Case Study III* - The Pasig River, Philippines

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III.1 Country profile

The Philippines is a country of 65 million people, of whom around 8 million (equivalent to 13 per cent of the total population) reside in the National Capital Region (NCR), Metropolitan Manila (Figure III.1). The population has been growing at a rate of 2.3 per cent every year over the past 10 years and urbanisation has increased from almost 40 per cent in 1985 to 43 per cent in 1990.

Unemployment nationwide was 11.1 per cent in 1985 and declined to 8.6 per cent in 1989. However, the high influx of migrants from the provinces and the lack of employment opportunities in the metropolis brought the unemployment rate in the NCR to 26.1 per cent in 1985; this has since fallen to 17 per cent. The incidence of poverty has been decreasing, although it is recorded as high as 50 per cent for some provinces and at 32 per cent for the NCR.

When it assumed power in 1992, the Ramos administration embarked on an ambitious programme, called "Philippines 2000", to establish the country as a newly-industrialising economy by the turn of the century. Since then the Philippines have achieved a 5.1 per cent growth in 1994 from a low of 2.4 per cent in 1993. This has earned the country the respect, albeit prematurely, of the Asian business community and the Far Eastern Economic Review referred to the country as the "most improved economy" in its Year End Review of 1994.

Despite its laggard image, the Philippines remains the most politically stable country in Asia. Unlike its more economically stable neighbours which suffer from lack of succession laws, the Philippines has experienced a peaceful transfer of political power to a newly-restored democracy under Corazon Aquino, successor to the 20-year authoritarian regime of Ferdinand Marcos. This new democracy is marked by the reinstatement of democratic institutions, in particular a popularly mandated constitution, a legislature that has seen two terms since the dictatorship was overthrown, popularly elected local governments and at least three peaceful and credible elections (national and local) since 1986. By and large, the present government enjoys a relatively high
level of support from the population. Its main dilemma has been sustaining the economic triumphs of the past two years while at the same time addressing the nation’s advanced stage of poverty and environmental destruction.

**Figure III.1 Location map of the Philippines showing the national capital region of Manila**

The Pasig River system runs through five cities and four municipalities (Figure III.2) and connects two large, important bodies of water; Manila Bay in the west is the country’s main port of maritime trade and travel and Laguna de Bay in the east is the largest freshwater lake in the country and connects 30 suburban towns to the metropolitan centre. Before the colonial period, the Pasig River was the main point of entry for international trade into what is now the City of Manila. Advancements in land transportation have changed the landscape considerably.

Traditionally, the municipalities upstream were fishing communities relying mostly on the Pasig River and Laguna de Bay, while the settlements downstream experienced rapid urbanisation with the influx of trade from other provinces and countries. Before pollution virtually extinguished aquatic life, the whole 25 km of the Pasig River between Laguna...
de Bay and Manila Bay served as a habitat for 25 varieties of fish and 13 different types of aquatic plant. Today, there are only six species of fish and two types of plants left that can tolerate the polluted water. The situation, however, is not irreversible. During the rainy months of June to December each year, fish from Laguna de Bay are carried by the floodwaters to the Pasig River. The flushing effect of the increased water levels in Laguna de Bay increase the dissolved oxygen content of the river to a level that increases its potential for some aquaculture activities. Unfortunately, during the dry summer months of March to May, the river is virtually dead because the water becomes stagnant with the much reduced flow.

Figure III.2 Detailed map of the study area showing the Pasig River
The banks of the Pasig River are lined by squatter colonies consisting of approximately 12,000 households. About 2,000 families live in houses on stilts or under the bridges, in sub-human conditions, where they present a danger to themselves and to the vessels using the river. These settlements have no sanitary facilities and their liquid and solid wastes are discharged straight into the river.

The various subcultures existing in Metro Manila result in many problems that reflect the complex socio-economic characteristics of the city. With the continuous dumping of wastes, the river bed has become more and more silted with organic matter and non-biodegradable rubbish. This results in serious flooding along the river, affecting nearby communities and carrying polluted water to the households living close to the river.

### III.3 Pre-intervention situation

A feasibility study conducted in 1991 by the Department of Environment and Natural Resources (DENR) with funding from the Danish International Development Agency (Danida) and technical assistance from the Danish consultancy company, Carl Bro International, established the levels of pollution and the overall condition of the Pasig River. The study was conducted between 1989 and 1990 and has provided the main reference point for the rehabilitation programme.

#### III.3.1 Pollution sources

Industrial pollution accounts for 45 per cent of the total pollution in the Pasig River. About 315 of the 2,000 or more factories situated in the river basin have been determined as principal polluters of the river, dumping an average of 145 t of biochemical oxygen demand (BOD) per day. This was established by determining the suspended solids in their treated and untreated waste-waters. According to records, the textile and food manufacturing industries are the greatest water polluters among those considered in the study. The pollution rate is expected to decrease by 2 per cent a year due to the limited commercial land available along the river and the increased requirements for container transport.

Domestic liquid waste contributes another 45 per cent of the pollution load in the Pasig River. There were approximately 4.4 million people living in the Pasig River catchment area during the study period and only 0.6 million, or 12 per cent, were serviced by the sewerage system which treats domestic wastewaters before discharging them into Manila Bay. Untreated waste-waters from the remaining 88 per cent of the population flow through canals and esteros into viaducts leading into the Pasig River. It is estimated that 148 t d⁻¹ of BOD is added to the Pasig River purely from the sewage outlets scattered along its banks. The Metropolitan Waterworks and Sewerage System (MWSS) (the government agency responsible for domestic liquid waste) has been hampered in its task by a lack of funds. As it is also responsible for water supply in the metropolis, it has had to give water supply a higher priority than sewage management.

Solid waste contributes only 10 per cent of the pollution in the Pasig River. Although very visible, rubbish contributes only 30 t of BOD per day. However, the solid waste deposited on the surface of the water blocks the penetration of sunlight to underwater plant life and the solid waste that sinks to the river bed suffocates the existing aquatic life.
Rubbish collection by the Metro Manila Authority (MMA) in the residential areas of the 367 barangays (villages) in the study varied between 70 and 100 per cent per barangay depending on the accessibility of the area to land-based collection. Inaccessible areas occur mostly along the banks of the river and hence the rubbish from these was thrown into the water. The estimated 34 t of rubbish accumulated in these riverside areas in 1990 is expected to increase to 55 t by the year 2005.

III.3.2 Increasing urban migration and economic difficulties

From 1988 to 1990, the rate of migration into the squatter colonies along the riverbank was estimated at 73 per cent. A steady influx of migration into the metropolis has resulted in congestion and the exploitation of land and, ultimately, the Pasig River. Increasing poverty in the rural areas has driven rural people to migrate to Metro Manila to seek better income opportunities. The river banks are the most logical areas for new settlements because many of the other squatter colonies in the metropolis are already overpopulated.

The economic problems experienced by the government have prevented it from providing better housing facilities for the poor. Similarly they have been unable to address the deficient infrastructure or to introduce anti-pollution measures and this has resulted in the present state of the river and its environment.

III.3.3 Lack of a strategic programme for river rehabilitation

The feasibility study concluded that the pollution problems in the river have been deteriorating since the 1970s, or over the past 20 years. Previous administrations have embarked on river rehabilitation schemes but all of these, however, were short-lived because they failed to address the root of the problem.

The feasibility study also concluded that sufficient laws and regulatory responsibilities have invested in existing government agencies. Unfortunately, these agencies have not been able to exercise their regulatory functions effectively due to legal processes and circuitous bureaucracy. Among other reasons, it was discovered that there were government agencies with overlapping responsibilities but without any single agency tasked with overall co-ordination. Worst of all, local government units have been negligent in enforcing a land-use and zoning ordinance established by the Metropolitan Manila Commission (predecessor of the MMA) in the early 1970s. Hence, a comprehensive development plan would have to be formulated and implemented to effect sustained progress in the improvement of the Pasig River, where much of the city's wastes end up.

III.3.4 Flooding

Flooding was also identified as a problem. The combination of old drains and rubbish result in blockages in the system. In a flood in 1986, the whole of Metro Manila was submerged in water reaching a depth of 7 feet (approximately 2.1 m) in some areas. Investigations revealed that this was due to inadequate drainage and to serious clogging of the drainage system in areas it was supposed to serve. Since then, the Department of Public Works and Highways (DPWH) has engaged in declogging programmes, has constructed drains in low-lying areas and has renovated drains and river walls. For flood
control activities alone, the government has spent an average of PI 00 million for each of the past five years.

III.3.5 Diminished use of the river

The Pasig River has been historically known for its recreational and transport functions. With its gradual degeneration, this aspect has been reduced to use for rowing by some enthusiasts only. The river was classified as Class D and, therefore, secondary water-contact sports were discouraged. When it is upgraded to Class C, sports such as rowing and sculling can be encouraged.

Figure III.3 Projected loadings of BOD for the Pasig River system with and without the rehabilitation programme

A river transport system was established in the early 1990s partly as an effort to provide alternative transport routes in the metropolis. The private company managing the ferries had to terminate their services after a few years due to heavy financial losses. Apparently, the foul odour and the unsightly floating debris made travel on the ferries very uncomfortable for the passengers.

On the whole, most aquatic life in the river has declined as the levels of pollution have increased. The feasibility study concluded that the river is presently at Class D. Mathematical model simulations indicated the BOD loading should be reduced from its 327 t d$^{-1}$ in 1990 to 200 t d$^{-1}$ in order to restore the river's ecology (Figure III.3).

III.3.6 Previous programmes on the Pasig River

Efforts to revive the Pasig River have been attempted before. These have generally failed because the programmes did not recognise the importance of involving the communities and the private sector.
One such effort was that of the former First Lady and Acting Governor of Metro Manila, Mrs Imelda R. Marcos. Her plan was a grandiose spectacle to attract tourists with floating casinos and restaurants, like Hong Kong's Aberdeen, and gondolas fashioned after those of Venice and others. The river walls were painted and trees were planted to initiate the improvement programme. Very quickly, however, these plans fizzled out due to lack of support.

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**III.4 The intervention scenario**

**III.4.1 Objectives, strategies and targets**

The feasibility study proposed a Pasig River Rehabilitation Program (PRRP) which aims:

- To improve the quality of the water in the Pasig River.
- To improve the environmental conditions in and along the river.

The programme has two strategies:

- Physically clean up the river in the short-term.
- Stop pollution at source in the long-term.

The plan of operation suggested by the study recommends 21 different projects (see Box III.1) over a period of 10-15 years at a cost of a little over US$ 420 million. This is a comprehensive programme that would address the main sources of pollution in the river as well as the attendant problems that have contributed to the deterioration of the surrounding environment. The PRRP is a multi-agency programme with the Department of Environment and Natural Resources acting as the lead agency. The programme has the following targets:
• Completely eliminate the offensive odour in the dry season through the reduction of the level of pollutants discharged into the river.

• Reduce the BOD load of the Pasig River from the estimated 330 t d\(^{-1}\) to 200 t d\(^{-1}\).

• Reduce the amount of solid waste dumped into the rivers and creeks of the Pasig River System with regular waste collection activities.

• Increase and control the flow of the water through the Pasig River system especially during the dry season.

• Reduce the frequency of flooding along the Pasig River and its main tributaries.

• Strengthen the content, and improve the enforcement, of the Zoning Ordinance of 1981 for the National Capital Region.

• Remove the sunken vessels from the bed of the river.

• Develop parks along the Pasig River.

• Relocate the squatters living along the Pasig River and its main tributaries.

III.4.2 Activities and strategies

The following activities are being carried out to achieve the targets listed above.

*Establishment of the River Rehabilitation Secretariat*

Recognising the need for a distinct body to co-ordinate the efforts to rehabilitate the Pasig River, the PRRP required the establishment of the River Rehabilitation Secretariat (RRS) as a project office under the DENR. The RRS is the instrument responsible for establishing the co-ordination system, providing technical support to programme management and paving the way for the transfer of such responsibility to an existing government agency. As the official secretariat of the PRRP, the RRS is responsible for:

• The review of plans, programmes and targets and the implementation of the programme.

• Monitoring and co-ordination of activities between and among partners.

• Evaluation and assessment of the effectiveness of the programmes under the PRRP to ensure that these follow the precepts and mandate of the programme and their respective organisations.

• Screening and endorsement of the technical and financial viability of projects proposed for the programme.

• Identifying deficiencies in resources, issues and concerns affecting the programme.
• Reviewing and recommending improvements in policies, laws and rules affecting the programme.

The RRS has a pivotal role in the co-ordination of efforts in the programme and is, therefore, also required to set-up the partnership mechanisms with all those involved. Its structure involves training that is open to the staff of partners and other activities that will make the working relations conducive to co-operation by all concerned.

*Industrial pollution abatement*

Two projects are being implemented in the Plan of Operations to address industrial pollution: "Waste to Energy" and "Secondary Industry from Waste Recovery". The RRS and the Metropolitan Environment Improvement Program (MEIP) took an alternative approach for dealing with polluting companies. The two projects engaged the 25 top industrial polluters of the Pasig River in a Clean River Pact. Under this agreement, the participating companies pledged to support the PRRP and were committed to comply with the DENR standards of effluent. For its part, the PRRP provided the companies with technical assistance. The pact ensures that the industries will either treat their wastewaters or minimise their waste discharges to ensure that they can be absorbed by the Pasig River. In this way, the co-operation of the "partner companies" was encouraged and the RRS was mandated to take the lead in encouraging the industries. Under this arrangement, the RRS, the National Capital Regional Office of the DENR and the Laguna Lake Development Authority conduct regular monitoring of the riverside establishments.

*Liquid waste management*

The existing sewerage system must also be upgraded, entailing huge amounts of public funds. The MWSS has a long-term sewerage improvement programme to increase the coverage of its present treatment facilities. This was included as one of the major projects under the Plan of Operation. Initially, the MWSS addressed this problem with its Septic Tank Management Program (STAMP). Through STAMP, domestic and commercial septic tanks in selected areas are desludged to prevent outflows into the main drainage system of Metro Manila. Financial constraints have hampered the implementation of this project but efforts can be improved as more public funds are generated.

*Solid waste management*

To address the problem of solid waste, the programme linked up with a parallel government programme on solid waste management. The Waterways Sanitation Service of the MMA leads the physical clean-up of the river, assisted by local government units and other agencies such as the Philippine Coast Guard, which erected boom traps in strategic sites along the river to help trap floating debris for eventual collection. Intensive awareness-raising campaigns are being carried out within the riverside communities to motivate them to organise waste management and waste recycling. The young people of the area have also been mobilised to help in the dissemination of information on the efforts to improve the Pasig River and on the help that everybody can give in this effort.
**Infrastructure development**

To increase the flow of the river, shallow areas are being dredged and the 22 identified sunken vessels have been resurfaced. Dredging is limited to the areas at the mouth of the Pasig River but river walls are being renovated at several sites. The Rehabilitation Program also supports the development of riverside parks to help to discourage the settlement of new squatters and to encourage an appreciation of the river. Recognising the hazard to the communities encroaching the river, and their direct contribution to the pollution of the river, squatters are being relocated to sites outside of Metro Manila.

The water quality laboratory of the Environmental Management Bureau will also be upgraded. The existing capabilities and facilities of the laboratory will be developed to encourage its use as a National Reference Laboratory for water quality analyses.

**Information, education and communication**

Knowing the previous attempts to rehabilitate the Pasig River have failed because of the lack of support from the private sector, the RRS established a Public Information and Activation Unit. The purpose of this unit is to raise sufficient support from the private sector (e.g. communities, business sector, schools) to promote the programme and its projects. A comprehensive communication plan has been prepared to manage these activities.

Communication materials are prepared and disseminated. These include a television commercial, documentaries, posters, stickers, leaflets, brochures, pamphlets, primers and regular newsletters. Audio-visual presentations are also being developed for use in briefing seminars on the PRRP and its programmes, and in training. The media are also provided regularly with updated information regarding the programme.

Along with these materials, the RRS supports the organisation of private sector groups for activities that help the programme. The Department of Education, Culture and Sports is a critical link between the RRS and students in public schools, especially for raising awareness and for the implementation of the PRRP Schools Program in which exhibits and competitions are held within campuses, culminating in inter-school competitions. The inclusion of ecology and environmental conservation in school timetables is also being encouraged. Communities are being organised to implement waste management programmes with the help of the Sagip Pasig Movement (Save the Pasig Movement) whose honorary Chairperson is First Lady Amelita M. Ramos. The RRS also supports the Linis Ganda Movement in organising "junkshop co-operatives" engaged in waste recycling. Clean-up campaigns have also been launched in communities, especially those along the Pasig River and its main tributaries.

**Personnel development**

Realising the success of the PRRP hinges on the efficiency of human resources, a Manpower Development Unit was set up in the RRS with two basic strategies: placement of qualified personnel only within the organisational network and the enhancement of the capabilities of the current personnel. Specific areas of training focus on the development of skills in co-ordination, project management, resource management, environmental education, communication and specialised technical skills.
This ensures that partners will participate fully in the programme at the capacity in which they were trained.

*Water quality monitoring*

To gauge the success of the programme, the waters of the Pasig River are being analysed twice a month and the pollution levels are being determined. The programme uses 10 sampling stations along the Pasig River system (including San Juan River, Marikina River, Manila Bay and Laguna de Bay) to gauge the degree of pollution based on BOD, dissolved oxygen (DO), coliform bacteria counts, salinity, phosphates, nitrates and others (see examples in Figure III.4).

The water quality experts of the programme are assisted by the Mike 11 System model. Measurements of the physical attributes of the river and the pollution levels taken at regular intervals are fed into the system. The data gathered are processed by the model which simulates the river and its flow based on mathematical equations. With this, the experts may be able to predict high water levels in the river or to simulate the flow of a large volume of water from one end of the river to the other, together with the levels of pollution in the river under the simulated conditions.

**Figure III.4 Annual average BOD and dissolved oxygen (DO) concentrations in the main Pasig River, 1990-93**

![Graph showing BOD and DO concentrations](image-url)
III.4.4 Present structure

President Fidel V. Ramos has included the PRRP as one of his priority agenda items during his administration. Therefore, it comes under the government's administrative network, with the President of the Republic and the Congress at the very top. Moving the programme towards its goals is the Presidential Task Force for Pasig River Rehabilitation which was created by President Ramos in July 1993. It is composed of leading government agencies directly concerned with the efforts of the PRRP and is chaired by the Secretary of the DENR. The task force is the main body to which general programme concerns and directional issues are addressed and it is directly responsible to the President (Figure III. 5).

Figure III.5 The organisational structure of the Pasig River Rehabilitation Program (PRRP)

The RRS structure is headed by a management team composed of a Chief Environmental Adviser from Danida and a Project Director from the DENR. They are assisted by the Assistant Project Directors for Support Programs, for Administration and for the Working Groups (Figure III.6). The whole programme is supported by administrative staff composed of the accounting, computer operation, secretarial, transport and utility staff. There are also Action Officers serving as co-ordinators for the nine working groups of the PRRP. They hold the vital link between the RRS, as the co-ordinating office, and the different offices of the partners as represented by their Environmental Co-ordinators, Pollution Control Officers and liaison staff involved in the programme.
Supporting these working groups are the units for Planning and Monitoring, Manpower Development, and Public Information and Activation. These support units provide the personnel and logistics for overall co-ordination, training support for the personnel involved in the PRRP, public awareness campaigns and the effective implementation of non-priority projects through the mobilisation of the general public and the communities.

**Figure III.6 The organisational structure of the River Rehabilitation Secretariat (WG: working group)**

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**III.4.5 Major accomplishments in the first year**

Within the first 18 months of the programme, a network comprising more than 100 government and non-government groups was involved. Thirty-five government agencies signed a Memorandum of Agreement clearly stating their acceptance of, and support for, the Plan of Operation of the Pasig River Rehabilitation Program. The Memorandum also identifies key responsibilities to which the signatories have committed themselves.

The Memorandum of Agreement was the springboard for establishing a planning and monitoring system for the inputs of each of the agencies involved in the plan of operation. The RRS facilitated the formulation of the work programme by gathering the various agencies into eight technical working groups. The committees meet regularly to discuss implementation of plans as well as policy recommendations to the Presidential Task Force. All the agencies meet twice a year to exchange information and discuss bottlenecks and policies that affect all the participating agencies.

Political support was generated through the creation of the Presidential Task Force for the Pasig River Rehabilitation. As a result, most of the participating agencies were compelled to live up to their commitments, although several have been constrained by finances and by varying priorities. This coordination system has also attracted the participation of some private sector groups that have taken an interest in the Pasig River.
Of the 25 partner companies that signed the Clean River Pact in September 1993, 10 companies have already complied with the DENR standards of effluent by October 1994, five had been issued Cease and Desist Orders and the rest were improving or constructing their waste treatment facilities. Since that time, the MEIP has assisted industries to comply with the pact. The experience gained in this respect will eventually be applied to other companies along the river. In preparation for this, the RRS, Laguna Lake Development Authority and National Capital Regional Office of the DENR have embarked on an integrated Industrial Data Base Project detailing the companies and their operations along the Pasig River and Laguna Lake.

Floating debris and the dumping of solid waste in the river system has been partially controlled through multi-agency efforts. Local Government Units in the concerned areas intensified their law enforcement activities and their awareness campaigns. The Philippine Coast Guard set up boom traps to prevent the debris from spreading out into the river. The Waterways Sanitation Service of the MMA revived their rubbish collection activities on boats with designated pick-up stations along the river.

In the meantime, the Save the Pasig Movement and the RRS have been setting-up support programmes to address the problem of solid wastes. The Save the Pasig Movement has been training communities along the Pasig River in waste management and has created a multi-sectoral network in at least two communities to support their community-based waste management programmes. The RRS has also supported the Linis Ganda Movement, which collects recyclable materials from communities and re-sells them to companies with recycling systems. Both organisations have also helped in the organization of "junkshop co-operatives" in some of the municipalities and cities involved in the programme.

Twenty-five sunken wrecks have been successfully removed from the riverbed through the efforts of the Philippine Coast Guard. Some newly sunk vessels have been identified and efforts are already being made to have these refloated as soon as possible.

The city administration of Manila converted a former waste disposal site into a park, and 2 km of a 20 km stretch of the river have been developed by the municipal government of Marikina into a park with benches, jogging lanes and park facilities.

River walls and other structures along the river have also been repaired and constructed to maintain the banks. Shallow portions of the river have been dredged with the help of the Department of Public Works and Highways.

More than 1,000 squatter families along the banks of the Pasig River have been relocated to various sites in Cavite and Marikina. This was achieved through the collective efforts of the appropriate Local Government Units, National Housing Authority, DPWH and the Office of the President.

There has been an increased awareness amongst the general public of the programme aided by the media taking a considerable interest in the Pasig River. Comments, suggestions and "letters to the editor" have been printed in various daily newspapers and public expressions of interest and concern have been conveyed to the offices of the First Lady, the DENR and the RRS.
III.5 Lessons learned, constraints and opportunities

The initial phase of the programme was quite instructive. For its first year alone, much of the difficulties were centred on the availability of technology, bureaucratic procedures and a general lack of funds for the implementation of projects.

It was found that the polluting industries had adequate waste treatment facilities but still could not comply with the DENR standards due to the inefficiency of their operations. In response, the RRS has conducted training for waste treatment plant operators for these companies. Combined with continuous monitoring, this has helped to boost efforts to curb industrial pollution. Over-all the co-operative approach seems to be working well in dealing with industrial pollution.

The presence of laws and regulations against littering and dumping have helped the programme in its drive to reduce floating wastes on the river. The main constraint remains the enforcement of such laws. Logistical requirements are barely met and bureaucratic procedures have hampered the implementation of the projects. There was a need for more collection boats to help revive the river waste collection programme because the rental contract for the fleet of 12 boats expired in December 1994. Successful waste collection depends on the dissemination of information about waste reduction and the education of the riverside communities in waste management. Current efforts are minimal when compared with the gravity of the problem. Training for waste management in the communities needs more personnel.

As exemplified by the municipal government of Marikina, the development of the riverbanks depends mainly on the local government. The political will to evict people from illegally built establishments and structures and to maintain the developed areas along the river has driven local governments to lengthy debates with concerned groups. In addition, funding for the construction and maintenance of parks along the river is scarce. This is aggravated by the fact that the zoning ordinance that stipulates that waterways must have a 10 m clearance on both sides, is hardly put to effect.

Although the MWSS carried out regular desludging of septic tanks, there has been a shortage of sludge disposal sites complying with the environmental standards. There is also a need to secure funds for the second phase of the Metro Manila Sewerage System which is still in the planning stage. Despite what has already been spent, the expenditure allocated for dredging is a minuscule amount compared with the overall amount required to create an impact on the flow of the river. This measure is, therefore, only palliative.

Like all relocation efforts, the PRRP squatter relocation programme faces the problems of funding, logistics and the constant struggle with the community organisations of the squatter groups. As with the solid waste programme, this also needs education of the riverside communities, especially the squatters eligible for relocation. The administration and the programme both agree that the squatter families who encroach the river and build structures over the waterways present a danger to themselves and to those travelling along the river. The problem is further aggravated by the growing influx of migrants from other parts of the country and the metropolis, coupled with the ever-decreasing space available for them.
III.6 Conclusions and recommendations

The first 18 months of the programme concentrated on building consensus among the organisations concerned on the master plan for rehabilitation and on setting-up the implementation system to meet the objectives of the long-term programme. This in itself has been a most gruelling but equally rewarding experience. Once all the agencies, public and private, agreed on the objectives and strategies of the Rehabilitation Program, getting them to align their respective programmes and projects into an overall system was less difficult. Unfortunately, the PRRP has to grapple with the attendant problems of coordinating a multi-agency, long-term programme which will cross the term of three Presidents. The Philippine Government has a habit of changing priorities with every administration.

The long-term success of the programme also hinges on the capability of its managers to obtain the resources required to meet its objectives. Logically, the consistent implementation of the master plan would build a formidable credibility for the programme which, in turn, could attract support from donors. Unless, however, the Rehabilitation Program can be rationalised to be financially beneficial, it will be dependent on grants and soft loans and will not be able to attract profit-orientated private sector investment. Unfortunately, this is a circular argument. The huge financial gap in the programme will continue to plague its successful implementation.

Social pressure will be an important element in the future of the programme. The continuous, direct participation of private sector organisations will compel the Government to pursue the long-term objectives of the programme. Public opinion and the vigilance of the media will certainly escalate this pressure. This will be a function of a consistent and aggressive information, education and communication campaign and of the transparency of the programme. So far, the information, education and communication efforts of the PRRP have roused public awareness but have not brought it to a level of concern that can mount pressure on the Government to pursue the programme.

The following will be critical areas requiring careful attention in the next phase of the programme:

- Increased co-ordination between the agencies and organisations involved in the programme through closer review of the plans for implementation, common efforts at capacity building, and critical support to key projects. Another important element is the institutionalisation of the co-ordination system that has been established, either through the establishment of a new agency with a limited tenure or the strengthening and incorporation of this function in an existing government agency. A strong law needs to be passed by the legislature in the immediate future to realise this.

- Constant review and upgrading of the plan of operation. The programme should be flexible in order to respond to rapid changes in the economic and political environment. If there is an effective system of co-ordination among all the agencies involved, it should not be difficult to amend plans, to rectify errors and to take advantage of new opportunities.
• An aggressive campaign to raise resources to ensure the implementation of the key projects in the Plan of Operation. It will be impossible to secure funding support for all the projects in a short period of time and, therefore, resource generation should be prioritised. If the co-ordination system has been put in place, major efforts should be made to obtain the necessary funds to ensure programme implementation. Lack of funds should not be used as an excuse for delays in project implementation. Instead, creativity should be exercised in revising plans or breaking up the projects into more implementable sizes to prevent delays. The worst thing that could happen to the programme is for it to lose its momentum and, in the process, to lose public and political interest.

• Strengthening public participation in the programme. Private organisations are usually more capable than a government of sustaining initiatives because they are less affected by political considerations. The active participation of more private organisations, especially those that can provide special technical expertise (for example, in the form of community mobilisation and research) not normally inherent in government, will ensure continuity of the programme.