

Scaling Up of the Orangi Pilot Project Programmes: Successes, Failures and Potential

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1. INTRODUCTION

The Programmes of the Orangi Pilot Project (OPP) institutions are well documented through books, reports and monographs. It is not the purpose of this paper to describe them or their methodology in detail. These programmes have influenced a number of government and donor projects and CBOs and NGOs in Pakistan who are in the process of replicating them. In Karachi, where Orangi is located, the OPP, on the basis of its 20 years work with communities, has become involved in developing city level alternatives to government plans and is pressing for these alternatives to become policy. This paper, after briefly describing the OPP experience will try and present the problems, success, failures and their causes in the scaling up of the OPP programmes.

2. THE PAKISTAN CONTEXT

Pakistan requires about 500,000 housing units per year for its urban population¹. Not even one-third of this is provided through formal process. The demand-supply gap is met through the creation of illegal subdivisions of state land (known as *katchi abadis*); through the informal subdivision of agricultural land on the city fringes; or through densification of existing settlements. Most of these settlements are badly planned and acquire substandard infrastructure through political patronage or the bribe market over a period of 15 to 20 years. However, an adequate sewage system is almost never acquired. These informal settlements grow at a rate of about 8 per cent per year against an urban growth rate of less than three per cent². Results of the 1998 housing census are still awaited, but one can safely say that over 60 per cent of Pakistan's urban population lives in informal settlements.

The inner cities of Pakistan have also turned into high-density slums. The wholesale markets and related cargo terminals are located in these inner cities and were once surrounded by middle and high income residential areas. With an increase of over ten times in the urban population since 1941, these markets have expanded to engulf the whole inner cities, turning their narrow lanes into warehousing, cargo terminals and male only day-wage labour accommodation. The infrastructure in these inner cities has collapsed and families have moved out. These are probably the worst slums in Pakistan.

¹. Gurel, Ahmad, Noor and Jamal: Housing Parameters: Dawood College-Aga Khan Programme, Karachi, 1991.

². Worked out by the author from government of Pakistan demographic data and census reports.

The government has a Katchi Abadi Improvement and Regularisation Programme (KAIRP). However, this is only for *katchi abadis* and not for informal settlements on agricultural land or for inner city rehabilitation. This programme consists of providing infrastructure and a 99-year lease to *katchi abadi* residents. Only one per cent of *katchi abadis* per year are regularised and improved through this programme³. Thus, it will take 100 years to regularise all of them and meanwhile new abadis are being created. The major reasons for the slow progress of this programme is the absence of correct plans with the communities (which prevents their equitable participation in the Programme); complex procedures which promote corruption; failure of government agencies to identify and accept existing infrastructure; and lack of recovery of development and lease charges. Where government agencies, such as the Sindh Katchi Abadi Authority (SKAA) in Karachi, have overcome the above constraints, the Programme has been successful.

3. THE KARACHI CONTEXT

Karachi requires about 80,000 housing units per year. Building permits are issued for no more than 26,700 units per year⁴. It is estimated that 28,000 new housing units per year are developed in *katchi abadis*⁵. Additional units on existing lots have not been estimated. Meanwhile, most of Karachi's inner city has been taken over by the grain, chemical and metal markets, the solid waste recycling industry, services sector to transport, and related transport and cargo activities and housing for male only labour.

It is estimated that over 50 per cent of Karachi's population lives in about 700 *katchi abadis*. Of these, 539 abadis having 386,000 housing units have been identified as regularisable. An Asian Development Bank (ADB) and World Bank loan of Rs 427.137 million was provided in 1984 for the implementation of KAIRP. This loan was meant for 101 *katchi abadis*. Work has been completed (residents say it has not) in 33 *abadis* and leases have been issued to 108,245 housing units⁶. Meanwhile, new abadis are being created every day.

4. THE ORANGI CONTEXT

Orangi Township lies in the District West of Karachi city. It has a population of over one million (more than 10 per cent of Karachi's population) and covers an area of about 8,200 acres of which 1,300 were developed by the Karachi Development Authority (KDA). Apart from this 1,300 formally planned area, the township consists of *katchi abadis* developed through the informal subdivision of state land. The settlements began in 1965 and expanded rapidly in the mid seventies. Most of the population is working class and belongs to different ethnic and linguistic groups.

5. THE ORANGI PILOT PROJECT

The OPP was established by Akhtar Hameed Khan, the renowned Pakistani social scientist, in 1980. The objective of the Project was to understand the problems of Orangi and their causes. Then, through action research to develop solutions that people can manage, finance and build. For this to happen, it was understood from the very beginning that people would require technical guidance and managerial support to implement the solutions and that technical and social research was a pre-requisite for this to happen.

³. ADB: Pakistan Low Cost Housing Project: Report 1989

⁴. Karachi Development Authority; Karachi Development Plan 2000

⁵. Estimates of the author/Urban Resource Centre, Karachi, quoted in Arif Hasan's Understanding Karachi, City Press, Karachi 2000

⁶. SKAA: 21st Quarterly Progress Report, March 1999

Akhtar Hameed Khan was of the opinion that the OPP institutions should develop model that overcome the financial and institutional constraints that governments face in developing programmes for low income settlements. He had hoped that these models would become a part of government policy. An essential part of his thinking was that government programmes in Pakistan fail because the bureaucrats and professionals who design them are not conversant with the sociology, economics and culture of low income communities or the causes of conditions in informal settlements. An essential part of his project was to create and institutionalise a space of interaction between professionals and communities. The above principles have been followed by the OPP. Details of these are given in Appendix – 1: OPP Procedures and Principles.

After years of work the OPP has identified four major problems in *katchi abadis*. These are sanitation and housing quality; employment; health; and education. People organise themselves to try and overcome these problems but in the absence of technical and managerial guidance and credit support, their solutions are usually substandard or unsuccessful.

In 1988 the OPP was upgraded into four autonomous institutions. These are:

- i) The Orangi Pilot Project-Research and Training Institute (OPP-RTI) dealing with sanitation, housing, education, research and training.
- ii) The Orangi Charitable Trust (OCT) dealing with micro credit.
- iii) Karachi Health and Social Development Association (KHASDA) dealing with health.
- iv) The OPP Society which channelises funds from the Infaq Foundation (a Pakistani charity) to the other three institutions.

The Programmes of the OPP institutions are described briefly in the section below. Of these, the sanitation and micro credit programmes have expanded into other cities. The sanitation programme has had a major impact on donor, government and NGO projects.

6. ORANGI PILOT PROJECT PROGRAMMES

6.1 SANITATION PROGRAMME

Sanitation was the major problem identified by Orangi residents. OPP-RTI held meetings in the lanes of Orangi and informed the people that if they formed a lane organisation; elected, selected or nominated a lane manager, then the OPP-RTI would provide them technical assistance in building their underground sewage system. Financial and health related advantages of the system were also explained. Residents themselves identified that sewage flowing in their lanes was damaging the foundation of their houses. Once a lane organisation was formed, the OPP-RTI technical staff surveyed the lane, established benchmarks with the help of the lane manager and in the OPP office a map and estimate for the work was prepared and handed over to the lane manager. The lane manager collected money from the people, organised work and the OPP-RTI supervised it. At no time did the OPP-RTI involved itself in money matters of the lane organisations. Since a lane consists of only 20 to 40 houses, the organisation was cohesive and there were no major problems of mistrust and disagreement.

Initially, only those lanes which were near a natural drainage channel applied for assistance. Later when lanes far away from the disposals applied, the OPP-RTI identified the location of collector drains. It was hoped that the local government would fund these but it refused to do so. Subsequently, confederation of lanes which made use of the collector drains was formed to finance and build the collectors with OPP-RTI technical advice. For surveying Orangi for the purpose of identifying secondary sewers, the OPP-RTI made use of students and staff of technical and professional academic institutions, as a result of which their students and staff have developed close links with the OPP-RTI. These links have transformed the curriculum of these institutions and with their graduates joining government agencies, it is hoped that government attitudes will also undergo a change.

There are 7,256 lanes in Orangi containing 104,917 houses. Of these, 6,082 lanes containing 91,531 houses have built their sewage systems. The houses have also built their latrines and 409 collector sewers have also been built. The people have invested Rs 80.664 million (US\$ 1.50 million) in this effort. If the government had done this work, the cost would have been at least seven times more.

The reason for the success of the OPP-RTI sanitation model is that the cost per household of Rs 900 (US\$ 16.5) was affordable to the beneficiaries. The cost of made affordable by carrying out technical research, modifying engineering standards, and making procedures and methods of work compatible with the concept of community management of construction and self-finance. Details of how this was done are available in OPP-RTI monographs, reports and books. In addition, the OPP-RTI identified four barriers that communities have to the adoption of its model. These are:

- i) The Psychological Barrier: communities feel that infrastructure development is the work of government agencies. This barrier is overcome once communities accept that the lane in front of their house also belongs to them.
- ii) The Social Barrier: this is overcome once a lane organisation is formed and is able to clearly identify its immediate objective.
- iii) The Economic Barrier: this is overcome once the cost of development becomes affordable.
- iv) The Technical Barrier: this is overcome by availability of designs, estimates, tools and training for implementation.

All sewage of the OPP-RTI built systems disposes into the natural drainage channels of the city. This has been a major criticism of OPP-RTI's work. However, the sewage of almost all planned areas of the city also disposes, in a planned fashion, in the majority of cases into the natural drainage channels and it was obvious to the OPP-RTI from the very beginning that these channels would have to be turned into box trunks with treatment plants at places where they meet the sea, if Karachi's sewage problems were to be solved.

Based on its work the OPP-RTI has developed what is called the "internal-external" concept for sanitation. In this concept there are four levels of sanitation:

- i) sanitary latrine in the house;
- ii) underground sewer in the lane;
- iii) neighbourhood collector sewer; and
- iv) trunk sewer and treatment plant.

The first three constitute “internal” development and the OPP-RTI has demonstrated that low income communities can finance, manage, build and maintain these components provided technical support and managerial guidance based on participatory research is provided to them. The fourth item constitutes “external” development and can only be carried out by government agencies or NGOs if they are rich or have access to donor funding.

The OPP-RTI have prepared plans and estimates for the conversion of Orangi’s natural drains into box trunks. With the support of its lane organisations and community activists it has lobbied with the Karachi Municipal Corporation (KMC) and the District Municipal Corporation (DMC) for financing this conversion. As a result, in this financial year the KMC has financed the building of two box trunks at a cost of Rs 14.3 million (US\$ 0.26 million). These trunks will serve 850 lane sewers to which 17,000 houses are connected ⁷. The land reclaimed by this conversion and the slab of the drain itself are already being used as a community space.

There have been many spin-offs of the OPP-RTI sanitation model. An ADB funded project (PAK-793, 1990) was modified after the OPP-RTI lobbied for its “internal-external” concept to be made part of the project concept. As a result of this modification, a project that was to cost Rs 1,300 million was modified to cost Rs 36.2 million. Lane activists, trained by the OPP-RTI, supervised the construction of the trunk sewers and did not permit the contractors to do any substandard work as is normally done in government contracts. In addition, infant mortality in areas that built their sanitation systems in 1983 has fallen from 128 to 37 in 1993. The lanes which were full of sewage have been turned into places of social interaction and children’s play areas. Value of properties have increased and people are improving their homes.

The OPP-RTI sanitation model is being replicated in 46 Karachi settlements and in seven Pakistani towns. The model is also being replicated in Pakistan’s rural areas. A synopsis of this work is given in paragraph 7. The principles of the programme are being applied to projects in Nepal, Central Asia and South Africa.

6.2 HOUSING PROGRAMME

OPP-RTI’s research into the sociology, economics and technology of housing in Orangi was carried out in collaboration with the Department of Architecture and Planning at the Dawood College, Karachi. The research established that almost all Orangi houses were substandard because their building materials were of poor quality, skills were inadequate and the contractor and mason relationship with the house owners was inequitable. The study identified the local building components manufacturing yard (called a *thalla*) and its owner (*thallawala*) as the most important actors in the housing drama. The *thallawala* provides building materials, skilled labour and often credit for house building. As such he is also the architect and housing bank of the Orangi residents. The programme has therefore focused on four issues:

- i) It has upgraded the quality of concrete blocks by mechanising their production at the *thallas* and by introducing the manufacturing of cheap pre-cast concrete roofing elements at the *thallas* to replace tin sheets. In addition, advantages of proper curing of concrete and good aggregate were also explained to the *thallawalas* and the house builders. The new houses can now carry a second floor. *Thallas* were given credit (an average of Rs 75,000 or US\$ 1,400) and advice for mechanisation and improvement. So far, 54 *thallas* have made use of the OPP-RTI package. In the process they have more than tripled their production, increased employment and

⁷. OPP: 80th Quarterly Progress Report, December 1999

financial returns and Orangi has become a major exporter of machine made concrete blocks and roofing elements ⁸.

- ii) Ninety-six Orangi masons have been trained to use the new technologies and they in turn are training their apprentices.
- iii) Technical guidance and advice is being provided to communities on issues related to design, costs and the nature of relationship they should have with the *thallawala* and skilled workers whom they employ.
- iv) The OPP-RTI has initiated a two-year programme for training educated young men from the Orangi communities as para-architects so that they can advise individual residents on design and construction. Initially, the OPP-RTI tried to get regular architects to set up practices in Orangi but this effort was not successful. The first team of two para-architects has started practising and have developed a substantial clientele most of which want their homes improved.

Approximately 4,000 units per year benefit from the housing programme's technical research and its extension.

6.3 ORANGI CHARITABLE TRUST'S MICRO CREDIT PROGRAMME

According to the Karachi Development Plan 2000, 75 per cent of Karachi's labour force is employed in the informal sector. The major problem of this informal sector is that it has no access to credit. Credit from the informal market carries an interest rate of 8 to 12 per cent per month. OCT's estimates that there are over 23,000 small businesses in Orangi employing more than 120,000 persons.

The OCT's micro credit programme lends to people already running businesses. It also considers lending to people who wish to establish new business provided they are employed in those businesses. So far, 6,921 units have benefited from the OCT programme and Rs 133.944 million (US\$ 2.25 million) have been disbursed. Recovery rate is 92.34 per cent. Mark up recovered at 18 per cent per year is Rs 24 million (US\$ 0.44 million).

The Programme has been replicated by 38 NGOs and CBOs outside of Karachi. The OCT has provided these organisations with a credit line and training. The OCT's micro credit programme has also had a major influence on the concept of the micro credit bank being promoted by the government of Pakistan.

6.4 EDUCATION PROGRAMME

OPP-RTI's research has established that there are 682 private schools and 76 government schools in Orangi ⁹. The private schools have been put up by entrepreneurs, community organisations or public spirited individuals. The OPP-RTI programme is to support these schools by putting them in touch with government support institutions, relevant NGOs and resource professionals. In addition, the OCT provides loans for the physical upgrading of the schools while OPP-RTI provides technical and design guidance. So far, 399 loans of Rs 12.5 million (US\$ 0.23 million) have been provided for upgrading 151 schools ¹⁰.

⁸. Salim Alimuddin, Arif Hasan: The Housing Programme of the OPP-RTI, unpublished report, 1997

⁹. OPP: 79th Quarterly Progress Report, September 1999

¹⁰. Ibid

In 1995, the OPP-RTI school project was started. This project consists of identifying young people who wish to open a school. A start up grant of Rs 3,000 to 12,000 is provided to open a school in a rented room or a shack. When the school stabilises, credit from the OCT is provided for its expansion and construction of classrooms. The school initiator is helped in acquiring a plot of land from the KMC or SKAA for building a school. So far 45 schools have been built in this manner. 212 teachers (70 male, 142 female) are employed in these schools and 5,201 students (3,077 male, 2,124 female) study in them ¹¹. The programme is expanding rapidly.

Because of the OPP-RTI education programme there is a major difference between Orangi and other *katchi abadis*. Orangi has a higher literacy percentage and its schools are better in physical and curriculum terms. Many of them have now acquired computers and are training Orangi students in information technology. Young Orangi residents are becoming white collar workers, college teachers, corporate sector employees and formal sector entrepreneurs.

6.5 HEALTH PROGRAMME

KHASDA's health programme initially consisted of creating a women's organisation in lanes that had built their sewage system. The women's lane organisation was visited by a mobile team every week for a period of six months after which the visits were phased out. The mobile team advised the women's organisation on the causes and prevention of common Orangi diseases. It also arranged visits by government agencies to the lane for immunisation. In addition, it introduced population planning concepts and supplies (the supplies were left with the manager of the lane organisation who sold them to lane residents) and gave advice on nutrition, child-care and kitchen gardening. However, the programme would only reach 3,000 families in which 90 per cent of children were immunised and 44 per cent couples adopted family planning. Surveys show a marked decrease in infant mortality and morbidity.

The programme was far too expensive to expand to all of Orangi and therefore, not sustainable or replicable by government. As such, it was modified. A survey of Orangi was carried out and it was discovered that there were 647 private clinics in Orangi. In addition, there were traditional birth attendants (TBAs) as well. The present programme consists in training TBAs (377 have been trained) and vaccinators (148 have been trained) from the community. An extension programme has been initiated with the private clinics who are encouraged to employ the TBAs and vaccinators. Links between the government's health department and agencies and the Orangi clinics have been established through KHASDA. The clinics were unaware of government support programmes and these programmes before had only targeted CBOs and NGOs (many of whom had no experience of health issues). As a result of the programme, 102 clinics now receive vaccines and 124 clinics receive family planning supplies. These clinics now employ the trained TBAs and vaccinators. The clinics are very supportive of the new programme.

The new health programme seeks to anchor itself in the upgraded Orangi clinics and in Orangi schools where health education is being introduced. An external evaluation of the Programme is yet to take place.

¹¹. Ibid

6.6 RESEARCH AND TRAINING

6.6.1 Research

The OPP-RTI's research has had a major impact on the thinking of donors, government agencies, NGOs and CBOs. This research can be divided into four categories.

- i) Research into the sociology, economics and development of Orangi and the identification of actors involved and their relationship with each other on the one hand and with government agencies on the other hand. As a result of this research, the perception of what informal settlements and their residents and informal sector operators are all about has undergone a major change. This has led to a change in government and NGO policies related to housing, infrastructure, employment and the social sectors (at least on paper and in the government's Five Year Plans) and led to the development of a few innovative government programmes that are based on this research. In addition, the World Bank's Strategic Sanitation Approach (SSA) has also borrowed its concept from the OPP-RTI's sanitation programme.
- ii) Technical research, especially with regard to the development of affordable sanitation and house construction components. The sanitation research and its results have been formally accepted by government agencies such as SKAA, KMC and the Lodhran Municipal Committee (LMC). It has also been accepted by the DIFID funded Faisalabad Area Upgrading Project, UNICEF, the UNDP-World Bank Water and Sanitation Programmes Sindh Pilot Project and the now defunct World Bank Collaborative Katchi Abadi Improvement Programme at Hyderabad, Sindh. In addition, it is being used by numerous NGOs and CBOs all over Pakistan, both in rural and urban areas.
- iii) Documentation of problems encountered in the development and implementation of the OPP-RTI models, their causes and the manner in which these problems were resolved. This research is important in sociological terms and because of its documentation government agencies and NGOs have not made the same mistakes that the OPP-RTI has made in its work from time to time. This research has also resulted in the collection of profiles of lane activists and of technical people in the community. This collection has also made the OPP-RTI aware of the qualities required in a community activist, a community technician and a social mobiliser. This makes it easier for the project to identify potential human resources.
- iv) Research into alternative and affordable systems of sewage disposal in the larger city context. The OPP-RTI has documented the entire natural drainage systems of Karachi into which 80 per cent of the city's sewage discharges along with the problems the drains face due to silting and encroachments. In addition, it has documented the existing infrastructure (both community and government built) of 196 *katchi abadis*¹². This is the only documentation of its kind that exists and shows that in an ad-hoc manner government, politicians and communities have invested billion of rupees in sewage systems (that drain into the natural creeks) and in water supply. This effort is not even taken into consideration in government and donor funded plans. On the basis of this documentation, the OPP-RTI has effectively challenged the Greater Karachi Sewage Plan of the Karachi Water & Sewage Board (KWSB). From OPP-RTI's documentation, it is clear that the sewage from the natural drains cannot be taken to the existing and proposed treatment plants. The OPP-RTI's solution is that the existing system should be accepted and in the first stage the

¹². OPP: Survey of 200 Katchi Abadis, under preparation, to be published in August 2000

natural drains should be converted into box trunks with small decentralised treatment plants at the locations where they meet the sea or other water bodies¹³. The rest of the sewage system can be upgraded incrementally over time with local resources. This alternative brings down the cost of the Greater Karachi Sewage Plan by 70 to 75 per cent. Government agencies and professionals are divided on the acceptance of the plan and the debate is continuing. The OPP-RTI has supported its concept by examples from Japan (where a similar approach has been used) and from the development of sewers in the 19th century in Europe.

OPP-RTI's research and the alternatives it proposes are documented through monographs, progress reports, books and external evaluations. A list of some of this literature is given in Appendix – 2: List of Important Literature on the OPP.

6.6.2 Training and the Development of Human Resources

Between 1983 and 1988, the programmes of the OPP institutions expanded rapidly and community organisations, activists and NGOs from other *katchi abadis* and informal settlements applied for help in replicating them, especially the sanitation programme. Later, NGOs from other countries also applied for assistance and since 1987, government and international agencies have also been interested in replicating the sanitation and credit model. The OPP-RTI cannot carry out this replication. It does not have the manpower resources or the time. Therefore, the OPP-RTI orients and trains government functionaries, NGO activists and professionals, community leaders and technicians, and potential technical and social support persons from the community. These trainees then replicate the OPP-RTI programmes. The OPP-RTI visits the replication programmes regularly and the replication programme staff visit the OPP-RTI office for advice and further training as and when necessary.

The OPP-RTI also provides fellowships to school educated unemployed young people in *katchi abadis*. Through these fellowships young people learn how to survey and map settlements, estimate costs of infrastructure development and social mobilisation. At present, there are 21 young men undergoing this training at the OPP-RTI office in Karachi. They will be an asset to their communities and will be able to help them in organising for infrastructure development and for establishing a more equitable relationship with the government sponsored KAIRP. As mentioned before, young men from communities are also being trained as para-architects at the OPP-RTI office.

Since June 1992, 527 groups containing 4,320 members have been trained at the OPP-RTI. The largest number of trainees has been from CBOs and NGOs (366 groups containing 2,661 members) followed by government agencies (91 groups containing 1,212 members)

¹⁴.

In addition to training, the OPP-RTI and OCT professionals lecture at the National Institute of Public Administration to senior and mid-level government functionaries and teach at architectural, planning and engineering academic institutions. This has resulted in curriculum changes in the academic institutions and in creating links with government bureaucrats. OPP-RTI also arranges lectures for activists and members of community organisations and informal sector entrepreneurs and operators. These lectures are on development, economics, politics and related matters and are delivered by prominent Pakistani academics and professionals. This is done to help create a larger view of development within low income communities that links their reality to national and global issues.

¹³. OPP: Proposal for a Sewage Disposal System for Karachi, City Press, Karachi, 1998

¹⁴. OPP Progress Reports

To carry out its work, which is increasing every day, the OPP-RTI has had to develop the capacity and capability of its staff and also to promote in them the philosophy and methodology of the OPP institutions. This has not been an easy job since conventionally trained professionals and technicians think on very different lines. How this has been achieved is described in Appendix – 3: The Development of Human Resources at the OPP.

6.7 SPIN-OFFS IN ORANGI

People maintain the sewage systems that they have laid. However, in most cases this maintenance is no more than crisis management. Whenever there is a breakdown, people get together and collect money and solve the problem. In a small number of cases where an activist is missing, this crisis management is not very effective.

In contrast to the above, the past three years have seen the emergence of strong neighbourhood organisations. Three of them have become extremely well organised and effective. In Ali Nagar, a neighbourhood of 360 houses, the Orangi Welfare Project has been established. The Project Committee runs a school, maintains a park, collects and disposes solid waste with the assistance of the DMC, maintains sanitation and sees to it that no house has an illegal electric connection. All government dues and taxes are collected by the Committee and handed over to the relevant government departments. The Committee keeps in touch with the service providing agencies and coordinates its work with them. The Committee also presents prizes at public functions arranged by it to those government officials who cooperate with it. The government officials value this association.

Similar organisations have been created in two other neighbourhoods as well. Ghaziabad, which contains over 400 houses, is one of them. Here, in addition to maintaining sanitation, a park and other facilities, the Falahi Tanzeem, as the association is called, has financed and managed the development of its own electricity supply. The Tanzeem negotiated with the electric company and purchased the necessary electric wiring at its own expense. The Company supplied the PMTs and poles. A company recommended contractor was hired by the Tanzeem to complete the work that was paid for by the beneficiaries. The residents of Ghaziabad have also developed a system of patrolling their streets at night since the area had become unsafe due to strife in Karachi. The local police station has collaborated with the Tanzeem in this effort after which Ghaziabad has become safe.

The activists of these new neighbourhood organisations have had a long association with the OPP-RTI. Their neighbourhoods have now become demonstration and training areas for other neighbourhood organisations. This is something that the OPP-RTI now wishes to promote. Through this process the people of the neighbourhoods will take over all decision making related to development and maintenance of their physical and social environment.

7. SCALING UP OF THE OPP-RTI SANITATION MODEL

7.1 THROUGH NGOS AND CBOS

Attempts to replicate the OPP-RTI sanitation model have been made since 1983 in various locations in Karachi. Initially, the OPP-RTI attempted to work in other settlements on the same pattern as it had in Orangi. However, it soon discovered that without a local organisation taking over the responsibility of social mobilisation and technical support, the model could not be replicated. This realisation led to the training of local activists and technicians and the mobilisation of community organisations. After this, replication within Karachi has posed no problems as the OPP-RTI staff and its expertise have been available

at hand. The most successful replication in Karachi has been that of Manzoor Colony where 153 number of lanes containing 2,950 houses have built their underground drainage along with 36 collector drains. This entire system disposes into a natural drain that joins the sea. The community has lobbied successfully with the help of OPP designs and estimates with the administration for converting the open drain into a box trunk. The conversion is now complete and carries with it the affluent of 1.5 million population. This is not only of Manzoor Colony but that of a large planned area of Karachi as well. Plans to install a treatment plant at the end of the box trunks are underway.

There have been 13 NGO/CBO attempts at replicating the sanitation programme outside of Karachi. Five of these have been failures; two have been remarkable successes; and four show signs of promise. In all cases except one, the NGOs and CBOs who have replicated the programme set up a small unit whose administrative and overhead costs were paid for by the OPP-RTI through its own resources or by arranging funds from WaterAid, a UK based NGO. These costs have varied from Rs 150,000 (US\$ 2,750) to Rs 450,000 (US\$ 8,350) per year. In most of these projects, disposal points for sewage were not available through natural drains as they were in Orangi. Therefore, "external" development meant the construction of long collector drains to existing government trunks or the natural drainage system. These had to be constructed before "internal" development could take place. For this, credit has been arranged for the NGOs and CBOs and they recover this when a lane connects to the collector drains. Thus, the credit has become a revolving fund. In other cases, the communities have negotiated with their government counterparts to develop the collector drains that they have identified and estimated. This identification and the estimate have been prepared by the technical unit of the NGO/CBO with OPP-RTI support. In one case, in northern Pakistan, the NGO has identified a location for a main drain to which the entire town could connect. It is being surveyed and costed along with a treatment plant design and estimate. The NGO is confident that it will manage to get this approved by the government in the coming annual development plan for their town.

Wherever local initiatives have been successful, they very quickly establish a dialogue with local government in charge of sewage systems and press for the acceptance of the "internal-external" concept. Local governments are under pressure to perform and as such they informally accept this concept and support the communities. However, the provincial planning agencies do not accept this concept and its implementation takes place in violation of their standards, procedures and plans. This violation is helped by the fact that the plans of the planning agencies do not get implemented and with the expansion of settlements and ad-hoc laying of infrastructure they very soon become redundant.

NGOs and CBOs who successfully replicate the OPP-RTI model are flooded with requests from other settlements to assist them in solving their sanitation problems in a similar manner. However, with one exception, that of the Anjuman Samaji Behbood (ASB) in Faisalabad, none of the NGOs or CBOs have the capacity or capability of supporting other initiatives and training people for them. The ASB has managed to develop water supply pipelines for 1,000 houses and sanitation lines in 162 lanes serving 1,625 houses ¹⁵. An additional secondary sewer is being laid to which 200 other lanes will be connected. For a list of OPP's replication projects outside of Orangi, their scale and people's investment in them, see Appendix – 4: Sewage Construction Outside Orangi – February 2000.

The reasons for the failure of NGOs and CBOs to replicate the OPP-RTI programme are similar. They are:

¹⁵. ASB Progress Reports

- i) Failure to develop a technical cum motivation team: The major reason for this failure is that the technical people do not come from within the community but are hired professionals from the market who leave whenever a better opportunity is available and a new appointee has to be trained all over again.
- ii) Acceptance of large sums of donor money for expansion: In all cases where this has happened, the NGO/CBO has not been able to deliver because it does not have the capacity or the capability to expand its work accordingly. Accepting large sums of money have also led to financial mismanagement and in one case to the cancellation of funding.
- iii) Subsidising lane development: OPP-RTI believes in component sharing. Where cost sharing takes place, there are invariably disputes, higher costs and less empowerment of communities. Greater resources, that are not normally available, are required and in their absence the programme fails.
- iv) Absence of patience: The OPP-RTI sanitation model requires patience and time. NGOs/CBOs who do not have this patience, discontinue the programme.
- v) Failure to keep in touch with the OPP-RTI and seek its advice.
- vi) Failure to share accounts of the NGO/CBO with the community. This makes the community feel that the NGO/CBO is making money from foreigners or government agencies.

The reasons for successes are also similar.

- i) The development of a technical cum social organisation team with staff members from the community.
- ii) An activist or leader who can establish an informal working relationship with local government functionaries and politicians.
- iii) The availability of a map of the area or the expertise of preparing such a map.
- iv) Patience to wait and consolidate rather than expand the programme.
- v) Availability of funds for staff and administration and credit for developing long collector sewers where disposal points are not available.
- vi) Coordination with OPP-RTI for advice, training and documentation.
- vii) Regular weekly minuted meetings to review progress, take stock, assign responsibilities and identify weaknesses and the process of overcoming them.
- viii) Transparency in account keeping and the involvement of local people on the board of the NGO.

7.2 THROUGH GOVERNMENT AGENCIES AND DONOR PROGRAMMES

7.2.1 Early Attempts and the Causes for Successes and Failures

The first major collaboration of the OPP-RTI with a government agency was in 1991-94 for the design and implementation of ADB funded PAK-793 Project for a part of Orangi, which has been mentioned in section 6.1. The initial objectives of the ADB financed upgrading programme were changed to accommodate the OPP-RTI concept of development. The change meant that the KMC would provide collector sewers, which would be considered “external” development and the OPP would continue to mobilise people for financing and building their lane sewers, in the identified sub-project areas (SPAs). The objective, therefore, was to create a collaboration between government agencies, the OPP-RTI and the people of Orangi. As a result of this agreement, 120,983 running feet of trunk sewers were laid by the Project and 1,093 lanes containing 21,866 houses built their sewage systems at their own expense and connected to them.

The Project was successful for a number of reasons.

- i) The mayor of the KMC at that time was a friend of the OPP-RTI and took a personal interest in the initiation of the Project.
- ii) The Project Director had previously been the administrator in Orangi and in that capacity had dealt with the OPP-RTI and its sister organisations. He was fully supportive of the concept and saw to it that the provisions of the agreement were followed by government engineers and contractors.
- iii) The OPP-RTI had close links, built over a decade, with the activists and the residents of the SPAs. Therefore, it was easy to mobilise them and advice them on technical matters related to the Project.
- iv) Since the Project was in Orangi the OPP-RTI to supervise it with the help of the communities.

Other attempts of working with government were not so successful. The UNICEF’s Urban Basic Services Programme in Sukkur (an intermediate city 450 kilometres north of Karachi) and the World Bank-Swiss Development Cooperation (SDC) programme in Hyderabad also adopted the OPP-RTI’s sanitation model between 1990-94. OPP-RTI was a party to a tripartite agreement between the donor agency, government departments and the OPP-RTI. Community project offices with local social organisers and technicians were set up to motivate and provide technical support to communities to build their “internal” development. These project offices were autonomous. The government department was supposed to design and implement the “external” development. The OPP-RTI was to advice, train and monitor both the community and government work. In both cases, the community was mobilised, collected money, and in the case of Sukkur, developed 14 lanes containing 155 houses. However, the government department in Sukkur developed only a part of the “external” but could not maintain its pumping station due to which the work was not able to proceed and the community lost interest. In the case of Hyderabad, after four years, the “external” could not be completed and as such the lanes had no disposal points for their sewage and the Project came to a standstill.

The reasons for the failure of the projects have been analysed in great detail and have been published in a number of OPP-RTI’s reports and monographs. They are listed below.

- i) The local government departments who were to design and manage the projects were never consulted in the initial decision-making and as such they did not own the project methodology. The “external-internal” concept was simply forced on them.
- ii) Training of local government officials and engineers, community activists and policy decision-makers, did not take place collectively although attempts to do this were made at a later date.
- iii) In the case of Sukkur, a number of existing informal arrangements for infrastructure maintenance and operation were not taken into consideration during the design of the Project.
- iv) Before designing the institutional arrangements for the projects, internal politics, the organisational culture, technical capacity and capability and financial problems of the Sukkur and Hyderabad municipal councils were not undertaken. It was assumed that they would and could play the role that the projects had assigned to them. As such a number of incorrect administrative decisions were taken by the external partners.
- v) In the case of Hyderabad, the World Bank-SDC office that managed the project was located in Karachi and as such could not look after the project.
- vi) There were constant transfers of project staff and each new appointee had to undergo intensive training at the OPP-RTI all over again.

The Hyderabad and Sukkur communities have kept in touch with the OPP-RTI. In Sukkur, they have attempted to take over the pumping station and operate it. They have not succeeded. In Hyderabad, they have managed to get completed part of the “external” development. It is interesting to note that the Sukkur Project was one of the best practices identified for the 1996 Habitat Conference in Istanbul.

7.2.2 Through the Sindh Katchi Abadi Authority (SKAA)

The SKAA is a provincial government organisation established in 1986. Its function is to regularise and develop *katchi abadis* in the province of Sindh. A revolving fund of Rs 250 million was provided to SKAA through an ADB loan for this purpose. However, there was almost no progress in SKAA’s work until 1991 when Tasnim Ahmad Siddiqui, a bureaucrat who had worked voluntarily with the OPP for many years, became its director general. Siddiqui decided to adopt the OPP-RTI model, appoint the OPP-RTI as consultant to SKAA for the implementation of the model, bring about institutional arrangements in SKAA that would make its organisation and culture compatible with the model, and remove the administrative constraints communities and individual households face in acquiring a lease.

The OPP-RTI has trained SKAA’s staff in its manner of working. It has documented, with the involvement of SKAA’s staff, all existing sanitation and water supply in 58 SKAA settlements and identified “external” sanitation and water supply schemes that are required in 32 settlements. The communities undertake “internal” development and the acquisition of a lease has been made a one window affair which is carried out by setting up of a lease camp within the settlement. The lease money is spent on “external” development which the communities supervise. All accounts are available to the community and as such they know exactly where and how their lease money is being spent.

As a result of SKAA's programme, SKAA has become financially solvent. It requires no funds from external sources for its functioning or for development work. Between 1995 and September 1998, SKAA had recovered Rs 136.5 million (US\$ 2.52 million) from lease money. In the same period, it has spent only Rs 2.245 million (US\$ 0.04 million) from ADB sources and Rs 13.5 million (US\$ 0.25 million) from the collected lease money ¹⁶.

7.2.3 New Directions

Lodhran is a small town (population 40,000) in the Punjab Province. Lodhran Pilot Project (LPP), an NGO, has been established here in April 1999. The purpose of the NGO is to replicate the OPP-RTI and OCT model. The OPP-RTI has attached its senior most social organiser to the Project. An agreement between the LPP and the municipal committee has taken place. Under this agreement, the municipal committee will develop external sanitation and the community will develop the internals. An office of the LPP has been established and the municipal engineer sits in it and gives technical and managerial advice to communities that the Project motivates. The immediate requirements for "external" infrastructure have been identified and work on them is in progress. A master plan is being prepared and costed. The "externals" of the plan will be implemented through the Annual Development Plan funds of the municipal committee. As a result of the work in Lodhran, neighbouring villages have also been motivated and in one of them work has begun and in another money is being collected. The LPP team has been trained at the OPP-RTI and OPP-RTI professional staff have visited Lodhran several times.

Another important development has taken place in Swat in the North West of Pakistan. Community Infrastructure Project (CIP) is a World Bank funded development. In CIP communities share the cost of development with government agencies. The Environmental Protection Society (EPS), a local NGO that has been trained at the OPP-RTI, has managed to have the project rules changed in its area whereby cost sharing has been replaced by component sharing. This has completely changed the nature of the Project.

8. NEW ISSUES FOR THE OPP-RTI

With the expansion of the work of the OPP-RTI and the increasing number of communities and city governments (not provincial planning agencies) from all over Pakistan who wish to replicate the work of the OPP institutions, a number of new issues have surfaced. These are listed below.

- i) The scale of work has become too large for the OPP-RTI to handle alone: OPP-RTI's work is no longer with communities only. It is also advocacy and getting support of communities from all over Karachi for its alternatives. In addition, a large number of students from universities and professional colleges visit the project for orientation and research. To overcome this pressure, the OPP-RTI has established close links with other NGOs and CBOs who now share this work with it. For example, the Urban Resource Centre (URC), a Karachi NGO, arranges and coordinates sewage and water supply related meetings of NGOs and CBOs and also arranges for press publications and journalists visits to OPP-RTI projects. Similarly, another NGO, Idara-e-Amn-o-Insaf, which has close links at the grass roots is being inducted to organise communities for OPP-RTI supported development. Another NGO, CREED, is looking at international involvement in funding development projects and reform processes. The collaboration between these NGOs has been successful and jointly they may help in bringing about appropriate policy changes. Through their efforts an ADB

¹⁶. SKAA Progress Report, December 1998

funded US\$ 100 million sewage project (Korangi Waste Water Management Project) has been modified and the ADB loan cancelled.

- ii) Policy issues: NGOs and CBOs replicating the OPP model very soon come in conflict with rules and regulations of government agencies or with the methodology of internationally funded projects. The “external-internal” concept is accepted only informally by the government. Many of these NGOs and CBOs lack confidence in stating their position to local government. To overcome this, the OPP-RTI is proposing the holding of an annual congress of all its partners and making it a high profile affair which will present policy alternatives to the government. A separate organisation from the OPP-RTI will be responsible for holding this congress, documenting and publishing its proceedings, and promoting its recommendations.
- iii) Community leaders turned mafia agents: The OPP-RTI has noted that some of its community activists who helped the neighbourhoods build their sewage systems, become involved with contractors and land grabbers when the natural drains are turned into box trunks. This is because these contracts are large and a lot of land is recovered as a result of their implementation. To counteract this the OPP-RTI has begun a lecture series, described in section 6.6.1, so as to give the community a broader vision of development.
- iv) Donor funding: It has also been noted by the OPP-RTI that organisations and individuals who come for training to the OPP-RTI use this association for acquiring funding from foreign donors but do not implement the OPP-RTI model or follow its methodology. The OPP-RTI feels used and it is considering steps, including a change in its training procedures, to stop this from happening.
- v) Professional staff: OPP-RTI has no problem training and recruiting para-professionals, technicians and social organisers from within the community. However, professional staff is difficult to recruit. The reason is that there is a big gap between conventional professional training and the manner in which the OPP-RTI functions. It takes a long time for a trained professional to unlearn what he has learnt and very few have the patience to go through with it. Increasingly, universities and professional colleges are associating the work of their students with the Orangi programmes. Hopefully, this association will lead to overcoming this issue.

9. CONCLUSIONS

A large number of conclusions can be drawn from the work of the OPP-RTI. It is not the purpose of this paper to discuss all of them. However, a few are important and need to be stated.

- i) Communities are already trying to solve their problems and if they are supported by technical advice and managerial guidance, their solutions will improve. However, before one can support community effort one has to understand the work of the community, the actors and factors involved in its development related work, their relationship with each other, and their social, economic and technical strengths and weaknesses. The most important tool in understanding the community is a map of their neighbourhood and the documentation of its physical condition.
- ii) Development does not take place with funds. It takes place through the development of skills, self-reliance and dignity. The three are closely inter-linked and follow each other in the order in which they are mentioned. They make relationships within

community, and of community with government agencies more equitable. This change in relationships brings about changes in government planning procedures and ultimately in policies.

- iii) “Capacity and capability” building of government agencies can never be successful without pressure from organised and knowledgeable groups at the grass roots. Such groups can only be created by activists, who have to be identified, trained and supported financially. Formally trained professionals and technicians are not an alternative to such activists. The formation of such groups forces transparency in the functioning of government agencies. The most important aspect of transparency is the printing of accounts and their availability to community members.
- iv) One of the major reasons for disasters in government planning is that ideal plans are made and finances are then sought for them. Often these finances do not materialise. Things would be very different if planning is done on the basis of a realistic assessment of funds that are available, and if an optimum relationship can be arrived at between resources (financial, technical and others), standards and demands, and if planning can recognise and accommodate the fact that all three are dynamic and can change over time.
- v) Poor communities do not own programmes developed by “others”, however participatory, in which they are asked to participate. It is government agencies that must learn to participate in people’s programmes and in their existing processes.
- vi) The role of NGOs and support agencies is primarily to educate but for this they must, before anything, have a knowledge and a sympathetic understanding of the context in which they are working.
- vii) To promote the Orangi programmes and make them a part of government policy, it is necessary to restructure the curriculum of professional colleges, universities and institutions that train public servants.

Abbreviations

ADB	Asian Development Bank
ASB	Anjuman Samaji Behbood
CREED	Citizens Alliance in Reforms for Efficient and Equitable Development
DMC	District Municipal Corporation
KAIRP	Katchi Abadi Improvement and Regularisation Programme
KDA	Karachi Development Authority
KHASDA	Karachi Health and Social Development Association
KMC	Karachi Municipal Corporation
LMC	Lodhran Municipal Committee
LPP	Lodhran Pilot Project
OCT	Orangi Charitable Trust
OPP	Orangi Pilot Project
Rs	Pakistani currency (Rupees)
RTI	Research & Training Institute
SKAA	Sindh Katchi Abadi Authority
TBA	Traditional Birth Attendant
URC	Urban Resource Centre

Local Terms

<i>falahi</i>	welfare
<i>katchi abadi</i>	squatter settlement
<i>tanzeem</i>	organisation
<i>thalla</i>	building component manufacturing yard
<i>thallawala</i>	owner of building component manufacturing yard

APPENDICES

OPP-RTI Procedures and Principles

1. Identification of existing community organisations and dialogue with them.
2. Survey and documentation of what exists; physical, social (actors and their relationships), economic conditions, technology in use. This is to be done with the help of the actors involved in infrastructure development.
3. Development of a conceptual plan on the following principles:
 - Division into internal and external infrastructure components.
 - Component sharing between community, NGO and or government (never cost sharing).
 - Decentralisation and miniaturisation of functions/technology.
 - Establishment of optimum relationship between needs, resources and standards but appreciating that all three are dynamic and can change over time.
4. Using the above principles to build on what exists.
5. Identification of activists and support to them financially and technically.
6. Development of skills within the community – conventionally trained professionals are not an alternative to local para-professionals and technicians.
7. Monitoring; it simply means weekly meetings, informed discussions between staff and community members (occasionally with support from resource persons), minute keeping and regular follow up.
8. Documentation, dissemination and modification of programme (involvement of consultants, academic institutions and local people).
9. Account keeping; all accounts including salary of staff members should be published regularly and made public.
10. Collective decision making; all decision making should be made through concerns between resource people, activists, staff members, government officials.
11. Relate local level issues to larger urban realities (dialogue with government agencies and politicians).

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- Numerous videos, monographs, profiles of activists, case studies and student's thesis on the OPP-RTI programmes.

The Development of Human Resources at the OPP

It was not difficult to recruit staff for working with the OPP in the initial stages. However, it was difficult to train the staff in understanding the OPP philosophy and in following its methodology. This became even more difficult once OPP's work expanded beyond Orangi. Yet the OPP was able to develop the necessary human resources required for the development and expansion of its work. What these human resources are and how they were developed is perhaps the most important achievement and asset of the OPP.

Broadly speaking, the OPP staff consists of professionals, social organisers and technicians. The professional's work consists of research into the problems of Orangi residents; identification of their own solutions to these problems; and again through technical research, the development of a better package of advice. The professionals also prepare extension literature and supervise physical work. All professional research has to be compatible with the sociology and economics of low income residents. The results have to be 'doable' by them and they have to be maintained and looked after by them.

The social organisers are recruited from the community. Their work consists of contacting people, helping to organise them, extending the various packages of advice and monitoring them and identifying issues and problems in the community that are relevant to the development work to be carried out or that which may need to be carried out in the future. The social organisers are the link between the people and the professionals and their involvement in, and feedback to, the professional's work keeps it rooted to the field reality.

The technicians are also recruited locally. They work with the social organisers, supervising physical work and helping to extend the package developed by the professionals. To do this they and the social organisers have to work as a team. The technician has to also work with the professional so that he can understand the package of advice and report back to the professional on the technical problems with the package.

In the initial stages, the OPP tried to recruit experienced professionals. However, it soon discovered that such professionals found it very difficult to relate to the OPP's philosophy and methodology. They were too deeply rooted in the conventional manner of doing things. Subsequently, the OPP had to rely on a consultant and young graduates who were able to grow with the OPP. It was possible for these graduates to unlearn some of what they had been taught at their universities and to learn from the people, social organisers and technicians and to teach them as well.

The social organisers have played a very important role in the development of the OPP. In the initial stages of the OPP, when Akhtar Hameed Khan was establishing his contacts with the leaders, organisations and people of Orangi, he recruited persons whom he felt were suitable for the job. The choice was made intuitively but this institution had a long experience behind it. It so happens that all the social organisers have a number of things in common. They are all political persons in some way or the other. They have all been active in the neighbourhood organisations. The Orangi political leadership has depended on them for support. They all have an element of radicalism and understood much faster than their neighbours what Akhtar Hameed Khan was trying to say. They had all been involved in some way or the other in the development of Orangi Township. With their political background it was easy for them to communicate with the people, organise meetings and help settle sociological and organisational problems that keep cropping up in community related work.

The technicians consist of plumbers, draughtsmen and surveyors. The plumbers and surveyors are residents of Orangi and were working in these fields before they joined the OPP.

The professionals, social organisers and technicians all come from different backgrounds. When they started working together they all had different views of development that were shaped either by their education or their life experience. For them to work together it was essential that they develop a

common viewpoint regarding the work they were being asked to support. It is here that Akhtar Hameed Khan played his role as a teacher. From the beginning of the project till 1988, weekly meetings of the entire OPP staff were held. The week's work was discussed at these meetings along with its sociological, technical and economic aspects. Every member presented his report. Jobs, which included the writing of experiences, were assigned at these meetings and work assigned at the previous meeting was reviewed and evaluated. This exchange in itself was an enormous learning experience for everyone. It was further enhanced by Akhtar Hameed Khan's analysis, advice and the manner in which he related the micro-level issues presented by the staff to larger national and international realities. The director's report to his staff, with which the meeting began, discussed threadbare the negotiations he may have had with international agencies, government officials and institutions, or with national and local politicians. Accounts were also discussed and nothing was kept secret from the staff. In addition, every member of the staff was encouraged to write and his writings were published in the magazine of the OPP.

Through these meetings a vision of development was passed onto the staff. They came to understand the close link between social, economic and technical issues; their skills were upgraded; and most important of all, a strong bond developed between them. This bond was not only based on a common development vision but also embodied in it the values of diligence, frugality, modesty and account keeping and transparency.

After the upgrading of OPP into four different institutions in 1988, each institution has separately continued this tradition of weekly meetings in which the same process is followed. Every institution now brings out its own newsletter and progress reports.

Due to the process described above, professionals, social organisers and technicians have no difficulty in relating to each other. As a matter of fact, the social organisers have acquired the skills of the technicians and most technicians have become excellent social organisers. Some of the social organisers and technicians can partly fulfil the role of the professionals, and almost all the professionals can partly fulfil the role of the social organisers. In addition, technicians and social organisers have also upgraded their skills. Some of them, with OPP support, have taken courses in surveying and mapping and others have acquired skills in computer sciences. Thus, with its limited manpower, the outreach potential of the OPP has been considerably enhanced.

However, OPP's human resource development has not only been limited to the Orangi staff. Over 5,000 lanes have financed and managed the construction of their sewage lines through OPP advice. Each lane elected, selected or nominated its lane manager. These lane managers and their assistants collected and managed the money of the people and also organised the construction of the sewage system with active participation of the lane residents. Many of the lane managers subsequently became involved in the other programmes of the OPP and have developed as effective extension agents. They are now the promoters of the OPP concept of development through community participation and self-help.

This development of human resources is impressive. But the OPP still finds it difficult to deal with the increasing number of requests for assistance for the replication of its programmes that it is receiving from numerous CBOs, NGOs and from the Sindh Katchi Abadi Authority (SKAA). To overcome this problem, the OPP has started training young people and students from the settlements where it is working, as technicians. These young people are trained to survey and map the settlements; develop physical designs; and as inoculators for the immunisation programme. They receive training through an apprenticeship with the OPP-RTI for a period of time. Funds for this training are provided by a number of international NGOs. The surveyors and designers being trained will, it is hoped, set up their own offices and become self-sufficient by charging fees from their clients or from the local organisations that will seek their support. Similarly, the inoculators will also become associated with the private clinics that exist in large numbers in all low income settlements in Pakistan and who experience a major difficulty in getting trained staff.

As a result of this human resource development, the OPP-RTI can carry out its training activities and give technical support to NGOs, CBOs and government agencies. All the staff members (professionals, social organisers and technicians) collectively participate in the training exercise and where necessary, lane managers and extension agents are brought in. The Orangi area, which has

been the scene of the OPP's activities for the last 15 years, serves as a demonstration area. As a result, every trainee, irrespective of his social class and education background, can relate to the trainers at the OPP-RTI.

Sewage Construction Outside Orangi – February 2000

Sr. No.	Area	Location	International Sanitation				External Sanitation	
			Lanes	Rft.	Latrines	Cost (Rs in Million)	Mains. Rft.	Cost (Rs in Million)
1.	Chanesar Goth	Karachi	4	450	28	0.012	-	-
2.	Manzoor Colony	Karachi	153	46,935	2,908	2.170	*2,450	18.845
3.	Islamia Colony	Karachi	108	24,840	1,043	1.250	8,050	1.443
4.	Bhitai Colony	Karachi	-	-	-	-	-	0.400
5.	Welfare Colony	Karachi	106	23,320	1,272	1.520	1,970	3.040
6.	Mujahid Colony	Karachi	17	5,865	525	0.630	3,435	0.842
7.	Jamali Colony	Karachi	20	3,400	140	0.168	1,882	0.328
8.	Madina Colony	Karachi	69	10,005	759	0.910	1,270	0.465
9.	Umer Baloch	Karachi	9	1,610	130	0.156	370	0.060
10.	Burmees Sharif	Karachi	219	28,660	3,285	3.942	3,510	0.988
11.	Baloch Colony	Karachi	10	1,813	120	0.144	2,800	0.340
12.	Awami Colony	Karachi	38	5,700	494	0.592	4,444	1.314
13.	Pirabad	Karachi	88	24,840	440	0.528	3,484	2.476
14.	Muslimabad	Karachi	42	17,346	420	0.504	-	-
15.	Rajput Colony	Karachi	49	11,660	539	0.647	2,125	1.043
16.	Zia Colony	Karachi	87	22,106	1,615	2.214	3,700	0.210
17.	Umer Colony 1	Karachi	26	3,180	318	0.381	900	0.059
18.	Umer Colony 2	Karachi	17	1,490	149	0.178	1,790	0.116
19.	Nishtarabad	Karachi	-	-	-	-	500	0.079
20.	Shah Rasool Colony	Karachi	21	2,814	210	0.252	1,594	0.401
21.	Ziaul Haq Colony	Karachi	111	13,764	999	1.198	2,960	0.665
22.	Bawani Chali	Karachi	44	4,488	352	0.422	2,360	0.748
23.	Khando Goth	Karachi	6	1,332	48	0.057	1,160	0.282
24.	Kausar Niazi Colony Blk 'F'	Karachi	78	13,260	1,014	1.216	376	0.098
25.	Kausar Niazi Colony Blk 'H'	Karachi	40	4,972	484	0.580	1,180	0.202
26.	Rehmatia Colony	Karachi	87	9,570	655	0.786	3,550	0.860
27.	Wahid Colony	Karachi	19	4,560	247	0.296	1,520	0.357
28.	Anjuman-e-Ittehat Colony	Karachi	3	600	27	0.018	800	0.238
29.	Qasimabad	Karachi	2	360	20	0.014	340	0.073
30.	Kot Lakhpatt	Lahore	54	13,473	711	1.496	180	N.A.
31.	Qadri Colony 1	Lahore	27	5,794	308	0.730	-	-
32.	Qadri Colony 2	Lahore	5	1,064	43	0.125	-	-
33.	Yasrab Colony	Lahore	5	1,538	74	0.148	-	-
34.	Farooq Colony	Lahore	3	540	24	0.078	-	-
35.	National Colony	Faisalabad	3	582	38	0.081	-	-
36.	Dhuddiwala	Faisalabad	27	3,573	161	0.415	-	-
37.	Hasanpura	Faisalabad	51	7,664	540	1.211	-	-
38.	Rajda Town	Faisalabad	4	635	37	0.083	-	-
39.	Al-Najf Colony	Faisalabad	1	160	16	0.032	-	-
40.	Nimat Colony	Faisalabad	6	1,600	64	0.173	-	-
41.	Jalvi Market	Faisalabad	14	2,591	97	0.266	-	-

42.	Factory Area	Faisalabad	1	310	10	0.043	-	-
43.	Abdullah Town	Faisalabad	3	1,668	48	0.190	-	-
44.	Jalvi Trunk	Faisalabad	-	-	41	0.057	1,820	0.277
45.	Darusalam Colony	Faisalabad	2	300	12	0.030		
46.	Iqbal Nagar	Faisalabad	2	418	22	0.048		
47.	Bilal Colony	Faisalabad	18	3,232	178	0.520	-	-
48.	Mujahid Town	Faisalabad	5	680	30	0.077		
49.	KTM Chowk	Faisalabad	2	210	6	0.021		
50.	Nisar Colony	Faisalabad	16	5,758	263	0.734		
51.	Satellite Town	Faisalabad	5	1,390	39	0.151		
52.	Khekashan Colony	Faisalabad	-	-	-	-	*3,800	0.703
53.	Madina Colony	Faisalabad	2	415	23	0.057	-	-
54.	American Barracks	Hyderabad	-	-	-	-	5,297	1.200
55.	American Quarters	Hyderabad	-	-	-	-	+4,610	0.770
56.	American Quarters II	Hyderabad	-	-	-	-	+3,615	0.502
57.	Gujrati Para	Hyderabad	-	-	-	-	+3,920	0.430
58.	Mominabad	Gujranwala	16	2,979	204	0.317	-	-
59.	Gole Tikri	Sukkur	14	1,650	155	0.199	9,800	1.700
60.	Tench Bhatta	Rawalpindi	1	464	23	0.209	-	-
61.	Dhok Matkan	Rawalpindi	26	5,635	371	0.517		
62.	Dhok Hassu	Rawalpindi	-	-	-	-	-	-
63.	Rasoolabad	Muzaffargarh					227	0.015
64.	Shagai	Swat	2	144	18	0.034	660	0.063
65.	Lodhran	Lodhran	3	330	29	0.060	*1,950	0.624
	Total		1,791	353,757	21,826	28.887	95,549	42.257

Rft.: running feet

* : work in progress

+ : work stopped