost can be reduced to a surprising extent by simplifying designs and methods of construction.

To give an example: simplified designs and the use of standardised steel moulds reduced the cost of sanitary latrines and manholes to less than a quarter of the contractors' rates.

And after the elimination of the contractor's profiteering the basic cost of labour and materials came down to less than a quarter of the conventional cost of building a sanitation system.

As a result of this research, the OPP could advise an Orangi family that by investing another 1000 rupees, they could have a sanitary latrine inside the home and underground sewerage line in the lane.

An average Orangi family has invested 20-25 thousand rupees in their house. So the scale of this investment is not beyond their means.

The OPP could then proceed to remove the other barriers. Without this drastic reduction in cost it would not have been possible to persuade low income families to undertake the responsibility of self-financing, self-managing and self maintaining underground lane lines.

The drastic reduction in cost is possible only when construction is self-financed and self-managed without corrupt and extortiorate middlemen.

People had to depend on the contractor because he has technical knowledge and tools. The OPP trained the lane managers and gave them technical guidance, and loaned them tools and shutterings, thus enabling them to escape from kickbacks and profiteering.

10. REMOVING THE PSYCHOLOGICAL BARRIER

Removing the psychological barrier (the mistaken belief that they will get sewerage and sanitation as free gifts) did not prove as difficult as it appeared at first.

In the first place the house owners, contrary to the planners stereotype, were not destitutes. No doubt their incomes were low, but they had built their houses with their own savings. The house was their most valuable asset, and they were totally dedicated to its improvement. Soakpits and waste water were causing waterlogging, seriously damaging the houses and reducing their value. The OPP found in the owners' desire to improve their real estate, a powerful motivation for constructing sanitary latrines and underground sewerage lines.

A second, equally powerful, motivation was health protection, especially for children. Mothers saw most clearly the connection between filth and disease. They

soon realised that sanitary latrines and dry lanes would reduce disease and the subsequent heavy expenditure on medicines. Another motivation was to banish forever the expense and bother of delinquent sweepers and overflowing soakpits.

When families realised that with the investment of one thousand rupees (an average one months income) they could immediately get these benefits they decided not to wait for uncertain promises but do the work themselves. After all, they had not waited for houses to be built for them (which had also been promised) by various leaders.

11. THE ROLE OF SOCIAL ORGANISERS AND TECHNICIANS

Everywhere in Orangi (as elsewhere) there are anijmans (associations, societies, clubs). Most of these are designed for lobbying and canvassing and not for constructive work. None of them could build a sewerage line. Therefore, a new kind of organisation was created. The lane was made the unit of construction.

The OPP's technicians surveyed the lanes, ascertained levels, and prepared maps, plans and estimates. OPP's social organisers explained to the home owners in the lanes, that for the sake of their health and well being, they could themselves construct sanitary latrines and sewerage lines. They could get technical guidance from the OPP and also tools and shutterings. The first step was to join hands. Generally, an activist was found in the lane who became a lane manager, held more meetings of the lane residents, created a consensus, settled disputes, collected individual contributions, and supervised the work.

Social guidance removed the sociological barrier and technical guidance removed the technological barrier.

12. PROGRESS OF LOW COST SANITATION IN ORANGI APRIL 1981 - 1991

The OPP's sanitation programme (the model of self-managed, self-financed and self-maintained sanitary latrines and underground sewerage lines) was presented to the people of Orangi in 1981. Its acceptance can be judged by the fact that between 1981 and 1991 over 93.9 percent of the houses in the OPP area had acquired sanitary latrines, underground sewers in the lane and connector sewers. The people had made an investment of over 51 million rupees (about US\$ 2 million) in this work. If this work had been carried out by the government agencies it would have cost over US\$ 8

million.

13. DEMONSTRATION EFFECT

As a result of the intensive training of masons in the technology of sanitary engineering, and the widespread training of lane managers, the level of skill is now so far advanced in Orangi that the people have become less dependent on the OPP for social or technical guidance. The difference from other katchi abadis is now noticed by every visitor.

A clear demonstration has been made that the dilemma of modernising sanitation in katchi abadis can be solved by mobilising managerial and financial resources of the house owners themselves by providing them social and technical guidance.

It has also been demonstrated that low income residents properly maintain, at their own cost, the sewer lines they have built with their money and management. Proper maintenance of thousands of small lane sewer lines would be impossible for the municipality.

14. THE REPLICATION OF THE ORANGI PATTERN

At last, after so many years, the Orangi pattern of self-managed and self-financed low cost sanitation is being replicated outside Orangi. Last year, several NGOs in Karachi adopted this approach (Chanesar Goth, Manzoor Colony, Grax village, Mauripur etc.). In these places there was much distress on account of the overflow of soakpits and open sewers. Their efforts to persuade the municipal corporation to build sewer lines for them had failed. So they came to observe the work that had been done in Orangi and copied it.

More significantly, UNICEF has accepted the Orangi pattern of low cost self-financed and self-managed internal sanitation development as a model for the UNICEF Urban Basic Services (UBS) Programme. They have officially appointed the Orangi Pilot Project's Research and Training Institute (OPP-RTI) as consultant. The OPP-RTI is guiding UBS sanitation work in three katchi abadis in Sukkhor, a large town 450 kilometers from Karachi. It is also training engineers, and social workers sent by UNICEF from various other cities.

The World Bank team for shelter is proposing a similar arrangement.

Above all, the mayor of Karachi visited the Orangi

lanes personally and after many meetings has issued directives that the lane residents of katchi abadis should be organised to undertake internal sanitation development while the municipal corporation should quickly complete the external development.

The demonstration in Orangi has convinced the mayor, UNICEF and the World Bank that assumption of responsibility for internal development by the low income residents

- drastically reduces the cost
- cuts out corruption
- speeds up the work
- and ensures its maintenance.

It is being discovered that the research and extension approach, the giving of social and technical guidance, and the mobilisation of local managerial and financial resources is as acceptable in other katchi abadis as it was in Orangi. There is no doubt that poor people want to become partners in their own development if planners will only take the trouble of inviting them to participate.

C. THE LOW COST HOUSE BUILDING PROGRAMME

15. HOUSE BUILDING BY THE POOR: PEOPLE'S AGENCIES

In the katchi abadi of Orangi in the last twenty years, 6,347 lanes have been laid and 94,122 houses have been built. The owner-occupiers of most of these are members of the working classes. This vast task has been accomplished not with the help of official agencies like the KDA, the House Building Finance Corporation (HBFC), or commercial builders, but by non-official (informal or peoples') agencies.

For the low income families of Orangi

- dalals (middlemen) have performed the functions of that the KDA is responsible for. They have acquired land, developed, subdivided and allotted it. Furthermore, they have arranged for the supply of water and transport and police protection.
- thallas (building component manufacturing yards) have performed the functions of HBFC and building firms, making building components, supplying building materials (cement, steel etc), giving credit and advice.

- masons have performed the functions of architects, engineers, and contractors.

16. DEFECTS OF ORANGI HOUSES

Surveys showed that

- blocks made manually at the thallas were substandard, brittle, not properly compacted and cured;

- the mason's work was faulty in design, alignment, and in the laying of the foundations;

- on account of weak blocks and defective masonry work 40 per cent of the walls cracked. Sulphate attack was widespread;

- masons were ignorant of proper orientation for ventilation and light;

- the owners built their houses incrementally, beginning with one room with a tin or an asbestos roof. Later, when they wanted to add another floor, the entire old structure had to be demolished, thus wasting the initial investment;

- the only roof that could take a first floor, and was known to the residents, was a reinforced concrete (RC) in situ one which people could not afford;

- the worst problems were the waterlogged soakpits, the stinking bucket latrines, and the waste water puddles.

17. THE OPP'S RESEARCH AND EXTENSION APPROACH

After the success of the sanitation programme the OPP started a housing programme in 1986 following the same R & E approach. Surveys showed that poor peoples houses in Orangi had the defects mentioned above.

Two years were spent on research on these problems and the next two years on extension of research findings.

Research consisted of:

- upgrading the local thallas

- evolving standard construction design and techniques

- preparing standardised steel shutterings

- writing manuals and instruction sheets
- preparing audio visual aids
- constructing demonstration models

Extension consisted of:

- finding thallawalas (owners of thallas) willing to participate in research and development (R & D)
- training masons and teaching them improved design and construction techniques and the better use of tools
- lending tools and shutterings
- providing accurate plans and estimates
- technical guidance and supervision of construction

R & E have reduced the cost and improved the quality of construction.

18. IMPROVING THE THALLA MADE BLOCKS

There were about 200 thallas in Orangi making concrete blocks manually. Due to poor compaction and curing, and the improper mixing of cement and concrete, the blocks that were made were brittle, prone to weathering and sulphate attack. These substandard blocks were capable of bearing a load of 100 psi which is 1/8 of what is required for good construction.

Being the major building component, the first step was to improve the quality of blocks made at the thallas. For uniform mixing, firm compaction, and curing, block making was mechanised. After six months of engineering research, a block making machine was perfected in 1987.

Instead of a large factory the OPP's mechanisation was on a miniature scale, suitable for adoption by Orangi thallas. All the machines - concrete mixers, vibrators, pumps, and moulds - were made locally at a total cost of 75,000 rupees (US\$ 3000).

The machine-made blocks were 4 times stronger than the hand-made blocks, but were sold at the same price, because mechanisation trebled daily production - from 700/800 to 2000/ 3000 blocks. The load bearing capacity of machine made blocks was 800/1000 psi.

The OPP did not set up its own thalla, but passed on the research results to private thallas. In 1987 four

private thallas were mechanised with OPP supervision and loans. Upto March 1991 they have sold 5.5 million machine made blocks-70 per cent to customers from outside Orangi. Following the example of the four mechanised thallas, 23 other thallas have adopted the machine making process without any loan from the OPP.

19. AN ALTERNATIVE ROOFING DESIGN

After the improvement of block manufacturing, research was focussed on alternative roofing designs with battens and tiles/slabs.

The practice of incremental building has created a special problem for low income house owners. They tended to build the ground floor room with a tin roof. If at a later stage, they wanted to add another floor, they had to demolish the old structure entirely because the walls could not bear the load of an RCC roof. Besides this, RC construction was quite expensive. Few could afford the initial cost of demolition and then RC roofing itself.

One whole year of engineering research was needed (including visits to batten/tile factories in Punjab, the province at the centre of Pakistan, in which investments of millions of rupees have been made) to miniaturise the process in the same way as block making. Finally, only 60,000 rupees (US\$ 2400) were required for moulds, vibrators, and curing tanks. This investment added a new line of production to the block making thalla. It could now also manufacture and sell pre-cast battens, tiles and slabs. With these, a roof could be constructed at almost half the cost of RC. The construction was also easier and quicker than RC.

The first thalla to which the OPP's machines and moulds were handed over (as a loan of 55,000 rupees) started production in March 1990, and by March 1991, had sold thousands of running meters of battens and slabs. A second thalla has also begun operation.

With a little re-enforcement, old walls of a tin-roofed room can bear the load of a batten/tile roof. Many low income families are now eager to replace the uncomfortable tin sheets and add another floor.

20. THE PRE-CAST STAIRCASE

Together with the batten/tile roof, the design of a stair case, built with pre-cast slabs has been introduced. Its components will cost 2000 rupees compared to 4600 rupees for an RC staircase. The pre-

cast slab staircase takes less space (an important factor for small plots) and only 3 days for construction, compared to the 15 days needed for an RC staircase.

21. THE PRESENT PACKAGE OF ADVICE - LOAD BEARING TECHNOLOGY

Thus in four years one phase of R & E for lowering the cost and improving the quality of Orangi houses has been completed. The present package of advice is as follows

- appropriately designed in situ foundation for a minimum ground plus one floor construction
- 15 cm thick load bearing walls of machine made blocks
- batten/tile roofing
- precast staircases
- proper orientation and ventilation
- sanitary latrine and covered drains

The load bearing construction is 1/3 of the cost of RC which is common in Orangi.

By March 1991, 59 demonstration units will have been constructed and more requests are now pouring in.

22. MASON'S TRAINING

Much time and money has been spent on the training of masons by the OPP, through class lectures, meetings, instruction sheets and leaflets and manuals, and also on job supervision. 96 masons have been trained and even more are currently being trained. As a result, there are now skilled masons in Orangi who have learnt better techniques of construction, such as the importance of levels, the compaction of foundations, the joints needed in walls, damp proofing etc.

Conclusion

The OPP first upgraded sanitation in Orangi, and then took up the upgrading of technical competence of thallas and masons.

If it had more resources, it could enlarge the credit capacity of thallas and the contracting capacity of

masons.

However, the OPP has kept away from the dalals, the other important actor in the housing drama. They are secret allies of the rulers of Pakistan. It may be dangerous for an NGO to interfere in the affairs of development authorities, official or unofficial.

D. THE HEALTH AND FAMILY PLANNING PROGRAMME FOR LOW INCOME HOUSEWIVES

23. TWO CAUSES OF SICKNESS IN ORANGI

In June 1984 the OPP started a pilot programme of imparting basic health education to low income housewives. In January 1985, at the insistence of Dr. Sheila McCraw of the Overseas Development Agency (ODA), family planning education was also included in the programme.

The OPP research showed that the incidence of disease was very high in Orangi. Typhoid, malaria, dysentery, diarrhea, and scabies were very common. There was a very high record of infant and mother mortality.

There were two principal causes for the prevalence of so much ill-health: the first principal cause was the lack of sanitation. Open sewers, exposed excreta and garbage dumps, spread harmful germs, polluted water and food, bred mosquitoes and flies. The second principal cause was the ignorance of Orangi's segregated, illiterate or semi-literate poor women. Most knew very little of modern hygiene, of the causes of disease and its prevention. Medicine in Orangi, as elsewhere in Karachi, is very expensive: the treatment of a child inflicted by typhoid may consume more than a family's monthly income. And there were so many children, who had suffered or were suffering from typhoid.

The OPP's programmes undertook first to introduce modern sanitation, and then to teach the housewives the scientific causes and prevention of common Orangi diseases.

24. POPULARISING MODERN SANITATION

How modern sanitation was popularised has already been described. While carrying out the Sanitation Programme, the OPP found that the common people of Orangi were quite aware of the connection between filth and disease. The improvement of their health and the improvement of their property were powerful motivations for self-finance and self-management of sanitation. The

OPP also discovered that very often, the women were more concerned than the men because the heavy burden of illness (nursing and expense) fell mainly on housewives. The OPP saw many examples where reluctant husbands were forced by their wives to pay the sanitation contribution.

25. POPULARISING THE CONCEPT OF PREVENTION: THE OBSTACLES

The illiterate or semi-literate women of Orangi are different from emancipated women in two important respects: the poor women of Orangi are truly traditional and truly segregated. The traditional outlook teaches that disease is a mystery or perhaps the work of evil spirits. Orangi women do run readily to a doctor or an exorcist or seek the intercession of ancient or living pirs (holy men). But usually they are ignorant of the real cause of disease and are unfamiliar with the concept of prevention. The traditional view point about women is that women should remain in purdah (segregation), while the men should feed and clothe them. A wife should regard her husband as majazi khuda (human god); she should produce as many children as possible; and she should firmly believe that God will always provide for every one of them.

Traditionalism imposes segregation and segregation enforces traditionalism. In addition, segregation makes illiterate or semi-literate women almost inaccessible to outside agents of change.

Of course, new social and economic forces and urban pressures are disrupting and destroying both traditionalism and segregation. But the poor Orangi women are caught on the horns of a dilemma: it is becoming more and more difficult to follow the traditional code of conduct; and yet, when they have to discard old conventions they do it with a guilty conscience.

Meanwhile, during this period of transition, any programme which seeks to promote new attitudes and practices among the tradition-bound segregated women of low income families, must find answers to two urgent questions: first, how to gain access and secondly how to create trust? A third question arises in the case of programmes which, in addition to advice and instruction, also include supplies and services. That question is how to build an efficient and convenient system of delivery for this strange clientele: the segregated housewife.

The OPP is fortunate that, with the help of donors favouring innovative research, it has found some answers to these nagging questions. The full story of this exploratory research can be read in the OPP's quarterly progress reports.

26. THE ASSUMPTIONS OF THE PROGRAMME

The health and family planning education programme was started with the following assumptions:

- In the process of changing the attitudes and opinions of segregated women, the main problem for the outside agent of change is access. Custom decrees that women should stay at home. Generally, they go out only in emergencies or on special occasions.

The OPP found that 'welfare centres' become ineffective on account of customary segregation. To be within real reach of segregated women, a 'welfare centre' or family planning clinic, should cover no more than 20 or 30 lanes, which requires that there should be 200 to 300 centres for the 6000 thousand Orangi lanes, which is impossible.

- Instead of a fixed centre or clinic the OPP introduced a new system

- o mobile training teams
- o a selected activist family or contact lady for 10/20 lanes
- o regular scheduled meetings at the activist's home
- o formation of neighbourhood groups by the activist.

Each mobile team consisted of a lady health visitor and a social organiser. The teams were directed by a lady doctor. The teams were provided with transport and they held as many meetings as possible on every working day.

- In the beginning it was considered advisable to hold separate meetings for family planning. The separation was made because it was found that, although in the general meeting there were many women who were eager about birth control, there were also a few who were belligerently inclined to raise traditional objections and browbeat the needy ones.

In Pakistan, where discretion is the better part of valour, the OPP did not tangle with male chauvinists,

but left them to be tackled by their wives.

27. INSIGHTS GAINED

27.1 Organisation

a) One year's experience proved not only the need for preventive health but also saw that the awareness of the need was already present in the lanes of Orangi. The obstacle was the lack of fruitful contact between the extension or change agent and the potential adopters.

b) The creation of a bond of trust was as important as the creation of access. The segregated women of Orangi had pre-industrial attitudes: they dearly cherished personal relationships and personal advice.

c) The creation of the bond of trust depended on the frequency of contacts between the educating teams, the activist contact lady and the neighbourhood groups.

d) The contact lady activists proved essential links. As friendly neighbours they became trusted advisers and conveners. They eagerly welcomed the teams and cooperated fully. The neighbourhood meeting was not a serious challenge to the tradition of segregation.

27.2 Family planning

a) Unexpectedly, after six months, the subject of birth control became ideologically non-controversial in the neighbourhood women meetings. At the request of the groups themselves separate meetings were discontinued and family planning became a common topic.

b) It became necessary to arrange a decentralised system of delivering supplies. For the men, the chemist shops were readily available as agents and supplies were delivered to them on cash payment. But Orangi women cannot go to a chemist shop to purchase contraceptives.

c) For the women, the group activist, the contact lady, became an ideal distributing agent. An intimate neighbour, she became a permanent and confidential source of supply for the members of her group. IUD and ligations were taken care of by LHVs of the OPP mobile team.

d) The greatest change was the emergence of birth control adopters, specially IUD and ligation adopters, as strong advocates to their neighbours of the practice

of birth control.

26. REVISED MODEL

Since January 1985 the OPP's basic health and family planning education and services were confined to 3000 families in order to fully test the approach and ascertain the response of segregated housewives. Much has been learnt: how to create access, how to establish a bond of trust, how to build a convenient delivery system, how to spread the knowledge and practice of disease prevention and family planning among tradition-bound segregated women. Above all, how to reach out to large numbers of clients.

Now, on the basis of survey research, we have come to the conclusion that the mobile teams and neighbourhood group meetings in activist family homes is quite effective. Among the 3000 families, as a survey by the Aga Khan Medical College shows, over 95 per cent children are immunised, 44 per cent families practice birth control, epidemic diseases are controlled and hygiene and nutrition improved.

Just as sanitary latrines and underground sewerage line has changed external conditions, similarly, disease and birth control education has changed the mental outlook of 3000 families.

In the light of its experience, the OPP has now revised its model to reach out to a larger number of families. Instead of continuing to visit the same families for a long period of time, the OPP has prepared a three-months course on

- prevention of common Orangi diseases
- methods of family planning
- improved nutrition and hygiene
- kitchen gardening

20 family activists are selected every three months and neighbourhood group meetings are held four times a month in the activists home. Upto 15 women are attending the training meetings. Such is their eagerness to learn that every participant pays one rupee to the woman activist for attending the meeting.

An immunisation service is provided in the meetings and the continuation of family planning supplies is assured by enrolling the women activist as an agent.

It is hoped that the existing four teams will be able to train 2-3 thousand families every year. However, it is possible to raise this number to 4-5 thousand by adding four more teams without adding to the cost of transportation.

At present, the budget for the annual health programme is 370,000 rupees (US\$ 18,000). With four more teams, it will go up to 500,000 rupees (US\$ 25,000). The average annual cost of teaching prevention of disease and birth to one low income family would thus come to 150 rupees (US\$ 7.5).

E. THE PROGRAMME OF WOMEN'S WORK CENTRES

29. BACKGROUND RESEARCH

The programme of Women's Work Centres (WWC) was started in March 1984. After five years of intensive efforts it became self-managed and self-financed.

OPP was aware of the importance of promoting economic programmes. But its first efforts to rehabilitate Banarsi silk weavers or other artisans were miserable failures on account of its ignorance of Orangi and its residents. The Sanitation Programme made the OPP familiar with Orangi's social and psychological factors. In 1984, the OPP decided once more to start model building research in the economic field.

OPP research showed that Orangi wives and daughters were being forced to work in defiance of tradition in order to supplement family income and that Orangi was the biggest pool of cheap woman and child labour in Karachi. Thousands of women and children were already engaged in some kind of 'gainful employment'. But the terms and conditions of work were extremely poor.

The OPP studied the social welfare 'industrial homes' and training centres common in Pakistan, and understood their limitations. It came to the conclusion that, instead of introducing new crafts or teaching new arts it should first assist those who are already working for the market. It should teach them to protect their interests, and upgrade their productive and managerial skills, chiefly through social and technical guidance.

30. THE STITCHERS OF ORANGI

The numbers and categories of depressed women workers are very large indeed. The problem is vast. At first only one category could be chosen. The OPP selected the largest category, viz: the stitchers. Several thousand

Orangi women were earning a little money with their sewing machines, the majority were doing simple stitching for contractors.

Large quantities of cheap cloth goods, like shopping bags, yellow dusters, kitchen towels etc., are exported from Karachi to Europe and America. The exporters engage petty contractors who employ women and children. The OPP could not find out the exporters margin of profit; but it did find that the contractors were keeping upto 50 per cent of the exporters wages for themselves. The contractors not only gave extremely low wages to the helpless women; they were also cheating them in other ways and sometimes even harassing them sexually.

31. HOW TO HELP THE STITCHERS: CREATION OF A SUPPORT ORGANISATION

After the survey research, the OPP's action research explored ways and means of helping the stitchers, evidently the poorest and most distressed section of Orangi. First a supporting organisation was set up, now registered as a Trust. It assumed the contractor's functions (without the contractor's profit), to procure orders from exporters, to distribute the work, to ensure quality and punctuality, to make deliveries to exporters and collect payments for wages.

It set up 'work centres' with both simple sewing machines and industrial machines. It arranged the training of workers, as well as supervisors, and managers from among the stitchers. It obtained donations for the equipment of the centres, and for distribution of machines to indigent stitchers.

32. HOW TO HELP THE STITCHERS: THE DEVELOPMENT OF WOMEN'S WORK CENTRES

For organising, training and servicing the stitchers 'women's work centres' were set up. The OPP's women work centres were quite different from social welfare and philanthropic 'industrial homes'. A WWC was managed by a family. It was located in their home. The supporting institution, the OPP, did not pay any salaries or rent. From the very beginning, the aim was to make the WWC self-supporting.

The OPP's staff brought the exporters assignment to the WWC which was allowed to charge a small commission for supervision and overheads. The OPP insisted that the managing family's main income should come, not from the commission but from wages earned by members of the

family by working on the machines themselves.

A WWC was equipped with some industrial machines and sewing machines for 10 to 15 workers. However, the more important functions of the WWC were distribution, collection, checking, finishing and packing of the exporters orders. It was also in the truest sense a 'learning by doing' training place. Stitchers from the neighbourhood came to the WWC for receiving and delivering assignments which they completed in their homes at their own leisure. Thus they were saved from much inconvenience and harassment. OPP staff regularly examined the WWC's accounts and the payment cards of the stitchers to ensure that they got a full and honest share of the exporters wage. Frequent meetings of the stitchers were held for health education and general information.

33. PROBLEMS AND DIFFICULTIES

The WWC program was not easy to implement: it faced many problems and difficulties.

A pernicious problem was how to avoid the pitfalls of philanthropy and paternalism. There was a great hunger for dole payments, hand-outs and subsidies. The OPP had proclaimed that it was not a profit making enterprise; at the same time, it had neither the capacity, nor the inclination to distribute hand-outs. It had made it quite clear that WWCs were not to become permanent pensioners like the welfare industrial homes.

Unlike the industrial homes, they had to become competitive and get into the mainstream commercial market, by acquiring the goodwill of the exporters through quality and punctuality. This was a hard message which often roused resentment.

To upgrade the skill of stitchers, to ensure quality and punctuality, was a hard job. New stitchers were inclined to be both tardy and slovenly. At the same time, there was continuous grumbling about wages. There was neither loyalty to the supporting institution nor work discipline. The OPP was seriously handicapped by the welfare association model. At first the best workers did not join the WWCs. They wanted to remain loyal to their old contractors.

The OPP had to labour like a physiotherapist: uplift the unskilled, the weak and the unenterprising. It was not only hard work; there was much financial loss. However, gradually in the second and third year, the bungling, grumbling and losses all began to decline. A

disciplined cadre of skilled stitchers began to emerge.

The third difficulty was the behaviour of the OPP's patrons; the exporters and contractors. They generally tried to offer lower rates and some of them wanted to treat the non-profit seeking OPP as knaves treat fools: playing tricks, delaying payments etc. As WWCs grew stronger the OPP got rid of these tricky customers, and dealt only with reliable parties.

34. CONSOLIDATION AND EXPANSION

The OPP's aim was to improve the condition of the stitchers. However, this could be done only within the market frame work and not with doles and stipends. The only real safeguard for the stitchers was to ensure the flow of work and wages. If work and wages stop, not much else can be done.

The market situation is not an easy one for the stitchers. Work is seasonal and its volume and rates are subject to the vagaries of international trade. Besides this, there is cut throat competition.

There is little possibility of supporting stitchers indefinitely with subsidies as the handful of workers in the charitable industrial homes are supported. The only way to safety is through competitive skill and co-operative loyalty. In the third year a network of competitive WWCs and a cadre of skilled stitchers and managers began to form.

The WWCs proved themselves to be economical units. In the first place, their overhead expenditures were quite low. Rent was saved by location in the family home. The whole family participated in production and supervision. Most workers were close neighbours. Work hours were conveniently flexible. Some times work continued till late in the night.

A WWC managed by a committed family for its own benefit and for the benefit of close neighbours is a good model. It is also far more congenial to segregated Muslim women than the factory or the contractor's workshop. WWCs help the weakest and poorest section of Orangi society. Enquiries showed that where the contractor was previously paying 15 rupees, WWCs paid 20 rupees or more to the stitchers. Case studies published in the OPP Urdu (Pakistan's national language) journal show that some stitchers were the main support of the family because the husband was unemployed or a drug addict or a chronic invalid. Others were widows.

35. WEANING

By the fourth year, the WWC had become competitive wage earners. They had plenty of orders from exporters who were reliable pay masters. The managers had learnt to supervise the stitchers strictly; losses due to defective work had been reduced. The OPP then began to push the centres towards full autonomy, financial and managerial. It explained to them that now that they were strong enough to carry their burdens on their own shoulders they should no longer depend on OPP's support, and they should not demand that OPP should subsidise them forever. The OPP suggested that they should form a managing committee, hold frequent meetings and take over the functions of the supporting institution.

The curtailment of support and subsidies, or the assumption of full financial and managerial responsibility, was not welcomed gladly. It went against the feudal traditions of dependence on patrons. At first, WWCs resisted the push towards autonomy as a child resists weaning.

With the same persistence with which the OPP had trained and helped the WWCs in the first three years, it kept pushing them towards independence in the fourth and fifth year, till in the sixth year, the support organisation was disbanded and all subsidies disappeared.

36. WAGES EARNED BY WWCs: 1984 -1989

The OPP's women work centres were established gradually. But they grew steadily. The following table gives the amount of annual wages earned from March 1984 till June 1990 :

Year	Wages (rupees)
84	40,615
85	421,880
86	1,058,360
87	1,603,271
88	1,424,112
89	2,411,000
90 (6 months)	1,205,700
Cumulative	8,124,823 (US\$ 324,992)

37. PRESENT POSITION OF THE WWC PROGRAMME

There is no longer any support budget for staff, or

transport or advances.

For purchase of machines, equipment etc., WWCs can get loans from the Orangi Trust.

WWCs are paying instalments for machines supplied to them by OPP. Of the total loan of 552,691 rupees, the old work centres have repaid 143,585 rupees (March 1991).

After five years, the WWCs promoted by OPP have considerable assets, financial and managerial. Their reputation is well established and they are getting orders directly from exporters.

The emergence of talented women managers of WWC can be regarded as a remarkable achievement of the programme. Another remarkable result is the formation of new stitchers family centres. There are now (March 1991) 87 stitching centres to whom 893,880 rupees have been given in loans and 200,370 rupees have been recovered. Besides, there are 16 women work centres who have taken 314,500 rupees and repaid 160,600 rupees.

The women stitching centres have taken over the functions of misbehaving contractors.

For the setting up of the old WWCs, much energy and money was spent by OPP. The new WWCs make no demand for OPP's time or subsidy. They do not demand canvassing by OPP for orders from exporters, or transportation services, nor do they demand free equipment or fixtures or compensation for losses. Their only demand is for a loan which they start repaying in monthly instalments.

And they perform the functions of contractors in a friendly neighbourly manner without cheating or harassing the women workers. The presence of women managers and the location of the centres in family residences in the neighbourhood has made the profession of stitching quite respectable. Previously it used to be considered degrading.

F. ECONOMIC PROGRAMME FOR FAMILY ENTERPRISE UNITS

38. THE OPP'S LATEST PILOT PROJECT (September 1987)

After successfully organising hundreds of stitchers into women's work centres the OPP started a pilot project for helping family enterprise units. Hundreds of families in Orangi are maintaining themselves with small enterprises, mostly located inside family dwellings, utilising the labour of their women and

children. This is a very competitive pattern in poor countries. Its advanced form can be seen in Hong Kong. Orangi family enterprises operate in the informal sector and receive very little help from banks or other official institutions.

A gradual strategy has been adopted: first individual enterprises are being selected for closely supervised credit. Then pre-cooperative groups are being formed. Finally, reliable groups may be registered as cooperative societies.

It is realised that, at present, there is no tradition of loyalty or business integrity among the prospective clients. Common people have been deceived and cheated so many times, that they are no longer faithful to any institution and are in their turn quite ready to deceive and cheat.

Cooperation depends on sincere activists. Existing leaders are more interested in serving their own interest rather than the interest of others. Therefore, it is essential to promote and wait for the emergence of sincere activists from among the loyal clients.

39. OBJECTIVES OF THE FAMILY ENTERPRISE PROGRAMME

The broad objective of course, is the uplift of family enterprise units which in Orangi employ the largest number of workers and offer the easiest and cheapest scope for expansion. But the workers have no tradition of loyalty to banks or of mutual aid or cooperation.

The OPP and Orangi Trust have started this pilot project with supporting grants from the Federal Bank for Cooperatives and the Swiss Development Corporation and a line of credit agreement with the National Bank of Pakistan.

The objectives of the pilot project are to

- discover efficient methods of management
- identify correct criteria for selection
- learn the art of supervising family units
- learn the art of recovering small loans
- create honest and loyal clients
- promote formation of real cooperatives.

40. POSITION ON 31 MARCH 1991

The following tables give a birds eye view of the performance of the project since September 1987 till March 1991.

a) Assets and liabilities

Assets	Rupees	Liabilities	Rupees
Loan due			
Family enterprise loans	4,188,143	National Bank loan	881,694
Other loans	593,970	Womens Bank loan	477,500
Building	500,000	OPP loan	500,000
Bank balance	95,183		
Total	5,377,296	Total	1,859,194
Net assets	3,518,102		

b) Cummulative loans and recoveries position - March 1991 (in rupees)

Head	Units	Loan	Recovery	Balance
Full recovery	243	2,409,411	2,409,411	0
Current	530	6,918,116	2,128,986	4,789,130
Total	773	9,327,527	4,538,397	4,789,130

Of the 773 loan units 685 are family enterprise units and the remaining 88 units are classified as other loans consisting of interest free loans to old women's work centres, to OPP staff for motor cycles, to school teachers for training etc.

c) **Annual issue and recovery. (upto March 1991) in rupees**

Year	Units	Loan	Recovery
1987-88	107	1,175,475	913,612
1988-89	95	1,117,450	885,320
1989-90	182	1,971,900	1,206,895
1990-91	685	3,563,880	634,735
Total	685	7,828,705	3,640,562
Other	.88	1,488,822	897,835

41. BAD DEBTS

The recovery of instalments is closely monitored with the help of a monthly computer print out. After careful enquiries the bad debts of the first two years have been calculated as follows (in rupees).

Year	Loan	Units	Bad debt	Units	Per cent loan	Per cent units
1987	1,175,475	107	87,400	13	8	12
1988	1,117,450	95	20,999	5	2	5
Total	2,292,925	202	108,399	18	4.8	9

Of the 13 bad debt clients of the first year 9 absconded from Orangi, which shows OPP's poor selection. Of the 5 clients of the second year 4 died and one became a chronic invalid, but none absconded.

42. DEFAULTERS

In the meanwhile, the OPP have carefully compiled a list of those clients who are not making regular payments - the "defaulters".

OPP has found that there are three kinds of defaulters

- wilful default due to dishonesty
- default caused by misfortune
- default caused by foolishness.

The OPP will have to bear with the misfortunes and

foolishness of its clients patiently, but it will try to eliminate or pursue the dishonest defaulters by

- consulting the loyal clients about selection, and
- mobilising them for recovering defaults.

43. THE FORMATION OF COOPERATIVE SOCIETIES

As noted above, there is no tradition of cooperative association among the family enterprise units operating in Orangi. The Pilot Project is trying to lay the foundation for such a tradition by inculcating higher standards of work and business ethics in its clients. It is a painfully slow process because it depends first on the formation of homogenous groups of production units, and then (even more) on the emergence of activists who will work for the common cause, rather than use their ability exclusively for their own advancement.

The first real cooperative group has been formed among the Banarsi weavers. They have started the cooperative purchase of raw materials for their members and the cooperative sale of their finished products. In only three months (January, February and March) they had a turnover of 544,531 rupees (US\$ 21,781).

44. THE PROMOTION OF WOMEN ENTREPRENEURS

A very important function of the Pilot Project is the promotion of female entrepreneurs, first among the stitchers, and now in other units too. OPP is in the fortunate position of having a strong women's section with intelligent and dedicated staff.

Orangi Trust has entered into an agreement to borrow from the First Women Bank for financing women-managed units. For this purpose, the Trust has deposited 200,000 rupees in Profit Loss Sharing (PLS) Accounts with the Women Bank against which the Bank will advance up to 500,000 rupees for loan to women units.

Beginning in December 1989 till March 1991, loans amounting to 716,000 rupees have been advanced to 71 units managed by women entrepreneurs. They have repaid 133,900 rupees of their loans with a 27,900 rupees mark-up. The Orangi Trust has repaid 238,500 rupees to the Women's Bank.

45. EXPANSION OUTSIDE ORANGI

In August 1990, the BCCI Foundation asked the OPP to

extend these self help income generating projects to sectors outside Orangi. For this purpose, the Foundation sanctioned a revolving fund grant of 200,000 rupees (US\$ 8,000) in August 1990 and a further grant of 300,000 rupees (US\$ 12,000) for the next year.

The following procedures were followed:

a) To begin with, selection and supervision was entrusted to OPP women staff members (as careful selection and close supervision was essential at the initial stage).

b) Experience of selection and supervision gained in Orangi was utilised:

- Selection criteria
 - o honest reputation
 - o work experience
 - o prospect of increased income
- Supervisor's role
 - o visit to every unit every week
 - o monthly recovery of instalments
 - o complete record of visits and recoveries

c) As in Orangi, preference was given to working families operating with their own and neighbours labours.

d) Other terms and conditions, size of loans and number of instalments, were also the same.

From August 1990 till March 1991, 43 loans have been issued in 10 sectors outside Orangi for 8 categories of enterprises: bakery, consumer stores, stitching, maternity homes, clinics, hair dressing, industrial homes, women's work centres.

The total amount of loans issued are 448,500 rupees (US\$ 17,940) of which 54,700 rupees (US\$ 2,188) has been repaid along with 10,700 rupees (US\$ 428) mark-up.

46. THE BCCI FOUNDATION SELF HELP REVOLVING FUND

It is too early to determine the percentage of defaults and bad debts (which are inevitable considering the

nature of the clientele, and the absence of collateral). However, by looking at the recovery of instalments of loans given from August 1990 till March 1991, it seems that almost all the loanees are quite loyal. The excellent record of recovery is mainly due to the fact that the loanees are being visited regularly by OPP ladies.

In order to create community spirit the loanees of each sector are being encouraged to hold meetings. They are also being consulted about new loans from their area. Some of them are assuming the role of activists.

G. ORANGI SCHOOLS AND THE EDUCATION PROJECT

47. **ORANGI SCHOOLS**

A survey made in November 1989 shows that Orangi has

110 mohallas (neighbourhoods)
6347 lanes and
94122 houses.

Another survey made at the same time shows that there are

203 pre-primary schools
261 primary schools
121 secondary schools.

These are formal schools teaching the recognised syllabus. Besides this, there are

deeni madrasahs (religious schools)

informal tuition centres and technical institutes.

Their exact numbers have not been ascertained, but they are estimated to be several hundred.

48. OFFICIAL AND PRIVATE SCHOOLS

Of the total 585 formal schools, a comparatively small number have been set up by official agencies while others have been set up by private enterprise.

<u>schools</u>	<u>official</u>	<u>Percentage of total</u>	<u>private</u>	<u>Percentage of total</u>
Pre-primary	0	0	203	100
Primary	56	21.5	205	78.5
Secondary	20	16.5	101	83.5
Total	76	11.0	509	89.0

The figures speak for themselves. Low income families of Orangi got only 11.0 per cent of their formal schools from the benign government while they set up 89 per cent of the formal schools themselves, besides hundreds of deeni madrasahs, tuition centres and technical institutes.

This prevalence of self help and private enterprise in the field of education is very similar to the picture in housing, health or economic employment.

49. SCHOOL STUDENTS

Statistics of the students going to the 585 formal schools.

<u>Schools</u>	<u>Total</u>	<u>Official</u>	<u>Percen- tage</u>	<u>Private</u>	<u>Peracen- atge</u>
Pre-primary	5,602	0	0	5,602	100
Primary	42,049	16,787	39.9	25,262	59.1
Secondary	32,940	9,473	28.7	23,467	71.3
Total	80,591	26,260	32.5	54,331	67.5

We do not know what percentage of Orangi children are going to formal or informal schools. But obviously many parents are willing to pay fees to private schools which are flourishing in Orangi.

The desire for educating their children is specially obvious among mohajirs and Biharis (two ethnic groups)

who have an exclusively urban background. However, even rural immigrants soon acquire the same desire and the presence of schools in the vicinity encourages them.

50. MALE AND FEMALE STUDENTS

The low income families of Orangi are almost as keen on educating their girls in formal schools as they are on educating their boys.

The table given below, shows the percentage of male and female students in the formal schools. This rise in female schooling is bringing radical social and economic changes in Orangi.

	Sch- ools	Stu- dents	Male	Per cent	Female	Per cent
Pre-primary	203	5,602	2,905	51.85	2,697	48.14
Primary	261	42,049	22,896	54.45	19,153	45.54
Secondary	121	32,940	18,491	56.13	14,449	43.86
Total	585	80,591	44,292	54.95	36,299	45.04

51. MALE AND FEMALE TEACHERS

The number of male and female teachers employed in 585 formal schools is 31 per cent male and 69 per cent female. The percentage of female teachers in private schools is even higher : 75 per cent. The percentage in official schools on the other hand is 49.91 per cent.

52. SIGNIFICANCE OF FEMALE TEACHERS

The fact that Orangi schools have a majority of female teachers has a dual significance.

- Girl teachers accepted lower salaries and thus made it possible for private entrepreneurs to establish self-supporting schools without any subsidy from the government and without charging high fees from parents. Quite clearly, private schools in Orangi are based on the sacrifice (or exploitation) of educated girls, in the same way as the garment industry or the carpet industry (which earn millions of dollars for Pakistan) are based on cheap female labour.

- The dominant presence of lady teachers in the schools removed the traditional Muslim inhibition

against sending girls to school.

53. SEGREGATED AND CO-EDUCATIONAL SCHOOLS

The absence of old traditional inhibitions is apparent in the Orangi schools by the 45 per cent presence of girl students. Most Orangi parents no longer insist on separate schools for girls. Most of the schools are co-educational, even at the secondary level. Only 66 of the 509 private schools are segregated against 45 out of a total of 71 government ones.

54. GIRL TEACHERS OF ORANGI

Girl teachers of Orangi schools do hard work for small wages. One cannot but admire them for their empathy with the children and their gentle manners. Many of them are determined to get more training and higher degrees.

Their work in the schools, their studies, their guidance of the students, and their independent earnings, give them a new confidence, an emancipated status. It is a non-aggressive, non-ostentatious, refined and modest emancipation, which is getting accepted in a highly conservative environment.

Just as the old segregation created a vicious circle - few educated girls, few female teachers, few schools, no co-education, high female illiteracy - the new emancipation is creating a virtuous circle - more educated girls, more female teachers, more schools, and higher literacy. The preponderant presence of lady teachers in the Orangi schools is persuading the parents to send their girls to schools. The customary apprehension about the safety of daughters is no longer valid if the majority of teachers in the schools are themselves women.

The fact that here is a majority of lady teachers in co-educational schools is a very optimistic prospect for spreading female literacy and certainly a more realistic one than advocating separate girls schools. The girl teachers of Orangi are showing the way out of a national dilemma.

55. HANDICAPS AND ADVANTAGES OF ORANGI PRIVATE SCHOOLS

The handicaps of Orangi private schools are quite obvious.

- Buildings are substandard. There are no playgrounds.

- Teachers are grossly underpaid.
- Many teachers are untrained.
- Library use and visual aids are uncommon.

The advantages are also obvious.

- Private schools are integrated with neighbourhood communities and are a real response to their need and based on their moral and financial support.

- Being dependent on local support, the administrators of private schools, unlike the administrators of official schools, are not unconcerned with parents and guardians.

- As private schools have to survive in a climate of competition their administrators cannot afford blatant neglect of school premises or school work.

- Private schools are judged by guardians in terms of examination results. Therefore, the students get more attention and perform better in examinations.

- Class sections are smaller and better supervised in private schools than in official schools.

- The best advantage of private schools is their capacity to grow and expand in a competitive climate.

56. THE OPP'S EDUCATION PROJECT

The OPP tries, through social and technical guidance, to improve or upgrade whatever the people of Orangi are doing themselves in housing or sanitation or women's work or in family enterprises.

In 1987, with assistance from the Aga Khan Foundation, the OPP started an Education Project whose objective was to upgrade the physical conditions and academic standards of private schools. This physical improvement was to be made with loans from Orangi Trust and advice from OPP's Sanitation and Housing Programme.

Academic improvement was to be made by

- teacher training
- use of libraries
- use of audio visual aids

- the publication of manuals and guides.

It was intended that the project should be managed by a registered society, and more schools should join every year.

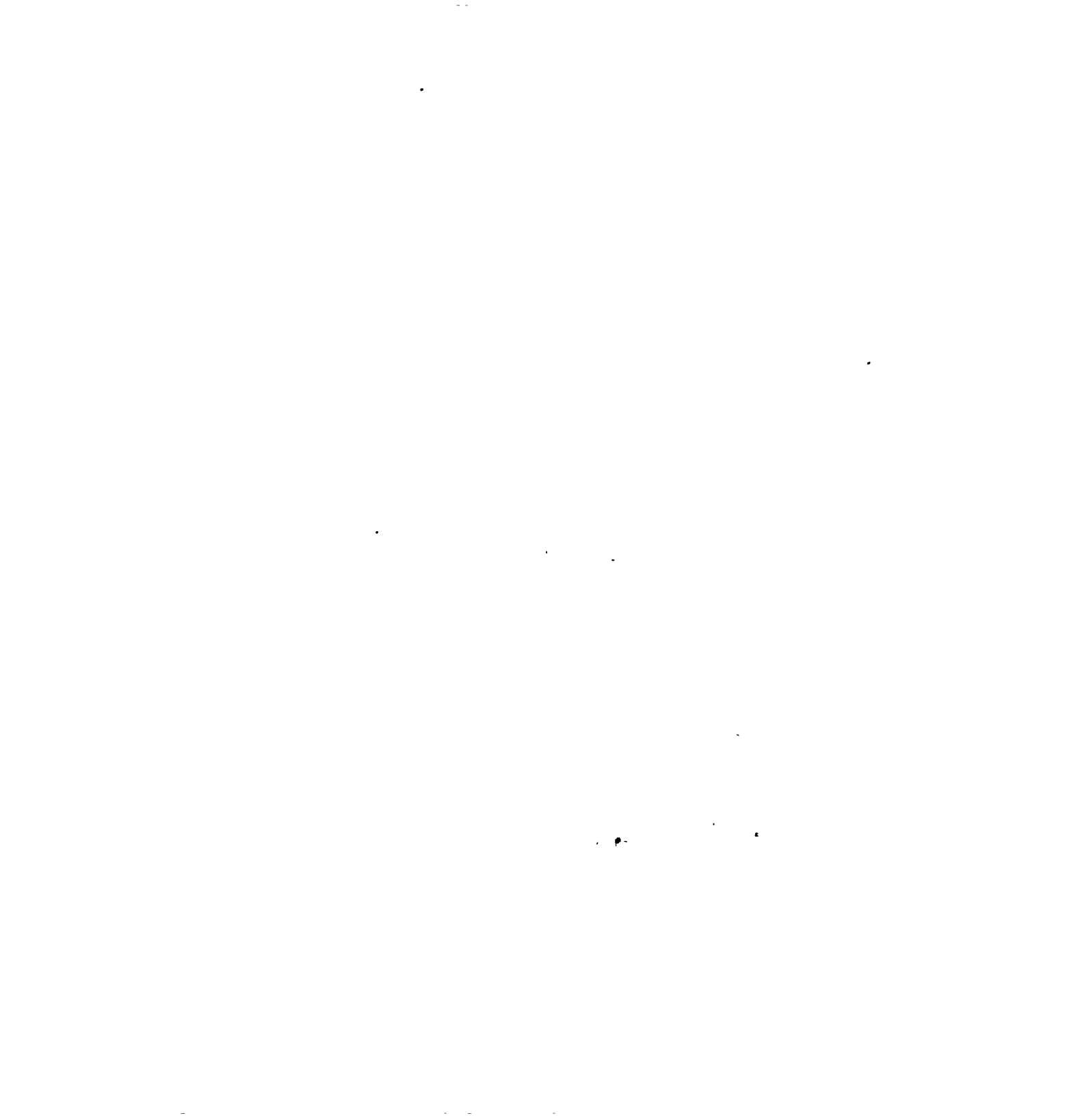
The OPP's Education Project has made some progress:

- 13 schools joined the project
- Physical improvements were made with loans and technical advice
- Academic improvements were made through teacher training, use of libraries, and visual aids.
- Manuals and guides were published.

But more schools did not enroll and a society was not registered.

Last year the Aga Khan Foundation terminated its annual grant of 100,000 rupees which was being used to develop pilot programmes for teacher training, library and audio-visual use, and for the publication of manuals and guides. However, the OPP will continue to support the dual objectives of upgrading the physical conditions and academic standards of as many private schools as possible.

Year	Month	Day	Time	Location	Activity	Remarks
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1950	1	2	08:00
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About the Author

Arif Hasan was born in Delhi (India), in 1943, and migrated with his parents to Karachi (Pakistan) in 1947, where he has lived since then.

He studied architecture at the Oxford Polytechnic, UK, from 1960 to 1965; worked in architects offices in the UK, France and Spain from 1965 to 1968; and established an independent architectural practice in Karachi in 1968.

Arif Hasan is the architect of a large number of important residential, commercial and educational facilities in Pakistan. He has been consultant to the Orangi Pilot Project since 1982. In addition, he has been a consultant to various community action groups, NGOs, government institutions and international agencies including the Asian Development Bank, World Bank, various UN agencies, and the Aga Khan Foundation. From 1979 to 1989 he conducted the Comprehensive Environmental Design Project at the Department of Architecture and Planning at the Dawood College, Karachi.

In 1983 Arif Hasan's work received one of the Best Building Awards of the Karachi Development Authority, and in 1990 he received the International Year for the Shelterless Memorial Award of the Japanese government. In 1987, at the Congress of the Union of International Architects (UIA) in Brighton, he was one of the "celeberity speakers." He has been a Technical Reviewer of the Aga Khan Award for Architecture and is currently a member of its Steering Committee. He is also a member of the executive boards of the Habitat International Coalition and the Asian Coalition of Housing Rights.

His published works include contributions to a number of books on human settlements and ecology, and regular articles on housing and development for Pakistani and international journals.