

EXPERIMENT OF SOCIAL ENGINEERING IN PAKISTAN  
A CASE STUDY OF ORANGI

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## 1. INTRODUCTION

1.1. Social development is conceived as an ultimate aim of economic development. Mobilization of human and physical resources to maximize the potential capability of a given system for the larger interest of the community can be called economic development which is measured in terms of GNP, GDP, and per capita income. These indicators ignore the basic elements of equity and social justice. According to the Expert Group which met in UNCRD last year:

"Social Development" is measured not only by improved access to services such as health, education or welfare, but by progress in achieving more complex, and sometimes nebulous social goals - - such as equity, "Social Justice", cultural promotion, and "peace of mind", as well as enhancing the capacity for action by the people, so that their creative potential can be released and shape social development.

1.2. The same Group has tried to develop linkage between social development and economic development. They have stated that economic development is dependent on the development of human resources; whereas successful social development requires a

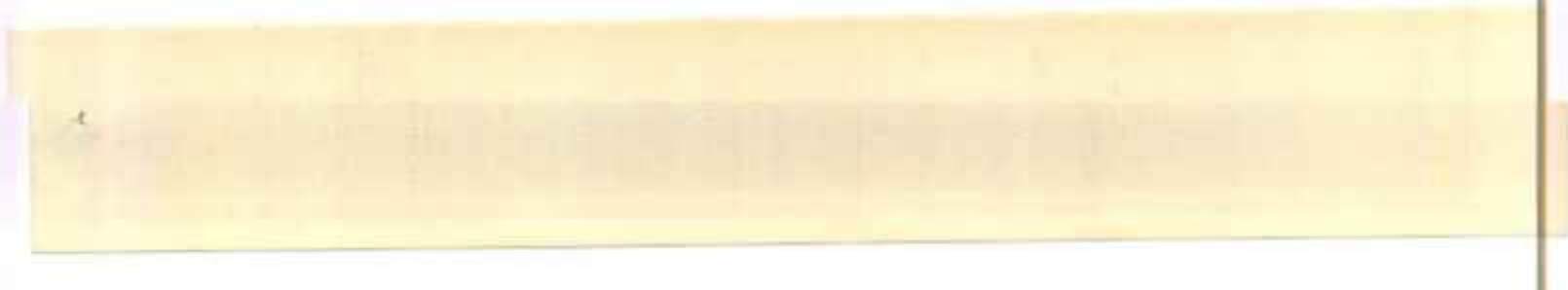
strong economic base. According to the Group:  
"They are symbiotic; and can be synergistic; in all events, they must be complementary."

1.3. Immediately after independence, Pakistan was confronted with a set of problems of socio-economic development. Side by side with the economic development, efforts were made for social development. The earlier efforts of social engineering like Village Agricultural and Industrial Development (V-AID) Programme 1952-1959; the Basic Democracies 1959-1969; the Peoples Works Programme, Rural Works Programme and Integrated Rural Development Programme 1970-1979; and the revival of local government institutions in 1979 are of significant importance as they provide a comparative perspective of various social methodologies introduced in the country.

1.4. The V-AID stressed on organizing people, building physical infrastructure, and the dissemination of improved agricultural practices in the country. With the withdrawal of American Technical Assistance in 1959, the programme was discontinued. The structure of Basic Democracies was laid on the ruins of V-AID

whose workers were absorbed in the Basic Democracies Department. Though people's participation was ensured in the Basic Democracies System, yet the local leadership could not effectively discharge its responsibilities. This was due to the dominant role of bureaucracy on the one hand; and lack of training of the politically elected representatives in the art and craft politics on the other.

1.5. People's Works Programme and Integrated Rural Development Programme were conceived with good intentions but unfortunately these programmes fell prey to the spoil system of the party in power. The local government institutions have been revived in 1979 but with the re-introduction of parliamentary system at the national level, it has to be seen as how far the parliamentarians in the National Assembly and the Senate can support such institutions. The Military regimes used local government institutions for legitimizing their actions by seeking widespread support from the local leadership. On the contrary, popularly elected governments at national level have tried to centralize power. Centralization of power and absence of people's participation in the conduct of their own affairs prohibited or at least slowed the process of socio



This case study focuses on a non-government agency operating in the Orangi Area of Karachi which unfolds the success story of a community which has been motivated to invest in its social development by mobilizing its own resources. This is a unique project in the private sector which has been sponsored by the Bank of Credit and Commerce International (BCCI) in Karachi. The project is called Orangi Pilot Project.



## 2. DESCRIPTION OF THE COMMUNITY

### A. SCENARIO FROM DYNAMIC PERSPECTIVE

#### 2.1. Area and People

2.1.1. Orangi township is spread over an area of 5,000 acres. It has small hills on three sides and an opening on the one side which connects the township with the main city of Karachi. It has several small natural creeks that join the large creek/nullah. The main creek which at present, passes through the middle of the township and goes to the sea, serves as the main disposal drain.

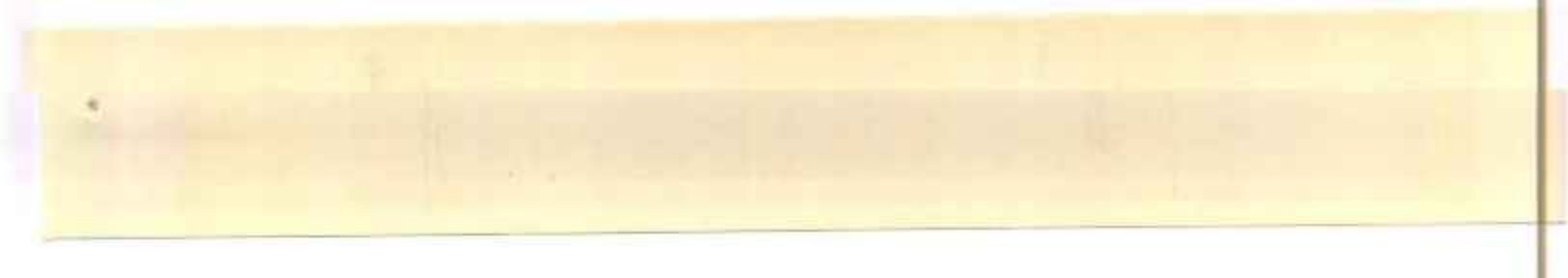
2.1.2. Orangi township is relatively a recent settlement of some 800,000 persons. It is one of the 362 Katchi Abadis (sub-standard area settlement) of Karachi which together accommodates over two million people of this great metropolis of the country. The first houses in the township were built in 1965. Initially, the Karachi Development Authority (KDA) planned the township over an area of 1300 acres, but as an aftermath of 1971, a flood of immigrants began to pour in, and the township now extends well over 5,000 acres. The latter too conformed

to some kind of planning as the plots and lanes are nearly properly marked. Its nearness to Karachi central business area and cheaper land have been attracting still more people specially those coming to Karachi from up-country in search of jobs and/or better their economic prospects.

2.1.3. Orangi has an amalgam of population and represents a blending of Pakistani regional cultures. The township consists of lower class population, but with a sizeable minority of the middle class people. While the large bulk of population comprises of migrants from the former East Pakistan (now Bangladesh), the township inhabitants from NWFP and Punjab are generally engaged in unskilled and semi skilled jobs and in petty business. Other groups, though large in absolute number, are proportionately smaller.

## 2.2. Identification of Problem

2.2.1. The Orangi township in general and the unplanned sectors in particular lagged behind basic amenities like water supply and sewerage. Obviously, provision of these services involved huge investment, but neither

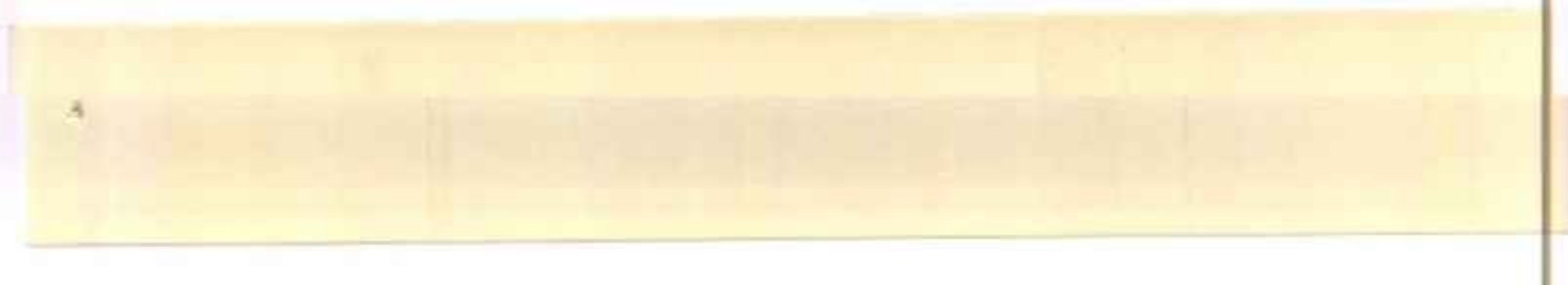


picked up as a priority programme for the following four obvious reasons:

- i) Sanitation problem had aggravated beyond control as a result of increased water supply to Orangi from the Hub Dam;
- ii) Proper sanitation network was the expressed felt need of the people of the township;
- iii) No government or non-government agency was coming forward to tackle this problem; and
- iv) Existence of a natural creek passing through the middle of Orangi was in use as the main disposal drain.

### 2.3. Orangi Pilot Project (OPP)

2.3.1. The project at the conceptual level aims at mitigating the local problems of the township through experimentation of a "research and extension" model coupled with mobilization of resources both man and material. The project thesis is: "If social and economic organizations grow and become stronger, services and material conditions: sanitation, school, clinics, training and employment will also begin to improve". While technical know-how, basic work tools and similar other services are provided by the Project,



2.3.3. The OPP has two basic features, viz, it is a non-government organization, and an experimental action oriented social and technical research effort. While the former does not confer upon the OPP any regulatory powers, the latter does afford a degree of freedom from conventional rules which in turn facilitates testing of new methods of work and innovative social/technical models.

2.3.4. The basic aim of OPP's research is to promote popular participation and organization with a view to discovering organizational models that can find ready acceptance among the people. If a model is not found widely acceptable, it is either discarded or revised. In a low income area like Orangi, cost effectiveness is a critical factor for adoption and more so for wider acceptability of any such model. Following the twin approach of research and extension, the OPP for the last six years or so has been engaged in developing three models:

- a) Low Cost Sanitation Programme.
- b) Women's Health Education Programme.
- c) Women's Work Centre's Programme.

B. SOCIAL CHANGE2.4. People's Past and Current Living Conditions

2.4.1. Before the OPP's Low Cost Sanitation Programme was commenced (the actual work began in April, 1980), the majority of the people of Orangi used bucket latrines which a scavenger at Rs.15 per month would empty out every fourth or fifth day, very often into the unpaved lane. The more affluent houses constructed soakpits which would fill up after a few years, and did not solve the waste water problem. Some people had also laid sewerage lines from their houses to the nearest natural creek or "nullah". These lines were normally defective, and as there was no communal effort, one found many parallel lines in one lane. However, inspite of these shortcomings this system cleared the streets of both excreta and waste water, and if properly laid, no recurring expenditure was required to maintain it. The people also had a preference for an underground system, and the OPP felt that if the right kind of technical support and tools could be provided, and if the lane residents

could be organized and trained to use them, then a sewerage system financed and constructed by the people could be developed in Orangi.

2.4.2. Three concepts are central to the understanding of the Sanitation Programme of the OPP. First, community participation. Second, modification in standard engineering technology and implementation procedures to make them compatible with the concept of community participation. Third, that in the process of organization and participation in development, changes are bound to occur in the community. These changes will result in redefining of relations with the local government with the OPP and with the scope of future development work undertaken.

2.4.3. The first step towards building up a sewerage system therefore was the creation of community organizations. The lane, which in Orangi consists of about 20 to 30 houses, was made the unit of organization. This was because it was a small unit and would as such be cohesive, and there would be no problem of mistrust involved. In addition, the traditional Orangi leadership which functioned at neighbourhood level,



would not feel threatened if the programme was limited to one lane at a time, and at that initial stage the OPP was not in a position to antagonize any body. An underground sewerage system is a complex affair, and developing one lane at a time without a master plan was considered by planners to be an invitation to disaster. However, because of innovation and modifications to engineering practice, no disaster took place.

2.4.4. The methodology for developing lane organizations consisted of four stages. First, the OPP social organizers, who are paid employees of the OPP, would hold meetings in the lane and with the help of slides, models and pamphlets, explain the programme to the people alongwith its economic and health benefits. They would explain that the KDA or the KMC do not lay sewerage lines free of cost, and that their charges could not be afforded by the lane residents. The motivators would tell the people that if they formed an organization in which the whole lane participated, then the OPP would give them assistance. In the second stage, the organization was born and chose its lane manager

who on behalf of the lane, formally asked for assistance. In the third stage, the OPP technical staff surveyed the lane, established benchmarks, prepared plans and estimates (of both labour and materials) and handed over this data to the lane managers. Lastly, the lane managers collected the money from the people, called meetings to sort out any sociological problems involved in the work. The OPP staff gave top supervision. At no time however does the OPP handle the money of the people.

2.4.5. As no central supervision and controlling agency was looking after the work being done, and as people in many cases worked themselves, the only way of guaranteeing the quality of work was by educating the people. However, people who are financing and managing the work themselves cannot be forced to listen to advice, and their confidence in the OPP could only develop over a "prolonged association". As such, certain substandard work was done in the lanes by the people, and in mid 1982 there was a lull in the programme. As a result, an evaluation of the concept, design and implementation procedure of the project became necessary.

2.4.6. As a result of the evaluation, research was carried out to identify the causes for substandard work and simplify standard engineering designs. The results of this research were taken to the people through a massive extension efforts and hundreds of meetings were held. As a result the people learnt about mixing concrete and curing it, and about the proper manner of making inverts to manholes. Masons were also trained in the OPP sanitation technology and their addresses given to the lanes that applied for assistance. This extension effort led to a great improvement in the standard of work, and more lanes applied for assistance.

2.4.7. As the lane was the unit of organization, initially only those lanes asked for assistance which were near a natural creek or 'nullah', or those which could drain into such 'nullahs' easily. It was feared by the OPP advisers that the programme would end here, unless lanes away from the 'nullahs' came together to construct secondary drains.

2.4.8. To promote the concept of secondary drains the OPP carried out a physical survey of Orangi.

The unit of the survey was the Circle of each elected KMC Councillor. Architecture and Engineering students carried out this survey showing land use, slope of the land, number of lanes in a Councillor's Circle, etc. After 30 to 40 students had moved through Orangi, talking to the people and involving them in their work, Orangi became a changed place. People interacted with the students and the concept of secondary drains registered in the people's mind. In addition, the concept of development through community participation went back to the professional universities and colleges and their involvement with Orangi has grown.

2.4.9. Orangi's complexion has considerably changed. The house owners in the township were themselves disgusted with dirt and filth but as individuals each one of them was feeling helpless in view of the magnitude of the problem and as such were awaiting a government agency to come forward and do something for them. The missing link for creating a positive chain reaction was social organization. The project has aptly demonstrated that with proper motivation

and organization, the residents of Katchi Abadis (squatter colonies) would generally be willing to finance and construct themselves an underground sanitation system at the first three levels, i.e. (a) inside the home - sanitary latrine; (b) in the lane - underground pipeline and; (c) secondary sewerage collector drains. Obviously, the fourth and final level, i.e. the main disposal drain and "the treatment plant" would necessarily remain the responsibility of the Municipal body - the KMC, for which a master plan and a centralised execution/management are required.

2.4.10. Through motivational and organizational efforts, the people have been able to mobilize their own resources for investment in the development of sewerage system of their area. With the improvement of the sewerage system, the life of the houses or other residential/non residential buildings has considerably been prolonged. Not only that the life of the building has been prolonged, but has also increased the cost/value of the property. There is significant improvement in the living conditions of the people especially in those areas which have been improved through the project.

C. THE PICTURE OF SUCCESS

2.5. Key Observable Characteristics of Development

2.5.1. The OPP no longer needs to motivate the people. Because of the demonstration effect, lanes organize themselves and contact the OPP for technical assistance. The OPP organizers gradually find themselves involved in technical supervision rather than organization.

2.5.2. Major changes have also taken place in the relationship of the Orangi Councillors and the KMC. Councillors get grant-in-aid from the KMC for certain development projects in their areas which they have to identify. The residents have become aware of their developmental needs and they put pressure on their Councillors to utilize the grant-in-aid themselves rather than through the award of work contract to the contractor.

2.5.3. Out of a total of 3181 lanes in the OPP's part of Orangi, over 1571 had by December 1985, already built their sewerage system. Over 137 secondary drains had been constructed; 107 financed by the lane

residents and 30 by the KMC. The people have invested Rs.26.99 million in this effort. The OPP's investment in research and extension has been about Rs.1.5 million inclusive of capital expenditure for tools, shuttering and vehicles. Mobilization and investment of Rs.26.99 million by the residents of Orangi through motivational and organizational efforts of the OPP is a significant achievement.

2.5.4. A major environmental and social change has also taken place in Orangi. The lanes which have a sewerage system are now clean and healthier. The people have started improvement of their houses and the value of property, as stated earlier, has gone up considerably. As a result of this improvement social tension/conflict has also declined.

2.5.5. The success of OPP in the improvement of sanitation in Orangi has demonstrative effects on other squatter colonies. Their residents are inviting the OPP to extend its technical assistance in their welfare programmes. For instance, two other squatter colonies in Karachi, i.e. Massom Colony and Shireen Jinnah Colony have applied to the OPP for assistance for helping them in acquiring a sewerage

system through community participation and finance. In addition, the Agha Khan Medical University and the Department of Architecture of Dawood College of Engineering and Technology, Karachi have associated their courses with the programme.



### 3. FACTORS ACCOUNTING FOR SOCIAL DEVELOPMENT

#### 3.1. Major Factors and Their Contributing Characteristics.

3.1.1. There have been numerous social engineering projects in the private sector run by the non-governmental organizations which met with limited success. The Low Cost Sanitation Programme designed to bring about improvement on self-help basis was in no way free from the constraints. It faced three barriers:

(i) Psychological reservation to undertake the work when government agencies like KMC and KDA were to provide these services; (ii) self-financing, i.e. bearing the cost of carrying out improvements, and (iii) lack of technical know-how to do the actual work satisfactorily. These barriers to a large extent have been removed through: (a) persuasion of the local people to improve their living conditions as no one else would do it for them; (b) reducing the cost of sewerage system; and (c) by providing the low cost technology/technical guidance to the interested residents and training in maintenance and upkeep of the system.

3.1.2. OPP has undoubtedly served as an instrument/ intervention of social development through motivation and persuasion of local people. The success of any programme depends on certain key factors like planning, organizing, costing and financing, implementation, management and maintenance, etc. It has to be seen how far these factors have contributed to the success of the programme.

#### Organizing

3.1.3. OPP does not organize people. It motivates them to organize themselves. The social motivators of the OPP hold meetings of lane residents in the evenings after the men return from work. At the meetings the motivators explain:

- the health and hence economic benefits of an underground sewerage system and other environmental benefits;
- the manner of functioning of the Municipal authorities and the reasons for their different attitude towards the affluent areas;
- the impossibility of acquiring a sewerage system from the municipal authorities at a price that (the people) can afford;
- the exact nature of assistance the OPP can give and its benefits. This is explained with the help of leaflets, models and slides.

- if they can form a lane organization and elect/select or nominate their representative and then apply to the OPP for assistance, the OPP will give all possible technical help, including tools, provided the whole lane participate. It is made clear to them that the OPP will not subsidize the development work at all.

3.1.4. The organization is usually born as a result of efforts of a few activists who sometimes also become the representatives. These leaders hold further meetings of lane residents and then apply to the OPP for assistance.

3.1.5. Various problems crop up before the organization becomes functional. Some lane members refuse to participate. Others are destitute and cannot pay their contribution. Still others refuse to accept the leadership. These problems are overcome by social pressure and aiding or exempting destitutes from contribution.

#### Planning

3.1.6. On receiving a written request from a lane, the OPP technical staff goes and surveys it and establishes benchmarks on site. Then at the OPP office plans and details of the sewer are drawn

out. List of materials and their cost alongwith the nature and cost of labour required are also worked out. This material is then handed over to the lane managers.

3.1.7. Discussions on the plans and appropriateness of the designs takes place in the lane and suggestions of the people are considered. Due to these activities changes are very often made in the plans and also in details of the elements.

3.1.8. The appropriate location of the secondary drains are identified and their levels are worked out by the OPP staff. The neighbourhood organization which manages this work also follows the methodology of the lane organization.

3.1.9. The sewer lines are laid in the lanes. In the planned area these lanes belong to the KMC and in the unplanned area to no one. In both cases the people do not acquire the right to lay the sewer line and that they do not need to pay is accepted by the KMC.

3.1.10. In the unplanned area there have been cases where the shifting of a boundary wall or the widening of a lane has been needed to lay the sewer lines. The people have undertaken this on their own through discussions with the owners. In some cases compensation has also been paid.

#### Financing and Cost Recovery

3.1.11. After the plans and estimates prepared by the OPP have been handed over to the lane managers, they start collecting money from the people. As money is made available before the work begins, the problem of cost recovery does not arise. However, there are people in the lanes who are too poor to contribute or can only pay in instalments. The more affluent come to an understanding with them and pay on their behalf, or the lane exempts them from payment. Since November, 1984, the grant-in-aid being given to the councillors by the KMC is also being used for the construction of secondary drains.

#### Contracting and Implementation.

3.1.12. The mode of contracting and implementation varies from programme to programme. There are those

programmes which are totally financed by the people and thus executed by the people themselves. On the other hand, there are programmes which are funded, contracted out and implemented by the KMC. The mechanics of implementation of the two programmes are described hereunder:

A. People Financed.

3.1.13. After the lane manager, or secondary drain manager, has collected the money from the people he organizes the work. First he purchases all necessary material such as pipes, blocks, aggregates, etc, from the local 'thallawalla' or building component manufacturer. At the same time he receives tools from the OPP. These tools consist of spades, pick axes, trolleys, shutterings for casting concrete in situ manholes and septic tanks, spirit levels, string, chalk, concrete mixing platforms, etc. These tools free him from the necessity of employing a contractor. They are stored in the lane where work is being done.

3.1.14. Excavation for the trench is usually contracted out to a neighbourhood labourer or a petty contractor. There have been instances where the people have done this work themselves on a voluntary basis

The rest of the work is done by employing a mason on a daily wages basis or on a lump sum contract for the job. The people usually do the curing of concrete themselves. In some cases a lump sum contract is also given out to a contractor for the whole job. Tools (through OPP) and materials are supplied by the people and labour by the contractor.

3.1.15. The OPP gives top supervision to the work. However if defective work is being done the OPP cannot order it to be stopped or rectified. In such cases the OPP explains the defects to the people and suggests remedies. If necessary, extension literature is prepared and distributed in the lane or the neighbourhood. It is left to the people to take necessary action.

3.1.16. There are no written contracts between the people and the contractors. All arrangements are verbal and enforced through social pressure. Similarly, there is no transfer of completed works. When the line is laid, the lane manager, or the organization through consensus, permits residents to connect their latrines to the sewer. After the sewer has been

laid, residents continue improving their lanes by levelling them, planting trees, or putting pressure on their area councillors to get them paved.

### 3. KMC Financed

3.1.17. KMC financed secondary drains make use of the grant-in-aid given by the KMC to the Councillors. The Councillors cannot get the work done according to their own wishes. There are approved contractors of the KMC. Tenders are invited and on the basis of competitive bids by various contractors, contract of work is awarded to the contractor having offered lower rates or has established his credibility in getting the works completed within the stipulated period of time. The KMC contractor makes the drain but as per OPP design and uses OPP tools, shuttrings and technical support. The quality of work carried out through contractor and supervised by the KMC officials is always questionable. Moreover, their costs as compared to the costs of those supervised by the people themselves, is considerably high. Thus the works carried out by the people themselves under their own supervision are always cost effective.



### Management and Maintenance

3.1.18. When the sewer of a lane gets clogged up, the people of the lane or neighbourhood get together and clean it. The same thing happens if a component gets damaged. There is however no organization for management or maintenance but it is done informally and quite efficiently.

### Regulating

3.1.19. The only rules and regulations that are followed are:

- the lane to qualify for assistance must form an organization in which the whole lane participates and must select its lane managers.
- it must formally apply for assistance.
- it must return the tools that are loaned to it when the work is complete.

3.1.20. There are no other rules because their enforcement would not be possible. However, it is stressed that the work must be done under OPP supervision and with OPP advice.

3.1.21. Persuasive and motivative factors and their contributory characteristics have been discussed. These provide a perspective with regard to the mechanics of implementing social development programme. It would have been observed that the whole approach is a step-by-step approach of motivating the people organizing them to mobilize their own resources; getting the work done through collective efforts; and maintenance of the completed works. All these steps have been cost effective. But side by side, the technology which has been adapted and made suitable to the local conditions needs to be further elucidated for the interest of the readers.

### 3.2. Innovative Strategies and Actions.

3.2.1. Standard engineering technology and implementation procedures are being constantly modified to suite the new system where the users, organizers, and implementors are one; and seldom have any technical knowledge or artisanal skill. The pre-OPP sewerage arrangements have been discussed earlier. Three individual household oriented solutions to the problem were adopted

by the residents of Orangi. Those were: (i) the Bucket latrines; (ii) soak pits; and (iii) sewerage lines from a few individual houses to natural creek.

3.2.2. The first step toward exploring the possibility of a low cost sanitation system was to set up an office and constitute a team of social organizers and technicians. Technical research was undertaken which simplified the design and streamlined the construction methods, i.e. by making standardised steel shutterings for septic tanks, manholes, etc. This resulted in the reduction of costs.

3.2.3. As per initial design of the OPP, the sewerage along with the excreta was discharged into the open creek. All such creeks have high density housing on both sides. This meant that the problem of the lanes was simply being shifted to the creeks, creating serious health problems. In addition, it was discovered that many sewerage lines would clog up occasionally and as such had to be cleaned out. This problem was studied and it was discovered that due to a lack of water, the

proper flow of sewerage in the lines was not possible. To overcome these two problems, it was decided to place a one chamber septic tank, or "haudi" as it is known in Orangi, between every connection and the sewerage line. This prevents the solids from flowing out into the drain. The size and design of the "hauci" was determined not as per any engineering standards but by its cost to the user. It had to be of a cost that the people could afford. As such the first haudis were put under observation, and are still being monitored.

3.2.4. Manholes used for initial work were either copies of the cast-in-situ KMC models or were made by masons with block masonry. The former were far too large and their concrete sections too bulky. The later required plastering and artisanal skill. As such both models were uneconomical. Cylindrical cast-in-situ manholes of a manageable size were introduced. Shutterings for these manholes were prepared and made available to the people. Thus artisanal skill was replaced by tools that the people could use themselves.

3.2.5. Manholes covers were originally made of RCC with steel rims as per KMC designs. They were expensive to make and required artisanal skill. As they were light, people lifted them up and put garbage into the manholes. To prevent this, the manhole cover was transformed into a simple rectangular concrete slab which was too heavy to lift easily, and which projected beyond the manhole chamber. This took care of both the high expense and the vandalism problem.

#### 4. DISCUSSION AND RECOMMENDATIONS

##### a) DISCUSSION:

4.1. The residents of Orangi who have been living a sub-standard life, full of health hazards, have been able to achieve a degree of success by improving their environmental conditions. According to Cernea "Development projects are purposive planned interventions that are commonly used to accelerate economic development". Further he states that: "Projects can also be intensive social laboratories that use an innovative approach on a limited scale to gain experience for larger scale efforts". Thus Orangi Pilot Project is an innovative social laboratory where experiment of social development through community participation has been carried out.

4.2. The degree of success achieved by the community through OPP is attributable to a number of factors which are given below:

- 1) Community organization through motivation and persuasion.
- 2) Mobilization of community resources.
- 3) Management of project activities and their supervision.

- 4) Maintenance of the completed works.
- 5) Political awareness to articulate the demands and extract additional funds from the elected Councillors of the KMC.
- 6) Certain degree of self-reliance and minimizing dependence on the Local Government Institutions.
- 7) Demonstration affects of the social development programme on other communities.
- 8) Institutional infrastructure.

1. COMMUNITY ORGANIZATION THROUGH  
MOTIVATION AND PERSUASION

4.3. The OPP served as an intervention to attract the attention of the community towards their environmental conditions. The people themselves were fully aware but could not do any thing because of the magnitude of the problem which required collective efforts of the community as a whole. Though the community was represented in the local council through their Councillors, yet the severity of the problem remained unnoticed as the people of the community and their councillors had reconciled with the situation. Social engineering and organization of community with heterogeneous group of people is a difficult

task. The OPP leadership had to study carefully the traits and the attributes of the people; Conduct a survey of the locality and then come-up with the social engineering strategy acceptable to the community both by virtue of technical soundness and cost effectiveness.

## 2. MOBILIZATION OF COMMUNITY RESOURCES

4.4. As stated earlier, there have been numerous programmes of community development but failed to empower people to mobilize their own capacity, be social actors rather than passive subjects, manage their resources, make decisions and control the community that affect their lives. Those programmes which were top-down and pateranalistic in approach did not yield the desired results. The OPP being a non-government organization deviated from pateranalistic approach and came up with a rational, and technically sound model. Once the people were convinced of the utility of the project and its implication for their socio-economic development, they were in a position to mobilize their own resources and manage the sanitation work themselves. The OPP comprises of a few personnel and certain



implements which involved a total expenditure of Rs.1.5 million. Against this the people invested an amount of Rs.27.00 million, which by any engineering standard is a significant achievement. Those people who were interested in their individualistic affairs recognized the collective welfare of the community for which they raised the funds required for the sanitation programme of their own area.

### 3. MANAGEMENT OF PROJECT ACTIVITIES AND THEIR SUPERVISION

4.5 The community itself which raised funds for the sanitation programme also managed the implementation of the work. This, on the one hand ensured the quality of work through the standardized inputs and on the other hand, it eliminated the elements of waste as with the supervision of people themselves, there had been economical use of resources. The management and supervision of such activities have made them pragmatic which is a significant change of attitude.

4. MAINTENANCE OF THE COMPLETED WORKS

4.6. If the works had been carried out through KMC contractors and supervised by the KMC engineers it would have required additional recurring amount for its maintenance. This has relieved the KMC of financial burden on the one hand and provided the people the desired service on the other. The people take pride in their own investment and maintenance of assets created by them through their own efforts.

5. POLITICAL AWARENESS

4.7. There has been certain degree of awareness and political consciousness among the community people. The OPP activists and motivators have been educating the people, making them realize the importance of their own contribution and the role they have to play in the local set-up. They have now become aware as how to articulate their demands on the local administration. They are constantly pressing their councillors for more grant-in-aid for their welfare problems. This political awareness also serves as a check on the local councillors who have been mis-handling the public funds in the absence of political accountability.

6. SELF-RELIANCE

4.8. There has been growing awareness among the people with regard to the management of such activities. The community itself with inputs in the form of technical assistance, has been able to mobilize its human and material resources for their own social development. The successful implementation of the experiment at Orangi has attracted the attention of national and international experts. This provides the community a sense of satisfaction in terms of accomplishing a gignatic task.

7. DEMONSTRATION EFFECTS

4.9. The successful implementation of the programme has also attracted the attention of people of other squatter colonies. The interest aroused in such disadvantaged groups of people is of significant importance for those interested in social engineering. Such experimental projects provide lessons to those disadvantageous group of people who are living under similar set of circumstances.

## 8. INSTITUTIONAL INFRASTRUCTURE

4.10 With the nucleus staff of OPP an institutional infrastructure has been created which can operate irrespective of the presence of an individual personality. Initial efforts of Dr. Khan in social engineering cannot be underestimated. However, the infrastructure created by him is strong enough to sustain further pressures and respond to the challenges of social development. The team he has groomed over a period of time is capable enough to steer the social development programmes of the community which has developed trust and confidence in their integrity, technical and professional soundness.

4.11. A team of experts from the Planning Division, Government of Pakistan have appraised OPP about a year ago. Some of their observations are summarized and presented for the interest of those who may be looking at the project from the social engineering point of view.

4.12. The Orangi Pilot Project within a period of 5-6 years has done substantially useful work in physical improvement on self-help basis of the living conditions of the sectors that come within the ambit of OPP's operations. The OPP's model being cost-effective can well be tried elsewhere for effecting improvement in katchi abadis. The fact that students of the University of Karachi, NED Engineering University, Institute of Architect and trainees from the National Institute of Public Administration Karachi have been receiving orientation at the OPP in research and extension, and in working with people lends further support and credibility to the OPP's approach. This linkage of the project with educational/training institutions of repute will help in transmission of knowledge as well as practical experience to the students which one could only get in a field based setting.

4.13. Indeed, personalities on the top with their dedication, knowledge, experience and charisma as that of Dr. Akhtar Hameed Khan do make a difference,

but a detailed process recording of the events - successes and failures - has made this research and experimental model replicable. However, a positive and imaginative leadership to guide such ventures is not only necessary but is an inevitable input.

4.14. The existing lane organizations at present centre around a single activity, i.e. sanitation improvement. The experience has shown that one-purpose organizations are generally short lived as they wither away with realization of their immediate objectives. The community programme by necessity and for the sake of economy and continuity has to transcend lane boundaries. OPP lane organizations are too small and tied to the fulfilment of a single activity - sanitation improvement. There is growing realization within the OPP to move from single activity programme to multiple activity programmes. But their switch over will be with caution and restraint.

4.15. The research and extension model has hitherto remained limited to rural settings, but its successful application in Orangi has proved that the model can

well be intelligently used in urban settings particularly for solution of some basic problems of katchi abadis. Admittedly, each katchi abadi differs from the other, but the approach developed and sharpened in Orangi could also be applied to bring about physical improvement in the living conditions of other katchi abadis which have now become a necessary adjunct to any sizeable city in the Third World countries.

4.16. Additional reasons for OPP's success of the low cost sanitation programme could be due to the following factors:

- i) Availability of annual BCCI funds on regular basis for operation of the OPP.
- ii) Independence and operational autonomy of OPP.
- iii) Charismatic, dynamic and imaginative leadership available to OPP.
- iv) Peculiar topography of the Orangi township, i.e. existence of creeks that made final waste disposal possible.
- v) Socio-economic characteristics of the resident-settlers of Orangi.

b) RECOMMENDATIONS

4.17. Social Engineering is a complex and intricate task which requires deeper understanding of the community, its environment, its resources both human and material. In the case of OPP the main thrust had been on research and extension. Without the creation of nucleus organization, it is inconceivable to bring about any change in the attitude and perceptions of the people. The nucleus of OPP has exactly been doing the experimentation and adaptation of technologies which are both cost effective and acceptable to the local communities.

4.18 The strategies and methodologies of social engineering evolved in the OPP could be definitely of interest to the communities with similar set of circumstances elsewhere. Perhaps most of the urban centres in the Third World countries have squatter colonies where the local authorities have not been able to provide the required services. The OPP experiment can be replicated in squatter colonies of the Third World countries.



4.19. The most revealing and promising characteristic of OPP is that it carried out extension work with the help of activists and motivators who have been spreading the message very effectively. In this venture the role of the educational institutions especially universities cannot be under estimated. There is no dearth of educated manpower in the urban centres and perhaps they would be willing to convey such message unless they are properly involved in the whole process of experimentation.

4.20. Another interesting feature of OPP is the adaptation of technology to suit the local conditions. This aspect has been carefully experimented upon and after its success, the results have been communicated to the people. Once they were convinced, they mobilized their own resources and managed implementation of the programme quite successfully. Similar experiments could be initiated for social development of other disadvantaged groups in the Third World countries.

4.21. The above observations reveal that social change cannot take place by itself but it is to be engineered from outside. This external intervention

is possible only when the nucleus staff in the project is in a position to carry out experimentation and research. Moreover, they are given maximum autonomy and freedom to undertake such ventures. Similar conditions could be provided to the management agencies dealing with the welfare problems of squatter colonies in other countries of the world.

international Seminar on Housing in Urban Development, February, 1985.

4. Arif Hasan, The Low Cost Sanitation Programme of the Orangi Pilot Project, - Case Study Documentation, prepared for the NGO Habitat Project of the UN Year for the Shelterless 87, June 14, 1986.
5. Jorge Anzorena, Orangi Pilot Project, OPP, February, 1984.
6. OPP, Progress Reports April 1980 to June, 1983.
7. OPP, Progress Reports July 1983 to March, 1985.
8. Government of Pakistan, Report on the Orangi Pilot Project, Karachi, Planning and Development Division, March, 1985.

9. UNCRD, Report of the Combined Expert Group Meeting on Social Development Alternatives and the Second Training Seminar in Local Social Development Planning, Nagoya, 16-29 October, 1985.
10. Michael M. Cernea, Putting People First - Sociological Variables in Rural Development Oxford University Press, October, 1985.
11. Abdul Ghafoor, Social Welfare, Infrastructural Services and Facilities Provided by the Local Councils, AEPAM Islamabad, December, 1983.
12. Abdul Salam, Rural Development and Local Level Planning in Pakistan, UNCRD Working Paper No.82-9, April, 1982.
13. G. Shabbir Cheema, The Performance of Local Councils in Pakistan: Some Policy Implications, unpublished report, Ministry of Local Government and Rural Development, Islamabad.