iied
International Institute for Environment and Development

Human Settlements Discussion Paper Series

Theme: Water - 6

Lessons from Karachi: the role of demonstration, documentation, mapping and relationship building in advocacy for improved urban sanitation and water services

August 2008

Arif Pervaiz
Perween Rahman
with
Arif Hasan

This paper is an output of the Sida, DANIDA and DFID funded project entitled: Improving urban water and sanitation provision globally, through information and action driven locally. IIED and five of its partners are carrying out this project in Angola, Argentina, Ghana, Pakistan, and India. The project documents innovative and inspiring examples of locally-driven water and sanitation initiatives in deprived urban areas. The project provides a basis for better understanding of how to identify and build upon local initiatives that are likely to improve water and sanitation in low-income settlements. The project also looks at how local organisations in those countries have managed to: scale up successful projects; work collaboratively; finance water and sanitation schemes; and use information systems such as mapping to drive local action and monitor improvements.

ABOUT THE AUTHORS

Arif Pervaiz has a B.A. in History and Political Science from Rutgers University (New Jersey); M.Sc. in Management of NGOs from the London School of Economics (LSE); and M. Sc. in Environmental Management from National University of Singapore. The bulk of his professional work experience has been in the area of environment and development. He until recently headed the WaterAid Pakistan country office. He started his carrier in development with the Aga Khan Rural Support Programme (AKRSP), and later moved to IUCN, where he worked in different capacities for four years. In between, he did a number of cross-sector, short-term assignments for different national and international organisations. He is currently working for the Clinton Climate Initiative in Karachi.
E-mail: arifpervaiz@gmail.com

Perween Rahman is an Architect and Urban Planner. Joined OPP in 1983, as Joint Director and managed the Sanitation and Housing programmes. Since 1988 has been working as Director of Orangi Pilot Project – Research and Training Institute. She has also been a visiting lecturer since 1983 and teaches students of Architecture and Urban Planning at the Dawood College of Engineering and Technology and now at the Karachi University. She is a founder member of the NGO Urban Resource Centre, Karachi and continues to guide and support their work.
E-mail: opprti@cyber.net.pk

Arif Hasan is an architect and planner in private practice in Karachi, who has long worked closely with the Orangi Pilot Project-Research and Training Institute and the Urban Resource Centre in Karachi (of which he is chair). He is also Visiting Professor at the Faculty of Architecture and Planning at NED University in Karachi. He has published widely on urban issues.

Human Settlements Programme
International Institute for Environment and Development (IIED)
3 Endsleigh Street
London WC1H 0DD, UK
Tel: 44 20 7388 2117 (international); 020 7388 2117 (UK)
Fax: 44 20 7388 2826 (international); 020 7388 2826 (UK)

ISBN: 978-1-84369-712-1

This paper can be downloaded free of charge from http://www.iied.org/pubs/display.php?o= 10560IIED. A printed version of this paper is also available from Earthprint for US$20 (www.earthprint.com)

CONTENTS

ANNEXES, TABLES, BOXES AND FIGURES

GLOSSARY AND ABBREVIATIONS

ADB	Asian Development Bank
CBO	community-based organisation
CDGK	City District Government Karachi
CDN	Community Development Network – a network of OPP-RTI partner organisations
CREED	Collaboration in Reforms for Efficient and Equitable Development – Karachi-based advocacy NGO
CSO	civil society organisation
CTA	Chief Technical Advisor
DCO	District Co-ordination Officer
DFID	Department for International Development (UK)
DG	Director-General
District	Top tier of local government
GDP	gross domestic product
GIS	Geographic information system
GKSP	Greater Karachi Sewerage Plan
GoS	Government of Sindh
goth	village
HDI	Human Development Index
IFI	international finance institution
IIED	International Institute for Environment and Development
katchi abadi	low-income settlement
KDA	Karachi Development Authority
KHASDA	Karachi Health and Social Development Association
KMC	Karachi Metropolitan Corporation
KMC	Karachi Metropolitan Corporation – defunct body whose functions were taken over by the CDGK
KPT	Karachi Port Trust
KUDP	Karachi Urban Development Programme
KUDP	Karachi Urban Development Programme
KWSB	Karachi Water and Sewerage Board
KWWMP	Korangi Waste Water Management Programme
LCGO	Local (City) Government Ordinance
MGD	million gallons per day
MNA	Member National Assembly
MoE	Ministry of Environment
MPA	Member Provincial Assembly
naib nazim	deputy mayor
nala	natural drain
nazim	mayor
NGO	non-governmental organisation
NIPA	National Institute for Public Administration
OCT	Orangi Charitable Trust

OPP	Orangi Pilot Project - the parent institution which began its work in 1980 and continued to function as OPP till 1988, when it evolved into four separate institutions
OPP-RTI	Orangi Pilot Project-Research and Training Institute – one of four institutions which came into being as a result of OPP being devolved into four separate institutions. OPP-RTI is responsible for the low-cost sanitation, housing, and education programmes
PHED	Public Health Engineering Department
PILER	Pakistan Institute for Labour Education and Research
SHEHRI	Karachi-based advocacy NGO concerned with environment-related issues
S-III	Sanitation-III – comprehensive plan of KWSB for sewerage and drainage in Karachi
SKAA	Sindh *Katchi Abadis* Authority
SLGO	Sindh Local Government Ordinance
SSGC	Sui Southern Gas Company
tehsil	sub-district – the second tier of local government
thalla	block manufacturing yard
TTRC	Technical Training Resource Centre
UC	Union Council – lowest tier of local government
UNCHS	United Nations Centre for Human Settlements
UNDP	United Nations Development Programme
URC	Urban Resource Centre
WSS	water supply and sanitation
YTP	Youth Training Programme
zila	district – the largest administrative unit within a province

Preface

This study was conducted by the Orangi Pilot Project Research and Training Institute in partnership (OPP-RTI) with the International Institute of Environment and Development (IIED), as part of the project, 'Improving urban water and sanitation provision globally, through information and action driven locally'. Funding support for the project was provided by the Swedish International Development Co-operation Agency (Sida), the Danish International Development Agency (DANIDA), and the UK's Department for International Development (DFID).

The aim of this study report is to highlight the importance of mapping and documentation, for effective relationship building and advocacy. The report discusses how demonstration of solutions and the documentation and mapping, which are at the heart of the Orangi Pilot Project's (OPP-RTI's) work, established the grounds on which relations with both government and communities were built. It identifies formal and informal processes, underscoring how these relationships have been nurtured over time. Thus the report delves deeper into the process and strategy for advocacy than have the numerous other publications on OPP-RTI which have covered this aspect of the project only in brief.

The methodology adopted for this study entailed detailed and extensive discussions and interviews with government department staff in the City District Government Karachi (CDGK) and the Karachi Water and Sewage Board (KWSB) who are familiar with the work of the Orangi Pilot Project Research and Training Institute (OPP-RTI) staff, directors and chairman. Extensive use was made of secondary material by and on OPP-RTI, including news clippings, and publications by other organisations.

It is important to mention that OPP was a single institution from its origin in 1980 up till 1988, when it evolved into four autonomous institutions to manage its expanding concerns. The four institutions are: OPP Research and Training Institute (OPP-RTI), which is responsible for the low-cost sanitation, housing, and education programmes. The Orangi Charitable Trust (OCT) runs a credit programme in urban areas: the Karachi Health and Social Development Association (KHASDA) implements the health programme; and the OPP Rural Development Trust manages the rural credit programme. Collectively, these four institutions may be referred to as "OPP Institutions".

Lessons from Karachi: the role of demonstration, documentation, mapping and relationship building in advocacy for improved urban sanitation and water services

Summary[1]

Karachi

Karachi is Pakistan's only port city. It contains 10 per cent of the total population of Pakistan and 25 per cent of its urban population. Nearly 20 per cent of the country's gross domestic product (GDP), 45 per cent of value added tax, 40 per cent of employment in large-scale manufacturing, 50 per cent of bank deposits, 20 per cent of federal and 40 per cent of provincial revenues and 62 per cent of income tax is contributed by Karachi.

Sewerage and sanitation

Although underground sewerage systems exist, their maintenance and expansion have not kept pace with the urban physical and population increase that has taken place since the 1970s. As the old systems began to collapse, ad hoc arrangements were made to connect them to the nearest natural drains or water bodies. New urban settlements, housing colonies and *katchi abadis* (informal settlements) also developed their underground sewers or open drains and, in the absence of planned disposal systems, disposed the waste into the natural drainage systems. As a result, in almost all cases sewage is disposed into the natural drainage system and water bodies or in depressions. According to official estimates, the sewerage system serves only 40 per cent of the city's population. Only 20 to 40 million gallons per day (MGD) (i.e., less than 15 per cent) of the 295 to 350 MGD of wastewater and sewage produced by the city is treated. The rest goes directly into the sea. As a result of untreated sewage reaching the sea and because of an absence of separation between industrial and domestic sewage, sea life has been polluted near the Karachi shoreline with toxic metals.

The Orangi Pilot Project

The Orangi Pilot Project (OPP) began work in the Orangi *katchi abadi* in 1980. Started by the renowned development theorist and practitioner, Dr Akhtar Hameed Khan, OPP was based on his concept of research and extension. After an initial period of action research and extension education, sanitation was identified as the first point of intervention. Subsequently, a model of low-cost sanitation evolved, which was rapidly adopted by the communities and changed the on-the-ground-environment dramatically. The 'component- sharing model' as it came to be known, placed responsibility for building household and lane- level sanitation infrastructure (which is referred to as 'internal development') on the residents, while the government (municipal authorities) were responsible for building and maintaining secondary infrastructure including mains, disposal and treatment (known as 'external development'). Direct assistance to communities by OPP and the effect of demonstrations of its work benefited over 108,000 households (over 865,000 people) in nearly 7,600 lanes, representing almost 90 per cent of the entire settlement of Orangi. Collectively, communities invested nearly US$1.7 million of their

[1] Figures used in the report are government figures unless stated otherwise. OPP-RTI has shown through its work and research, however, that government figures are for the most part inaccurate.

own money in their sewerage system, in addition to investments made by the government, mainly on external development.

Besides other social and economic benefits that stem from improvements in sewerage and drainage systems, the infant mortality rate fell from 128 per thousand live births in 1982 to 37 per thousand in 1991. This rate of decrease was considerably faster than in the rest of Karachi and Pakistan. The programme also presented a challenge to dominant development paradigms, which tend to take a prescriptive approach to development, are usually too technical, too reliant on government and donor support, and generally treat poor communities as objects of, rather than as drivers of, development.

Principles and processes

The OPP model was a simple and austere one. Dr Khan emphasised that in order for the project to be successful, and reflective of the context it was operating in, it had to be low-cost and austere. The project overheads had to be low, and the salary structure of the organisation had to be linked to its programme content, which revolved primarily around self-help and technical assistance. On the face of it, OPP did not accomplish anything remarkable in terms of implementation, intervention or invention. What it has done, nevertheless, is to evolve a low-cost and contextually appropriate system of managing and implementing local-level development. This low-cost system is built on the articulation and strengthening of what the local people have done (in terms of addressing their own development needs), through documentation and technical assistance.

Demonstration, development of the model, and documentation and mapping as tools for advocacy

OPP-RTI's sanitation mapping is part of a wider process of scaling-up people's initiatives. The purpose of mapping is twofold. First, to document what already exists on the ground (in terms of sanitation infrastructure); and second, to influence the government to align its investments with what already exists rather than to ignore it – which it has done thus far. The extensive documentation of sanitation infrastructure throughout Karachi, reinforced by statistics and maps, has had positive repercussions for planning efforts in Karachi and beyond, and increased OPP-RTI's standing and credibility. Today OPP-RTI guidance on sewerage, drainage, and *katchi abadi* upgrading is sought at the national, provincial, city and community level. It has so far completed surveys and documentation in 334 *katchi abadis* (covering around 224,299 houses) out of a total of 539 in Karachi.

Advocacy: evolution and milestones

OPP facilitated communities' self-help work, through which the component-sharing model evolved, while also carrying out the related advocacy in the area of Orangi. Based on the experience gained, in 1997, OPP-RTI started to work outside of Orangi by documenting and mapping settlements and infrastructures and drainage system all over Karachi; and increasing level of engagement with concerned government departments and agencies such as the Karachi Metropolitan Corporation (KMC) and Sindh *Katchi Abadis* Authority (SKAA), as well as Karachi community-based organisations (CBOs). During the period 1997-99, OPP-RTI made a

series of presentations of its proposals to the Karachi Water and Sewage Board (KWSB), government of Sindh departments, the Planning Commission in Islamabad, the President of Pakistan, the Governor of Sindh and the Asian Development Bank (ADB), arguing that the proposed Korangi Waste Water Management Project (KWWMP) in Karachi was flawed as well as expensive and would not solve the problems it was designed to address.

After a protracted struggle by OPP-RTI and various partners, the government decided to cancel the ADB loan of US$70 million in April 1999. An alternative plan to the KWWMP was prepared by OPP-RTI but was not taken up at the time. However, the whole process unleashed a wider debate on city-wide sewerage, drainage and wastewater treatment infrastructure. This debate eventually led to the adoption, in government policies, of principles and practices espoused by OPP-RTI, and projects for sewerage, drainage and wastewater treatment in Karachi. Moreover, the learning from the experience, and contacts made during it, opened up new and related avenues for OPP-RTI advocacy work in the areas of housing rights, water management and governance.

Since 1999 OPP-RTI has been working with government and communities for improvements in large-scale project implementation, continuing its efforts to inform government policy and practice through demonstration and research work. These efforts recently led to the government adopting OPP-RTI's plans as part of its Sanitation III project. The work of OPP-RTI and its partners influenced the National Sanitation Policy which was approved in November 2006 and which has adopted the component-sharing model.

Main elements of OPP-RTI's advocacy strategy

Identification of issues

In carrying out advocacy, OPP-RTI does not work according to a predetermined agenda or strategy. Advocacy issues emerge as understanding of an issue develops, and after careful analysis of experiences and learning. The knowledge and experience gained through relationships and the process of documentation opens up possibilities of work in other areas and on other issues.

Field experience

OPP-RTI's influence on government policy in relation to city sewerage and drainage came about because of its work in Orangi. The focusing of attention on the problems of sanitation there, and the knowledge gained as a result, positioned the organisation as an important and credible voice on issues related to sewerage, drainage and sanitation in the city. The lesson from OPP-RTI's experience is that it is important to work on a single issue – or only a small number of issues – comprehensively before taking on related issues.

Linkages and partnerships with government

OPP-RTI recognises that without the involvement of government departments it is not possible to improve sanitation or delivery of any other municipal service. In order to influence government, it is necessary to work patiently over a period of time with department staff and build a relationship based on mutual trust and credibility. Government officials believe that OPP's main strength lies in its openness (easy access to its staff and information – that is, maps and documentation) and the rapport it has with communities with which it works. For its part,

OPP-RTI has always adopted a 'softly-softly' approach to advocacy, understanding that government officials also operate under certain constraints, which are not easy to ignore or overcome.

Research and extension

In addition to focused and consistent work, OPP-RTI understands that access to robust research which produces accurate, useable evidence, is as important for establishing credibility with government as it is for aiding sound decision-making: 'Meticulous homework of documenting findings, observations and processes, leading to preparation of alternatives is critical to being taken seriously by decision-makers.' Government officials cited the presentation of alternative solutions by OPP-RTI as an outstanding characteristic of the Organisation.

Civil society partnerships and networks – partnerships in advocacy

Within Karachi, local activists from low-income settlements belong to a network of community groups and activist organisations such as the Urban Resource Centre (URC), Pakistan Institute for Labour Education and Research (PILER) and others, with which OPP-RTI staff interact regularly and which monitor city-wide development and associated issues. Regular meetings and informal interaction with activists allow OPP-RTI to learn about problems faced by low-income communities, and to think about these in terms of city-wide development issues and plans. These meetings also provide an opportunity for interaction between the activists themselves. Beyond government and communities, networks with other civil society organisations, researchers, local communities and stakeholders in general are also necessary. These networks are more effective than individuals at producing, sharing and strengthening evidence.

Ownership of process and outcome

Who owns the process and its outcomes is critical. Regardless of who drives it, the process of advocacy and its outcomes must be owned by the main stakeholders, not just one organisation or individual, even if some may have played a key role in it, '… each stage is arrived at on the backs of the work and experience of many others – it would, therefore, be wrong for anyone to claim it for themselves only because they were present at the time of fruition of efforts'. It is well understood by the management and staff that if the Organisation was viewed as claiming credit for its work, it would undermine credibility and intent of the organisation. Discretion in such matters often compels communities and/or government department staff to acknowledge the contribution of others (in this case, OPP-RTI) without being prompted to do so.

'Media for information, not publicity'

OPP-RTI uses a variety of communication channels in order to promote its messages. Apart from using various networks as platforms for its messages and maintaining direct contacts with government officers, it also makes effective use of the local and national media. OPP-RTI also receives large delegations of government representatives, NGOs, academics and donors from all over and beyond Pakistan. Through its ties with NGOs and academia abroad, OPP-RTI's approach has become well known internationally. As a rule, OPP-RTI eschews confrontation with government officials in the public sphere. Confrontation just for the sake of it can destroy carefully nurtured relationship for no apparent benefit. For wider dissemination of issues and solutions, OPP-RTI encourages the media to visit its offices and sites and observe for themselves, understand and report accordingly.

1. Context

Country profile

The Islamic Republic of Pakistan is located in a strategic position at the crossroads of South Asia, Central Asia and the Middle East. It shares a border with India to the east, China to the north-east, Afghanistan to the north and west, and Iran to the south-west.

Figure 1: Map of Pakistan showing provinces and neighbouring countries

Pakistan has a land area of 796,095 square kilometres and according to the 1998 census, a population of 131.51 million. Its population in 2005 is estimated at 153.45 million, with a population growth rate of 1.9 per cent per year and an average total fertility rate of 5.1.[2] At the current growth rate Pakistan's population will double in the next 37 years.

Pakistan is a federation of four provinces: Sindh, Punjab, North-West Frontier Province (NWFP) and Balochistan. In addition, there are three federally administrated territories: the Federally Administered Northern and Tribal Areas; the Islamabad Territory; and the State of the Azad Jammu and Kashmir. Each of the provinces has its own elected assembly as well as being represented, in proportion to its population, in Pakistan's national assembly. In addition, there is a senate, in which the four provinces are represented in proportion to their populations as well.

[2] Pakistan Population Census Organisation, 1998 and *Discussion Paper on National Strategy and Action Plan, Water Supply and Sanitation*, Ministry of Environment, Government of Pakistan, 2005.

Each province is divided into *zilas* or districts, which in turn are divided into *tehsils* or sub-districts. The *tehsils* are further divided into union councils (UCs) which are the lowest administrative tier. The average population of a UC is between 20,000 and 70,000. The larger cities, which include the provincial capitals, are run as city districts and are sub-divided into towns, and the towns into UCs. The *zilas*, *tehsils*, towns and the UCs are headed by *nazims* and *naib nazims* (mayors and deputy mayors) elected indirectly by elected councillors. Thirty-three per cent of seats of elected representatives are reserved for women and five per cent for workers and peasants. There are 103 *zila* governments in Pakistan, 335 *tehsil* administrations and 6,022 UCs.

Pakistan can be divided into four broad geographical areas: the northern mountains, the western highlands, the Indus plains and the eastern desert. Seventy-seven per cent of Pakistan's population lives in the Indus plains, which are mostly located in the Punjab and Sindh provinces. There are major differences between the provinces in terms of demography and population density. For example, Balochistan has the largest land area (43.6 per cent of Pakistan) but contains only 4 per cent of Pakistan's population, with a density of 18.8 people per square kilometre. The Punjab province covers 25.8 per cent of Pakistan's surface area and has 55.58 per cent of its population, with a population density of 353.5 people per square kilometre. The other two provinces fall between Balochistan and the Punjab with regard to population density.

Over 75 per cent of Pakistan receives less than 250mm rainfall annually and 20 per cent has less than 125mm. The country has a warm temperate climate except in the mountain regions, where temperatures can fall below freezing during winter – which is also longer in duration than elsewhere.

The country's social indicators are poor: its Human Development Index (HDI) ranking is 134 out of 177 countries in the UN Development Programme's (UNDP's) *Human Development Report 2006*. Its overall literacy rate is low at 50 per cent overall, and 36 per cent for females. The literacy for rural women is only 20 per cent. In this too, there are considerable provincial variations, with rural female literacy in Balochistan being as low as 8 per cent. Pakistan's gender-related development index is minus 4, one of the lowest in the world. Public spending in the social sectors is also low: 2.6 per cent of gross domestic product (GDP) on education and 0.7 per cent of GDP on health. Total debt servicing costs are 4.5 per cent of GDP.[3]

Karachi

Karachi is Pakistan's only port city. It contains 10 per cent of the total population of Pakistan and 25 per cent of its urban population, and as capital of Sindh Province, it contains 30 per cent of the province's total population and 63 per cent of its urban population. Nearly 20 per cent of the country's GDP, 45 per cent of value added, 40 per cent of employment in large-scale manufacturing, 50 per cent bank deposits, 20 per cent of federal and 40 per cent of provincial revenues and 62 per cent of income tax is contributed by Karachi.[4]

[3] UNDP, Human Development Report, 2006

[4] Beg, M.A. (2003), "Urbanization and Its Environmental Repercussions", unpublished paper prepared for IUCN, Sindh Environmental Profile.

As a result of the enactment of the Devolution Plan 2001 and the Local (City) Government Ordinance (LCGO) 2001, Karachi is now a city district, and therefore headed by an elected *nazim* and *naib nazim*. The various departments of the City District government are co-ordinated by the District Co-ordination Officer (DCO), who is a career bureaucrat. Karachi has been divided up into 18 towns, which in turn are further divided into 178 UCs. Each town and UC has its own *nazim* and *naib nazim*.

In spite of the LCGO 2001, there is a strong presence of federal government institutions in Karachi, which plan independently of the district government, although in theory they should not. The *Nazim* of Karachi regularly laments the fact that his administration controls just one-third of the city, and this is why planning and governance of the city is problematic. Large parts of the city are under the control of institutions such as the Karachi Port Trust, Military Land and Cantonment Boards, Pakistan Railways, Pakistan Steel Mills, Port Qasim Authority and the Civil Aviation Authority. These institutions have the right to make decisions about all forms of development in their respective areas. They often have their own building by-laws and zoning regulations, which differ from those of the City District government; and while they are meant to co-ordinate their work with relevant city government departments, this is a ruling more breached than observed.

Planned areas and katchi abadis

Karachi requires 80,000 housing units per year to house its growing population. However, according to 1999 estimates, building permits were issued at an average of about 26,700 units per year. The resulting demand–supply gap has been met through (1) densification of existing settlements in the city centre and (2) the creation of *katchi abadis* (squatter settlements) on government land.

Densification is most pronounced in the working-class areas of the inner city. Here even the middle-class areas have become dense to such an extent that the middle classes have moved out and been replaced by lower-income groups. One major reason for this is that the wholesale markets which were located in the old city have expanded to cater for a city of nearly 15 million people, compared with 1940 when they served a population of only 400,000.

These inner city areas, because of their proximity to the sea port, have also become major warehousing and storage centres, for which many old buildings have been torn down to make way for storage facilities and accommodation for labourers. In recent times sweatshops have also started operating in these localities. Many former residents have moved to peri-urban *katchi abadis* where living conditions are better even if there is no *de jure* security of tenure. As a result, in many of these inner city areas, social capital has eroded and given way to prostitution, drug peddling and gambling dens, all of which are supported by a corrupt police force. In sociological terms, these areas have become slums, unlike the *katchi abadis* in the peri-urban areas.

Figure 2: Map of Karachi showing town boundaries

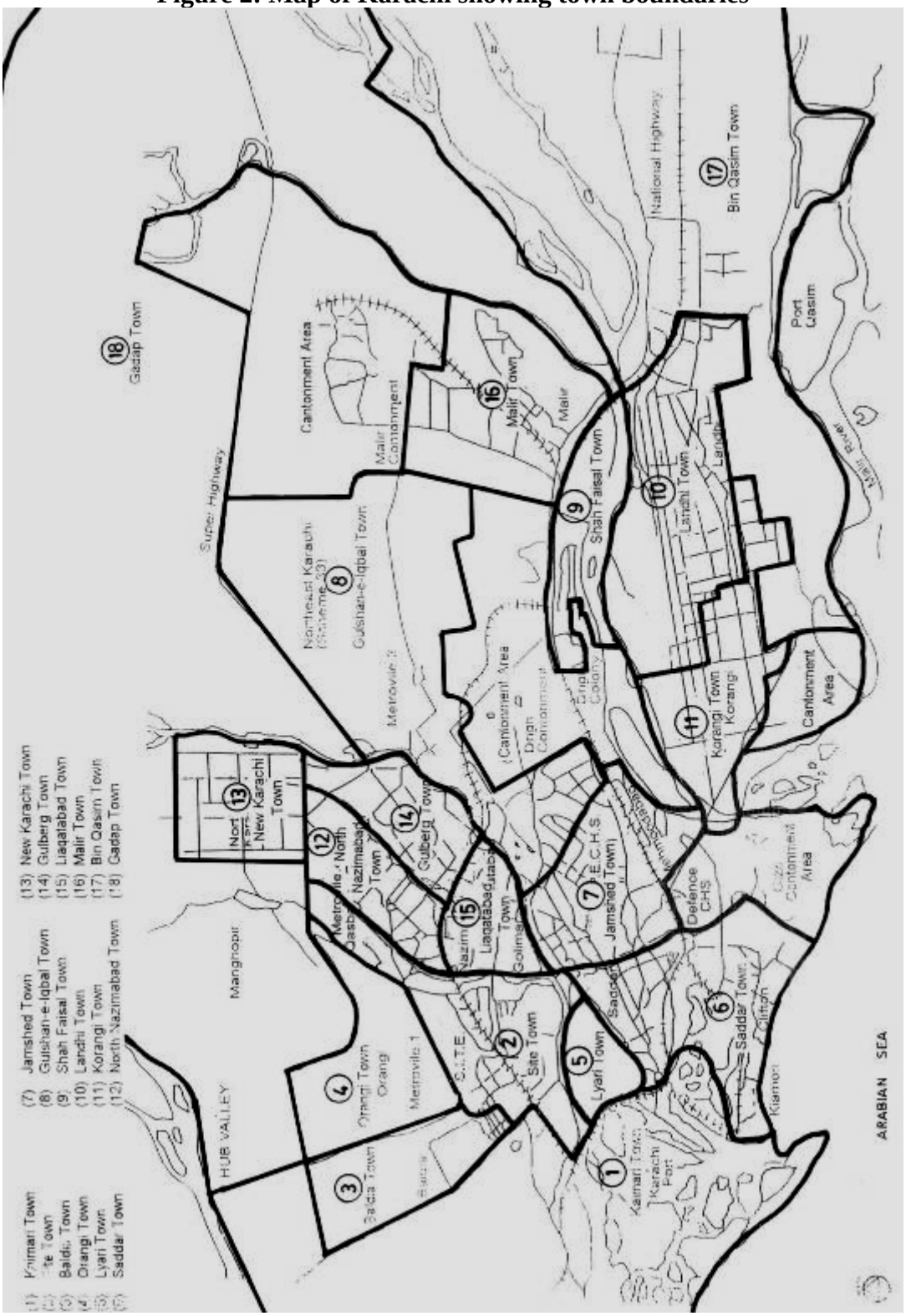


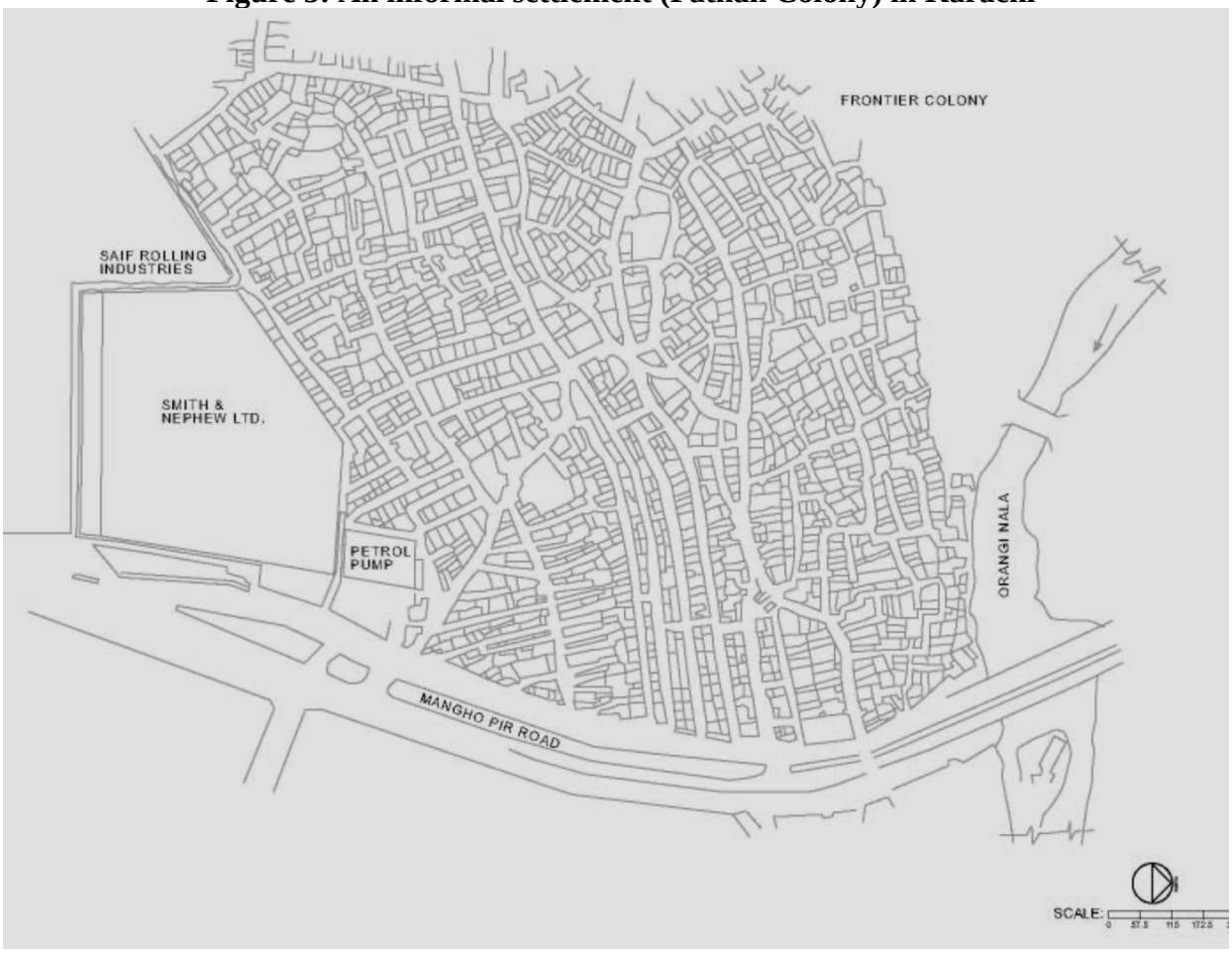
Figure 3: A squatter settlement in Karachi

Figure 4: Inner-city densification

Around 61 per cent of Karachi's population lives in *katchi abadis*, created out of unofficial sub-division of state lands[5] and including parts of some 1200 villages which use to exist around and within city limits and have since become part of the urban sprawl. *Katchi abadis* are created through a process where an informal developer occupies state land with the support and connivance of corrupt government officials who in many cases are informal partners in such development schemes. Low-income families buy and move into these unserviced plots and the developer makes arrangements for water to be supplied through tankers. In other areas, water is obtained by hand pumps where subsoil water is potable and from irrigation canals and tankers where it is brackish.

[5] City District Government (2007), Karachi Strategic Development Plan 2020 (Draft)

Figure 5: An informal settlement (Pathan Colony) in Karachi



House-building takes place incrementally with the assistance of *thallas*[6] which provide technical assistance, materials (blocks), labour, and sometimes credit, at reasonable rates – which explains how most of the *katchi abadis* developed as fast as they did. The local police, in connivance with the developer and corrupt government servants, provide house-owners with protection from eviction. Over time, communities form organisations to lobby with government agencies and politicians and manage to acquire water, roads and electricity through them or through self-help. Sewage and wastewater disposal remain the major problem which people cannot solve and which governments fail to solve, owing to an absence of proper disposal systems. As a result, the environment in general, and water bodies in particular, are heavily polluted.

[6] Privately owned construction yards

Figure 6: A typical block-manufacturing yard

Katchi abadis are increasingly being built far away from the city centres and the places where their residents work. This is creating transport problems and extra expenditure for the commuting poor. It is also distancing them from better health and education facilities.[7] In percentage terms, *katchi abadis* are gradually decreasing as very little government land is left to be encroached upon. There are said to be 539 *katchi abadis* in Karachi (some unofficial estimates put the figure at 702). Of these, 72 per cent have been notified (that is, accepted by government and for which the process of provision of land title has been approved, so the settlement cannot be evicted).[8]

Important to note are the social, economic, political and demographic differences between the formal and informal settlements, which have resulted in different developmental outcomes for these areas. Formal settlements tend to have older rooted communities, and a 'mass' of people, which attracts interest and patronage of political forces hoping to cultivate a constituency – this in turn has the effect of killing off attempts at local initiatives and creates a dependency syndrome among the residents. In spite of the relatively large development allocations for these areas, corresponding development has not taken place because most of the funds are either used for patronage, eaten up by corruption, and/or wasted through duplicate or unnecessary schemes. Conversely, people in newer informal settlements tend to acquire a considerably greater degree of development within a short period of time. Communities here tend to be newer arrivals in the city, pragmatic, less drawn to political ideologies and affiliations, and more oriented towards self-help.

Water supply and sanitation

According to official estimates, Karachi receives around 650 million gallons per day (MGD) of water, which is supplied into the system. Water losses, as a result of siphoning from the bulk supply, are estimated at more than 40 per cent of the total quantity supplied.[9] Subsoil water is brackish and the only reliable source is from the Indus, which is more than 130 kilometres away. Water does not reach the extremity of the city, and these areas, along with many settled areas, are supplied through water tankers (see 'Working with CDGK and development of S-III' in Section 4 for details).

Although underground sewerage systems exist, their maintenance and expansion have not kept pace with the urban physical and population increase since the 1970s. As the old systems began to collapse, ad hoc arrangements were made to connect them to the nearest natural drains or water bodies. New urban settlements, housing colonies and *katchi abadis* also developed their underground sewers or open drains, and in the absence of a planned disposal, disposed them into

[7] Hasan, A. and A. Sadiq (2994), "Mapping City Inequality: A Case Study of Karachi", unpublished report prepared for IIED (UK), 1994

[8] SKAA Progress Report, June 2003

[9] JICA Study for KWSB, 2007

the natural drainage system. As a result, in almost all cases sewage disposes into the natural drainage system and water bodies or in depressions.

According to official estimates, the sewerage system serves only 40 per cent of the city's population. In reality, almost 90 per cent of the city's population is serviced by a sewerage system, of which 50 per cent has been built by communities on a self-help basis, 20 per cent by the Karachi Water and Sewage Board (KWSB) and 30 per cent by other government agencies (see Box 3 in Section 4 for details).

Only 20 to 40 MGD (i.e., less than 15 per cent) of the 295 to 350 MGD of wastewater and sewage produced by the city is treated. The rest goes into the sea through natural drains or *nalas*, as they are called. This is in spite of the fact that KWSB's treatment plants have an installed capacity of 151.50 MGD. The main reason why wastewater is released untreated into the sea is that the treatment plants are unable to pick up the sewage which has been designed to flow into the natural drainage system,[10] and not the sewerage system to which the treatment plants are connected. As a result of untreated sewage reaching the sea and because of an absence of separation between industrial and domestic sewage, sea life has been polluted near the Karachi shoreline with toxic metals and is becoming increasingly dangerous to consume.[11]

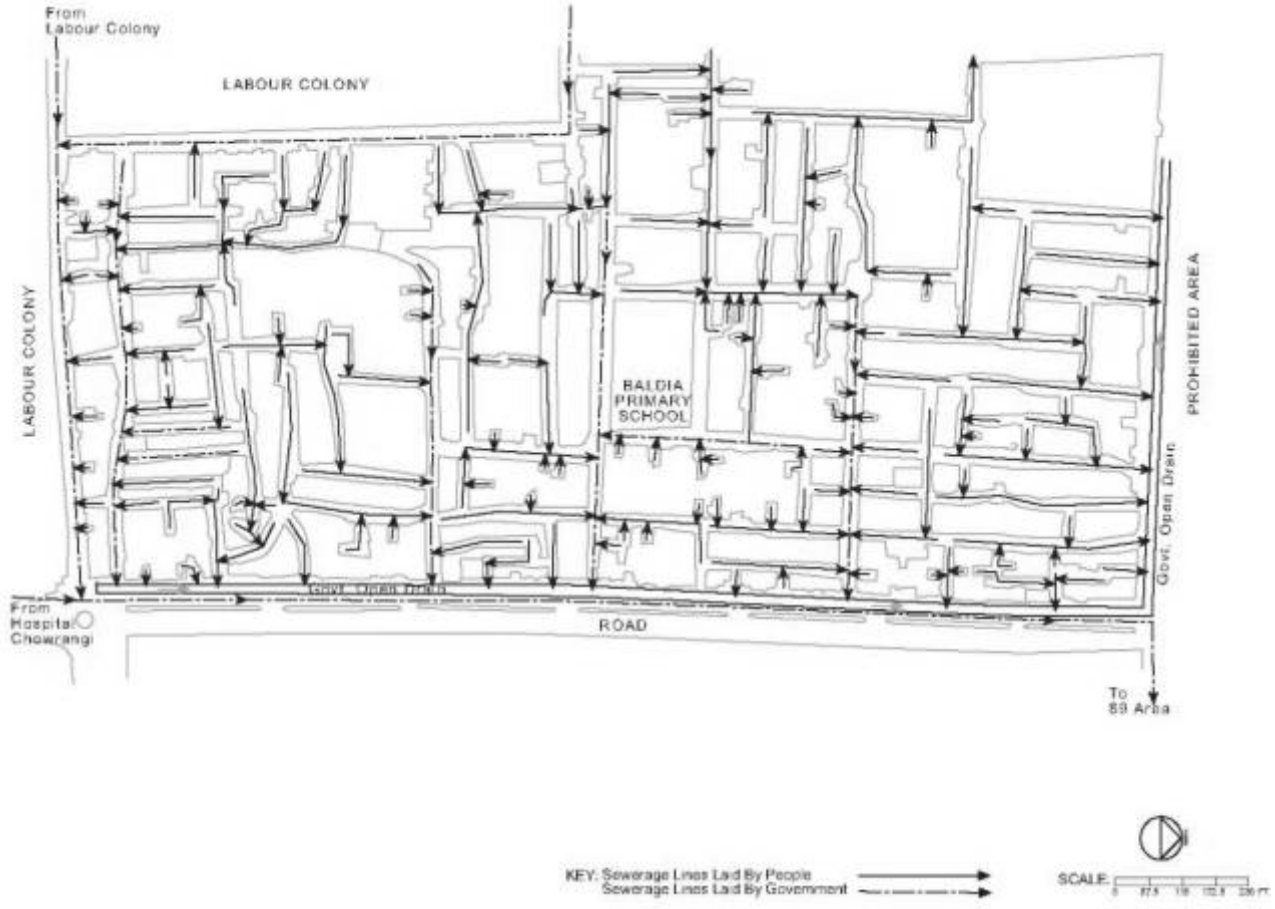
According to official information, many of the peri-urban *katchi abadis* and informal settlements which fall outside the metropolitan limits of the city are not linked to the infrastructure laid by government. In reality, however, most of these areas are connected to nearby main lines/drains laid by government, but this is not reflected in government reports and maps.

Figure 7: Overflowing sewage in a lane of a squatter settlement

[10] Ibid.
[11] Hayat, S. (2003), "Coastal and Marine Ecosystems", unpublished paper prepared for the IUCN Sindh Environmental Profile, 2003

Figure 8: *Nalas*/drainage channels: a means of sewage disposal

Figure 9: A peripheral settlement (Sherpao Colony): internal sewerage is connected to the city's sewer



Informal settlements and macro-level issues

The problems of low income settlements are closely related to wider city level planning and management issues. The existing infrastructure, much of it built by communities and piecemeal by local government funds is not integrated into a larger city plan. One of the reasons for this is that government plans, often supported by heavy foreign loans, are grandiose in nature and ignore what communities and local governments have achieved incrementally over the years. Similarly, no attempt is made to integrate the existing road and housing typology into a larger structure plan for the city. This is clearly brought out in Box 3 and Table 2.

Concerned citizens, community-based organisations (CBOs), non-governmental organisations (NGOs) working in low-income areas, and professionals and academic institutions have traditionally had little or no input in these plans – since a mechanism for their involvement does not exist. The trend in recent times, however, has been towards greater attempts at involvement of a wider range of stakeholders. The Orangi Pilot Project (OPP) tends to respond cautiously to such requests, recognising that not all engagements and involvement in government processes are productive and result-oriented. The decision to get involved in or become part of official processes is made after carefully assessing the potential outcome. The organisation excuses itself in cases where it feels it cannot add value to the process or that the process itself is unlikely to have the desired outcomes.

Civil society organisations

Karachi has an active civil society. Many CBOs and NGOs work on development and maintenance needs of their neighbourhoods, and at the policy level try to interact with and influence government agencies for making policies and plans more realistic and people-friendly. They hold forums to discuss the problems of the city and its residents, inviting interested groups to attend, and get their point of view published in the press – certain sections of the press are very supportive. Occasionally, newspapers also hold public forums on planning and development issues in the cities. The government usually does not pay much heed to the recommendations drawn up at these forums or to the advice offered by NGOs, but in recent years has taken to providing space for the airing of alternative viewpoints.

Main actors in water supply and sanitation provision

Officially, responsibilities for sewerage and drainage are distributed among different departments and tiers of the City District Government Karachi (CDGK), and KWSB, which is a semi-autonomous body under CDGK (see Table 1 below for relevant organisations, their functions, and the main issues). Storm drains and natural channels are taken care of by the city, town and UC governments, while the sewerage system has been outsourced to KWSB. CDGK, the highest tier of local government, is responsible for the 'planning, development and maintenance of storm drains, special development programmes and any other function which the government may assign'. These responsibilities are carried out by the Department of Works and Services, the administrative unit responsible for, *inter alia*, storm drains at city-district level.

CDGK obtains between 60 per cent and 70 per cent of its budget from a matching grant from the federal government and from various taxes and levies. In addition, there is a budget for special development projects. The town councils – the intermediate level of local government in Karachi – have the same responsibilities as CDGK within their respective jurisdictions. The town councils deal with drainage systems that cut across different Union Councils (UCs) under their jurisdiction. The town municipal administration including a representative from the Department of Works and Services, are meant to assist the UCs in carrying out their work. In reality, the scenario on the ground is confused and chaotic. There is very little co-ordination between the different tiers, and most of the activities undertaken are ad hoc and tend to duplicate the work already done by others.

At the lowest level of local government, the UC, the mayors are responsible for the identification and oversight of drainage projects within their jurisdictions. They also receive a budget from

CDGK, if projects are beyond their scope, they pass them to the town and city district governments. The capacity at UC level is often very limited, with scarce financial resources and no qualified technical staff to support the political representatives.

The disposal of sewage in Karachi has been outsourced to KWSB, which is responsible for the construction, improvement, maintenance and operation of sewage works and industrial waste disposal systems in Karachi. The Board is divided into a sewerage maintenance wing and a sewerage development wing. The maintenance wing's budget is generated through service delivery charges and a subsidy from CDGK. Until 2000, the development wing financed its operations mainly through funding provided by international finance institutions (IFIs). Now it is mainly funded through grants from the provincial and federal government.

Figure 10: Participants at the URC Forum

KWSB has been facing major financial problems for some time. It has 1.17 million households linked to its water and/or sanitation system; however, only 758,500 are on the billing roll and only 163,000 (14 per cent of the total households) are regular payers. There is no sewerage charge and KWSB owes Rs42 billion (US$0.7 billion) to the federal government against loans borrowed from multilateral agencies for water supply, sanitation and drainage projects. KWSB has only recently begun to service its debt.

Table 1: Responsibilities for drainage and sewerage by agency

Department	Areas of responsibility	Budget sources	Inconsistencies and problems
City District Government Karachi (CDGK)	• development of storm drains • any other functions that the government may assign	• taxes and levies • budget for sewerage passed on to KWSB	• dispute with KWSB on who is responsible for drains used for sewage disposal (until 2000)
Towns	• the same responsibilities as CDGK, within their • geographical boundaries	• CDGK	• lack of co-ordination with UCs and CDGK
Union Councils (UCs)	• identification of infra-structure development and maintenance within their jurisdictions, including sewerage and drainage	• CDGK, towns	• lack of technical capacity, human and financial resources, and information • weak co-ordination with higher tiers of local government
Karachi Water Sewerage	• water and sewerage infrastructure development and maintenance across	• CDGK, service charges, special funds from	• insufficient revenues • dispute with CDGK (see above)

Department	Areas of responsibility	Budget sources	Inconsistencies and problems
Board (KWSB)	Karachi (including maintenance of nalas and drains)	provincial and national governments, foreign loans (until 2000)	• dependence on federal/provincial government grants
Sindh Katchi Abadis Authority	• training and support to town staff on infrastructure services in *katchi abadis*	• own resources	• still implementing rather than supporting infrastructure development in *katchi abadis*
Source: K Welle (2006), *Water and Sanitation Mapping in Pakistan*, WaterAid			

Main issues in infrastructure development

There are a number of issues impeding the integrated planning, development and maintenance of sewerage and drainage infrastructure in Karachi. There are three main problems, which can be summarised as follows:

Encroachment by other agencies: There is a tendency of agencies and individuals to intrude into CDGK's and KWSB's areas of responsibility, leading to overpriced, ineffective infrastructure development and to inefficiencies in management. For example, higher levels of government – that is, military and provincial government representatives – tend to interfere with the responsibilities of CDGK, thereby creating confusion and inefficiencies in service delivery. Concerning the development of infrastructure, there is also substantial pressure from IFIs and bilateral donors which are keen to support major infrastructure development projects. In previous cases, such projects have proved to be based on, according to OPP's assessment, unnecessary, expensive designs and overpriced contracts, leading to substantial increases in foreign debt.[12]

Information on sanitation infrastructure: Compared with the past, when maps either were not available or were outdated, the trend now with CDGK is towards developing and maintaining up-to-date maps for towns. The quality and accuracy of some of these maps, however, is still questionable. In spite of discernable progress in recent years, Karachi still does not have the comprehensive mapping base usually required for all kinds of planning and development exercises. This is going to change, according to the city *Nazim*, who recently stated that KWSB's GIS Map 2025 of utility services would be included in Karachi's Master Plan.[13] Problems associated with non-availability or inaccuracy of maps is compounded by the fact that data gathered by the defence institutions and semi-autonomous organisations such as Karachi Port Trust (KPT), Sui Southern Gas Company (SSGC), etc., are not accessible to the public. Also, informal settlements are generally neglected when it comes to infrastructure planning, and are not coherently captured in maps produced by government agencies.

An example of documentation of sewerage infrastructure at town level, digitised by OPP-RTI can be accessed at: http://www.oppinstitutions.org/Karachi%20Towns%20Maps/Sewers/06_Saddar%20Town%20Sew.jpg.

[12] Conversations with Arif Hasan and Tasneem Siddiqui
[13] *The Daily Times*, 4 August 2007

Lack of accountability: In the absence of information, clear responsibilities and funding, sewerage and drainage infrastructure development and maintenance in Karachi has been ad hoc and piecemeal. The lack of information about existing infrastructure, in particular, has opened the door for corruption and a waste of resources in large sewerage and drainage infrastructure projects. Collusion between government officials, engineers and contractors leads to substandard yet expensive work. Proposals are regularly overdesigned and overpriced, while implementation is generally of poor quality, lengthy, and without proper technical supervision. The absence of co-ordination between different tiers of local government (UCs, towns and CDGK) in sewerage development and maintenance further encourages these practices. A non-participatory decision-making process means that there are no institutional ways for challenging government priorities and decision-making. Observers are of the view that under the new devolution plan, too much power has been concentrated in the position of the city *nazim*, and the role of the bureaucracy has been marginalised. Under the old local government system, the bureaucracy provided a balance against unchecked powers of elected representatives.[14]

2. The Orangi Pilot Project

The Orangi Pilot Project (OPP) began work in Orangi in 1980. The *katchi abadi* of Orangi, situated on the periphery of Karachi, had at the time a population of approximately 1.2 million. Started by the renowned development theorist and practitioner, Dr Akhtar Hameed Khan, OPP was based on his concept of research and extension (see Annexe 1 for details of OPP methodology). Established with the objective of overcoming constraints faced by government in regularising and improving *katchi abadis*, the project set out to:

- understand the problems of Orangi and their causes
- through action research, develop solutions that people can manage, finance and implement
- provide communities with technical guidance and managerial support to implement the solutions
- in the process, overcome constraints that government service providers face in attempting to upgrade informal and low-income settlements.

Figure 11: Bird's-eye view of Orangi

[14] Interview with Arif Hasan, Chairman, OPP-RTI

After an initial period of action research and extension education, sanitation was selected as the area of intervention. Subsequently, a model of low-cost sanitation evolved in Orangi. The 'component-sharing model', as it came to be known, placed the responsibility for building household and lane-level sanitation infrastructure on the residents, while the government (municipal authorities) were responsible for building and maintaining secondary infrastructure including mains, disposal and treatment.

This model was adopted rapidly by the communities and changed the on-the-ground-environment dramatically (see Annexe 2). In a short period of time, the murky, stinking, open sewers that criss-crossed the settlement and posed considerable hazards to the health and property of residents had gone. Direct assistance to communities by OPP and the demonstration effect of its work have benefited over 108,000 households (more than 865,000 people) in nearly 7,600 lanes, representing almost 90 per cent of the entire settlement of Orangi. Collectively, communities invested nearly US$1.7 million of their own money in their sewerage system.[15]

Besides other social and economic benefits attendant on improvements in sewerage and drainage systems, the infant mortality rate fell from 128 per thousand live births in 1982 to 37 per thousand in 1991. This rate of decrease was considerably faster than in the rest of Karachi and Pakistan.[16] The programme also presented a challenge to dominant development paradigms, which tend to take a prescriptive approach to development, are usually too technical, too reliant on government and donor support, and which generally treat poor communities as objects, rather than as drivers, of development. (See Annexe 3 for an exchange between the founder of OPP, Dr Akthar Hameed Khan, and the Chief Technical Adviser, UNCHS (Habitat) on the two types of approach to development.)

Figure 12: A self-financed lane sewer in Orangi

Over time, OPP expanded beyond sanitation provision to cover programmes for health, credit, low-cost housing and education. By 1988, OPP had evolved into four autonomous institutions to manage its expanding concerns. At present, the OPP Research and Training Institute (OPP-RTI) is responsible for the low-cost sanitation, housing, and education programmes.[17] The Orangi Charitable Trust (OCT) runs a credit programme in urban areas, the Karachi Health and Social

[15] OPP Institutions and Programmes 109th Quarterly Report, January–March, 2007
[16] Hasan, A. (2001), *Working with Communities*, City Press

Development Association (KHASDA) implements the health programme, and the OPP Rural Development Trust manages the rural credit programme.

Principles and processes

The founder of OPP, Dr Akthar Hameed Khan, both preached and practised austerity. His experience had taught him about the many pitfalls that awaited projects dependent on large-scale (foreign) funding. Managers of such projects, he argued, spent a disproportionate amount of time chasing, worrying about and securing future funding, rather than focusing on managing the organisation's programme. Dr Khan emphasised that in order for the project to be successful, and reflective of the context it was operating in, it had to be a low-cost and austere operation. He insisted that the Organisation's salary structure be linked to programme content, which revolved primarily around self-help and technical assistance. Salaries at OPP and later at the OPP Institutions have always been kept low – and well below those of comparable organizations. As a result, staff at OPP Institutions, have tended to be those individuals who are driven by ideals rather than monetary compensation18. Interestingly, many of the staff who joined OPP in its earliest days are still there, in contrast to highly paid NGO staff who move from one organisation to another every couple of years.

This vision and understanding was effectively conveyed throughout the organisation during meetings and in discussions. The staff quickly understood and accepted that receiving large-scale funding from donors meant being dependent on them, and a loss of freedom for the organisation. Dr Khan also encouraged partnerships with donors for small amounts. He also stressed that openness and transparency in accounts was extremely important for building effective relationships with the community, government and donors. This has remained a cornerstone of OPP's policy and explains why there have been no serious questions raised about its financial propriety.

This was the philosophy that has informed the basic working of OPP Institutions, which aim at maximum output from minimal input. This means identifying barriers and constraints and seeking to remove them through strategic interventions, rather than setting up a large organisational infrastructure, which would entail high overhead costs. The Organisational model does not require a large number of staff, as it seeks to train members of the community, and encourages them to self-monitor their work and performance. By relying on activists from within the community, OPP Institutions have been able to avoid having a large number of people on its payroll. Although, activists do not get any salary or compensation, OPP Institutions doe give them respect and encouragement to use their initiative and take on additional responsibilities. Activists are not closely monitored, but supported and encouraged through various means, including information-sharing, the provision of training opportunities, and links with other government and non-governmental actors in the area of development. The philosophy and culture described above are the basis for the programme's success, and inform its structure, strategy and methodology.

[18] After 25 years of service to OPP, the two most senior directors receive a gross salary of around Rs24,000 per month (US$400) – which includes no other benefits such as health insurance, pension, or gratuity. In fact, on many occasions when senior staff have been asked by organisations and agencies to act as consultants, the fees for this work have mostly been forgone and in some instances passed on to the Organisation.

On the face of it, OPP did not accomplish anything remarkable in terms of implementation, intervention or invention. What it did do was evolve a low-cost and contextually appropriate system of management and implementation of local-level development. This low-cost system is built on the articulation and strengthening of what the people have been doing (in terms of addressing their development needs) through documentation and technical assistance. Overall, OPP-RTI's success lies in consistent adherence to the philosophy and principles underpinning its work.

An important part of the principles of OPP Institutions is the idea of 'social preparation': that before development work and physical infrastructure can be initiated in poor communities, there needs to be a phase of 'social infrastructure building'. This idea is guided by a general strategy of promoting community organisation and self-management through provision of social and technical guidance that encourages the mobilisation of local managerial and financial resources and the practice of co-operative self-action. Applying these principles in Orangi was facilitated, in many ways, by the community's own self-preparation – many were building sewers long before the advent of the Organisation. The general principles of OPP Institutions social preparation, which is a continuous ongoing process, are as follows:

1. Survey and document what exists on the ground. Projects should rely and build upon what already exists. Communities have some of the needed resources for development but support is needed to optimise these resources. A survey and documentation of physical conditions, social actors and their relationships, economic conditions, and the technologies in use, is very useful. How the communities tackle priority problems needs to be identified and studied. A study is needed, not to identify projects, but to understand the people, their processes and relationships, and to identify their choices. Decisions can then be made on whether existing systems could be improved or whether a new and different approach is necessary. Once an approach is devised, and if it is successful, it is highly likely that there will be a demonstration effect, where people on their own initiative undertake improvements in their area by learning from others and without asking for assistance.

2. The role of a support organisation (such as OPP-RTI) is critical. A team of technicians and social organisers is needed to support the community. Technicians develop the package of advice and social organisers extend it. Social organisers should be from the community, to avoid any problems related to travel, language, culture and rapport with the community that might arise. Technicians, however, can be from outside the community. Use of conventionally trained professionals such as engineers and architects for field implementation and interaction with communities is not advisable, unless they subscribe to and/or have been initiated into a development approach that views communities as teachers and partners rather than passive recipients of funds, ideas and technologies.

3. Support local activists. There are some people in the community who are aware of the problems, think about them, try to solve them, and are open to suggestions from others. Such people should be identified during the earliest stage of scoping work possibilities in a community. These early adopters are crucial to extending the programme and to fostering community ownership and identification with the programme.

4. The conceptual plan is a necessary tool in the process, and should be developed on the basis of the following principles:

- division of work into internal and external infrastructure components[19] between communities and government service providers, ensuring that there is no cost-sharing (see Box 1 below for discussion of 'pitfalls of subsidies')
- decentralisation of functions and technology: instead of viewing the project as a whole, break it down into components which allows communities to better manage and build systems – communities often do not possess the capacity to manage centralised systems

- establishment of an optimum relationship between needs, resources and standards, and understanding that all three are dynamic and can change over time.

5. The local social organisational unit must be manageable. In the initial stages, demonstration work requires much concentration, time and effort. Keeping the project's community organisational unit small makes it manageable and lessens chances of conflict and disputes between members; and if these do arise, they can be resolved relatively easily. In the case of Orangi and replication projects, the lane is the unit of organisation and contains between 20 and 30 households.

Figure 13: OPP-RTI's technician providing training support

6. Local communities are repositories of knowledge about existing conditions and circumstances in their area, which they have gained from their everyday experiences. They can therefore become 'experts' in improvisation and innovation. Training should be provided to develop necessary skills within the community, especially those involving local para-professionals and community technicians.

7. Documentation and dissemination of experiences and programme should be carried out with the involvement of consultants, academic institutions, and other development actors. It is necessary to build public support for the project and encourage contributions from academic and consultants. However, aggressive marketing and public relations events should be avoided.

[no note 17]

[19] OPP-RTI uses the term 'internal' to refer to any form of development work that the people and communities are supposed to do. For example, internal for sanitation means sanitary latrine in the house, underground sewer in the lane and neighbourhood collector sewer. 'External' means trunks and treatment plants.

Figure 14: Meeting with area activists on sewerage plan

8. Monitoring of communication, constant feedback and transparency are all essential. Weekly meetings, informed discussions between staff and community members, keeping minutes and documentation and regular follow-up are important. This process and the minutes of meetings, represent both the documentation of the project and its ongoing self-assessment. All accounts of the organisation, including and most especially the staff salaries, must be published regularly and made public. It is also important to have frequent and wide consultations leading to broad-based understanding.

9. Relate local issues and realities to wider urban realities by ensuring that concerns are properly transmitted through dialogue to the relevant government agencies and politicians. Emphasis should be placed on the necessity of government and community working together to address development issues, as neither can do so entirely on their own. OPP-RTI maintains close contact with government agencies and departments and keeps abreast of their plans, while doing advocacy based on its own work and findings.

10. Avoid aiming for quick results. The rush for quick results can derail the project. Working with communities and government requires focused attention and the exercise of patience.

Figure 15: Weekly staff meeting at OPP-RTI

Box 1: Pitfalls of subsidies

OPP-RTI believes community self-financing for internal development is the only way to create a sense of ownership, a factor that is important in the construction phase and critically important during problem-solving and maintenance. It also ensures that the sanitation system will be used and be functional. OPP-RTI is not opposed to donor funding per se. Rather, it advocates accepting donor assistance when it is needed, for the right activities –that is, those determined by the organisation itself and not by the donors. It is on this basis, for example, that funding from WaterAid and other donors has been managed.

OPP-RTI's experience from Orangi and other replication projects shows that when subsidy is used, it most often opens up the possibility of the project collapsing. It creates dependence, which spirals into a point where the community expects others to take responsibility for paying for the services, and when started in one community, this quickly spreads to other areas. It ends up with a whole population just waiting to be helped and simply not doing anything themselves.

But perhaps most importantly, community self-funding is the principal instrument that brings down the cost of projects. Subsidies tend to increase costs and give rise to wastage. When the community pays for a project on a purely self-help basis, providing or paying for the labour and supervising the work, costs are immediately cut. This is because designs are simplified, methods of construction become extremely cost-efficient and profiteering and kickbacks, as well as professional fees for contractors, engineers and supervisors, are eliminated. The process is self-reinforcing: without the drastic reduction in costs, it would be impossible to persuade low-income families to undertake the responsibilities of self-financing. Finally, with the principle of component- rather than cost-sharing, the NGO or government can spend scarce resources over a wider area.

3. Documentation and mapping as tools for advocacy

OPP-RTI's sanitation mapping is part of a wider process of scaling-up people's initiatives. The purpose of mapping is threefold. First, to document what already exists on the ground (in terms of sanitation infrastructure); second, to influence the government to align its investments with what already exists rather than replicating or ignoring this; third, to inform communities of the importance of their self-help work, so as to strengthen their efforts and advocacy.

The extensive documentation of sanitation infrastructure throughout Karachi, reinforced by statistics and maps, has had positive repercussions for planning efforts in Karachi and beyond, and increased OPP-RTI's standing and credibility. Today OPP-RTI's guidance on sewerage, drainage, and *katchi abadi* upgrading is sought at the national, provincial, city and community level by government agencies.

Documenting *katchi abadis* has highlighted and made visible people's involvement and investment in sanitation development. As a result, planning agencies and local government are forced to recognise the need to support people's efforts rather than duplicating them. This helps reduce costs (of laying pipelines) by developing low-cost designs that link up with people's own work at the lane and neighbourhood level. The mapping process has also allowed community members to acquire skills and knowledge, which allows them to engage in a more informed manner with government agencies.

Importantly, documentation of infrastructure has provided the foundation for bringing into question government and IFI planning policies and development projects, and for promoting viable alternatives based on a sound knowledge of realities on the ground.

Process of mapping

Mapping at OPP-RTI is an ongoing process, a service provided to *katchi abadis* and to the wider City for the development of a Karachi-wide sewerage system. The mapping department at OPP-RTI is at the heart of the organisation. Its sanitation mapping is a low-cost activity because the development of maps also serves as a training activity for young people in *katchi abadis.* OPP

finances its core expenses through a yearly grant provided by international charities on an open-ended basis.

Figure 16: Documentation of infrastructure in *katchi abadis* undertaken at OPP-RTI

Figure 17: Team of youths carrying out mapping/documentation in *katchi abadis*

The technical inputs for OPP-RTI's sanitation mapping reflect capabilities and conditions in low-income settlements. In producing a settlement map, all work is done by hand and only requires a drawing board, scales, paper and pencil. For more sophisticated maps of drains or larger proposals, plane-tables and level machines are also used. This equipment is very low-cost: a plane-table and measuring stick cost around Rs2000 and a level machine around Rs25,000. Since 2004, hand-sketched maps have been digitised[20] using AutoCAD, which can be downloaded free of charge. Increasingly, use is also being made of satellite images available free of charge from Google Earth.[21] Because of the low resolution of some of these maps, OPP-RTI is now considering purchasing clearer and more up-to-date maps.

Figure 18: Plane-table survey of a settlement

The low technical inputs required for OPP-RTI's mapping methodology mean that the human resources required during the process are considerable. The mapping department employs ten people. Of these, six to eight map-makers are supported through a Youth Training Programme (YTP) of one to two years, and the remaining people are employed on a permanent basis. The whole process of producing a map, which indicates the basic services of a settlement of around 500 houses, takes between six and eight weeks. With the use of satellite images, the duration of this process can be reduced. Producing a Union Council Plan Book,[22] covering a population of

[20] Digitisation is the scanning of analogue sources such as hand-drawn maps, printed photos or taped videos into computers using software such as AutoCAD to make them editable

[21] http://earth.google.com

[22] A UC Plan Book consists of a map of the Union Council showing roads, water supply lines, sanitation system, solid waste dumps, hospital, dispensaries, schools, and parks.

about 75,000 people and providing maps displaying different types of services, costs around Rs25,000–30,000 (inclusive of staff time, and materials) and takes approximately three months to make.

Mapping and community capacity-building

As news about OPP's work in Orangi spread, between 1985 and 1988, a number of Karachi communities from outside Orangi applied for assistance for replicating the sanitation programme. Attempts to do this were made in three settlements, but they proved unsuccessful because OPP attempted to replicate the role it had played in Orangi, but did not have adequate capacity to do so. It was at this stage that the presence of a strong local community organisation (or activists who could create one) was recognised as a prerequisite for successful replication. It was realised that the community would require skills in mapping, surveying, documentation and monitoring, and training of local activists and technicians would also be necessary.

Youth Training Programme

The process of mapping and documentation, which started in 1982, evolved into a separate programme in 1992.[23] Soon after, OPP-RTI moved to its present office in Qasba Colony, next to Orangi, and it was observed that people there had done a lot of work on sanitation in their localities on a self-financed basis. Thereafter began the process of mapping and documenting of the Qasba settlement. Eager local high school students and educated young people were recruited to work on the documentation. The young men were trained by OPP-RTI's technical team, with whom they worked both in the office and in the field. Around 50 *katchi abadis* with a total population of more than of 250,000 were documented as a result, and in the process a number of young men from these settlements later became associated with OPP programmes. Several of them independently promoted the sanitation and other programmes in their own settlements.

After documenting of 50 *katchi abadis*, and starting work with the Sindh Katchi Abadis Authority (SKAA), OPP-RTI realised that there was a need to document work done by people in other areas, and therefore it started the process of documenting *katchi abadis* all over the city. It was felt that this would also help establish contacts with activists and community-based organisations (CBOs) outside Orangi, giving a wider base to the organisation's community and advocacy work. Importantly, it would train people in informal settlements to help in the replication of the OPP-RTI programme.

Figure 19: Training of young people from Qasba (Islamia) Colony

[23] Help from a European NGO, Selavip, with which OPP-RTI enjoyed a relation of trust and respect, was important for this process.

Around this time, OPP-RTI linked up formally with SKAA, a government institution responsible for regularising and improving *katchi abadis* in the province for more on the evolution of OPP-RTI and SKAA's relationship). OPP-RTI agreed to become a consultant to SKAA because it saw its own work on mapping and documentation as being closely aligned with, and complementary to, the work of SKAA. In 1994, the YTP was initiated to formalise the training of young community members in carrying out mapping and documentation work. Many of the students had completed 10–12 years of schooling, while others were still studying in schools and colleges. The training of students covered: surveying and levelling through plane-table surveys of settlements; drafting through traditional means or computers what they had surveyed, and designing a system; documentation of all existing utility services; working out quantities and estimates for construction of underground sanitation systems; and mobilisation of communities for supervision of work and subsequent maintenance.

The YTP has evolved over time. Initially, whoever applied for training was given a three-month probation period during which he was given a daily stipend and not a regular salary. Because of this method of taking on students, there was a high drop-out rate. Now the Technical Training Resource Centre (TTRC), which was set up and fostered by OPP-RTI, runs a 26-day training programme for applicants and those who are successful in this programme become students on the YTP. The training for housing has also been devolved to TTRC. Almost all the students say that are able to continue with their studies because they receive an income. (See Box 2 below for details on the evolution and work of TTRC.)

Figure 20: Lease Camp of SKAA located at Welfare Colony

Figure 21: Meeting with a prospective CBO for replication of sanitation programme

Figure 22: Trained youths at work

Figure 23: Partner TTRC providing training to young people

Box 2: Teacher Training Resource Centre

The YTP was started by OPP-RTI in 1994. Towards the end of 1995, 21-year-old Mohammad Sirajuddin enrolled in and completed the 90-day housing course on theory, on-the-job training in surveying, designing, estimation, and site supervision. He stayed on with OPP-RTI to polish his skills. In mid-1997 Sirajuddin motivated a diploma engineer, Shahid Malik, to join OPP-RTI as a trainee. When Malik had completed his training, OPP-RTI encouraged and supported the two men to set up a consultancy in Orangi for architectural design and surveying so as to serve low-income communities and in the process also earn a living. In late 1997, they set up a firm which operated from OPP-RTI offices. At first, clients were not prepared to pay for the services being offered by Sirajuddin and his partner. They expected a free service, as was being provided by OPP-RTI housing programme. However, requests for the design of houses, mosques, shops and schools slowly started to come in, and the firm started receiving fees as well. At the same time Sirajuddin began training young Orangi residents to assist him in his work.

In 1999, Sirajuddin enrolled in a diploma course at a polytechnic. While there he realised that other students on the course were getting no experience in practical work. He felt that they needed a practical training course. After facing some resistance from both the polytechnic and students, Sirajuddin, together with Ashraf Sagar (also OPP-RTI-trained) and Abdul Hakeem (one of his teachers), set up, with OPP-RTI help and guidance, the Technical Training Resource Centre in 2000. Thereafter, TTRC started to organise a three-month training course on drafting, quantity surveying, level and plane-table surveying, construction and supervision. The fee for the course was set at Rs1500 (US$25).

TTRC, in conjunction with OPP-RTI, conducts a 26-day training course on mapping and documentation surveys. Students who successfully complete the course then receive training at the OPP-RTI. So far, TTRC has conducted 46 such training courses, in which a total of 119 students have participated. OPP-RTI used funding from Homeless International, a UK-based charity, for setting up an endowment of Rs500,000 (US$8340) for TTRC. An additional Rs220,000 (US$3660) has been provided by Homeless International for replicating TTRC by setting up the Housing Resource Centre in Karachi. This one-off endowment, and the income from it, helps to meet some of TTRC's salary costs. TTRC also provides training and refresher courses to staff of OPP-RTI partner organisations that are replicating the low-cost sanitation model in various towns and cities of Punjab and Sindh provinces. Since 2001 the stonemasons' training programme is being managed by TTRC. The Centre has developed information leaflets on improved designs and techniques, and it employs informal means such as visiting *chai khanas* (tea stalls), where stonemasons gather, to talk to them about the benefits of the programme. Another TTRC programme entails a mobile team visiting houses under construction in Orangi to offer free advice on improved building techniques. The team also documents the process and gathers information on expenses incurred and home-owners' preferences, which TTRC hopes to collate and use in the future for preparing a housing loan programme.

Most recently, OPP-RTI has involved TTRC in providing assistance with the development of sanitation infrastructure in Hala and Sinjhoro, two medium-sized towns in Sindh. The mapping of both towns is

near completion. Once it is completed, OPP-RTI will initiate planning for improvements in sanitation in the two towns. TTRC is also engaged with OPP-RTI in its schools upgrading programme, assessing schools' applications for physical improvements, and offering advice and assistance with upgrading. TTRC can be regarded as a successful example of OPP-RTI's work in promoting the development of community-based support organisations. OPP-RTI continues to support TTRC by providing fellowships to its staff and by paying fees for the work that the Centre does for it. In addition, it makes every effort to provide TTRC with technical and institutional guidance.

Source: OPP-RTI literature and interview with Muhammad Sirajuddin.

Documentation and mapping of katchi abadis

Survey and documentation of *katchi abadis* has been an ongoing activity since 1994. Documentation of sanitation, water supply, clinics, schools and *thallas* (building component manufacturing yards) has been completed in 334 *katchi abadis* (covering around 224,299 houses) out of a total of 539. The documentation of 200 *katchi abadis* has been digitised and results, together with detailed maps, have been published. The documentation of additional *katchi abadis* will be published shortly. The digitisation has been done by OPP-RTI technical staff members who had some knowledge of computer graphic programmes. In the process they have become efficient in both computer graphics and digitisation. As a result, a computerised mapping unit is now functioning and two trained people from the YTP are part of the unit. An additional resource is the digitised sewerage/drainage mapping, which is now almost complete (16 out of 18 towns of Karachi have been covered). These and also the Karachi water supply maps are on the website (http://www.oppinstitutions.org/Mapsind.htm).

The survey of these *katchi abadis* has shown the extent of local people's work. Sixty-two per cent of these lanes have sewage disposal facilities and 50 per cent have water lines, both laid on a self-help basis. Approximately Rs334.48 million (US$5 million) has been invested by the people in this work. There has also been government investment in sanitation and water supply but most of this work relates to main sewers, drains and water mains. The survey results show that the 'internal–external' concept of OPP-RTI has been fortuitously followed by the government and the communities. Furthermore, 1041 clinics and 773 schools have been set up by entrepreneurs and/or charities in these settlements, compared with 12 government clinics and 143 government schools.[24]

Mapping outside of Karachi

OPP-RTI partner CBOs and NGOs outside of Karachi have also developed expertise in mapping. This expertise is the result of OPP-RTI strategy for supporting NGOs and CBOs wishing to replicate its programmes. Once trained, the CBOs and NGOs invariably come into contact with local government departments as their work expands. Interested and dynamic local government representatives from these partner organisations are then encouraged and facilitated to visit OPP-RTI for orientation. If convinced, they send their staff for training. Neighbourhood settlements and sometimes even villages and the local government of neighbourhood towns contact the CBOs or NGOs, asking to replicate their programme. (See Annexe 4 for experiences and lessons from early replication efforts.)

[24] Rahman, P. (2004), *Katchi Abadis of Karachi: A Survey of 334 Katchi Abadis*, OPP-RTI.

Figure 24: A partner NGO mapping their settlement

4. Advocacy: evolution and milestones

This section presents a narrative of the process and evolution of OPP-RTI's advocacy efforts which are grounded primarily in (1) research and extension, (2) demonstration of work on the ground, (3) mapping and documentation, and (4) relationship-building through working with government, communities and civic groups.

Korangi Waste Water Management Project (KWWMP)

In 1992, KWSB proposed a major project to build main trunk sewers in Orangi, the sprawling township of 1.2 million people, as part of its massive umbrella project, the Greater Karachi Sewerage Plan (GKSP). When OPP-RTI documented a pilot project in one settlement of Orangi, it showed that existing work in lanes was being overlooked and duplicated, while the open drain, which needed to be replaced, was going to be left untouched. The Karachi Metropolitan Corporation (KMC), Asian Development Bank (ADB) consultants and KWSB had planned for the area as if this work didn't exist. Instead of laying trunk sewers along the natural drains, their plans called for pumping sewage *uphill*, over a great distance, to large treatment plants. As a result, the whole settlement would have had to be dug up to link with the proposed system. A report on this was sent to ADB's board of directors, and simultaneously, the US government was lobbied, through the Consul-General in Karachi, as the United States was represented on the ADB's board.

A senior OPP-RTI staff member helped to arrange, through a family contact a meeting between OPP-RTI and the then *Nazim* of KMC, and a dialogue was thus initiated. With the help of maps, OPP-RTI explained ground realities, which showed that a lot of work had already been done by the people in the project areas. OPP-RTI argued that this should be integrated in the project design, and cautioned that if the project financed the lane sewers as well, then the carefully nurtured 'internal–external' model would fall apart and communities' investment would go to waste.

Figure 25: The then Nazim of Karachi being briefed on the work of OPP-RTI

The *Nazim* took a keen interest in what OPP-RTI had to say about the project and after visiting the site to observe the on-the-ground situation, instructed that OPP-RTI be officially appointed consultant to KMC on the project. In fact, OPP-RTI did not really want this role, and before agreeing to accept it, worked informally for some months with government engineers to look for some alternative form of productive co-operation. OPP-RTI's role as a low-cost consultant was greatly assisted by the then Project Director of the ADB-KMC project, who had been very supportive of OPP-RTI's work in the past. He ensured that the provisions of the agreement between KMC and OPP-RTI were properly followed by government engineers and contractors. As a result of OPP-RTI's involvement, the cost of the ADB-funded project decreased from Rs1300 million (US$21.6 million) to a modest Rs36.2 million (US$0.60 million).[25] An ADB report cited this project as the only successful sanitation project it had funded in Karachi under the Karachi Urban Development Programme (KUDP).[26] The experience of working with and alongside government field staff and officials helped to build a rapport and lasting partnerships, which proved crucial at later stages.

Figure 26: OPP-RTI staff supervising an ADB funded main sewer

After some time, when KWSB announced yet another major sewerage project, the Korangi Waste Water Management Project (KWWMP) – a sub-project under the GKSP), OPP-RTI immediately recognised all the elements of past mistakes: the project didn't follow the natural drains, it ignored sewer systems which already exist in 80 per cent of the area, and unless all the sewers were re-laid (costing additional billions of rupees) to link to the new KWSB trunks,

[25] Hasan, A. (1997), *Working with Government*, City Press

[26] Asian Development Bank (1999), "PAA-PAK 19076 – Project Performance Audit Report on the Karachi Urban Development Project in Pakistan".

effluent from the area would never reach the proposed treatment plant. The project was to cost US$100 million, of which $70 million to be borrowed from ADB and $30 million raised locally.

The map which shows the existing sewerage and drainage system in Korangi can be accessed at: http://www.oppinstitutions.org/Karachi%20Towns%20Maps/Sewers/11_Korangi%20Town%20Sew_Drain.jpg.

OPP-RTI knew the layout of the area, as it had been working with communities and SKAA in *katchi abadis* of Korangi prior to the announcement of the KWWMP. On the basis of surveys and documentation, OPP-RTI proposed that the existing sewerage systems, laid by government agencies and by the people, should be documented and accepted and that the natural drains, into which most of the sewage disposed, should be converted into box trunks, and a treatment plant should be placed at the locations where they meet the sea or backwater.

Figure 27: Existing sewerage and drainage system of Korangi

The KWSB planners and engineers objected to this proposal because they felt that sewage and rainwater flowing together was against good engineering practice. However, OPP-RTI was able to obtain information that showed that the practice was followed even in some developed countries such as Japan.

OPP-RTI made a series of presentations of its proposals before KWSB, government of Sindh departments, the Planning Commission in Islamabad, the President of Pakistan, the Governor of Sindh and the ADB. On the basis of OPP-RTI documentation of what existed on the ground, the government accepted that 70 per cent of what the project sought to build already existed. It agreed that therefore, just upgrading the drains and building a treatment plant would be sufficient, and would cost a fraction of the original cost of the ADB-funded project.

After a protracted struggle by OPP-RTI and various partners, in April 1999, the Governor of Sindh decided to cancel the ADB loan of US$70 million for the KWWMP. It was also decided that the project would instead be built with local resources and local expertise. A committee was formed by the Governor to develop a conceptual plan for the project, and it requested OPP-RTI to prepare this plan. OPP-RTI accordingly drew up a plan (see Table 2 below). Although this plan was not taken up at the time, the whole process leading to the cancellation of the project unleashed a wider debate on city-wide sewerage, drainage and wastewater treatment infrastructure. In recent years this debate has led to the incorporation in government plans and projects of principles and practices espoused by OPP-RTI.

Table 2: OPP-RTI's proposed plan for the KWWMP

	KWSB's Korangi plan	OPP-RTI's alternative plan
Plan	Superimposes an entirely new sewerage system, ignoring existing sewerage and natural drainage systems	Upgrades and expands the existing functional sewerage systems after carefully documenting these systems
Cost	**US$100 million**	**US$10 million**
Financing	ADB loan of US$70 million, $30million raised locally	Can be done in six years using local funds available from the KMC; no loan required
Extra costs	All existing lane and secondary sewers will have to be dug up and replaced to link with new system, incurring millions of dollars in costs over and above the project costs	None; by picking up flow from existing sewers, the plan utilises investment of billions of rupees in sewerage infrastructure already made by communities and the local councillors (councillor's fund)
Technology	Foreign, expensive, inappropriate for Karachi's fiscal and technological realities, with high maintenance costs	Low-cost, easy-to-maintain indigenous technology uses gravity flow, natural drainage and shallow sewers
Design	By foreign consultants	By local engineers and sewerage specialists with deep understanding of local realities, resources and limitations
Drainage	Calls for heavy pumping stations to pump sewage uphill, across long distances to centralised treatment plants, and faulty and un-maintainable deep sewers	Upgrades existing natural drainage *nalas* by converting them into box trunks or flash cover drains, so no realignments are needed to pick up existing flows
Treatment	Centralised in one large, expensive treatment plant which was not connected to the natural drainage *nalas*	Centralised to one, inexpensive treatment plant, built at the end of natural drainage *nalas*; also explores eco-friendly alternative treatment systems such as marine outfalls and lagoons
Contracting	Built by foreign contractors, to 'international' specifications, at international rates (5–15 times local rates) with imported materials (even if manufactured locally at lower price)	Built by local contractors, municipal staff and local communities, at local rates, making full use of local materials, local workers, local expertise and indigenous innovations

Source: Asian Coalition for Housing Rights website

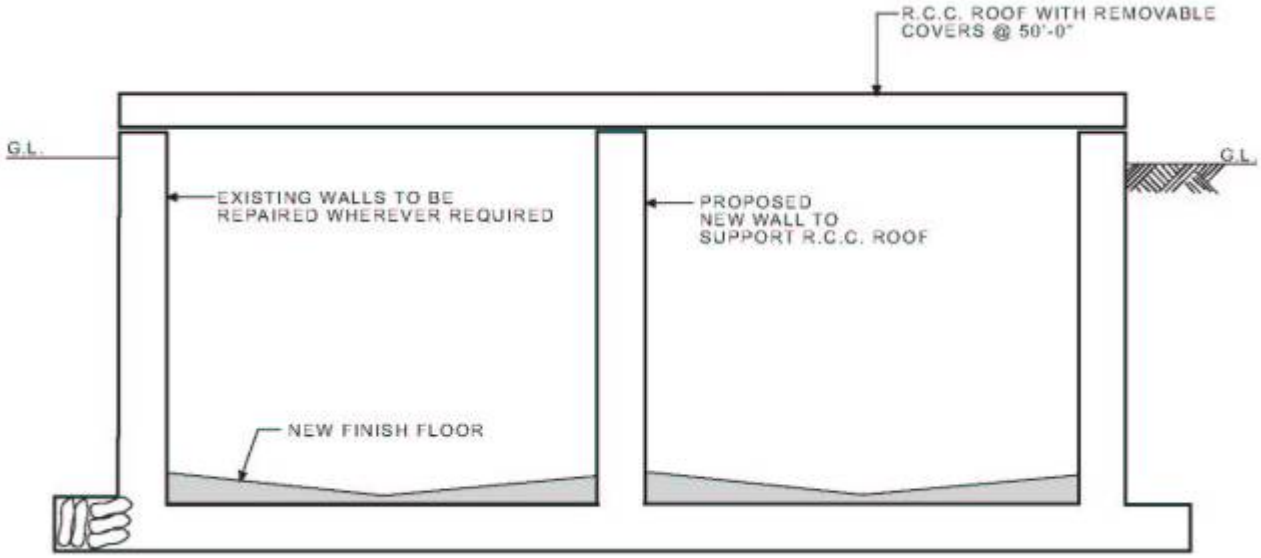
Collective action

It took a great deal more than meetings with officials and a good alternative plan to get the loan for the Korangi project cancelled. A large network of civil groups brought their separate expertise and collective clout to battle against the big guns of external-loan-driven development. To raise awareness about the problems with the project, over 20 public forums were organised by the Urban Resource Centre[27] (URC) between 1998 and 2000, in which activists, NGOs, researchers, journalists, government officials and community organisations from Korangi and other areas learned about the implications of the ADB-funded project and the alternative plan. Press reports of these forums helped initiate wider debate on the Korangi loan, and the city's sewerage problems. The Collaboration in Reforms for Efficient and Equitable Development

[27] A partner organisation doing research and awareness-raising work in Karachi

(CREED), a large alliance of prominent NGOs, community groups and development organisations, played a central role in lobbying against the ADB loan.

Figure 28: Section of drain for a realistic sewage disposal system for Korangi



CREED and SHEHRI (another Karachi-based NGO which deals with environment-related issues) opposed the project on the basis of its non-compliance with ADB's environmental guidelines and safeguards, and they called on the ADB to take action with regard to these concerns. For its part, the URC raised awareness among the local population and worked to organise forums for debate, to which the media was also invited. OPP-RTI lobbied the government through various channels, including the Governor's Task Force on Municipal Services, using maps and other information to show how the project would not solve the problems it was ostensibly designed to solve. This Task Force was an important platform for advocacy and communication, because OPP-RTI, and some of its key allies in government, were members, and therefore were in a position to infuse the Task Force with energy and influence its direction.[28]

Jointly, the NGOs sent a petition to the ADB Inspection Committee, signed by hundreds of residents of Korangi, supporting rejection of the loan and requesting an independent review of the project. During this campaign, allies turned up in some unexpected quarters.

The provincial Department of Finance became a staunch supporter of OPP-RTI's alternative plan and opposed the taking of new loans by an already overburdened KWSB.[29] It helped matters that some of the partner civil society groups (such as CREED) had adopted an aggressive posture, which made OPP-RTI's position and recommendations appear more acceptable to government.

[28] It is worth noting that of the six task forces on various matters created by the governor, the Task Force on Sewerage, Drainage and Treatment Plants was the only one which succeeded in fulfilling its mandate.
[29] *Newsline*, July 1999, p. 54

Wider consequences of the KWWMP experience

Even though OPP-RTI's alternative plan for KWWMP was not taken up as a result of all the publicity and discussions surrounding the project, the issue of alternatives to the larger GKSP came up for debate and discussion, eventually leading to improvements in infrastructure and planning by the government.

After the KWWMP was cancelled, KWSB's attitude towards OPP-RTI had become hostile. OPP-RTI had learnt that KWSB served only 20 per cent of the city, while KMC (later superseded by CDGK) managed the rest. In 1999, OPP-RTI started to focus on working and strengthening relations with concerned CDGK staff and officials (in the Works and Services Department) in order to promote *nala* development all over the city. At the same time, it maintained contacts with KWSB by periodically visiting, discussing, and keeping in touch with senior officials and by interacting with and exchanging information with field staff.

Figure 29: Meeting with KWSB officials

In 2000, at OPP-RTI's suggestion, the Task Force requested it to undertake a study on institutional issues related to the sewerage sector for the whole city. A report, 'Sewage, Drainage and Treatment Plants: Responsibilities, Finances, Issues and Policy Changes Needed', was duly prepared (main conclusions of the Report are given in Box 3 below). This report is of considerable importance because it further highlighted the need to develop *nalas* into box trunks and/or have box trunks laid on the sides of *nalas*, with the sewage treatment plant placed at the junction where *nalas* enter the sea.

Box 3: Sewerage, drainage and treatment plants – responsibilities, finances, issues and policy changes needed

- At present KWSB is servicing only about 20 per cent of Karachi with its sewage disposal. Servicing means maintenance and renovation of the existing system. In these areas most sewage is diverted to storm drains and natural drains.
- KWSB's role in developing a sewage disposal system has been negligible. The only known development project undertaken by KWSB has been upgrading of Treatment Plant (TP)-I, TP-II, construction of Baldia sewerage project, Lyari trunks and T.P III, which are all components of KWSB's Greater Karachi Sewerage Plan. The functioning of these projects, costing about Rs42 billion (US$700 million) in foreign loans, is questionable, as already shown in the case of TP-I, II and the Baldia project. In the remaining 80 per cent of the area of Karachi, not serviced by KWSB, development has been undertaken by Karachi Development Authority (KDA), other development authorities, the Cantonment Board, KMC, co-operative housing societies, builders and the people themselves.
- Natural and storm drains serve as disposal channels for 90 per cent of sewage generated in Karachi. In the areas under KWSB jurisdiction (which is 20 per cent of Karachi's area), drains are also being

used for sewage disposal. In the remaining 80 per cent of Karachi's area (including *katchi abadis*) not under KWSB jurisdiction, the sewage disposal points are the storm drains and natural drains.

- Neither KWSB nor KMC (now the city and town governments) accept responsibility for maintenance/development of these natural and storm drains. The result is the consequent overflows and breakdown of the sewerage system all over the city. KWSB's Managing Director and Foreign Projects Office reject this reality and persist in imposing a master plan (the Greater Karachi Sewerage Plan) which has no relation to the existing system in place. KMC's opinion is that these storm drains and natural are sewage disposal channels and that it is therefore KWSB's responsibility to maintain them.
- The KMC and KWSB sewerage departments responsible for operation and maintenance are open to accepting the ground reality**.** KMC has already allocated budgets for drain trunk development as per the Governor of Sindh's directive of 3 March 1999. KWSB's sewerage wing accepts the ground reality but is helpless to act accordingly, given KWSB's policy in this matter.
- For financing its sewerage wing, KWSB is dependent on a KMC subsidy. For sewerage maintenance and repair KWSB's revenue for 1998/99 was Rs120 million (US$2 million) (50 per cent share in conservancy charge) while its expenditure budget was Rs483.4 million (US$8 million). The deficit was covered by a subsidy from KMC of Rs275 million (US$4.6 million). This subsidy covered establishment, maintenance and repair costs.
- The KWSB sewerage wing's budget for maintenance and repair is mostly wasted, which means that the KMC subsidy is wasted. KWSB persists in revitalising a collapsed system, while at the same time it ignores the functioning drain/disposal system. It spends huge sums on renovating and maintaining lane sewers, secondary sewers, and trunks while the actual disposal is neglected.
- KWSB's dependence on foreign loans for development projects is disastrous for the institution. At present KWSB has a loan liability of Rs42 billion (US$700 million), which it has not been able to service.

- The inability of KWSB to service the loans has negative implications for the budget of Sindh government and its allied organisations. The KMC's (now the City Government) budget allocation due from the Sindh government has been deducted at source, because of KWSB loans and their servicing.

- Responsibility needs to be redefined. KMC is a viable organisation to take responsibility for sewage disposal in Karachi. KMC (now the city and town governments) is open to accepting the ground reality as specified in the governor of Sindh's directive of 3 March 1999. KMC is financially viable. It has the technical and administrative capacity to take responsibility for developing and maintaining sewage disposal systems. The maintenance and repair wing of KWSB can function under KMC (now the city and town governments). KWSB is better suited to function as a water board.

For the above suggestions to be implemented, no changes are needed in the Sindh Local Government Ordinance (SLGO). However, a government directive is needed, as stated in a clause in the SLGO: 'KMC to take up any other role assigned by government'.

For KWSB to be converted into a water board, the KWSB Act will have to be amended.

Source: Rahman, P. (2000), *Sewerage, Drainage, Treatment Plants – Responsibilities, Finances, Issues and Policy Changes Needed*

In June 2000 the government of Sindh and the World Bank announced a workshop entitled 'Water and Sewerage in Karachi: The way forward', to which some of the NGOs were conspicuously not invited. Thanks to an extremely effective grapevine, they showed up anyway, having drafted, in a preparatory consultation with 59 other groups, a policy paper on water and sanitation in the city (see Box 4 below for details).

Box 4: Citizens' position paper on water and sanitation policy for Karachi

On 28 June 2000, a meeting was arranged between the government of Sindh and various Karachi NGOs, CBOs and citizens on the issue of water supply and sanitation for the city. The workshop was organised by the government of Sindh, local government Public Health Engineering Department (PHED), and the Rural Development and *Katchi Abadis* Department, in collaboration with the World Bank, and it was facilitated by World Bank consultants. The NGOs, CBOs and citizens handed over a paper and walked out of the meeting for the following reasons:

- The government of Sindh and KWSB were not represented at this meeting by decision-makers. Moreover, the Chief Secretary, Department of Planning and Development, government of Sindh, was supposed to chair the meeting but did not. The citizens felt that their dialogue had to be with their government representatives and not with the World Bank officials.
- The NGOs and citizens had informed the organisers that they had reservations regarding the manner in which the workshop was being conducted, in which individuals were making comments on behalf of various interest groups. The NGOs and citizens had requested a panel discussion on the subject. However, the organisers did not change the format of the workshop.
- When community members objected to the fact that the decision-makers were not present, the facilitators asked them to 'stay quiet and behave in a civilised manner'.

However, there is a background to this conflict. In the water and sanitation sector, KWSB has borrowed over Rs46 billion for development purposes since 1983. It has not even begun to service the debt. These servicing costs therefore have to be covered by deductions made from Sindh government revenues at source, thus increasingly depriving the province of funds for development. In addition, none of the projects financed by these loans has been successful, with the exception of the sewage disposal project in Orangi, based on the OPP-RTI model. This fact has been confirmed by the Asian Development Bank (PAA; PAK). 19076-Project Performance Audit Report on the Karachi Urban Development Project (Loan 793-PAK [SF]) in Pakistan, December 1999.

OPP-RTI has developed low-cost realistic solutions to the problems of sewage disposal in Karachi. However, KWSB has rejected these, without seriously considering them or even visiting OPP-RTI sites to see how they work. It is important to note that these very solutions have been applied to similar situations in Japan, Switzerland and some other developed countries. They do not require large foreign loans for implementation.

The citizens and NGOs are extremely concerned about this state of affairs and are adamant it should not continue. They insist that a review of the role played by KWSB and by the international loan-making agencies in this disaster should take place. However, this is something the international agencies are not even willing to consider.

There are a number of changes that the NGOs, CBOs and citizens feel are required to make the loan-making process more transparent and to make it cost-effective. These are:

- Projects identified for a loan should be part of a larger programme and not isolated, ad hoc interventions as they are today.
- Foreign consultants should not be employed, because highly qualified local experts are available and can work for a fraction of the cost. In many cases, 20 per cent, or even more, of the loan amount goes to these foreign consultants in fees and overheads. International tendering, which is required under the loan conditions, raises the cost of local implementation costs by between 200 and 300 per cent. It should be dispensed with, and instead, local contractors should be employed for implementation.
- Repayment of loans should be guaranteed to be covered by the benefits accruing from the project itself rather than by finance from other sources.

A steering committee representing interest groups should review the project at the conceptual stage, through public hearings, with regard to its social, physical and economic viability and need, before a loan is requested.

- Above all, a loan should be taken out only if it is impossible to mobilise local resources for the project.

The government of Sindh and Pakistan must protect the interests of the people of the province and country, and should dictate loan-taking procedures and conditional ties in the larger interest of the people of Pakistan. It has to be realised that the debt trap is the biggest cause of poverty in this country and the only way out of it is to live within our means and rely upon the ingenuity and frugality of our people who have managed to survive in an extremely hostile economic environment which has been forced upon us by self seeking governments and the ruthless international market.

Source: OPP-RTI's 84th Progress Report

Working with CDGK and development of S-III

In 2004 OPP-RTI was invited by CDGK to become part of the Focal Group on *Nalas* and Drains of Karachi (See Box 5 below for composition, functions and evolution of the Focal Group). The Group used OPP-RTI documentation and designs for development and for lobbying the Governor of Sindh for a regular budget and procedure for desilting *nalas*, acceptance of *nalas* as main disposals for sewerage, and improving and upgrading the capacity of treatment plants.

Figure 30: Meeting with CDGK officials

As a result of the conversion of natural drainage channels into box trunks, large areas of low-income settlements located along drainage channels have benefited from the improved local environment and a three- to fourfold rise in the value of their property.[30] OPP-RTI's documentation of *nalas* and drains provided important evidence leading to a policy decision in June 2006 regarding maintenance (regular desilting and repairs) of natural *nalas* and drainage channels.[31]

[30] OPP-RTI sources

[31] The regular maintenance of *nalas*/drains had always been a problem and cause of conflict between the two city government departments, Works and Services (W&S) and KWSB. As sewage flowed into *nalas*/drains, KWSB was expected to take

This entire process leading to the government's decision was informed by OPP-RTI's recommendations and designs for *nala* development in the city. Key elements of the recommendations (set out in Boxes 3 and 4) were encapsulated in a 'proposal for sewage disposal of Karachi' and provided the basis on which KWSB prepared its 'S-III' project for sewerage, drainage and treatment in Karachi.

The S-III, which is going to cost around US$100 million, is being financed entirely by KWSB, using government resources. The project is currently in the early stages of implementation and is considered a major breakthrough for OPP-RTI's advocacy efforts over the previous decade. Acknowledging OPP-RTI's role in development of the plan, and its expertise, KWSB has asked it to review the detailed designs and to monitor implementation of S-III.

A map showing the KWSB's S-III Plan for Karachi's sewerage development can be accessed at: http://www.oppinstitutions.org/Karachi%20Towns%20Maps/01_Karachi%20Nalas%20&%20Drains.jpg.

Figure 31: A natural *nala* converted to box drain

Box 5: Focal Group on *nalas* and drains of Karachi

In the course of its dealings with government officials regarding on-the-ground work, and discussions and debate on GKSP, OPP-RTI came across a number of like-minded individuals from within government with whom it shared an understanding and a development vision for Karachi. The contact with officials in KWSB and CDGK continued both formally and informally, eventually culminating in the establishment of a 'Focal Group on *Nalas* and Drains of Karachi'. The Focal Group's objective was to exchange information and ideas, and facilitate co-ordination between different actors for improving the city's drains. Since then, the composition of the Group has changed, as has its functions, which now include formal and informal information-sharing and co-ordination on other related city-wide issues, such as provision of drinking water and evictions of communities from *goths* (old rural settlements which have now become part of the urban sprawl) and *katchi abadis*. Thus the Focal Group has moved beyond its original mandate and become a group of like-minded officials from within CDGK and KWSB, together with civil society representatives, who meet regularly to discuss, and develop consensus on, key issues surrounding water and sanitation and housing, and strategies to influence CDGK. Members of the Focal Group who have been transferred to other departments have maintained links with the Group and continue to be supporters and important sources of information.

Source: Interview with Director of OPP-RTI, Perween Rahman

responsibility of their maintenance. However, KWSB contended that the drains and *nalas* (and all that flowed in them) were the responsibility of the W&S department, while its own responsibility was for sewerage pipes.

The national sanitation policy

An important demonstration of OPP-RTI's subtle influence on sanitation policies in Pakistan was the formulation of the national sanitation policy. The government of Pakistan appointed Arif Hasan (OPP-RTI's Principal Adviser) as the national consultant to draft the document. The policy, which was approved by the Federal Cabinet around the time of the 2nd South Asia Conference on Sanitation (SACOSAN), in September 2006, relies heavily on the OPP-RTI model for implementing low-cost sanitation on a 'component-sharing' basis. This includes mapping as a fundamental step before any intervention, and the sharing of internal and external infrastructure development between citizens and the government. Although this does not mean that the OPP-RTI model will automatically be adhered to in the future, it is an important step in further strengthening the influence of OPP-RTI's approach to sustainable sanitation development.

The need for a national policy arose as a result of Pakistan's participation in the 1st South Asian Conference on Sanitation, which took place in Dhaka, Bangladesh, in 2003. The Ministry of Environment (MoE) was designated the official body responsible for developing the policy. As OPP-RTI was widely recognised as having the greatest experience with sanitation work, the MoE asked it to lead the process of developing the draft policy. The OPP-RTI team requested Arif Hasan to be in charge of the exercise. Provincial consultants were hired by MoE to conduct provincial-level discussions with a broad range of stakeholders. The findings from these provincial workshops were later presented at a national workshop organised in Islamabad. Thereafter, the lead national consultant (that is, the Principal Adviser to OPP-RTI) was tasked with preparing a background paper based on provincial consultations, secondary sources, and personal experience. This paper was later presented to a select committee of government and non-government stakeholders, including national and international NGOs, for discussion and feedback. After feedback from this committee, a draft national policy was prepared which was then laid before a broad-based audience of informed participants in a national seminar. After a few rounds of feedback and its incorporation in the draft, the policy was presented before the federal cabinet chaired by the Prime Minister, and approved in September 2006.

The policy lays down a set of principles and guidelines, on the basis of which provinces are meant to formulate a strategy spelling out rules, regulations and procedures. The government of Punjab has taken the necessary steps, with the assistance of the World Bank's water and sanitation programme to formulate a provincial strategy, and the government of Sindh has prepared a draft document. Meanwhile, a partner organisation of OPP-RTI, the Akthar Hameed Khan Memorial Trust, Rawalpindi, has translated the national policy document into Urdu for distribution among *tehsils*/towns around the country.

Expanded and new areas of work

A long period of engagement with the issue of *nalas* and drains revealed the political economy of *nala* development and desilting, and opened up further areas of related advocacy work, which are discussed below.

Encroachments by the powerful and displacement of the poor

During monsoon rains in the middle of 2006, large parts of some high-income localities in the city were badly affected by flooding. Many of these areas remained submerged in putrid water for several days and even weeks. Low-income areas, on the other hand, did not experience the

same level and extent of flooding. The city government was at a loss as to the causes of the severe flooding. OPP-RTI surveys and documentation showed that the outfalls of three main city drains, which passed through the affected high-income localities, before entering the sea, had been illegally encroached upon by various government agencies and private individuals and groups.

The increasing value of land, infrequent rains, governance problems, and the influence of military-related agencies were identified by OPP-RTI as the main reasons for this situation. OPP-RTI immediately took action, sharing results of surveys and photographs with KWSB, partner NGOs/CBOs and the media to raise awareness about the ground reality and key issues related to flooding during rains. The survey and photographs showed that instead of the commonly held view, it was large private homes, business establishments and government agencies, and not the poor localities, that had encroached upon the precious land. This information was widely reproduced in the media and the resulting public pressure led to the demolition of portions of large bungalows and commercial establishments in the weeks following the flash floods.

OPP-RTI has since then voiced its concern about plans to build roads alongside the *nalas*, which CDGK says are needed for maintenance and cleaning purposes. OPP-RTI is of the opinion that such a step will require demolition of low-income houses alongside the three major *nalas* in the city, and is not needed as cleaning can be carried out without building roads or evicting residents. In order to advance its views, OPP-RTI is continuing its dialogue with government while preparing and presenting it with alternative plans. At the same time it is mobilising local communities to lobby for these plans to be adopted.

As an outcome of its involvement in this issue, OPP-RTI realised that most cases of drainage development, besides being costly, involved displacement and dislocation of people. It believed that evictions and displacement would not be necessary, except where the design of the infrastructure meant this was unavoidable. OPP-RTI made extensive use of maps and alternative designs to counter government plans, with a view to minimising the need for evictions. The underlying premise of the OPP institution's approach is that the sociology of the community is as important as the engineering and technical aspects of the project, and that accordingly a good project will balance the needs of both. Communities are encouraged to document history of the settlements, ownership patterns and existing infrastructure for the purpose of lobbying government in order to demonstrate the viability of designs and plans that avoid evictions.

The issue of housing rights at OPP-RTI came to the forefront as a result of the experience and knowledge gained about government planning and development for sanitation and drainage infrastructure. Making use of what it has learned, OPP-RTI has teamed up with the Urban Resource Centre (URC) to pursue a 'Secure Housing Initiative'. This initiative or programme has three aspects:

Figure 32: Strengthening people's efforts for securing their *goths*

1) documenting city-wide settlements under threat of evictions, and building case studies supporting people's resistance and showing that the land occupied is essentially 'people's housing' and not land grabbed by the 'mafia', as is widely perceived

2) providing necessary information to would-be affected communities and encouraging them to organise themselves to resist government plans for their eviction or to demand appropriate and market-based compensation.

3) procuring government plans for evictions, so that efforts can be made to have them altered or changed, as well as passing on the information to would-be affected people, so that they can mobilise themselves and resist.

Water supply and distribution

Slowly, OPP-RTI has also begun to look at the wider water distribution problems facing Karachi. According to its research, recently completed,[32] the 665 MGD of water which is allocated to the city is sufficient, if bulk siphoning is controlled. OPP-RTI research shows that around 272 MGD are being siphoned off from the bulk main, and then sold through 10,000 to 12,000 water tankers of different carrying capacities, making a total of 1,00,000 to 1,20,000 tanker trips a day. It is estimated that the business of siphoning water and selling it through water tankers brings in a total of almost Rs49.6 billion (US$820 million, at US$1 = Rs60.5) per annum. The report is available on the OPP-RTI website.

Figure 33: A private hydrant

OPP-RTI has a good working relationship with the water and sanitation department of CDGK and with KWSB, and it is currently assisting with co-ordinating the development of branch *nalas*/drains and their link-up with KWSB's work. Starting with work on a single issue (sanitation) in a part of one of Karachi's *katchi abadis* more than 20 years ago, OPP-RTI has

[32] Rahman, P. (2008), "Water supply in Karachi – Situation, Issues, Priority Issues and Solutions", unpublished paper

progressed to tackling larger and related issues of housing rights (land use), water and governance, while maintaining an effective and mutually beneficial relationship with government agencies.

Box 6: Asian Development Bank funding for water supply and sanitation in Karachi

As of 31 December 2004, the Asian Development Bank's (ADB's) total loan commitment to Pakistan, since it began operations in 1968, comprised 239 public sector loans amounting to US$14.3 billion. Of this, 21.5 per cent was for the energy sector, 20.9 per cent for agriculture and natural resources, 13.2 per cent for the finance sector, 11.3 per cent for transport and communications, 9.4 per cent for multi-sector projects, 9.0 per cent for industry and trade, 6.9 per cent for law, economic management and public policy, 3.5 per cent for education, 2.7 per cent for water supply and sanitation and waste management, and 1.6 per cent for health, nutrition and social protection.[1]

In recent years, ADB has provided the most significant levels of funding for urban development programmes in Pakistan, including for water and sanitation in Karachi. The most recent loan agreement, which is to be provided under the proposed Mega-Cities Development Project, is for US$800 million, making this the largest-ever development project in Pakistan. It is worth having a brief look at what the ADB evaluation[33] says about outcomes of previous urban development loan projects.

The evaluation states that urban projects failed as a result of much delayed and doubtful quality outputs, and that they did not produce any positive development outcomes. Weakness in the financial management capacity of urban authorities, and the failure of institutional-strengthening components to deliver the intended results, are said to be contributing factors. Urban water supply and sanitation projects are said to have suffered from 'missing links', an acknowledgement that project designs were mostly flawed. The evaluation identifies below-optimum operation of treatment plants due to 'low inflow. It acknowledges also that customers unwillingness to pay does not provide a satisfactory explanation for underperformance of water supply projects. The finger of blame is pointed in the direction of inadequate 'incentives' for staff of government departments to increase connections, 'as this would lead to more transparent billing for water use and reduced corruption'. It concludes by stating that 'significant governance issues in the sector remain unaddressed, most notably corruption, which affects performance. The opportunity for rent-seeking activities in the distribution of an essential good such as water is high.'

Other factors influencing performance include weak justification for projects; limited or no ownership by executing agencies of project design; lack of consideration given to exploring alternative options for resolving identified problems; and insufficient learning from other project design problems. The evaluation goes on to state, somewhat cryptically: 'Where lessons did influence design choices, the response tended to be the elimination of previously problematic areas (such as sewerage treatment plants or landfill sites).' A low level of cost-efficiency is also cited as a factor informing project outcomes.

Box 7: Karachi Urban Development Project

The Asian Development Bank's (ADB's) first loan to the urban sector in Pakistan was the 1986 Karachi Urban Development Project, which was intended to support the government's Karachi Special Development Programme. The ADB made available funds of more than US$60 million. The project was completed more than five years behind schedule. It suffered from design flaws, as it duplicated or ignored existing systems, and dumped untreated sewage into open estuaries, and then into the Lyari River, and eventually into the sea. According to the ADB auditors, the main reasons for the project's failure to

[33] Asian Development Bank (2007), *Country Assistance Programme Evaluation*

achieve its stated objectives were: lack of consultation with communities, failure to implement a beneficiary monitoring system, and neglect by ADB supervisors. The evaluation cited solid waste management as the only 'successful' component of the project. Even this was deemed unsustainable, however, because population growth in the city and no new planned investments in the sector meant that large quantities of solid waste would be disposed improperly and would eventually become a health hazard.[1]

Sources: www.adb.org/prm; and the ADB Project Performance Audit Report on the Karachi Urban Development Project (Loan 793-PAK [SF]), December 1999

Box 8: IFI-funded projects: civil society perspective

Many of the urban projects proposed by international finance institutions (IFIs) are opposed by civil society organisations on the grounds that: 1) the reorientation of urban local bodies weakens their regulatory roles; 2) the insistence on user fees increases disparities between the rich and the poor; and 3) the emphasis on private sector participation diminishes state accountability and stresses profit over universal access to key services. Many believe that by reorganising urban local bodies on the principles of neo-liberal theories of development, these reforms change the way local bodies function, and lead to increased disparities in living standards. The result is that the traditional public sector domain is being taken over by the private sector, leading to increased levels of inequality.[34]
The Asian Development Bank (ADB) and the World Bank have provided loans for water supply and sanitation and upgrading of *katchi abadis* in Karachi amounting to more than US$961.0 million over the past 24 years (see Annexe 5 for project titles, project objectives and loan amounts). Loan amounts for urban development, including those for water and sanitation and *katchi abadi* settlements upgrading, have been steadily increasing over the years. The multi-component, ADB-funded Mega-Cities project under preparation, with an allocation of more than US$800 million, is only the latest of these schemes.

It is argued by critics of IFI loans that they are concerned primarily with achieving quantifiable targets and with disbursing loan funds. This makes it difficult for these organisations to support social development, which requires patiently undertaking a process of exploration, without which innovation and its institutionalisation is difficult, if not altogether impossible. Most donor-funded social and community development projects are based on incorrect assumptions. It is assumed that government departments can fulfil the roles assigned to them under the project, and all that is needed is some training for staff, and policies spelling out what needs to be done. The issues of capability and capacity, culture of state institutions, and processes of accountability and transparency are generally overlooked.[35]

At the time when the project is being formulated, junior staff who are expected to implement it are never consulted. Key decisions about the project are taken at the highest level by senior officials who not only have a limited role in actual administration and implementation of the project but also possess limited knowledge of ground realities.

The culture of foreign-funded projects – which is reflected in the series of seminars and workshops held, and a display of affluence in the form of plush offices, expensive 4x4 vehicles, and hi-tech office equipment – is entirely at variance with that of government departments. This image tends to alienate people and makes the initiative appear 'non-serious'. Moreover, when the project ends, the new offices,

[34] World Bank and Asian Development Bank (2006), "Urban Sector Lending in South Asia, India and Pakistan", Draft paper prepared by Guneet Kaur, Virginia Polytechnic Institute and State University for Bank Information Centre (BIC), 1100 'H' Street NW, Suite 650, Washington, DC
[35] Hasan, A. (1997), *Working with Government*

additional staff, and other perks disappear, leaving the parent department back to where it stood before start of the project.[36]

In terms of costs, the government delivery mechanism for infrastructure development is at least four to five times more expensive than the market cost of labour and materials. If the project is IFI-funded, the project cost can be up to 50 per cent more, mainly because of project administration overheads including office set-up and running, staff salaries, perks for government officials, and cost of consultants. If the project includes international tendering, the cost can exceed by 100–200 per cent. Archaic forms of tendering, mandatory provisions for the hiring of foreign consultants, high administrative overheads, contractor profiteering facilitated by corrupt officials, and outdated materials procurement schedules also contribute to the high financial costs of IFI-funded projects.[37] Moreover, capacity-building components of the project are usually seen as perks and an opportunity to get away from the office and/or visit a foreign country.

IFI-funded projects in the social sector have a very poor track record. New loans continue to be taken on, because of the never-ending thirst of the federal government for foreign exchange and budgetary support, and the need for additional money to pay off old loans. At the level of project planners and implementers, loans are favoured as they provide opportunities for graft and patronage. Not to be ignored in this 'game' is the pressure that lending banks such as the ADB and the World Bank exert on the government to accept loans. Ultimately, lending agencies are interested almost exclusively in disbursement and utilisation of loan, and completion of schemes, paying little or no regard to whether the investment was even needed in the first place.[38]

5. Advocacy: elements of an effective strategy

Identification of issues

In carrying out advocacy, OPP-RTI does not work according to a predetermined agenda or strategy. Advocacy issues emerge as understanding of an issue develops, and after careful analysis of experiences and learning: 'The knowledge and experience gained through relationships and the process of documentation opened up the possibilities of work in other areas and on other issues.'[39]

For instance, experience with the ADB Orangi project (and earlier in Manzoor Colony, a settlement in the centre of the city) showed that lanes and secondary sewers were not connected to the main sewers, and the natural drain (ostensibly for rain or flood water) was being used for sewage disposal. OPP-RTI extrapolated from this that the situation might well be true for the rest of the city, and would explain a major flaw in the system. Thereafter, OPP-RTI set about documenting in stages the sewerage and drains system network for the city and found that its assessment was correct. Only after this was the issue of city-wide drainage taken up with KWSB and the city government. In the words of its Director, 'Meticulous documentation of processes and experiences, weekly and quarterly meetings, and preparation of reports and monographs are key to understanding the relevance and context of work being done, and guide the organisation in what to do next.'

[36] Ibid.
[37] Conversation with Arif Hasan
[38] Conversation with Tasneem Siddiqui, former Director-General, SKAA
[39] Perween Rahman, Director, OPP-RTI

Field experience

The importance of focusing on a single issue in a comprehensive manner cannot be over-emphasised. OPP-RTI's influence on government policy in relation to city sewerage and drainage came about because of its work in Orangi. Focused attention to the problem of sanitation there, and the knowledge gained, positioned OPP-RTI as an important and credible voice in the areas of its work. Getting involved in too many issues without fully comprehending the reality of any one issue can be distracting and counter-productive. For instance, community, officials and field staff of the city government had been asking OPP-RTI to study and document the city water supply problems for the previous four to five years. OPP-RTI, until recently, was unable to oblige because it felt that involvement in new issues would take the focus away from its immediate task of working on matters related to city-wide sewerage and drainage. Only after its suggestions and plans for sewerage and drainage in the city were accepted and large parts of it implemented by the city government, did OPP-RTI undertake to conduct research and development of a plan which includes management of the water distribution system. The lesson, therefore, is to work on single issues or few issues comprehensively before taking on attendant and related issues.

Linkages and partnerships with government

A strong partnership with government departments, backed up by proper background research is extremely important for an effective advocacy strategy. Changing the mindset and attitudes of policy-makers is not easy. It can come about only as a result of sustained engagement with government structures and processes. OPP-RTI recognises that without the involvement of government departments it is not possible to improve sanitation or delivery of any other municipal service. To be able to influence the government, it is necessary to work patiently over a period of time with department staff and build a relationship based on mutual trust and credibility.

Advocacy efforts by OPP started in the 1980s, when senior staff regularly visited the offices of concerned municipal departments to share their observations and recommendations about their work in Orangi. What they mostly received in return was a patient hearing and an unspecific pledge to look into the matter. The elected local government councillors, on the other hand, were receptive to and supportive of the programme from the very beginning – mainly because they saw in OPP's approach a means for improving access to basic services at a lower cost, and in the process earning political mileage for themselves. Since local government councillors have access to limited resources, their overall role has been limited, with notable exceptions.

In subsequent engagements with other government departments, senior government officials and supporters such as the Director-General, SKAA advocated for and on behalf of OPP-RTI at appropriate forums.[40] Equally important were the relationships that were built gradually with various junior and middle-ranking staff of KMC and KWSB. Cultivating only senior staff was thought to be an ineffective strategy because most of them were transferred or replaced after short stints. OPP-RTI staff continuously interacted with government department staff in the field

[40] OPP-RTI was included in the Governor's Task Force on Sewerage, Drainage, and Treatment Plants as a result of the efforts by these individuals. It is also worth noting that of the six sub-committees of the Task Force created to deal with a wide range of municipal matters such as traffic, billboards, solid waste, etc., the one which accomplished the most was the Task Force on Sewerage, Drainage, and Treatment Plants, and this was largely because of the energy and commitment of OPP senior staff who were members of it.

for gathering and sharing information, both formally and informally. Over time, many of these government department staff members became supporters and friends to OPP-RTI. Some of them went on to occupy senior positions, and proved to be important backers of OPP-RTI, both overtly and discreetly, on key policy matters.

A process of continuous engagement with senior officials, field staff and government service trainees contributed to the building of relationships with government officials at different tiers and in different departments. An important route to influencing senior government servants was the existing network of government contacts of OPP's founder, Dr Akthar Hameed Khan. A former officer of the Indian Civil Service, Dr Khan was widely known and respected inside and outside bureaucracy circles. The first-ever office of OPP-RTI was set up within the premises of the National Institute for Public Administration (NIPA), where Dr Khan delivered several lectures. This provided him with an opportunity to share OPP's learning and experiences with current and future policy-makers and implementers.

Figure 34: Discussion with government officials

Later, the current Director of OPP-RTI was also invited to speak at NIPA, which she continues to do. She has also served as board member of NIPA for one term. OPP-RTI's Principal Adviser also lectures at NIPA. He has been part of many government policy formulation initiatives related to housing, poverty reduction and the development of five-year plans, and was able to advocate the inclusion in these initiatives of learning and alternative approaches based on OPP-RTI's work. In recent times, elected *nazims* and deputy *nazims* from across the country attending courses at NIPA have shown great interest in OPP-RTI's low-cost sanitation programme and have asked OPP-RTI for assistance with mapping and planning.[41] OPP-RTI's Director and Principal Adviser also teach courses at technical universities, which has helped lessons from the field to be incorporated into university curricula.

Openness and transparency are critical to building and sustaining relations. Government officials interviewed for this report believe that OPP-RTI's main strength lies in its openness (easy accessibility to its staff and information, i.e., maps and documentation), and the rapport it has with communities with whom it works. On its part, OPP-RTI has always adopted a 'softly-softly' approach to advocacy based on the understanding that government officials also function under certain compulsions and constraints, which are not easy to ignore or overcome. In a few instances, OPP-RTI has defended government department field staff in public forums and official meetings, when it was felt that the criticism was unwarranted or misdirected.

Over the years, OPP-RTI has developed a focal group within government departments composed of people who are familiar with and supportive of its work. It is a measure of its credibility among government staff that in a number of instances, officials have provided OPP-RTI with

[41] At the request of local government, OPP-RTI and TTRC are helping the towns of Hala and Sinjoro in Sindh with mapping and planning for development of a low-cost sanitation system.

valuable information which was later used by them for advocacy purposes. In the early days, key officials helped out by advising OPP-RTI staff on how to negotiate and lobby with government departments. In short, the relationship has been sustained and carried forward as a result of open communication, free flow of information, building credibility through work on the ground, and repeated formal and informal interactions with staff of various tiers in different departments over time.

OPP-RTI has never directly confronted the issue of corruption; rather it has sought to inform communities about the actual cost of work planned by government – leaving to their imagination the question of why government estimates are higher! Communities have used OPP-RTI estimates as a way of lobbying contractors and government officials for more realistic design and estimates. Another method of challenging institutionalised corruption happens through the efforts of like-minded government officials using alternative plans for their lobbying within the government apparatus, as was done in the case of the KWWMP. OPP-RTI believes that it is far more effective to focus on identifying and building effective relations with, those officials and staff who are interested and motivated to push for development work (see Annexe 6 for the names and designations of key government staff who supported initiatives aimed at improvements in sewerage and drainage infrastructure and overall governance).

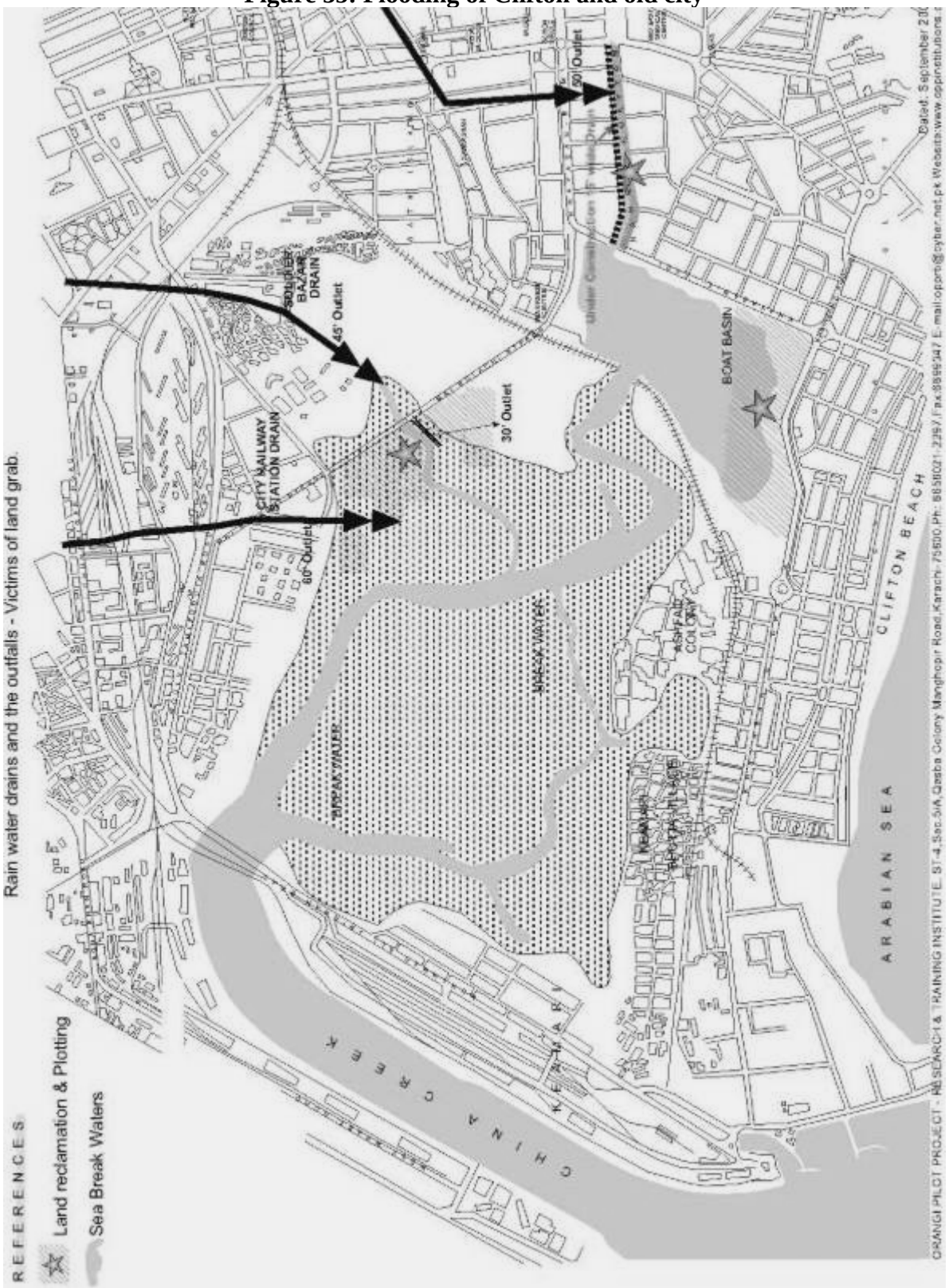
Research and extension

In addition to focused and consistent work, OPP-RTI understands that access to robust research which produces accurate, useable evidence, is as important for establishing credibility with government as it is for aiding sound decision-making: 'Meticulous homework of documenting findings, observations and processes, leading to preparation of alternatives is critical to being taken seriously by decision-makers.'[42] Presentation of alternative polices and plans were cited by government officials as one outstanding characteristic of OPP-RTI as a civil society organisation.[43] Officials in KWSB acknowledged and were highly appreciative of advice and resources (maps) made available by OPP-RTI in the development of its 'S-III' sanitation plan.[44] It is important that information generated should be explained and communicated in a way that makes clear the problems, solutions and expected benefits. In 2006, through mutual mobilisation, CDGK and OPP-RTI worked together to identify the problem behind rain-related flooding in the affluent south of the city. After an extensive survey, OPP-RTI produced and made available easily readable maps showing exactly what the problem was: main drains had been encroached upon by the well-off, who had illegally expanded the boundaries of their houses, as well as by commercial buildings such as office blocks and bank offices. In its recent and ongoing work on water distribution problems in the city, OPP-RTI is trying to reduce the complexity of the situation into two digestible priority issues to be documented and studied:

1) How to secure bulk supply of water (including issues of metering, reducing use of water tankers, leaks, losses, theft)
2) Ensuring independent electricity supply (many of the water distribution problems are linked to frequent and irregular power outages).

[42] Perween Rahman, Director, OPP-RTI
[43] Interviews with CDGK – Works and Services Department staff
[44] KWSB's nationally funded plan for improving sanitation and drainage in Karachi, known as S-III, is based largely on OPP-RTI's *Proposal for a Sewage Disposal System for Karachi*, City Press, published in 1998.

Figure 35: Flooding of Clifton and old city



Civil society partnerships and networks

Over the years, OPP-RTI has also established an impressive network of community activists from all over Karachi and in other parts of the country where it has partner organisations implementing the low-cost sanitation programme and the credit programme. These partner organisations are part of the Community Development Network (CDN), which meets once every quarter. The meeting venue rotates between the member organisations, which eventually allows for all member organisations to observe and question the work of their fellow member organisations. Overall, the meetings are a mix of discussion and debate on local issues and experiences and their links to wider national and international processes.

Figure 36: CDN meeting being organised by partner SCWS, Sanghar

Local activists from low-income settlements in Karachi belong to a network of community groups and activist organisations with which OPP-RTI staff interact regularly and which monitor city-wide development and associated issues. Regular meetings and informal interaction with activists allows for learning about problems faced by low-income communities, and thinking about these in terms of city-wide development issues and plans. These meetings also provide an opportunity for interaction between the activists themselves. Beyond government and communities, networks with other civil society organisations (CSOs), researchers, local communities, and general stakeholders are also necessary. These networks are more effective than individuals at producing, sharing and strengthening evidence. For instance, CSOs such as CREED, SHEHRI and URC played important and differentiated roles in the KWWMP issue, as already mentioned in the case study above. It is important to note that different networks require different structures for optimising their effectiveness, while specific networks need to decide as to which functions they might be able to perform successfully.

Ownership of process and outcomes

Who owns the process and its outcomes is critical. Regardless of who drives it, the process of advocacy and its outcomes must be owned by the main stakeholders, not just one organisation or individual, even if some may have played a key role in it: '… each stage is arrived at on the backs of the work and experience of many others – it would, therefore, be wrong for anyone to claim it for themselves only because they were present at the time of fruition of efforts'. For instance, the alternative to the Greater Karachi Sewerage Plan was prepared almost exclusively by OPP-RTI, but it did not seek to claim any credit or to have its name appear in print, when the plan was picked up by KWSB, which made it its own under the title S-III: 'The important thing to note is whether concerned people are saying what you would like them to – if they are, that's a sign of the acceptance of your view.'[45] It is well understood by OPP-RTI decision-makers that if it is seen to be claiming credit, however rightfully, this would undermine the credibility and intent of the organisation. Discretion in such matters by the advocacy organisation often compels

[45] OPP-RTI (1998), *Proposal for a Sewage Disposal System for Karachi*, City Press

the other party to acknowledge the contribution of others without being prompted – as indeed happened with S-III.

Media for information, not publicity

OPP-RTI uses a variety of communication channels for promoting its messages. Apart from using different networks as platforms for its messages and upholding direct contacts with government officers, it also makes effective use of the local and national media. OPP-RTI's chairman and some friendly journalists regularly publish opinion pieces in major national newspapers revealing shortcomings of infrastructure projects. OPP-RTI also receives delegations of representatives of government, NGOs, academia and donors from all over and beyond Pakistan. Through its ties with NGOs and academia abroad, OPP-RTI's approach has become well known internationally.

The explosive growth of private TV channels over the last five years has been accompanied by a steady rise in programming on social and development issues in urban and rural areas. OPP-RTI senior staff are often invited to participate in TV talk shows and discussion panels. Aware that OPP-RTI has the knowledge and experience to challenge government claims about issues of sanitation and drainage, the TV channels often ask OPP-RTI staff to 'take on' government officials and spokespersons – the need to have sparks flying during a programme is an important element in gaining an audience in a competitive and even saturated market. As a rule, OPP-RTI eschews confrontation in the public sphere. Confrontation for the sake of it can destroy carefully nurtured relationship for no ostensible benefit. That is not to say that government officials or positions are not challenged, they are but not under public glare. Instead, appropriate forums are used to make a measured critique of government plans and positions (not persons), if it is so required. For wider dissemination of issues and solutions, OPP-RTI encourages the electronic and print media to visit its office and sites and observe for themselves, understand and report accordingly. The media are also linked up with other key individuals for purposes of gathering information and reporting. It is crucial, though, for OPP-RTI to avoid self-publicity and instead to focus attention on project issues.

Figure 37: Briefing/site visit of media person

OPP-RTI is very conscious of the importance of presenting evidence effectively in order to make it understandable and accessible for different audiences. In the case of the campaign against the Karachi Circular Railway, for example, OPP-RTI advised and guided the Urban Resource Centre (URC) in its work to document encroachments along the Karachi Circular Railway track. A pamphlet was designed, which combined pictures and information with a map and figures depicting the various distances to the railway tracks. A short video was also produced, with additional background information. In order to communicate with community activists, OPP-RTI produces a large amount of information in the form of leaflets, posters, newsletters and how-to-do guides, as well as organising regular meetings. Through various publications like maps, videos, pamphlets, newspaper articles and books reflecting OPP-RTI's approach, the wider public is engaged.

6. Key documents on the Orangi Pilot Project

1) Abbott, J.M. and J.P. Lumbers (1985), *Evaluation of a Low Cost Self-Help, Peri-Urban Sanitation Programme*, Department of Civil Engineering, Imperial College of Science and Technology, London.

2) Alimuddin, S. (1992), "Improving Co-operation and Co-ordination in Community and Government Sewerage Network Construction Projects for the Katchi Abadis in Sindh", Thesis submitted in partial fulfilment of the requirements for the degree of Masters of Science, Asian Institute of Technology, Bangkok, Thailand.
Documents water and sanitation mapping examples from Pakistan, based on field visits to OPP-RTI, Karachi and Anjuman Samaji Behbood (ASB), Faisalabad. The purpose of the study is to improve understanding of the processes, methodologies, outputs and impact of mapping carried out by OPP-RTI and partner organisations like ASB.

3) Ferrandes, K. (1997), *How communities organise themselves – Stories from the field*. Karachi: City Press.

4) Jan Verheijen, A.M.J. (1990), *A practical field work at the Orangi Pilot Project Karachi, Pakistan*.
One of a series of reports published by WaterAid which analyse OPP programme – its principles and practice, problems with replication of the low-cost sanitation model – and the wider impact of the programme.

5) Reed, R. and M. Vines (1992), *Reduced Cost Sewerage in Orangi, Karachi, Pakistan*, Water Engineering and Development Centre (WEDC), Loughborough University of Technology, for Overseas Development Administration (UK).
Report conducted on behalf of WaterAid argues that the main reasons for the considerable success of OPP and its model lie in the nature, philosophy and methodology of the organisation. Takes the position that the simplicity of the OPP model ought to have made it easy for replication, but given the nature, values and organisational culture of the NGO sector in Pakistan, this has proved very difficult.

6) United Nations Development Programme, *Human Development Report, 2006*.

7) Welle, K. (2006), *Water and Sanitation Mapping in Pakistan*, WaterAid, Pakistan.

8) Zaidi, A. (2000), *Transforming Urban Settlements – The Orangi Pilot Project's Low-Cost Sanitation Model*. Karachi: City Press.

9) Zaidi, A. (2001), *From the Lane to the City: The Impact of the Orangi Pilot Project's Low-Cost Sanitation Model*, WaterAid Report.

OPP reports and publications

1) Alimuddin, S., A. Hasan and A. Sadiq (1999), "The Work of the Anjuman Samaji Behbood and the Larger Faisalabad Context", Paper written for IIED.
   Looks at the growth patterns and service provision in the third-largest city of Pakistan, Faisalabad, from the point of view of communities and other interest groups, and relates findings to the replication of the OPP low-cost sanitation model.

2) Alimuddin, S. (1996), "Case Study of Community Initiatives in Manzoor Colony, Karachi". Prepared for Skill Development Council (SDC) funded IIED action research programme on Supporting Community-Level Initiatives to Address Environmental Problems in Third World Cities.

3) Alimuddin, S. (1989), *Manual of Sanitation Programme*.

4) Hasan, A. (2005), "The Orangi Pilot Project-Research and Training Institute's Mapping Process and its Repercussions", Paper written for IIED.
   This monograph deals with the process of development of expertise in OPP for mapping informal settlements and urban infrastructure, and its repercussions on planning and operation and maintenance of infrastructure, community-NGO-local government partnerships, state policies regarding IFI funding, and on informal settlement upgrading programmes.

5) Hasan, A. (2001), *Working with Communities.* Karachi: City Press.
   This book deals with the work of OPP with CBOs and NGOs in replicating its low-cost sanitation programme.

6) Hasan, A. (1999), *Akthar Hameed Khan and OPP*. Karachi: City Press.
   This book looks at the close relationship between the organisational culture of the Orangi Pilot Project and Dr Akthar Hameed Khan's personality, upbringing and lifelong search for truth; and attempts to explain the thinking behind the methodology of the project, the influence the project has had on CBOs and NGOs in Pakistan and abroad, and on multilateral and bilateral agencies.

7) Hasan, A. (1998), *Community Initiatives – Four Case Studies from Karachi*. Karachi: City Press.
   These four case studies of community initiatives in low-income settlements represent different physical and socio-economic conditions and dissimilar development processes within the context of larger political processes and development history of Karachi.

8) Hasan, A. (1998), "Lessons Learnt: Increasing Coverage and Quality of Sanitation Provision", Lecture delivered at the National Seminar on Urban Environmental Sanitation, National Centre for Rural Development, Islamabad, March 1998.
   Highlights the conceptual background to OPP's work, outcomes of the programme, and its comparison with existing government systems and procedures.

9) Hasan, A. (1997), *Working with Government – The Story of OPP's Collaboration with State Agencies for Replicating its Low-Cost Sanitation Programme*. Karachi: City Press.
Uses four case studies to describe OPP's collaboration with international agencies and government departments for replication of its low-cost sanitation programme in *katchi abadis* of three Pakistani cities.

10) Hasan, A. (1996), *Scaling up of the Orangi Pilot Project Programmes: Success, Failures, and Potential*.
Describes OPP's experience with development of the low-cost sanitation programme, and presents the problems, successes and failures encountered and their main causes.

11) Hasan, A. (1993), *Scaling-Up of OPP's Low-Cost Sanitation Programme*.
A critical account of the replication process and potentials and constraints of the various actors involved.

12) Hasan, A. (1992), "Lessons Learnt from the Replication Projects of the Orangi Pilot Project's Low-Cost Sanitation Programme", Paper prepared for the Policy Unit, Water and Sanitation Division, World Bank, Washington, DC.

13) Hasan, A. (1987), "The Low-Cost Sanitation Programme of the Orangi Pilot Project: Six Questions", Paper prepared for IIED Conference on Sustainable Development, London, 27–29 April 1987.
Answers six basic questions raised by professionals, social workers and the general public with regard to OPP's low-cost sanitation programme and its outcomes.

14) Hussain A. and S. Alimuddin (1996), *Technical training manual on sanitation*.

15) Khan, A.H. (1992), *Case Study of Orangi and Orangi Pilot Project*.

16) Khan, A.H. (undated), Presentation on Orangi and OPP given to the President of the World Bank.

17) Khan, A.H. (1986), *Community Participation for Mobilising Local Resources – A Case Study of a Low-Cost Sanitation Program in Orangi*.
Presents a case study demonstrating the potential for mobilising local managerial and financial resources for construction of a self-financed and self-managed sanitation and underground sewerage system.

18) Khan, A.H. (1990), *My development Education*.

19) Khan, A.H. (1993), *What I learnt in Comilla and Orangi*.

20) Khan, A.H. (1994), *Research and Training in Orangi*.

21) Khan, A.H. (1996), *Orangi Pilot Project – Reminiscences and reflections.*

22) Khan, A.H. (1994), *Orangi Pilot Project Programmes*.

23) Khatri, R. and F. Sami (1994), *Profiles of Orangi lane activists*.

24) Khatri, R. and Sami F. Case studies of lane work in Orangi .June 1994.

25) OPP-RTI (1989), *Low-cost sanitation programme – statistical data survey*.

26) OPP-RTI, "OPP Institutions and Programmes", Quarterly Progress Reports numbers 1 to 113.

27) OPP-RTI (2003), Case studies of the work of twenty-one Karachi-based CBOs: 30 separate booklets.

28) OPP-RTI (1998), *Proposal for a Sewage Disposal System for Karachi*, City Press, Karachi. Presents a proposal developed by OPP for a sewage disposal system for Karachi, promoting the model which OPP has successfully demonstrated through its work in Orangi and elsewhere.

29) OPP-RTI (1989), *Low-Cost Sanitation Programme of the Orangi Pilot Project–Research and Training Institute*, Statistical data survey.
Monograph containing statistical data on the low cost sanitation programme of OPP, the extent of sewerage work undertaken in Orangi, people's investment and OPP's expenditure on research and extension.

30) OPP (1986), *Case Studies: Gradual Development of Sectoral Sewerage Plan*, OPP, Karachi. Description of OPP's low-cost sanitation programme in Mujahid Colony and Alfatah Colony, with the intention of providing an in-depth study of the project's work in the field.

31) OPP (1996), *OPP's Low-Cost Sanitation and Housing Programme – Collection of Arif Hasan's Papers*.
Contains four papers by Arif Hasan on: urban services through community participation – a study of OPP's low-cost sanitation programme; the low-cost sanitation programme of OPP and the process of change in Orangi; a study of the alternative approaches to improvements in low-income areas, experience of Madras (India) and Orangi.

32) OPP-RTI (2006), *Katchi Abadis of Karachi – Documentation of Sewerage, Water Supply Lines, Clinics, Schools, and Thallas*, Volume 2.

33) OPP-RTI (2002), *Katchi Abadis of Karachi – Documentation of Sewerage, Water Supply Lines, Clinics, Schools, and Thallas*, Volume 1.

34) Rashid, A. (1996), *Case Study of Community Initiatives in Ghaziabad, Orangi Township*. Prepared for SDC-funded IIED action research programme on Supporting Community-Level Initiatives to Address Environmental Problems in Third World Cities.

35) Rashid, A. and M. Pervez (1991), *Health survey of Orangi and Thikri*.

36) Rahman, P. and A. Rashid (1995), *Partnership in development. Experience of OPP-RTI's low-cost sanitation programme*.

37) Rahman, P. (2002), *Orangi Pilot Project – Institutions and programs – a case study*.

38) Rahman P. and A. Rashid (1992), *Maintenance and rectification: Evaluation of lane sanitation*.

39) Rahman, P. (2004), *Katchi Abadis of Karachi: A survey of 334 Katchi Abadis – Existing situation, problems and solutions related to sewage disposal, water supply, health and education*.

40) Rahman, P. (1996), *Case Study of Community Initiatives in Welfare Colony, Karachi*, Prepared for SDC-funded IIED action research programme on Supporting Community Level Initiatives to Address Environmental Problems in Third World Cities.

41) Rahman, P., and A. Rashid (1992), *Working with Community – Some Principles & Methods*. Updated and reprinted 2006.
A brief note outlining the process of mobilising local communities for self-action.

42) Rahman, P. and A. Rashid (1992), *Low Cost Sanitation Programme – Maintenance and Rectification – Evaluation of OPP Supervised Lanes covering the period: 1981-83, 1984-86, 1987-90*.
Survey of technical quality of sewerage lines, and nature and extent of maintenance and rectification undertaken by the people.

43) Rahman, P. (1999), *Sewerage, drainage and treatment plants – responsibilities, finances, issues and policy changes needed*.
This study illustrates ground realities vis-à-vis the sewage disposal system in Karachi, and suggests ways to improve the existing scenario.

44) Rahman, P. (2006), *Orangi Pilot Project – Institutions and programs: A profile*, Prepared for the Nihon Fukushi University, Nagoya, Japan to be used for its academic course.

45) Rahman, P. and A. Rashid (2006), *Some Lessons Learnt while Working with Community, Government, NGOs/CBOs and some Axioms*.

Minutes of meetings

46) KWSB and OPP-RTI (2005), Meeting minutes leading to acceptance of OPP-RTI's suggestions on sewerage, drainage, and treatment plants and to adoption of programme by KWSB under its S-III project.

47) KWSB and OPP-RTI joint meeting, 7 October 2005.

Annex I: OPP-RTI[46] methodology

The approach at OPP-RTI is to encourage and strengthen community initiatives (with social and technical guidance) and to evolve partnerships with the government for development based on local resources. The methodology is action research and extension, which entails: analysing outstanding problems of the area, people's initiatives, bottlenecks in the initiatives, and then through a process of action research and extension, offering advice and guiding community organisations towards initiating self-help and partnering with service providers. A step-by-step description of the methodology adopted by OPP-RTI in developing the low-cost sanitation model is given below.

Development of the low-cost sanitation programme

Sanitation was the major problem identified by the Orangi residents.[47] OPP-RTI held meetings in the lanes of Orangi and informed the people that if they formed a lane organisation, and elected, selected or nominated a lane manager, then OPP-RTI would provide them with technical assistance in building their underground sewerage system. Financial and health-related advantages of the system were also explained. Residents themselves recognised that the sewage flowing in the lanes was chiefly responsible for damaging the foundations of their houses. Once a lane organisation was formed, OPP-RTI technical staff surveyed the lane, and established benchmarks with the help of the lane manager. Later, in the OPP-RTI office, a map and cost estimate for the work was prepared and handed over to the lane manager. The lane manager collected money from the people and organised work, with OPP-RTI providing supervision. At no time did OPP-RTI involve itself in the money matters of the lane organisations. Since a lane consisted of only 20 to 40 houses, the organisation was cohesive and there were no major problems of mistrust or disagreement. One of the reasons why OPP-RTI's sanitation programme was accepted and was successful was the small size of the community organisation.

Initially, only those lanes which were near a natural drainage channel applied for assistance. Later, when lanes far away from the disposals applied, OPP-RTI identified the location of collector drains. It was hoped that the local government would fund these drains, but it refused to do so. Subsequently, confederations of lanes which made use of collector drains were formed to finance and build the collectors with OPP-RTI's technical advice. In surveying Orangi for the purpose of identifying secondary sewers, OPP-RTI made use of students and staff of technical and professional academic institutions. As a result of this, students and staff developed close links with OPP-RTI. These links have contributed in large measure towards changes in the curricula of these institutions, and it is hoped that as these individuals join the workforce, in particular government departments, they will contribute to reforming attitudes and functions

The reason for the success of the OPP-RTI sanitation model is that the cost per household of Rs900 (US$15 at 2007 exchange rates) was affordable for the beneficiaries. The cost was 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

[46] OPP Institutions website: www.oppinstitutions.org; and Hasan, A. (2001), *Working with Communities*, City Press

[47] Who, it must be mentioned, were already making efforts to address the problem. What OPP was able to do was to provide the communities with the necessary advice and technical expertise to improve the process and outcome of their efforts.

construction and self-finance. In addition, OPP-RTI identified four barriers that communities face in adopting its low-cost sanitation model. These are:

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.

The social barrier: Communities often feel they don't possess the wherewithal to undertake development work. This is overcome once a lane organisation is formed and is able to clearly identify its immediate objective.

The economic barrier: Communities are usually of the view that developing infrastructure is a costly proposition and beyond their financial means. This is overcome once the cost of development is made affordable.

The technical barrier: Communities also feel they do not possess the technical know-how needed to undertake development work. This is overcome by making available design, estimates, tools, and training for implementation and subsequent oversight.

All sewage in 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 – into the natural drainage channels. It became obvious to OPP-RTI in the early stages that these channels would have to be turned into box trunks with treatment plants at the point where they meet the sea, if Karachi's sewerage problems were to be solved. Unlike government plans for sewage disposal, OPP-RTI did not seek a separate solution for sewage disposal for Orangi Township, but integrated it with solutions for the city as a whole.

On the basis of its work, OPP-RTI developed what it refers to as the 'internal–external' concept for sanitation. In this concept, there are four levels of sanitation:

1) sanitary latrine in the house
2) underground sewer in the lane
3) neighborhood collector sewer
4) trunk sewers and treatment plants.

The first three constitute 'internal' development and OPP-RTI has demonstrated that low-income communities can finance, manage, build and maintain these components when technical support and managerial guidance based on participatory research is provided to them. The fourth item constitutes 'external' development which can only be carried out by government agencies or by NGOs if they are rich or have access to donor or government funding. The OPP-RTI sanitation model is being replicated in 336 Karachi settlements, and 13 cities and 47 villages across the country. The principles of the programme are being applied to projects in Nepal, Central Asia, South Africa and Sri Lanka.

Annex II: Process of community mobilisation at OPP-RTI

Through social organisers, an initial dialogue with the community/lane is made. OPP-RTI identifies and then contacts an influential/active individual with a good reputation, who in turn contacts the lane residents.

At this stage, OPP-RTI staff arrange a slide show/public meeting explaining the salient features of the low-cost sanitation programme. If the people show willingness and submit a written request to OPP-RTI, OPP-RTI surveys the lane and prepares a map and cost estimates for the sewer line. These documents are handed over to the representative of the lane who is confirmed by the lane residents as their representative/lane manager. The lane manager collects money from each household as per prescribed contribution and requests OPP-RTI to provide technical guidance. OPP-RTI establishes physical levels in the lane and demarcates the position of the sewer line.

Materials are then purchased by the lane manager and labour is hired. The work begins. OPP-RTI provides tools and shuttering and supervises the entire execution. The lane manager expects technical co-operation and supervision from OPP-RTI while OPP-RTI expects the lane manager to generally manage the overall process as well as facilitate the maintenance of accounts. The lane manager is not accountable to OPP-RTI and vice versa. With time, much of the inputs of OPP-RTI in projects are taken over by local stonemasons and contractors who have been trained over the years, and by the community itself, who have learnt by doing and observing.

The Orangi experience is more than just a case study on the issues and principles around the social preparation of a community for development. It also provides information on key technical details of the particular practice of NGOs and external agents in grassroots community development. OPP-RTI considers itself to be primarily a research organisation whose objective is to analyse problems and then, through prolonged action research and extension education, discover viable solutions. What differentiates it from other similarly situated NGOs is the strict observance of the following operational principles:

- **It does not itself lay the sewers or physically undertake the projects.** While it provides technical advice and support for social organisation, OPP-RTI makes sure that those living in the lanes are responsible for managing finances and constructing lane sanitation. All decisions and responsibilities regarding individual lane sewers rest with lane people, while the household connection from the latrine to the lane sewer is the responsibility of the house-owner. The community is the client, responsible for supervising any contractor. OPP-RTI's role is limited to providing motivation, technical inputs (surveys, plans and cost estimates), and the loan of construction equipment. OPP-RTI consciously avoids creating any notion of dependence on it by the community.

- **OPP-RTI supports the building of smaller and functional, rather than large-scale, social organisations**. It makes the lane, with around 20 to 40 households, the informal unit of organisation, rather than following the conventional practice of most NGOs of setting up large, formal organisations on the basis of neighbourhood or area committees. The lane made more sense as well, given the sanitation technology used. For secondary sewers linking lanes

to the main trunk sewers, a ‘confederation of lanes’ were created to address the needs of a collection of lanes.

- **Component-sharing but not cost-sharing**. As noted earlier, OPP-RTI’s philosophy clearly differentiates between internal and external components of development. The internal component is defined as the tertiary-level sewer lines, at the lane level, while the external component is the trunk sewers, removing the effluent from the settlement. Funding for the internal component, OPP-RTI maintains, is solely the responsibility of the community. It should be emphasised that OPP-RTI also rejects the idea of matching grants or subsidies – where, for example, a donor provides 50 per cent of the cost and the community shoulders the rest.

Annex III: UNCHS CTA's appraisal of OPP

To: Mr. Agha Hasan Abedi
President, BCCI
From: Nicholas Houghton

Subject: Status of BCCI-Orangi Pilot Project Second Phase,
Pak/82/FO 1

Please find attached for your review the following documents:

(a) An appraisal of the Orangi Pilot Project and the approved project document BCC-OPP Second Phase, P AK/82/FO I.
This document assesses the methodologies at variance over the implementation of the second phase of OPP four months after the arrival of the UNCHS Chief Technical Advisor.

(b) Scheduled implementation and actual implementation: September–December 1982 dollar component.
A comparative chart showing actual expenditures on international inputs against those estimated in the approved project document, accompanied by a chart showing what should have been achieved during the first four months and what was actually carried out.

(c) Scheduled implementation and actual implementation: September–December 1982 rupees component.
A comparative chart of actual rupee expenditures and those estimated in the approved project document. An appraisal of the Orangi Pilot Project and the approved project document BCC-OPP Second Phase, P AK/82/FOI.

1. The Orangi Pilot Project is a highly personal research and extension initiative into low-cost urban technology and social services for low-income communities. It is subject totally to the perceptions, intellectual speculations and will of its originator and director Dr. Akhter Hameed Khan, a very able man with a well-established reputation as a dedicated social educator.

2. Whatever plan or overall scheme exists is in the project director's mind, and he does not share his mental perambulations and reflections until his ideas have coalesced. He arrives at decisions in an evolutionary and exploratory manner and steers the project accordingly. It is, therefore, very much a personal journey into the dynamics of low-income settlements.

3. The project, consequently, does not set itself quantifiable targets within measurable target areas that respond to an overall plan. The methodology adopted is fundamentally exploratory and does not draw on other experiences in the urban field. The project is seen as a process of contact and response with the community. It does not aim to cover ground or achieve quantitative targets. It unfolds as it were, by way of ad-hoc actions. Its purpose is to serve, its inspiration a belief in the sense and energy of the common people which can be kindled into a process of communal self-reliance and so break free from the incompetence and corruption of local

government and the narrow, specialized and insensitive assertions of the professionals. Thus the project seeks to identify how people perceive their needs, what their capabilities and priorities are, and then assist and advise in attaining solutions. If a project initiative does not take root it is abandoned, little time is taken up in recriminations and evaluation. By the same token the project only works with those groups that respond to the project. Thus there can be no fixed target areas. In the end, through this process, the project hopes to discover a harmonious whole of need, viability and self propagated reliability. The right information and technical improvements will be those that are incorporated into the shared culture of the community. This assimilation, it's assumed, will lead to further development and self-reliance.

4. While one might dispute the premises on which it is founded, the methodology just described is perfectly valid for a research project. Moreover, much of the extension work is extremely interesting and is giving positive returns and could be adopted to great advantage by the official urban authorities. In short, Dr. A.H. Khan's activities are most stimulating and should continue to receive all the support they require according to the terms of reference he lays down.

5. It must be stated, however, that as matters stand, four months after the arrival of the UNCHS Chief Technical Advisor, that the expectations for an integrated urban rehabilitation demonstration project in Orangi, as described in the project document which has engaged the commitment of the Government of Pakistan, the BCCI and UNCHS, are far from being realized.

6. The expectations of UNCHS, described in the project document as the Executing Agency, do not so far carry any weight. The arrival of the CTA, who under other circumstances would be a management and technical executive officer concerned with assisting and advising the Project Director in the implementation of the approved project document, has no authority or status in the project. At best he is an exploratory liaison man with the urban authorities and occasional technical participant in the project, but more often he is in the position of interested observer. In any event he is not privy to the decision making process of the project. This situation has rendered every agreement between the CT A and the Project Director as provisional and every action open to revision. It must be emphasized that there is no hostility or personal antipathy involved. Relations are most cordial and civilized all round. But, under the circumstances, it is practically impossible to draw up a schedule of requirements and inputs or to programme the recruitment of high level consultants and experts. To all intents and purposes the approved project document is a dead letter.

7. The implementation of the approved project document hinges on the following:

*Deployment of a core of full-time national professional staff with their support services under the direction of the Project Director, to be responsible for all the technical inputs and recording and training activities envisaged by the project. They will, in addition, organise, direct and assist the national and international expert who will be called upon for specific specialized tasks.

* Structuring of the project to perform four basic functions:

(i) Direct social and technical basis.
(ii) Special studies and field experiments.
(iii) Training.

(iv) Analysis and documentation.

*Formulation of a draft outline Integrated Urban Development Programme.

*Identification of beneficiaries and target areas.

The scope and time and constraints are clearly stated, and while subject to modification constitute the basic framework for project activity as approved by all parties. With the notable exception of the continuation of the social and technical assistance activities evolved since its inceptions, OPP has not incorporated or otherwise adopted any of the above.

8. Clearly there are two apparently irreconcilable approaches to project execution. One, open ended, exploratory and evolutionary with emphasis on sociological particularities, unconstrained by time and cost. The other, target oriented, systematic, with a professional and technical focus, constrained by time and costs.

9. The project still has the potential that motivated the formulation of the project document. It may be that Dr. A.H. Khan will eventually conclude that OPP is ready to adopt a more structured and planned approach. It may be that such an approach is intrinsically incompatible with his methodology. But for the present, the project is still feeling its way and keeping its options open, with no indication as to what it expects from a UNCHS CT A or from UNCHS participation in general.

10. There should be no doubt at all that UNCHS is uniquely equipped to provide specialized support for undertaking large-scale projects in low-income urban areas, and that it is extremely anxious to establish a sound and fruitful working relationship with the BCCI Foundation. Now that the BCCI Foundation Pakistan has finally been constituted perhaps all parties will be better placed to justify the most appropriate UNCHS support for OPP and the most appropriate joint BCCI-UNCHS contribution to improving the condition of low-income communities in Pakistan.

Nicholas Houghton CT AP AK/82/FOI.

Akhtar Hameed Khan's Response to the CTA's Appraisal of OPP

Comments by Director of OPP
2 January 1983

1. Mr. N. Houghton has come to the conclusion that since his arrival in September 1982 he has been of no use to OPP, and under the prevailing circumstances, he can be of no use. His reason for this sad conclusion is that the Director of OPP follows one approach ("open ended, exploratory and evolutionary with emphasis on sociological particularities", his words) while Mr. Houghton desires an opposite approach ("target-oriented, systematic, with a professional and technical focus"). Mr. Houghton thinks that these approaches are irreconcilable. Since the Director refuses to renounce his own approach and adopt Mr. Houghton's approach, Mr. Houghton has decided that he is redundant. If Mr. Houghton's assertion that the two so-called opposite approaches cannot be reconciled is correct and if he insists that I must follow his approach like an obedient pupil then indeed I fully agree with Mr. Houghton's sad conclusion.

2. In para 10 Mr. Houghton suggests that the BCCI should make a new arrangement with UNCHS. While he charitably dose not recommend the dismissal of the director and the disbandment of OPP, but magnanimously allows them to continue along their haphazard and uncertain course, he is ready himself to organise a large-scale project in a low-income urban area on behalf of the UNCHS. I have no comments on this suggestion as it is a matter for decision by the President of BCCI.

3. But I have a few comments on the strange statements of Mr. Houghton regarding the project documents. I was closely associated with the writing of this document and my perception of the agreement with UNCHS is quite different.

4. The Orangi Pilot Project was sponsored by BCCI in April 1980. When the UNCHS mission arrived in December 1981 the project was 21months old. Nine progress reports had been written, which repeatedly clarified the experimental (open ended, exploratory, evolutionary) approach. These reports pointed out again and again:

(a) that there was no blueprint, no masterplan to be imposed;
(b) that OPP was a non-government organisation, not equipped or designed to snatch the planning regulating or servicing functions of official agencies like the KDA, KMC or the departments of education and health. A non-government organisation could not be a parallel agency, as the Governor of Sindh rightly warned in the presentation meeting in February 1981;
(c) that OPP's main concern was to promote self-supporting people's organisation; and
(d) that OPP's research was designed to discover technological, sociological and economic models which were based on popular participation, management and funding etc.

5. When the UNCHS, at its own initiative, agreed to collaborate with OPP, we naturally believed that their mission having read the report and seen the filed work, approved the above approach. I cannot agree with Mr. Houghton's interpretation that when the UNCHS became the "executive agency", we renounced our old approach, and adopted a "target-oriented" approach to be prescribed and "managed" by a Chief Technical Advisor, and that Phase II of the Orangi Pilot

Project was no longer to be a non-government experimental project but, as Mr. Houghton puts it, it was to be "'an integrated urban rehabilitation demonstration project in Orangi". In other words, according to him we really signed the death warrant of the old OPP and were transformed into a mini-KMC. How could we do that?

6. The "target-oriented, integrated, urban rehabilitation demonstration" approach may be suitable for an official agency like the KMC or KDA, although previous efforts in katchi abadis along these lines have shown poor results. Such plans involve huge investments (not 2 million dollars, but hundreds of millions) besides the exercise of regulatory powers which are beyond the reach of a non-government organisation.

7. Mr. Houghton's claim that the UNCHS is the "executive agency" of the Orangi Pilot Project and the CT A should be a "management and technical executive officer for the implementation of the approved project document" is exceedingly strange. Instead of being an advisor he claims to be a preceptor, a super director. My perception of the agreement is that OPP is a uniquely Pakistani project, guided by an old experienced Pakistani Director, financed by a Pakistani foundation. The UNCHS has been invited to provide such technical expertise as may be requested by and may be acceptable to the national project director. There is no question whatsoever of making the UNCHS the executive agency, or handing over the management to the Chief Technical Advisor.

8. Mr. Houghton has given a long list of items held in abeyance and works not done during the last four months. He complains that a project office was not set up, national experts were not recruited, work-plan was not prepared, target areas and beneficiaries were not identified etc. One would think that the chief occupation of the national project director was to put a spoke in the Chief Technical Advisor's wheel. As a matter of fact a three-storey office already exists, a little crowded but quite functional, conveniently accessible to Orangi residents and frequently visited by them for consultation, conferences and training. One room was even reserved for the CT A which he uses rather infrequently. Most of the required staff has been recruited and is getting intensive job training. National experts of high calibre have been engaged as consultants. There is a very definite plan of work which, of course, is continuously reviewed and revised. As pointed out in report nos. 10, 11 and 12, perceptible and measurable progress is being made both in social and physical engineering. For instance, within a year a clear pattern has evolved of low-cost lane sanitation, self-financed and self-managed by the lane residents with technical guidance from OPP. This pattern has been accepted by more than 250 lanes and more requests are coming in every day. Social co-operation is being promoted, awareness and skill is being increased, and contacts are being established in gradually widening circles. An open-minded and perceptive foreign expert should eagerly seize the opportunity of intimately associating himself with these significant developments and thus acquire a first-hand insight into the interlinked social and physical problems of Orangi. His usefulness would grow with his insight.

9. But the problem with Mr. Houghton is that he is enveloped in misconceptions rather common among quick-fire foreign experts. They think they possess ready-made solutions, that they have nothing to learn about local problems from local people, that the problems are quite simple, and all that is needed is a nice project office with a gang of highly paid native staff under their control. Soon after his arrival in Karachi Mr. Houghton nonchalantly told me that the Office in

Orangi was not a “project office”, that OPP staff was not staff, (muscle men he called them), that our expert consultants were nonentities, our plan of work was no plan, our methodology was mere personal whimsicality. In short, unless we slavishly followed his instructions, we were lost.

10. If the experts sent by UNCHS are completely obsessed with hackneyed, narrow and generally unsuccessful conventional techniques, unintelligently obtuse to pragmatic and innovative research and extension, blindly insensitive to significant local developments, and at the same time compulsively desirous of executive control, I am afraid the people of Orangi will derive little benefit from them, and the BCCI will get a miserable return for one million dollars.

Akhter Hameed Khan, Director, OPP

Annex IV: Replications of the OPP-RTI model by partner organisations outside of Karachi

Successful replications

OPP-RTI-RTI's low-cost sanitation programme has been replicated in 257 locations outside of Orangi all over Pakistan. Local governments have invested Rs145,658,000 (US$242,763) in developing external sanitation. Communities on the other hand have invested Rs82,132,000 (US$1,368,866) in building internal sanitation. Of these 257 locations, 216 are out of Karachi and are located in one major city, three intermediate towns and eight small towns. A total of 43,618 households have benefited from this programme outside of Karachi.

Below is a summary of what has been achieved in a city and several towns.

Faisalabad

Faisalabad is one of Pakistan's largest cities; by 1998, it had close to two million inhabitants. There has long been a wide gap between the growing population's need for land for housing with provision for piped water, sanitation and drainage and the capacity of government agencies responsible for such provision. Two-thirds of Faisalabad's population live in areas with little or no official provision for services, and most new housing and land development take place without official approval. Less than half the city's population have piped water and less than one-third are connected to the sewerage system.

The main government agency responsible for the provision of water and sewerage is Water and Sanitation Agency (WASA) which comes under Faisalabad Development Authority. WASA has a serious financial crisis and large deficits, hence its investments are limited. Most new housing developments are undertaken informally (outside of any master plan) and each neighbourhood seeks to improve its water supply and sewerage system, which is often done independently of WASA.

Recently Faisalabad Municipal Corporation has been upgraded to the level of City District Government Faisalabad (CDGF). It has an educated council and a *nazim* (mayor) heads its affairs. CDGF's revenue shortfall makes it increasingly dependent on provisional government funds, and/or ad hoc development projects from Member of Provincial Assembly/Member of National Assembly (MPA/MNA) grants. These projects are politically motivated and therefore do not deal with the real problems, especially those of low-income people.

The work of the Anjuman Samaji Behbood, Faisalabad

The Anjuman Samaji Behbood (ASB) was formed in the late 1960s in Dhuddiwala, which was then a suburb of Faisalabad and is now a part of the city. According to its president, Nazir Ahmed Wattoo, ASB lobbied various politicians and government officials for acquiring water and sanitation for his settlement but without success. In 1987, he came in contact with OPP-RTI and in 1994 he began a credit programme with the line of credit from OPP-RTI's micro-credit programme. In 1996, he began a water project and a sanitation programme in Dhuddiwala and the settlements around it. To carry out this work, ASB activists and technicians received training at OPP-RTI in Orangi and on-site in Faisalabad. Hasanpura, a neighbourhood without water, was chosen as pilot area. WaterAid provided core funding to the ASB for the water and sanitation

programme. In addition, WaterAid provided funds of Rs200,000 for laying a secondary water line to serve 1000 houses, as the main water line was about 1000 feet away from the settlement. In February 1996, laying of secondary water line was completed. ASB earlier organised a water committee in Hasanpura composed of activists selected by the residents. The committee managed the finance and implementation of water mains and collected payment instalments from 365 houses. Since then 37 lanes have laid water lines in their lanes on a self-help basis. In a further 12 settlements, ASB supported the laying of water lines in 43 lanes on a self-help basis.

Since February 1996, on a self-help basis, and following the external–internal OPP-RTI model, a total of 497 lane sewers, and 4 large and 5 small secondary sewers with a total length of 161,128 feet have been laid. The 8,350 house-owners involved have invested a total of Rs26.73 million (US$0.44 million). The sanitation programme which began in Hasanpura and Dhuddiwala has been extended to 66 settlements in Faisalabad. For construction of large secondary sewers where needed, ASB has a revolving fund of Rs50,000 provided by WaterAid. The cost of large secondary sewers is paid back by the residents in the form of lane sewer connection charges.

Co-ordination with government
As and when necessary, ASB co-ordinates with local government and WASA for laying large secondary and main sewers. In four settlements this work is now complete and in one it is in progress. Co-ordination between ASB and CDGF has increased over time and they now support each other.

Jaranwala Town
Since September 2002, at the request of the *Nazim* of nearby Jaranwala Town, ASB has provided support for replication of the sanitation programme. The UNDP/LIFE[48] programme provided core-fund support for this replication and facilitated partnership with the town office. Through this project, Jaranwala *tehsil* is the first to have computerised mapping of infrastructure. Meanwhile, mobilisation for lane sewers continues. Work has been completed on the external–internal self-financed OPP-RTI model on 22 lanes, and one secondary sewer. The 321 householders in the area have invested Rs1,102,590 (US$18,376) on this work. Recently, ASB was successful in mobilising finance from the Punjab Municipal Development Fund for geographic information system (GIS) mapping of seven medium-sized towns in the Punjab province. At the request of the *Tehsil* Management Authority (TMA) Bhalwal, ASB visited Bhalwal and undertook a preliminary survey of the town and its sewage disposal system. A partnership agreement is in preparation. Many government and donor officials, professionals, development activists, journalists, social organisations and community groups visit ASB. This gives them an opportunity to study the work on-site and develop an understanding of the dynamics of community work. The ASB co-ordinator regularly presents the ASB work at various meetings, forums and workshops. Regular visits were made to partner Lodhran Pilot Project in Lodhran Town (see below) to guide its work of expansion in 100 villages in the Punjab. ASB has developed a good record of its work in the form of videos and documentaries. Its staff and activists all belong to the low-income settlements of Faisalabad or the cities where its programme is being replicated.

[48] LIFE – Local Initiatives Facility for the Urban Environment

Uch Sharif

A small city located near Punjnad in the southern Punjab, it has a population of 35,000. Uch is a historical town and regarded as one of the oldest monuments of Islamic culture and learning in the country. During the thirteenth century the Firozi College was here, accommodating 2,500 scholars at a time. Minhajuddin, the famous Persian historian and the author of *Tabqat-i-Nasiri*, was at one time principal of this college. In the past, the city was an important riverine port on the Indus and was of significant political importance. The changing course of the river halted the city's expansion, and its political and economic importance declined. Today, Uch is made up of thee settlements: Uch Mughlan, Uch Bukhari and Uch Gilani. Administratively, Uch is a union council (UC) under Ahmedpur East *Tehsil* (town council) and Bahawalpur District. Municipal functions are administered through the UC. Owing to scarcity of funds for development, Uch depends on MPA/MNA funds or on funds from the *tehsil* and district administration. Previously, the Public Health Engineering Department (PHED) had invested in major sewerage schemes which have been rectified and extended, with *tehsil* funds and OPP-RTI advice. In another scheme, PHED has laid main sewers totalling 9,516 feet, providing disposal for 150 lanes, again on OPP-RTI advice.

The work of the Conservation & Rehabilitation Centre

The Conservation & Rehabilitation Centre (CRC), composed of architects and engineers, is involved in the conservation of architectural heritage in Uch Sharif. Disposal of sewage is a severe problem in the settlements in the city. To initiate the programme, a group of Uch activists and CRC staff members visited OPP-RTI for training. In June 1999, the UNDP/LIFE programme provided a grant for core funding for the sanitation programme. At present, WaterAid support for core funding is available. The CRC team trained six young members of the community in plane-table surveying and computer mapping. These young people now run the CRC water and sanitation programme. Through plane-table surveying, the team prepared maps of the city with documentation of sewage infrastructure and level survey. The digitised map showed total 725 lanes. At CRC's request, OPP-RTI prepared a conceptual master plan for sewage disposal for Uch city. The master plan was presented to the district government by CRC in an effort to mobilise government finance for external development (main sewers and sewage treatment plants). Government then approved three projects for main sewers estimated at Rs1.18 million. One project is complete, and the other two are nearing completion.

CRC has now become adviser to the local government, supervising and guiding its external development projects as well as advising on road construction and lane paving so that sewers are laid before road paving. Recently, at the request of the TMA, CRC provided the detailed plan, design and estimates for a total of 11,000 running feet of main sewers. It is noted that when this has been completed, 80 per cent of Uch will be provided with a sewage disposal system. Earlier, CRC had supervised government-laid main sewers, providing disposal for 150 lanes. Total work on internal sanitation funded and managed by the community has been completed. It consists of 194 lane sewers and eight secondary sewers; 1,646 house-owners have invested a total of Rs3,943,498 (US$65,724) in this work. Recently, CRC held meetings with the Punjab *Katchi Abadi* and Urban Improvement Directorate (PKAUID) as well as with the *Nazim* and town officers of the nearby town of Alipur. The PKAUID project, Southern Punjab Basic Urban Services, financed by the ADB, is being initiated in Alipur. CRC has been made a member of the review committee to guide mapping, documentation and programme replication.

The CRC members working in Uch all belong to the Uch neighbourhoods. They have now successfully designed and promoted projects for the city with the local government. These projects include the creation of a park in the inner city; roofing the main street in the ancient bazaar; and the protection of the old monuments from inappropriate construction and conservation techniques.

Rawalpindi

Rawalpindi (next to the capital city of Islamabad) has experienced a rapid increase in population due to migration from the rural areas. Its current population figure is nearly 1.5 million, with about four per cent annual growth rate. Unplanned growth has been rampant, particularly in areas where basic infrastructure is available. Inadequate urban services, especially sewerage, drainage and solid waste management have worsened the quality of life and environmental conditions. About 60 per cent of the city's population is in the low-income group and lives for the most part in informal settlements. The sewerage system laid out by WASA in the early 1950s and late 1970s currently covers only 30 per cent of the city's area. The system is now corroded and pipes and seals have deteriorated, causing leakages and overflows.

Raw sewage discharges through piped or open channel systems into the nearest natural drains. No sewage treatment facility is available for Rawalpindi municipal or industrial wastewater, which discharges into storm water drains. The urban drainage system, particularly to the east of the city, is in very poor condition, having been neglected for many years. In some areas, the system is under-sized, with open natural drains restricted by encroachments and road crossings and blocked with solid waste and other debris. Major flooding occurs along these drains in each monsoon season.

Rawalpindi Development Authority (RDA) is mandated to undertake major urban infrastructure-related projects. Large-scale water and sanitation projects funded by IFIs are being executed, through a Project Monitoring Unit (PMU) headed by the Project Director located at WASA. The PMU, comprising professional staff and supported by a team of consultants, assist the TMA, RDA and WASA by providing policy guidance. The PMU implements the project components. A project implementation review committee oversees the project at *tehsil* level, and a project steering committee at provincial level. The PMU is responsible for overall co-ordination, planning, implementation and management of all project activities. Registered government contractors execute the work on-site. Upon completion of the project, the PMU will be merged into WASA, which will be responsible for the system's operation and maintenance.

The work of the Akhtar Hameed Khan Memorial Trust

The Akhtar Hameed Khan Memorial Trust (AHKMT) has been working in the *katchi abadis* of Rawalpindi since September 2001. Dhoke Hassu, where AHKMT began its programme, is a low-income settlement situated along the *Nala* Lai. It has developed as a result of subdivision of agricultural land and of the availability of low-lying areas along the *nala*. Water supply is through tube wells provided by the TMA. Sewage and rainwater is disposed through open drains. AHKMT's co-ordinator, being the *tehsil* councillor, has strengthened the Trust's capacity to lobby political representatives and official agencies.

AHKMT so far has assisted the construction of 82 lane sewers and three secondary sewers, serving 816 houses. People's investment has totalled Rs2,732,163 (US$45,536) for internal sanitation in three settlements. Mobilisation of the community and work on lane sewers is in progress. AHKMT has been successfully co-ordinating with government on the preparation of external development projects. Meetings have been regularly held with WASA, town and UC *nazims* and councillors. *Nazims* of three UCs had agreed to pave lanes where sewers have been built by the people on a self-help basis. So far, government has paved 79 such lanes. An eight-minute film on the work is being disseminated to a number of neighbourhoods.

The ADB has provided a second loan for the Rawalpindi Environmental Improvement Project. AHKMT has been made a member of the technical committee. Efforts are being made to ensure that the existing sewerage system is mapped and upgraded (avoiding a repeat of the failed ADB-financed sewerage projects in Karachi) and that the component-sharing model is adopted. In theory, WASA and the ADB consultants have accepted the AHKMT/OPP-RTI model.

AHKMT's work is likely to expand in close collaboration with local government, given that its co-ordinator is a councillor from an informal settlement. In addition, WASA has great respect for the OPP-RTI internal–external model and the *nazims* at both town level and UC level have shown considerable interest. This is because of effective lobbing by the co-ordinator through holding of forums to which all stakeholders are invited and at which OPP-RTI model is presented.

Lahore: Muawin

Being the centre of cultural and literary activities, Lahore may rightly be called the cultural capital of Pakistan. Situated on the bank of the river Ravi, since Independence in 1947, Lahore has expanded rapidly as the capital of Punjab province. It is the second-largest city in the country and an important industrial centre. At the 1998 Census, its population was 5 million.

The Local Government Plan 2000 and the Local Government Ordinance 2001 provide for the establishment of a city district government to respond to the specific needs of very large cities such as Lahore. Here, spatial planning municipal services are the exclusive function of the six town/TMA functions. They are managed centrally by the city district government, in addition to all the common district functions.

Water and sanitation are the responsibility of WASA, which has been working in collaboration with the Lahore Development Authority since 1976. WASA provides systems of drinking water and wastewater disposal except in the areas of Cantonment, Model Town, the government officer's residence, railway colonies, public works department (PWD) colonies and private housing schemes. WASA's main source of revenue is the service charges paid by its customers and a share of property tax from provincial government. WASA claims that it serves 90 per cent of the population with water supply and 80 per cent of the population through its underground sewerage system. Currently WASA is planning to invest Rs970 million (US$16 million) in various areas with low levels of service, as well as the walled city of Lahore. The city district government has plans under the head of water, sanitation and solid waste amounting to Rs350 million (US$5.83 million).

PKAUID has been working since 1987, with the overall aim of regularisation and development of *katchi abadis* in Punjab. The organisation has undertaken various development projects for the improvement of *katchi abadis* and low-income areas, and has adopted a policy of component-sharing on the OPP-RTI model, in particular for the development of *katchi abadis*. It has undertaken this work in *katchi abadis* with the assistance of an NGO supported by OPP-RTI, called Mauwin.

In 2001–03, UNDP supported a project called Program for the Improvement of Livelihoods in Urban Settlements (PLUS). This was the replication of the OPP-RTI model in four towns of Punjab province with the collaboration of PKAUID. PLUS staff were trained at OPP-RTI. In 2003, UNDP withdrew support from the project and so it was wound up. The trained staff then set up Mauwin which, because of past association, is closely linked to PKAUID. Meanwhile, PKAUID has also adopted the OPP-RTI model of development for informal settlements in the Punjab, and Mauwin has become its partner. Thanks to lobbying by PKAUID and Mauwin, the Southern Punjab Basic Urban Services and National Urban Poverty Alleviation Programmes, both funded by the ADB, have adopted the OPP-RTI model for water supply and sanitation. Mauwin is helping in the development of both these projects.

Meanwhile, Mauwin is also replicating the OPP-RTI model in the Punjab. Mapping of many areas has been completed and designs of three neighbourhoods have been developed. Estimates for 13 lane sewers have been provided to lane residents. Mauwin has been requested by the TMA of Ferozwala, a small town in the Punjab, for technical support in solving sewage disposal problems, and it has started making a map of the whole town.

In Khan Colony in Lahore, the model has been demonstrated. Communities have laid 17 lane sewers, at a cost of Rs501,500 (US$8,359). Mauwin is also providing training and advice to NGOs that wish to replicate the OPP-RTI model in their neighbourhoods and small towns.

A new direction is the replication in the Punjab of Karachi's Urban Resource Centre. This is known as the Punjab Urban Resource Centre (PURC) and it works to strengthen advocacy and city-wide networks. Mauwin and the PURC work closely together.

Shahpur Chakar

Shahpur Chakar is located 30 kilometres east of Nawabshah town in Sindh province. It is a 300-year-old small town with 20,000 inhabitants, and consists of 12 neighbourhoods or *mohallas*. Administratively, Shahpur Chakar is a UC of Shahdadpur *tehsil* under Sanghar district. The town has a PHED-laid main sewer which is connected to a disposal station. This existing system is silted up and does not function properly. Disposal of sewage from the pumping station depends on the availability of electricity (which is erratic) and the presence of the pump operator (who is often absent) and as one of the two is always missing, a major problem is created for the city's sewage disposal. Over time a number of neighbourhoods have disconnected their sewage from the PHED main and have resorted to disposing of sewage in a nearby ditch or low-lying vacant lands. As a result, the city is facing acute environmental problems. For refurbishing the existing system and for developing a new system, the UC is at the mercy of either the *tehsil* or the district administration or, alternatively, grant-in-aid from Member of Provincial Assembly (MPA) or Member of National Assembly (MNA) funds.

The work of the Shahpur Chakar Welfare Society
The Shahpur Chakar Welfare Society (SCWS) started working in Kamil Shah Colony after receiving training from OPP-RTI. For the settlement Kamil Shah Colony, with about 250 houses, plans and estimates were finalised for a secondary sewer, 19 lane sewers and a sewage treatment unit. Area activists received training at OPP-RTI and on-site. In December 2003, work on site began. OPP-RTI members spent 10 days on-site providing supervision and training to the SCWS members. Work on two lane sewers and two 589-foot secondary sewers serving 20 houses was completed. People's investment on sewers and 34 latrines has amounted to Rs89,174 (US$1,403). In New Colony, work on five lane sewers of 661 running feet was completed. Thirty-five house-owners have invested a total of Rs98,124 (US$1,366) on lane sewers and 48 latrines. On request, plans and estimates have been provided to community activists for a further 32 lane sewers.

Shapur Chakar Welfare Society (SCWS) and its partner NGO, Sarhad Rural Support Programme (SRSP), have held regular meetings with the *Nazim* and councillors. The *Nazim* directed people to lay lane sewers on a self-help basis, while agreeing to make an effort to ensure that lane paving and laying of secondary sewers is carried out for those settlements or lanes that have developed their own sewerage systems. Two such lanes have been paved recently. Work on a government main sewer (12 inches diameter and 4500 running feet, funded by local government, is in progress. SCWS identified this external development project and provided the conceptual design for it. The cost of the project is Rs800,000 (US$1333). SCWS is monitoring the quality of work.

SCWS members have surveyed and prepared a map of the UC with documentation of the existing sewage disposal system. The map shows that the UC comprises eight settlements, 192 lanes and 1072 houses. Level surveying is in progress for preparing the sewerage plan of the UC and for creating a disposal system that functions on gravity.

Lodhran
In 1999, the Lodhran Pilot Project (LPP) was set up by an industrialist and member of the parliament in the city of Lodhran, which has a population of around 70,000, to address the growing problem of sewage disposal in the area. LPP works closely with the local municipal authorities and enjoys a good working relationship with them. Since April 2000, LPP has assisted in the completion of 148 lane sewers of approximately 27,000 running feet. The local communities have invested Rs2.8 million in lane sewers and latrines, while government complemented this work by laying 16,650 running feet of main sewers, repairing faulty disposals and paving lanes. In recent times, LPP has extended its work to adjacent towns and villages, and is now focusing more on the latter than on towns. For this work, LPP has received support and funding from the World Bank. Work is currently being carried out in 58 villages.

Al-Watan
OPP-RTI and the Al-Watan Forum started working on replication of the component-sharing model in the mid-1990s. Core funding for both organisations comes from WaterAid. Work completed has been completed on 253 lane sewers of 63,000 running feet and 39 secondary sewers of 17,710 running feet covering more than 4500 houses. People's investment in lane

sewers, latrines and secondary sewers has totalled around Rs15.5 million. The government has paved 36 of these lanes.

Unsuccessful attempts at replication

UNICEF's Urban Basic Services Programme in Sukkur (an intermediate-sized city 450 kilometres north of Karachi) and the World Bank–Swiss Development Co-operation (SDC) programme in Hyderabad also adopted the OPP-RTI sanitation model in 1990–94. OPP-RTI was party to a tripartite agreement involving donor agencies, government departments and 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 build the 'external' component. The role of OPP-RTI was to offer advice, and train and monitor both government department staff and community members. In both cases, the community was mobilised, collected money, and in the case of Sukkur, laid sanitation pipes in 14 lanes covering 155 households. However, the government department in the case of Sukkur only built part of the 'external' component, and could not maintain its pumping station, as a result of which work could not proceed and the community lost interest.

Reasons for failure of the project were analysed in great detail by OPP-RTI in order to provide learning for the future; the key points are given below:

1. Local government departments which were responsible for designing and managing the projects were not consulted in the initial stages of decision-making and therefore had no sense of ownership of project methodology or process. The 'internal–external' model was forced upon them.
2. Training of local government staff and community activists did not take place collectively, which resulted in the absence of shared understanding of the objectives, principles, and approaches.
3. In the case of Sukkur, a number of existing informal arrangements for operation and maintenance (O&M) were not taken into account during the project design stage.
4. In designing the institutional arrangements for the projects, internal politics, organisational culture, technical capacity and financial problems were not duly taken into account. It was assumed that all the concerned actors would and could play the role assigned to them.
5. In the case of Hyderabad, the World Bank and SDC office that managed the project was located in Karachi – which proved problematic for purposes of effective oversight and monitoring.
6. Constant transfers and postings of project staff greatly hampered progress and consistency.

The Hyderabad and Sukkur communities have kept in touch with OPP-RTI. In Sukkur, they attempted to take over the pumping station and run it themselves, but were unable to do this successfully. In Hyderabad, the communities managed to complete the 'external' component. It is interesting to note that the Sukkur project was identified as one with 'best practices' at the 1996 UN Habitat Conference in Istanbul.

Annex V: External assistance for water and sanitation projects in Karachi, 1989–2007

Name of Project		Cost (US$ million)	Sector	Objectives	Start	End	Executing Agencies
	World Bank						
1.	Karachi Water Supply Project	25.00	Water Sanitation and Flood Protection – Urban Water Supply	Designed to assist in the expansion of the water supply systems in Karachi, the improvement of service to consumers and the strengthening of KWSB. The project includes (a) expansion of the water supply conveyance system, pumping and treatment capacity; (b) rehabilitation of trunk mains; (c) provision of metering, workshops, vehicles and equipment; and (d) technical assistance, training and studies.	May 1983	Oct. 1991	n/a
2.	Karachi Special Development Programme Project	70.00	Urban Development – Urban Management	(a) strengthen the financial capacity of local agencies to deliver urban services; (b) improve resource mobilisation and cost recovery; (c) demonstrate the feasibility of new approaches to providing services to the urban poor; and (d) directly improve basic urban services	Jan. 1986	Sept. 1994	GoS, KDA, KMC, KW&SB

Name of Project		Cost (US$ million)	Sector	Objectives	Start	End	Executing Agencies
3.	Karachi Water Supply and Sanitation Project (02)	331.7	Water Supply (32%) Sanitation (32%) Sewerage (31%) Public Administration (5%)	Improve potable water supply, improve operation, management and financial viability of the KWSB, and improve sanitation in the city. Specific project components include: (a) canal and square conduit to bring water from the Indus river, four pumping stations, two direct filtration treatment works, storage reservoirs, and the expansion/rehabilitation of the distribution network; (b) three new sewerage treatment plants	Feb. 1989	June 1999	KWSB
4.	2nd Karachi Water Supply	91.9	Water Supply (32%) Sanitation (32%) Sewerage (31%) Public Administration (5%)	Improve potable water supply, improve operation, management and financial viability of the KWSB, and improve sanitation in the city. Specific project components include: (a) canal and square conduit to bring water from the Indus river, four pumping stations, two direct filtration treatment works, storage reservoirs, and the expansion/rehabilitation of the distribution network.	Feb. 1993	n/a	KWSB/KMC

Name of Project		Cost (US$ million)	Sector	Objectives	Start	End	Executing Agencies
5.	Sindh Special Development Project	58.6	Roads/Highways (40%) Public Administration (32%) Water/Sanitation/ Flood Protection (23%) General Transport (5%)	Support GoS's Policy Reform Programme for the sector by: financing and immediate action programme to begin to deal with some of the most urgent environmental and infrastructure problems in Karachi and three interior cities.	Dec. 1993	June 1999	GoS
	Asian Development Bank						
1.	Loan No. 793-PAK: Karachi Urban Development	55.20	WS&S		Oct. 1986		
2.	Loan No. 1001-PAK: Karachi Sewerage	**85.00**	**WS&S**		**Dec. 1989**		
3.	Loan 1004-PAK: Second Urban Development	**66.00**	**WS&S**		**Dec. 1989**		
4.	Loan 1260-PAK: Urban Water Supply and Sanitation	72.00	WS&S				
	Japan						
1.	Rehabilitation of Water Treatment Systems, Karachi – Phase I	10.78	WS		1989		
2.	Karachi water Supply Improvement Project	95.41	WS		1995		
3.	Metropolitan Water Supply Project	53.26	WS		1996		

Annex VI: Officials and civil society members who contributed to working with OPP-RTI for improvements in planning, implementation and management of sewerage, drainage and wastewater treatment in Karachi

No.	Name	Designation/Department
1	Shahid Saleem	Deputy Managing Director Planning – Karachi Water and Sewerage Board (KWSB)
2	Sulaiman Memon	Project Director – Directorate of *Katchi Abadis* – KMC)
3	Irfan Ali	Director – Directorate of *Katchi Abadis* – KMC
4	Jawaid Sultan	Field Officer – Sindh Katchi Abadi Authority (SKAA)
5	Islamuddin Siddiqui	Deputy Director – Sindh *Katchi Abadis* Authority (SKAA)
6	Mashkoor-ul-Hasan	Chief Engineer – Karachi Water and Sewerage Board (KWSB)
7	M.M. Mehdi	Chief Engineer – Karachi Water and Sewerage Board (KWSB)
8	Asoodomal Chandvani	Chief Engineer – Karachi Water and Sewerage Board (KWSB)
9	Brig. Iftikhar	Managing Director – Karachi Water and Sewerage Board (KWSB)
10	Tasneem Siddiqui	Director-General – Sindh *Katchi Abadis* Authority (SKAA)
11	Salim Khan	Special Secretary to Governor of Sindh
12	Rukhsana Salim	Secretary Finance, GoS
13	Farooq Sattar	*Nazim* – Karachi Metropolitan Corporation (KMC)/Minister Local Govt and *Katchi Abadis* Sindh
14	Shoaib Bukhari	Minister, Planning and Development Sindh
15	Rehana Memon	Additional Chief Secretary – Planning and Development Sindh
16	Khalid Javaid	Deputy Additional Secretary – Planning and Development Sindh
17	Nisar Sario	Executive District Officer – Works and Services, City District Government Karachi (CDGK)
18	Rashid Mughal	District Officer – City District Government Karachi (CDGK)
19	Shoaib Siddiqui	Executive District Officer – Works and Services and Secretary Finance, GoS
20	A.S. Palejo	District Officer – City District Government Karachi (CDGK)
21	S. Bhatti	Additional District Officer – City District Government Karachi (CDGK)
22	Mohammad Salam	Secretary to District Officer – City District Government Karachi (CDGK)
23	Israr Zaidi	Chief Engineer – Karachi Water and

		Sewerage Board (KWSB)
24	Shahid Hussain	Executive Engineer – City District Government Karachi (CDGK)
25	Abrar Siddiqui	Chief Engineer – Karachi Electric Supply Corporation (KESC)/Adviser to Minister Local Government and *Katachi Abadis* Sindh
26	Aquila Ismail	Professor – NED University
27	Nazeer Kidwai	District Officer – City District Government Karachi (CDGK)
28	S.M. Taha	District Officer – City District Government Karachi (CDGK)
29	Asif Mughal	Deputy District Officer – City District Government Karachi (CDGK)
30	Seema Parvin	Deputy District Officer – City District Government Karachi (CDGK)
31	Shamim Ahmed	Executive Engineer – Karachi Water and Sewerage Board (KWSB)
32	Manzar Abbas	Sindh *Katchi Abadi* Authority (SKAA)
33	Abdul Khaliq	Sindh *Katchi Abadi* Authority (SKAA)
34	Md Nazeer	Sindh *Katchi Abadi* Authority (SKAA)
35	Md Naseem	City District Government Karachi (CDGK)
36	Shahood Hashmi	Assistant District Officer, City District Government Karachi (CDGK)
37	Shakaib Siddiqui	District Officer – City District Government Karachi (CDGK)
38	Amanullah Chachar	Chief Engineer – City District Government Karachi (CDGK)
39	Shabie-ul-Hasan	District Officer – City District Government Karachi (CDGK)
40	Brig. Nasir	Chief Engineer – Karachi Metropolitan Corporation (KMC)
41	Zia-ul-Islam	Secretary Local Government
42	Masood-ul-Hasan	Chief Engineer – Karachi Metropolitan Corporation (KMC)
43	Qazi Allauddin	Chief Engineer – Karachi Metropolitan Corporation (KMC)
44	Mubarak Zaidi	District Officer/Executive District Officer – City District Government Karachi (CDGK)
45	Mir Hasan Ali	District Co-ordinator Officer – City District Government Karachi (CDGK)
46	Iftikhar Arif	Chief Engineer – Karachi Water Sewerage Board (KWSB)
47	Md. Shahid	Karachi Water Sewerage Board (KWSB)
48	Jameel Akhter	Chief Engineer – Karachi Water Sewerage Board (KWSB)
49	Aftabuddin	Assistant Superintendent Engineer – Karachi Water Sewerage Board (KWSB)
50	Fatima Hasan	Sindh *Katchi Abadi* Authority (SKAA)
51	Naheed Haider	Director-General – Sindh *Katchi Abadi* Authority (SKAA)

52	Matanat Ali Khan	Deputy Commissioner West/City District Government Karachi (CDGK)
53	Ms Javaria	Director Finance – Karachi Metropolitan Corporation (KMC)
54	Iqbal Zubedi	Director Finance – Karachi Metropolitan Corporation (KMC)
55	Fazl-urRahman	District Co-ordinator Officer – City District Government Karachi (CDGK)
56	Naziha Ghazali	Media – *Newsline* magazine
57	Azhar Abbas	Media – *The Herald* magazine
58	Zubeida Mustafa	Media – *Dawn* newspaper
59	Rizwan Ahmed	Media – *Daily Jung*
60	Ghulam Mustafa	Media – *Geo News*

In addition to the individuals as listed above major contributions have also been made by the NGOs/CBOs that make up the water/sanitation group based at partner Urban Resource Centre. They are listed below.

Water and Sanitation Group – Karachi, based at URC

Member NGOs/CBOs

1. ANIS HAROON
   AURAT FOUNDATION
   D-3, BLOCK-7, KDA SCHEME 5, CLIFTON
   KARACHI
   TEL: 5874718, 5830195

2. RIAZ NAWAB / MANSHA NOOR
   CARITAS, KARACHI
   W-57, BLOCK-6, P.E.C.H.S.
   KARACHI-75660
   P.O.BOX-7502
   TEL: 4385470, 4525924

3. CATHOLIC SOCIAL SERVICES (CSS)
   2-MOHAN TERRACE
   SHAHRAE IRAQ, SADDAR
   KARACHI
   TEL: 5211444

4. ALY ERCELAWN AND MD NOMAN
   CREED
   44, DARUL AMAN SOCIETY 7/8
   SHAHRAE FAISAL
   KARACHI
   TEL: 4530668

5. SARAH SIDDIQUI
KARACHI ADMINISTRATION WOMEN WELFARE SOCIETY (KAWWS)
C-32 BLOCK-2, K.A.E.C.H SOCIETY
KARACHI
TEL: 4528884

6. PERWEEN RAHMAN AND SALIM ALEEMUDDIN
Orangi Pilot Project - Research and Training Institute (OPP-RTI)
PLOT NO. ST. #4, SECTOR 5-A
QASBA COLONY, MANGOPIR ROAD
KARACHI
TEL: 6652297, 6658021

7. ANWAR RASHID
ORANGI PILOT PROJECT – ORANGI CHARITABLE TRUST (OPP- OCT)
PLOT NO. ST. #4, SECTOR 5-A
QASBA COLONY, MANGOPIR
KARACHI
TEL: 6652297, 6658021

8. M. ALI SHAH
PAKISTAN FISHER FOLK FORUM DEVELOPMENT CENTRE
ROOM NO.209, REGAL TRADE SQUARE
REGAL CHOWK, SADDAR
KARACHI

9. SHARAFAT ALI
PAKISTAN INSTITUE OF LABOUR EDUCATION AND RESEARCH (PILER)
ST.001, SECTOR X, SUB-SECTOR V
GULSHAN-E-MEMAR, KDA SCHEME NO.45
KARACHI
TEL: 6351145-7

10. DR TIPU SUTLAN
PAKISTAN MEDICAL ASSOCIATION (PMA)
P.M.A HOUSE, GARDEN ROAD
KARACHI
TEL: 7211159, 7779718

11. TASNEEM AHMED SIDDIQUI
SAIBAN
GRE-319, 2-B, BRITTO ROAD
SOLDIER BAZAR

KARACHI
TEL: 2259049

12. FRANCIS RUFI
RASTI
16C, 25TH STREET, RAHIM APARTMENT
TAUHEED COMMERCIAL, DHA, PHASE-5
KARACHI
TEL: 5838472

13. NAJMA SADIQ
SHIRKAT GAH
Bath Island, CLIFTON
KARACHI
TEL: 5836488, 5861319

14. JALIL IBRAHIM
ARM CHILDREN YOUTH CENTRE
BAGHDADI BLOCK, NEAR 8 CHOWK LYARI
KARACHI
TEL: 7524400

15. AHMED KHAN SHEDAI
AWAMI COLONY LEASE COMMITTEE
H.NO.774, AWAMI COLONY, KORANGI INDUSTRIAL AREA
KARACHI
TEL: 5064773

16. SHAFIQ AHMED
BILAL WELFARE TRUST
H.NO.686, REHMAT CHOWK, ORANGI TOWN
KARACHI
TEL: 6669567

17. ABDUL WAHEED KHAN
BRIGHT EDUCATIONAL SOCIETY (BES)
NAUNEHAL ACADEMY ST-1114/1115
ISLAMIA COLONY NO.1, QASBA COLONY, SITE TOWN
KARACHI
TEL: 0300-9251836, 0300-2107967, 6658999
FAX: 6658999

18. SHAMSUDDIN
GHAZIABAD FALAHI COMMITTEE
PLOT NO.S-4/2256, MUJAHID COLONY
GHAZIABAD, SECTOR 11-1/2, ORANGI TOWN

KARACHI
TEL: 0333-2287176

19. TARIQ AZIZ HOAT
HASAN AULIA WELFARE SOCIETY
412, REXER LINE, HASAN AULIA VILLAGE
MANGHOPIR ROAD, SITE
KARACHI-75700
TEL: 0300-9233488

20. PARVEEN SAEED
HASAN SAEED WELFARE SOCIETY
H.NO.665/L, SECTOR-5D
MAYMARABAD, SURJANI TOWN
KARACHI
TEL: 0300-9212136, 6912630

21. MUHAMMAD ARSHAD
ISLAHI TANZEEM BARAE AWAMI MASAEL
PLOT NO.453, BLOCK-A
SUNY HOUSE NAWAB COLONY
JINNAH ROAD, ITEHAD TOWN
NEAR LAST BUS NO.20 STOP
KARACHI
TEL: 0300-9292790

22. PRESIDENT
ISLAHI TANZEEM BARAI AWAMI MASAIL
PLOT NO.158, SECTOR 1-A/3
KHAWJA AJMAIR NAGRI, NORTH KARACHI
KARACHI

23. JAWAID KAMBOH
ITTEHAD WELFARE ASSOCIATION
246/11, SECTOR-1, MANZOOR COLONY
KARACHI
TEL: 5896645, 4484535

24. SYED SABIR SHAH ADOCATE
KARACHI UNITED WELFARE ASSOCIATION
1ST FLOOR, SAFINA HOTEL, HAJI MUREED GOTH
GULBAHAR, NAZIMABAD
KARACHI-74600
TEL: 6685830, 6687036

25. DR SHAHIDA SYED REHMANI

KHATOON FEDERATION WELFARE TRUST
PLOT NO.413, SECTOR 9/E
JINNAH COLONY, ORANGI TOWN
KARACHI
TEL: 0303-6210272

26. GHULAM NABI LASI
NGO ALLIANCE
UMER LANE COMMUNITY HALL
HASHIM LASI STREET
NEW KUMHAR WARA ROAD, LYARI
KARACHI
TEL: 7525133

27. ORANGI DEVELOPMENT SOCIETY (ODS)
H.NO.F-95, SECTOR 10
HUSSAINABAD, ORANGI TOWN
KARACHI

28. HASSAN ALIYA
RAH-RO
12/10, VILLAYATABAD
MANGHOPIR ROAD, OLD GOLIMAR
KARACHI
TEL: 2580452, 0300-2305033

29. RANA SADIQ
SOCIAL WELFARE COUNCIL
D-5, UMER COLONY-2, KAHCS
KARACHI
TEL: 4533238

30. MUHAMMAD SIRAJUDDIN
TECHNICAL TRAINING RESOURCE CENTRE (TTRC)
PLOT, M-294, SECTOR 11-1/2, MUJAHID COLONY
GHAZIABAD, ORANGI TOWN, KARACHI
TEL: 0300-2139113

31. YOUNUS BALOCH/ZAHID FAROOQ
URBAN RESOURCE CENTRE,
A-2, 2ND FLOOR, WEST LAND TRADE CENTRE,
COMMERCIAL CENTRAL AREA,
KARACHI ADMINISTRATION COOPERATIVE HOUSING UNION,
BLOCK-7&8, SHAHEED-E-MILLAT ROAD, KARACHI, PAKISTAN
TEL: 92 21 4559317 FAX: 92 21 4387692,
E-MAIL: URC@CYBER.NET.PK

ANNEXE VII

OPP-RTI STATISTICS - May 2008

1. Orangi: 113 settlements

A) Internal Development

People's investment has been Rs. 107.79 million in 6,813 lane sewers (1,714,794 rft.), 278 secondary sewers (69,163 rft.) and 102,186 sanitary latrines. Beneficiaries 102,186 houses

B) External Development

Govt. investment is Rs. 637.94 million on 243 large secondary sewers (161,380 rft.) 240 Trunk sewers (338,525 rft.) and 12 nalas/drainage channels developed as box drains (55,836 rft.)

Total Beneficiaries are above 1 million as through both internal/external developments all of Orangi has benefited.

2. Outside Orangi: In 44 settlements in Karachi, 21 cities/towns, and 56 villages.

A) Internal Development

People's investment is Rs. 149.5 in 6,122 lane sewers (1,140,033 rft.), 69,764 sanitary latrines. 69,764 houses have benefited from this development.

B) External Development

Government investment is Rs. 207.0 million in 420,495 rft. mains, nalas developed as box drains and disposal works.

3. Total Beneficiaries

- Orangi = 1 million
- Outside = 523,230
- Total = 1.52 million (and more considering the nala development projects being implemented in Orangi and all over Karachi).

Recent publications by IIED's Human Settlements Group

All working papers can be downloaded at no charge from www.iied.org/HS/publications.html

THE WORKING PAPER SERIES ON POVERTY REDUCTION

17. *Urban Poor Funds; Development by the People for the People* – Mitlin, Diana (2008)
16. *Building Homes, Changing Official Approaches: the Work of Urban Poor Federations and their Contributions to Meeting the Millennium Development Goals in Urban Areas* – D'Cruz, Celine and David Satterthwaite (2005)
15. *Catalysing Pro-Poor Development; the Role of Savings and Savings Organizations: Key Issues arising from an International Workshop on Housing Finance and Poverty*, Bangkok, June 2004 – Mitlin, Diana (2005)
14. *The Under-estimation of Urban Poverty in Low- and Middle-income Nations* – Satterthwaite, David (2004)
13. *Understanding Urban Poverty: What the Poverty Reduction Strategy Papers Tell Us* – Mitlin, Diana (2004)
12. *A Decade of Change: From the Urban Community Development Office (UCDO) to the Community Organizations Development Institute (CODI) in Thailand (increasing community options through a national government development programme)* – Boonyabancha, Somsook (2003)
11. *Reducing Urban Poverty: Some Lessons from Experience* – Satterthwaite, David (2002)
8. *Basic Service Provision for the Urban Poor: the Experience of Development Workshop in Angola* – Cain, Allan, Mary Daly and Paul Robson (2002)
7. *Community Driven Water and Sanitation: The Work of the Anjuman Samaji Behbood and the Larger Faisalabad Context, Pakistan* – Alimuddin, Salim, Arif Hasan and Asiya Sadiq (2001)
6. *Poverty Reduction in Action: Participatory Planning in San Fernando, Buenos Aires, Argentina* – Schusterman, Ricardo, Florencia Almansi, Ana Hardoy, Cecilia Monti and Gastón Urquiza (2002)
5. *The Work of SPARC, the National Slum Dwellers Federation and Mahila Milan, India* – Patel, Sheela and Diana Mitlin (2002)
4. *Urban Poverty Reduction Experiences in Cali, Colombia: Lessons From the Work of Local Non-profit Organizations* – Dávila, Julio (2002)
3. *Participation and Sustainability in Social Projects: the Experience of the Local Development Programme (PRODEL) in Nicaragua* – Stein, Alfredo (2001)
2. *The Age of Cities and Organizations of the Urban Poor: the Work of the South African Homeless People's Federation and the People's Dialogue on Land and Shelter* – Baumann, Ted, Joel Bolnick and Diana Mitlin (2002)
1. *El Mezquital: a Community's Struggle for Development* – Díaz, Andrés Cabanas, Emma Grant, Paula Irene del Cid Vargas and Verónica Sajbin Velásquez (2001)

See also several issues of the journal *Environment and Urbanization* on urban poverty/urban poverty reduction, including 13:1 (2001) on *Rethinking aid to urban poverty*; 13:2 (2001) on *Civil society in action; transforming opportunities for the urban poor*; 17:1 (2005) on *Meeting the Millennium Goals in urban areas*; 17:2 (2005) on *Chronic poverty*; and 19:2 (2007) on *Finance for low-income housing and community development*. All the papers in these issues, except those published in 2007, can be accessed at no charge at: http://eau.sagepub.com/

THE WORKING PAPER SERIES ON RURAL–URBAN INTERACTIONS

13. *Toward Synergistic Rural–Urban Development: the Experience of the Rural–Urban Partnership Programme (RUPP) in Nepal* – Momen, S F (2006)
12. *Rural-Urban Migration in China: Policy Options for Economic Growth, Environmental Sustainability and Equity* – McGranahan, Gordon and Cecilia Tacoli (2006)
11. *Livelihood Diversification and Rural–Urban Linkages in Vietnam's Red River Delta* – Anh, Dang Nguyen, Hoang Xuan Thanh and Cecilia Tacoli (2005)
10. *Rural–Urban Change, Boundary Problems and Environmental Burdens* – McGranahan, Gordon, David Satterthwaite and Cecilia Tacoli (2004)
9. *The Urban Part of Rural Development: the Role of Small and Intermediate Urban Centres in Rural and Regional Development and Poverty Reduction* – Tacoli, Cecilia, and David Satterthwaite (2003)
8. *Farmers' Markets in Tamil Nadu: Increasing Options for Rural Producers, Improving Access for Urban Consumers* – Rengasamy, S, J Devavaram, T Marirajan, N Ramavel, K Rajadurai, M Karunanidhi and N Rajendra Prasad (2002)
7. *Changing Rural–Urban Interactions in Sub-Saharan Africa and their Impact on Livelihoods: a Summary* – Tacoli, Cecilia (2002)
6. *Potentialités et Conflits dans les Zones Péri-Urbaines: le Cas de Mopti au Mali* – Groupe Recherche/Actions pour le Développement (2001)
5. *Potentialités et Conflits dans les Zones Péri-Urbaines: le Cas de Bamako au Mali* – Groupe Recherche/Actions pour le Développement (2001)
4. *The Case of Aba and its Region, Southeastern Nigeria* – Okali, David, Enoch Okpara and Janice Olawoye (2001)
3. *Exploring Rural–Urban Interactions in Tanzania: a Critical Review of the Methods and Tools Used* – Diyamett, Bitrina, Mathew Diyamett, Jovita James, Anthony Kibadu, Fred Lerise, Richard Mabala, Esther Mbutolwe and Nimrod Mushi (2001)
2. *The Case of Lindi and its Region, Southern Tanzania* – Kibadu, Anthony, Fred Lerise, Esther Mbutolwe and Nimrod Mushi (2001)
1. *The Case of Himo and its Region, Northern Tanzania* – Diyamett, Bitrina, Mathew Diyamett, Jovita James and Richard Mabala (2001)

See also some issues of the journal *Environment and Urbanization* on rural–urban linkages, including 15:1 (2003) on *Rural–urban transformations* and 8:1 (1998) on *Beyond the rural–urban divide*. All the papers in these issues can be accessed at no charge at: http://eau.sagepub.com/

THE WORKING PAPER SERIES ON URBAN ENVIRONMENTAL ACTION PLANS

10. *Local Agenda 21 Experiences in Nakuru, Kenya: Process Issues and Lessons* – Wacker, Corinne (2001)
9. *The Principles of Local Agenda 21 in Windhoek: Collective Action and the Urban Poor* – Gold, Jane, Anna Muller and Diana Mitlin (2001)
8. *A Summary of Durban's Local Agenda 21 Programme: the Sustainable Development Challenge* – Roberts, Debra and Nicci Diederichs (2001)

7. *The Sustainable Penang Initiative: Creating State–Society Partnerships for Sustainable Development* – Nasution, Khoo Salma (2001)
6. *Moving Towards Local Agenda 21 in Rufisque, Senegal* – Gaye, Malik, Loly Diouf and Nicola Keller (2001)
5. *Leicester Environment City: Learning How to Make Local Agenda 21 Partnerships and Participation Deliver* – Roberts, Ian (2001)
4. *Environmental Management and Local Action Plans in Manizales, Colombia* – Velásquez, Luz Stella (2001)
3. *Ilo: a City in Transformation* – Follegatti, José Luis López (2001)
2. *Let us Build Cities for Life: the National Campaign of Local Agenda 21s in Peru* – Miranda, Liliana and Michaela Hordijk (2001)
1. *Chimbote's Local Agenda 21: Initiatives to Support its Development and Implementation* – Foronda, Maria Elena (2001)

See also some issues of the journal *Environment and Urbanization* on related topics. Four issues are on *Sustainable cities*: 4:2 (1992); 10:2 (1998); 11:2 (1999) and 12:2 (2000). Two issues are on *Ecological urbanization*: 18:1 and 18:2 (2006). All the papers in these issues, except for those published in the last two years, can be accessed at no charge at: http://eau.sagepub.com/

DISCUSSION PAPER SERIES

Water 6: *Lessons from Karachi: The role of demonstration, documentation, mapping and relationship building in advocacy for improved urban sanitation and water services* - Pervaiz, Arif, Perween Rahman and Arif Hasan. (2008)

Water 5: *Sanitation in urban poor communities in Africa: Challenges and solutions* – Mulenga, Martin (2008)

Water 4: *Local Water and Sanitation Companies and the Urban Poor* – McGranahan, Gordon and David Lloyd Owen (2006)

Water 3: *Informal Water Vendors and the Urban Poor* – Kjellén, Marianne and Gordon McGranahan (2006)

Water 2: *Governance and Getting the Private Sector to Provide Better Water and Sanitation Services to the Urban Poor* – McGranahan, Gordon and David Satterthwaite (2006)

Water 1: *Privatization and the Provision of Urban Water and Sanitation in Africa, Asia and Latin America* – Budds, Jessica and Gordon McGranahan (2003)

Urban Change 4: *The Transition to a Predominantly Urban World and its Underpinnings* – Satterthwaite, David (2007)

Urban Change 3: *Outside the Large Cities: the Demographic Importance of Small Urban Centres and Large Villages in Africa, Asia and Latin America* – Satterthwaite, David (2006)

Urban Change 2: *A Pro-poor Urban Agenda for Africa; Clarifying Ecological and Development Issues for Poor and Vulnerable Populations. A Report for the Ford Foundation* – Bolnick, Joel, Happy M Kayuni , Richard Mabala, Gordon McGranahan, Diana Mitlin, Sikhulile Nkhoma, John Oucho, Amal Sabri, Sarah Sabry, David Satterthwaite, Mark Swilling, Cecilia Tacoli, Richard I C Tambulasi and Mirjam van Donk (2006)

Urban Change 1:	*The Scale of Urban Change Worldwide 1950–2000 and its Underpinnings* – Satterthwaite, David (2005) (See Urban Change 4, which is an updated and expanded version of this)
Climate Change and Cities 2:	*Climate Change and Urban Children: Implications for Adaptation in Low- and Middle-income Nations – Bartlett, Sheridan (2008)*
Climate Change and Cities 1:	*Adapting to Climate Change in Urban Areas: the Possibilities and Constraints in Low- and Middle-income Nations* – Satterthwaite, David, Saleemul Huq, Mark Pelling, Hannah Reid and Patricia Lankao-Romero (2007)
Urban Environment 1:	*Urban environments, wealth and health:shifting burdens and possible responses in low and middle-income nations* – McGranahan, Gordon (2007)

EARTHSCAN BOOKS

Scaling Urban Environmental Challenges; From Local to Global and Back, edited by Peter J Marcotullio and Gordon McGranahan (2007)

The Earthscan Reader on Rural–Urban Linkages, edited by Cecilia Tacoli (2006)

Water and Sanitation in the World's Cities 2006; Meeting Development Goals in Small Urban Centres, prepared for UN–Habitat by IIED (2006)

Empowering Squatter Citizen: Local Government, Civil Society and Urban Poverty Reduction, edited by Diana Mitlin and David Satterthwaite (2004)

Water and Sanitation in the World's Cities: Local Action for Global Goals, UN–Habitat Report prepared by Gordon McGranahan and David Satterthwaite (2003)

Air Pollution and Health in Rapidly Developing Countries, edited by Gordon McGranahan and Frank Murray (2003)

The Citizens at Risk: From Urban Sanitation to Sustainable Cities – Gordon McGranahan, Pedro Jacobi, Jacob Songsore, Charles Surjadi and Marianne Kjellén (2001)

Environmental Problems in an Urbanizing World: Finding Solutions for Cities in Africa, Asia and Latin America – Jorge E Hardoy, Diana Mitlin and David Satterthwaite (2001)

Cities for Children: Children's Rights, Poverty and Urban Management – Sheridan Bartlett, Roger Hart, David Satterthwaite, Ximena de la Barra and Alfredo Missair (1999)

The Earthscan Reader in Sustainable Cities, edited by David Satterthwaite (1999)

The Environment for Children – David Satterthwaite, Roger Hart, Caren Levy, Diana Mitlin, David Ross, Jac Smit and Carolyn Stephens (1996)

Squatter Citizen: Life in the Urban Third World – Jorge E Hardoy and David Satterthwaite (1989)

HiFi NEWS

HiFi News is produced by IIED with the Asian Coalition for Housing Rights on housing finance and resource mobilization. It provides information on housing finance projects and programmes in the South and gives details of recent publications. For more details see: http://www.iied.org/pubs/search.php?s=HIFI

ENVIRONMENT AND URBANIZATION

A twice-yearly journal now in its nineteenth year, this is one of the most cited and widely distributed international journals on urban issues. Each issue has a special theme and includes 9–14 papers and a guide to the literature on that theme, has profiles of innovative NGOs (in some issues) and Book Notes – which includes summaries of new books, research reports and newsletters and how these can be obtained (including those in Spanish, French and Portuguese).

The contents list and selections from the most recent issue are accessible at: www.iied.org/human/eandu/eandu_details.html.

The on-line edition is accessible at http://eandu.sagepub.com/; all issues (from the first issue in 1989) are available on-line from this site and all but the issues from the last two years are available at no charge.

HOW TO OBTAIN WORKING PAPERS: Printed versions can be obtained from Earthprint Ltd, PO Box 119, Stevenage, Hertfordshire SG1 4TP, UK; T: +44 1438 748 111; F: +44 1438 748 844; E-mail: customerservices@earthprint.com; Web: www.earthprint.com, for US$ 20 each plus postage and packing (for the UK, US$ 5 for the first item, US$ 2.50 for additional items; for Europe, US$ 6 for the first item, US$ 3 for additional items; for elsewhere, US$ 10 for the first item, US$ 5 for additional items). All working papers are free to download at www.iied.org/HS/publications.html.

HOW TO OBTAIN BOOKS: These are available from Earthscan Publications, 8–12 Camden High Street, London NW1 0JH, UK; E-mail: earthinfo@earthscan.co.uk; Web: www.earthscan.co.uk; also available in bookstores. In the USA, available from Earthscan, 22883 Quicksilver Drive, Sterling, VA 20166-2012, USA. In Canada, available from Renouf Publishing Company, 1-5369 Canotek Road, Ottawa, Ontario K1J 9J3, Canada; E-mail: orderdept@renoufbooks.com. The Earthscan website also has details of Earthscan representatives and agents in all other countries.

HOW TO OBTAIN *HI-FI NEWS*: If you wish to be added to the postal or e-mail mailing list for this free newsletter, contact Human Settlements Programme, 3 Endsleigh Street, London WC1H 0DD; T: +44 (0)20 7388 2117; F: +44 (0)20 7388 2826; E-mail: Humans@iied.org.

HOW TO OBTAIN *ENVIRONMENT AND URBANIZATION:* Since 2006, *Environment and Urbanization* has been published by Sage Publications, and subscriptions and back issues can be ordered from them at: http://eau.sagepub.com/.

Subscription prices for high-income nations:

Institutions £296 or US$ 533 (print and e-access)
Charities £99 or US$ 178 (print and e-access)
Individuals £40 or US$ 72 (print only)
Single print issue £26 or US$ 47 (individuals); £154 or US$ 287 (institutions)

Order on-line for UK, the rest of Europe and Australasia:
http://www.sagepub.co.uk/journalsSubscribe.nav?prodId=Journal201733
Order on-line for Northern America:
http://www.sagepub.com/journalsSubscribe.nav?prodId=Journal201733

Subscription prices for low- and middle-income nations:

All nations in Africa and Latin America are within the low- and middle-income nation category; so too are all Asian nations, with the exception of Japan, Hong Kong, South Korea and Singapore.

Institutions £59 or US$ 107 (print and e-access)
Individuals £20 or US$ 36 (print only)
Students £13 or US$ 24 (print and e-access)

Order on-line for Middle East and Africa:
http://www.sagepub.co.uk/journalsSubscribe.nav?prodId=Journal201733
Order on-line for Central and South America:
http://www.sagepub.com/journalsSubscribe.nav?prodId=Journal201733

Searchable database with details of all papers ever published in *Environment and Urbanization*: http://eandu.poptel.org.uk.

Free subscriptions are available to NGOs and teaching/training institutions in Africa and in low- and middle-income countries in Asia and Latin America that have difficulty obtaining foreign exchange; contact IIED (eandu@iied.org).

Environment and Urbanization Briefs: A five page summary of each issue of *Environment and Urbanization* is available in print and electronically; to receive this, e-mail us at humans@iied.org.