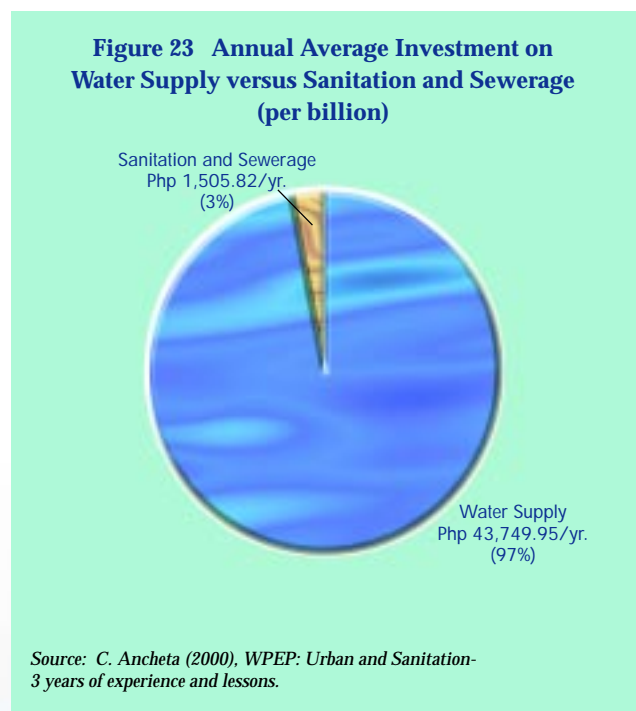


# INVESTMENT REQUIREMENTS FOR SEWERAGE AND SANITATION

### Investments on Sewerage and Sanitation History

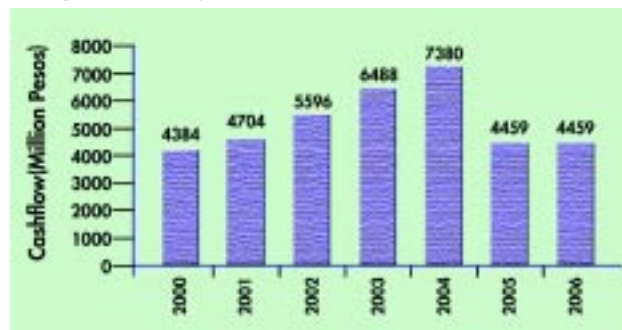
Investments in sanitation and sewerage are lumped together with water supply as one sector, identified as “Water Supply and Sanitation” in nearly all investment packages prepared by the Government. The allocation for sewerage and sanitation is used for water supply due to the high demand for water. As a consequence, sewerage and sanitation are relegated to a small slice of the budget despite being five times the investment cost for the water supply (see Figure 23). The estimated average annual investment for sewerage is PhP 1.5 billion (3% for the sector or 0.05% of the 1999 GDP) as compared to an average annual investment for water supply of about PhP 43.7 billion (97% for the sector or 1.46% of the GDP). The treatment of wastewater could not compete with the increasing demands in water supply.



### Sewerage and Sanitation Development Trend

The Medium-Term Philippine Development Plan (MTDP) is the document that embodies the policy framework and strategic plans and programs of all the sectors in the country. Investments in infrastructure development, which include water pollution control, must be in accordance with the priorities set in the MTDP before it could be approved with budgetary allocation from the Government. The MTDP embodies the vision of the incumbent leadership and thus is updated on a regular basis. Investment trends for sanitation have been increasing in recent years but are due to decline in the near future (see Figure 24).

**Figure 24 Projected Investment Plan for Sanitation**



Sources: MTPIP and NASAP, 1999.

### Investment for Urban Sewerage and Sanitation

Investment to achieve the goals of the Clean Water Act would require budgetary allocations from the national Government and LGUs. Operations and maintenance of infrastructure and institutional components would require funding to ensure sustainability.

The population/settlement density and high cost of land require piped systems in urban areas. On the other hand, sanitation, including septage and sludge management, could be started in the rural areas. A 10-year program in treating domestic wastewater through sanitation in rural areas (PhP 53 billion) and a piped system in urban areas (PhP 158 billion) would require capital cost of PhP 211 billion and operating cost of PhP 18 billion per year (see Table 20).

**Table 20 Investment in Sanitation and Sewerage**

Coverage Area	Population (in million)		Service Coverage (in million)		Investment Requirement (in PhP B)	
	2005	2015	2005	2015	2005	2015
Urban	48.85 (58%)	55.58 (60%)	9.77 (20%)	27.79 (50%)	55.69	158.40
Rural	35.37 (42%)	37.06 (40%)	17.69 (50%)	18.53 (50%)	50.42	52.81
Sub- Total	84.22 (100%)	92.64 (100%)	27.46 (33%)	46.32 (50%)	106.11	211.21
<b>Program Support</b>						
Operating Costs Urban					3.91	11.12
Operating Costs Rural					6.28	6.58
Support Activities					13.79	27.46
<b>TOTAL</b>					<b>130.09</b>	<b>256.37</b>

Notes: 1. Unit Cost, see Table 15.  
 2. Investment requirement was computed based on constant 2002 rates.  
 3. Support activities were estimated at 13% of the Capital Cost.

### Projected Investment Plan

The Government will need PhP 25 billion per year for the physical infrastructure for the next 10 years. However, several constraints such as insufficiency of funds, site and right-of-way acquisition, environmental and social problems, among others, may be encountered and projection in this respect is conjectural. Thus, a phased implementation schedule is necessary such as the upscale model presented in Box 12. The projected 2005 and 2015 capital investment projection presented in Table 20 is consistent with the Provincial Water Supply, Sewerage, and Sanitation Sector Plan Study prepared for the 41 provinces. The balance will give the LGUs another 10 years for the expansion of their service area.

### Financing Sources

The following nine conventional sources of funds are the most likely means of financing a sewerage and sanitation program. It is recommended that national technical assistance and training efforts concentrate on these nine areas: (1) privatization, (2) internal revenue allotment, (3) special levies, (4) development fees (permits, development impact fees, and groundwater protection fees), (5) surplus funds, (6) sewerage surcharges, (7) property tax, (8) credit, and (9) other private sector finance (beneficiary cash contributions, contributions in kind, and user fees).

The Clean Water Act has a provision for a water quality management fund, which would be the receptacle for the penalties, fines, etc. due from the non-compliance of the Act's stipulations. This fund would be used to finance the investment and implementation requirements in the Act. Due to the Government's current budget deficit and the high cost in the provision of sanitation and sewerage, these investments cannot be realized within the projected planning period of 10 years. However, this can be realized through private sector participation and investment. Regardless, whether these are implemented by the Government or the private sector, the users will have to pay the appropriate tariff rates to recover or to pay back these investments.

Privatization through build-operate-transfer (BOT), design-build-operate (DBO), and other systems are favorable due to the lack of, or insufficient, government funds for the capital investment and the high cost of operation. It has been proven that operation and maintenance of such specialized service is more sustainable if privately operated. This strategy would also allow the LGUs financial flexibility with other priorities and basic services.

The MWSS privatization laid the foundation for improvements in sewerage and sanitation services. Performance of the two concessionaires is presented in Box 13. The progress, however, experienced delays due to the following reasons:

(1) MWCI did not meet its sanitation target because the company moved away from dumping septage into the sea and instead set up sludge processing plants. Another option being considered is the use of the Lahar area in Pampanga, estimated at PhP 325/m<sup>3</sup>.

(2) MWSI had a difficult time in accelerating the desludging services because these services can only be done during non-work and non-rush hours and 40 percent of the West Zone comprises depressed areas with no septic tanks. Likewise, the public has poor sanitation awareness and is not keen in desludging their septic tanks.

MWCI has currently set aside 17 percent of the capital expenditure and about 7 percent of revenues for sewerage. The company has estimated that it will allot PhP 8 - 9.0 billion in five to seven years. The rationale for privatization is the combination of the investments needed at the onset and potential efficiency gains. However, these costs have to be recovered from tariff and revenues from users through government policies.

### Sewerage Investments in Coastal Tourist Areas

To protect tourist areas, DOT has identified 12 popular and emerging coastal destinations<sup>19</sup>. Future investment requirements for the physical components of sewerage for coastal tourist areas for years 2005 and 2015 are PhP 2.5 billion and PhP 6.8 billion, respectively.

<sup>19</sup> Huttche, White and Flores, Sustainable Coastal Tourism Handbook for the Philippines, 2002.

**Box 13 Privatization: A Financing Option**

**MWSS Experience:** The privatization experience revealed that sewerage connections increased less than 1% under MWSS in its last five years (1992-1996) of operation while the concessionaires had an average increase of 2.7% in their first five years (1997-2001) of operation. While there was an increase, the concessionaires are not still complying with the wastewater standards due to lack of STPs. Prior to privatization, MWSS had desludged an average of 850 tanks annually, which increased to 1,840 tanks per year under the concessionaires. The performances of the concessionaires are as follows:

Service Obligation	MWCI		MWSI	
	Agreed Targets	Actual	Agreed Targets	Actual
Sewer Coverage	3%	2.5%	16%	14%
Sanitation	38%	1%	33%	7%
Wastewater Quality	C	NC	C	NC

Note: C – Complying, NC – Non-complying

**Brazilian Experience:** The private sector is encouraged, for a fee, to collect and treat sewage, that is to reduce the pollution level of the sewage within the standards of the receiving body. The approach has allowed private sector involvement, which defrays the government's budget from the expensive investment for sewage collection and treatment facilities.

Source: World Bank Reports.

**Cost Recovery and Willingness to Pay**

Waste generators and users of receiving waters must be willing to pay for wastewater management services. WTP is defined as the maximum amount that would be paid for the level of service received rather than forego it altogether (all or nothing). Those who pay for user charges demonstrate, by doing so, their WTP is at least as great as the charge paid. In fact, it may be much greater: the user charge merely establishes the lower bound<sup>20</sup>. To the extent that the user's WTP is less than the user charge, the collection efficiency would be the ultimate determinant of whether or not the user charge is acceptable and within the financial capacity.

**Sanitation and Sewerage**

Average-income households are willing to pay for improved sanitation services, i.e., connection to sewer system with treatment at a cost of PhP 134 per household or PhP 27 per month per capita (for a household of five members), in 2000 prices (see Box 14). WTP adjusted to 2003 constant prices is PhP30 per month per capita, assuming 5 percent inflation rate. At PhP 5,700 per capita investment in the sector, cost recovery of capital investments would take almost 16 years, unless a cross-subsidy pricing system across sectors is developed (commercial and industries subsidizing households).

**Environmental Protection and Conservation**

Tourists are willing to pay for conservation and protection of the environment (see Box 15). Unlike households where user fees are paid monthly, the tourist pays a one-time user fee, unless returning in the future. For full-cost recovery, and assuming a tourist will return to the same coastal destination every year and that the economic life of the facility is 25 years, the user fee per tourist would be PhP274.

**Box 14 Willingness to Pay for Wastewater Services**

Willingness-to-Pay (WTP) studies (contingent valuation method) had been undertaken for improved sanitation services for urban centers. The households surveyed are willing to pay PhP118 to 134 /month/household for sewer connection with wastewater treatment.

Results of surveys undertaken for WTP for households <sup>1/</sup>

Location	% of Pop Served Willing	Sewer Conn. (PhP/ mo/hh)	Sewer Conn+ Treatment (PhP/ mo/hh)
Calamba	82	124	103
Davao	90	62	92
Dagupan	x	169	207
Average	nc	118	134

<sup>1/</sup> Based on WTP surveys in the ff. studies: Household WTP for Improved Sanitation Services, Calamba, Davao, Dagupan, 1993. All prices updated to 2000. x – not covered by study and nc – not conclusive.

<sup>20</sup> National Research Council, Washington, D.C., Managing Wastewater in Coastal Urban Areas, 1993.

**Box 15 Coastal Tourism Sustainability in the Philippines – Is This Possible?**

Tropical coastal areas have more to offer tourists in terms of sun, sea, and sand compared with the coasts in temperate climate zones. The Philippines’ tropical climate, its 7,107 islands and diverse coastline of 17,460 kilometers create an important area for the development of coastal tourism. In the Philippines, development typically consists of small resorts, which are somewhat integrated into the local culture and environment.

Most coastal resorts are poorly planned with respect to the protection of the resources that make them attractive to tourists, namely coral reefs, near-shore water quality, and clean beaches. Large international resort chains have only recently begun to implement more stringent environmental practices on their properties.

The Philippines has a diverse coastal environment with a variety of ecosystems and an extremely rich biodiversity and productivity. Each ecosystem plays a critical role in maintaining the health of the coastal zone and of each other. Maintenance of coastal ecosystems is important in sustaining the tourism industry. Promoting conservation is an integral objective of eco-tourism. Apart from educating the guests about local environmental and conservation issues, revenue from eco-tourism should at least partially finance the costs of protecting natural areas. Since guests have different motivations for visiting the area, it is important to access market data, from government agencies and from visitors themselves, to better understand the market in order to develop the area as a coastal tourism destination.

*Source: Huttche, White and Flores, Sustainable Coastal Tourism Handbook for the Philippines, 2002.*

**Willingness to Pay for Conservation: A Case Study in Port Barton, Palawan**

In early 1998, a survey of tourists in Port Barton, Palawan was made to provide information for improving Port Barton as a tourist destination. The survey highlighted the characteristics of tourists coming to the Philippines and similar destinations and the experiences they seek during their stay.

Among the results of the survey was the WTP for conservation of the existing ecosystem in the area.

*WTP for conservation:* All who were surveyed were willing to “contribute” an average of PhP120 per person as a user fee to a marine sanctuary; 78% were willing to contribute an average of PhP150 to an environmental fund.

*Perceived problems:* Approximately 50% felt there were environmental problems in Port Barton. Complaints included litter on the beach, deforestation, coral damage, forest fires, and noise.

*How to improve Port Barton:* Most common answer – maintaining the cleanliness of the area.

