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Public-Private-Community Partnerships in Management and Delivery of Water to Urban Poor: The Case of Metro Manila

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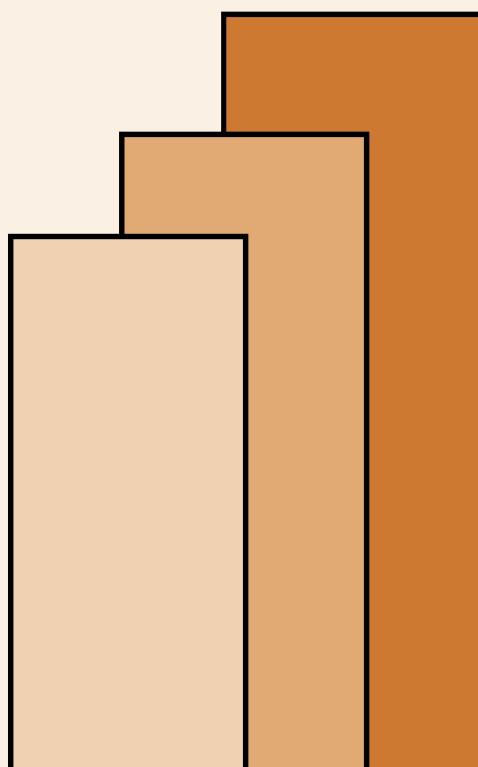
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Public-Private-Community Partnerships in Management and Delivery of Water to Urban Poor: The Case of Metro Manila

In the Philippines, the Public-Private-Community Partnerships (PPCPs) are serving the poor with water through public faucets, group taps, bulk water, and individual connections. The removal of technical and institutional barriers in providing water in urban poor communities or informal settlements in Metro Manila has allowed delivery of different forms of water services in these areas. This delivery of service results in benefits to the poor which include access to and availability of safe and better quality water, much reduced cost to households, increased per capita consumption contributing to better health and sanitation, and freed-up time which households now use for more childcare, income earning activities, and even more leisure.

The principal partners in this PPCPs are the government as represented by the residual water utility and the regulatory office as well as the local government, the private sector as represented by the two private concessionaires of the water utility, and the local associations and non-government organizations. Participation of the different parties ranged from small, informal and immediate as in the contribution of labor or mobilization of a community, or capability building and empowering of a community, to more substantial, formal and continuing such as the concession agreement between the water utility and the private concessionaires, the management of a mini water distribution system or a billing and collection contract.

There are indications and good reasons to believe that provision of water for the poor and poor communities can be a potent tool for alleviating poverty as it impacts on health, income and consumption, and gender and social inclusion. In this sense, the PPCPs which are delivering water to the poor are contributing to poverty alleviation. The valuable lessons learned in the case of Metro Manila maybe operationalized and improved to comprise good practices applicable to other water utilities in other areas.

Keywords: private sector participation, public-private-community partnership, urban poor, water services, MWSS privatization, public faucets, group taps, bulk water

Public-Private-Community Partnerships in Management and Delivery of Water to Urban Poor: The Case of Metro Manila

Arlene B. Inocencio and Cristina C. David¹

I. Introduction

Public water supply and sanitation has been characterized (Shambaugh 1999) by low-quality service and inadequate coverage and an inability to cope with the rapidly increasing population. Often, the public utilities charged with provision of water supply and sanitation have inefficient operational practices and poor maintenance which result in large water losses with very high unaccounted-for-water compared to 10-20 percent for well-managed systems. Labor cost is often high and labor productivity low². This situation is made worse by poor management and inability to attract management talent and qualified technical staff due to non-competitive wages, political appointments, high turnover, lack of a disciplined labor force, and lack of incentives to attract qualified managerial and technical staff (Shambaugh 1999). With the large and growing government subsidies which turn out to be primarily benefiting the middle class and the wealthy who are large consumers of water relative to the poor who are either not connected or are too small users to benefit much from the subsidies and the government's ever growing fiscal deficit, it is clear that operation of the public utility cannot be sustained. In addition, the lack of clear regulatory responsibility and conflict of interest between the regulator and operator functions of the public utility - underperformance or undercompliance was dealt with by lowering standards rather than improving operations (Shambaugh 1999).

The above assessment of public water supply and sanitation systems for Latin America may be taken as an assessment of the Philippines' public water supply and sanitation system particularly that of Metropolitan Waterworks and Sewerage System (MWSS) which is located in its capital region. The inefficiencies in the publicly run utilities, inadequacy of capital to fund the much needed projects, and the apparent need for competent and improved management capability, the government has to find alternative (and innovative) ways of providing the service. With the growing acceptance of private sector participation in basic services in other parts of the world, the government finds a solution to its chronic under-investment problem and the limited capacity to undertake the required investment and to efficiently provide the basic services by actively seeking private sector involvement in the water sector as a strategy to address the problem of provision of basic services. Private sector participation in the case of the MWSS was motivated by the desire to improve the efficiency of its operations, raise financial resource for the investments, and to end government subsidies (David 1998).

Options for private sector participation (PSP) as defined in the Philippine BOT Law and its implementing rules and regulations include the following contractual arrangements and their variations: build-and-transfer (BT), build-lease-and-transfer (BLT), build-operate-and-transfer (BOT), build-own-and-operate (BOO), build-transfer-and-operate (BTO), contract-add-and-operate (CAO), develop-operate-and-transfer (DOT), rehabilitate-operate-and-transfer (ROT), and rehabilitate-own-

¹ Country writer for the Philippine Water and Sanitation Sector Study of the Asian Development Bank's project entitled "Public-Private-Community Partnerships in Urban Services for the Poor" and Research Fellow at the Philippine Institute for Development Studies. The excellent research assistance of Iris Acejo and Jessaine Sugui is gratefully acknowledged.

² Specifically, water utilities often employ 5-10 employees per 1,000 water connections compared to only two to three per 1,000 connections for efficient utilities.

and operate (ROO). These partnerships can be broadly classified into those that retain ownership in the public hands and those that involve either partial or temporary private ownership of assets. The first class includes service contracts, management contracts lease arrangements, and concessions. Examples of public-private partnerships in the second class are build-own-operate-transfer (BOOT) and its variation, reverse BOOT, joint ownerships/partnerships and outright sale/divestiture. In all these contractual arrangements, the roles between the public and the private sector vary in the aspects of ownership, management, financing, and amount of risk borne.

PSP in Water in the Philippines

Private sector involvement in activities once considered to be solely those of government is gaining more acceptance because of what the sector can offer which may well complement what the government may do better. **Tables 1** and **2** show the PSP in the Philippines at the national and local government levels across the different sectors at different project stages as of the last quarter of year 2000. Among the national government projects, power projects dominate in terms of number (44) and costs (\$9,685 million) involved. This is followed by the transport sector if we look at the number of projects with a total of 18 projects but in terms of amount, the water sector comes second with \$8,358 million. Other PSP projects are in solid waste and property development. At the local government unit (LGU), transport is the single sector with projects amounting to about 40% of the total LGU projects at \$92 million. There are only 2 water projects at the LGU level amounting to \$14 million. A number of projects on property development and information technology comprise about half of total costs of all projects.

Table 3 reports all the water sector projects as of the last quarter of 2000 at the national and local government units with the status and proponents including the scheme and amount. So far, already 3 projects were completed and already operational. These projects include the Metropolitan Waterworks and Sewerage System (MWSS) privatization, Subic Water and Sewerage and the Clark Water Supply and Sewerage with a total estimated cost of \$7,175 million. Most of the national government water projects are under feasibility study or document preparation stage and two are unsolicited. Agencies directly concerned with these projects are the water districts at the national level and the city or municipality themselves at the local government level. Local proponents include Benpres Holdings, Ayala Corporation, Aboitiz Corporation, D.M. Consunji Inc., while the foreign proponents dominated by the French firms include some big and medium size players in the international water business such as Lyonnaise des Eaux, International Water, Vivendi, Compagnie Gonorales des Eaux, and Bi Water, among others. The partnerships forged or being proposed include build-operate-transfer, concession agreements with and without operation and management/transfer, and joint ventures. Total estimated cost of all national and LGU PSP projects in the water sector is \$8,372 million with about 84% of total going to the MWSS project.

This paper aims to characterize the different forms or types of water (and sanitation) services provided for the urban poor, highlight the public-private-community partnerships forged in the provision of services and the role of each partner, and draw some lessons which can be used in improving said services and replicating them in other areas. To achieve these objectives, key informants were interviewed as well as interviews of a few households in selected major depressed areas were conducted. A focus group discussion was held in one poor community recently provided

water connection to add on to the information obtained from individual households and also to validate what the water concessionaires claim they have done.

In this paper, the MWSS privatization process, provisions, and performance as well as the impacts on households and other stakeholders are described and reported. The public-private-community partnerships forged in providing water and sanitation especially to poor communities gathered from interviews of some households, focus group discussion, and key informant interviews are highlighted. Specifically, the second section discusses the MWSS privatization background, process, highlights of the contract provisions and obligations of concessionaires, the macro impacts, and performance. The third section characterizes the water and sanitation conditions of the poor and poor communities and examines the immediate impact on the poor of targeted specific water supply projects. A discussion of the sanitation and sewerage efforts of the two concessionaires follows. The paper ends with some lessons learned and future directions with focus on the public-private-community partnerships in the provision of water for the poor and poor communities which arise from the privatization of the MWSS.

II. The MWSS Privatization

Privatization of the Metropolitan Waterworks and Sewerage System³ (MWSS), which is responsible for water supply and sewerage disposal in Metro Manila, the province of Rizal and parts of Cavite province, was implemented in August 1997. The main reasons cited for this privatization include the slow procurement system adversely affecting operations and performance, downsizing difficulties because of the political appointees leading to very inefficient operations with about 10 staff to a connection, uncompetitive salaries contributing to the inability of the utility to attract good people, and financing difficulties severely limited improvement of services (Lazaro 1997). The privatization aims to transfer the financial burden to the private sector of providing water to Metro Manila, improve service standards while rehabilitating and expanding the system, increase operating efficiency, as well as minimize the tariff impact on consumers (Lazaro 1997).

The form of privatization is a 25-year concession agreement for two concessionaires to handle the East and West Zones (see **Figure 1**). The idea of dividing the area into two and giving to two separate companies who gave the lowest tariff bids was to promote some competition and generate yardstick information. The bidding process resulted in the Ayala/International Water (AIW) or the Manila Water Company, Inc. (or just Manila Water for convenience) winning the concession for the East Zone with a bid of ₱2.32 while Benpres/Lyonnaise des Eaux or Maynilad Water Services Inc. (or just Maynilad for convenience) with a bid of ₱4.97 won the concession for the West Zone. These bid prices were generally low even by comparison to the earlier price of ₱6.43 per cubic meter (cu.m.), which was raised to ₱8.78/cu.m. a few months before the financial bidding. Metro Manila now has the lowest priced water in the country as well as in the ASEAN region (McIntosh and Yñiguez 1997).

³ The MWSS service area is comprised of all 12 cities and 5 municipalities of the National Capital Region (NCR) or Metro Manila, five municipalities and a city in the province of Cavite, and all 14 of the municipalities of Rizal Province. It covers a total geographic area of 2,100 km². In terms of population, it covers a total of 2.4 million households or over 11 million people as of 1995.

Figure 1. Metro Manila Water Supply System Concession Service Area



Source: MWSS Concession Agreement

A residual MWSS and its Board remained to carry out limited management and facilitation roles which include facilitating the exercise by the concessionaire of its agency powers, carrying out accounting and notification functions, and administering domestic and foreign loans related to the existing projects. Another key function was to manage retained assets including the ongoing development and eventual operation of the Umiray-Angat Transbasin Project (UATP) and other large-scale water supply expansion projects (David 1999).

In addition to the residual MWSS, a separate regulatory office was established to monitor and enforce compliance by the concessionaires of the contractual obligations under the concession agreement, implement rate adjustments, arrange for public dissemination of relevant information, respond to complaints against concessionaires, and prosecute or defend cases before the Appeals Panel. The regulatory office is composed of the chief regulator and four regulators to take charge of technical, financial, customer service regulations, and administration and legal matters regulation.

Provisions and Obligations in the Concession Agreement⁴

The concession agreement contains: (1) the transitional arrangements; (2) the service, financial, and other obligations of the concessionaires; (3) the obligations of MWSS, including its residual functions, and those of the regulatory office; (4) provision for water charges, rate adjustments and dispute resolution; and (5) other contract conditions. The transitional arrangements relate to transfer of employees, liabilities/revenues, accounts receivable, facilities, existing projects, cash and marketable securities.

Service Obligations. The concessionaires' service obligations include expansion of coverage of water supply, sewerage and sanitation services. Provision of 24-hour water supply to all connections by mid 2000 and maintenance of 16 pounds per square inch (psi) water pressure for all connections by 2007 are part of the service commitments. Satisfaction of water quality standards for drinking water, wastewater discharge, and industrial effluents is also provided in the concession.

Tables 4 and 5 give the water supply coverage targets every 5 years by municipality in the East and West Zones from 2001 to 2021, respectively. The concessionaires are expected to increase the proportion of the population with access to water supply in the coverage area to 77% for the East Zone and 87% for the West Zone by 2001 and to 95% and 98% by 2021, respectively.

The coverage targets for sewerage and sanitation services are limited to households connected to the MWSS water system. **Tables 6 and 7** report the coverage targets separately for sewer connection and sanitation services by municipality in the East and West Zones, respectively. For the East zone, coverage for sewer connection is scheduled to increase slowly to 3% in 2001, 16% in 2006 and 51% in 2011, and to reach 55% by 2021 while sanitation services, defined as the desludging of septic tanks every five to seven years, is scheduled to decrease over time from about 38% in 2001 to 19% by 2021. In the case of the West Zone, sewer connection is scheduled to increase to 16% in 2001, 20% in 2006 and 66% in 2021. Sanitation is scheduled to decline to 43% in 2001 and ultimately 27% in 2021.

⁴ This section heavily draws from David, C. (2000).

Financial Obligations. The financial obligations⁵ determine the size of equity investments, the performance bond⁶ and the various fees intended to free the national government from subsidizing MWSS which had been the practice for so many years. For the equity investments, each of the local and international partners are required to maintain an equity share of 20% for the first five years and 10% thereafter. The initial cash equity investments were set at \$67 million for the East Zone and \$100 million for the West Zone. A performance bond, which is to be renewed annually, of \$70 million for the East Zone and \$120 million for the West Zone is to be maintained during the initial ten years. Then performance bond declines for each successive rebasing date. The penalty for non-compliance with the concession agreement by the concessionaire will be deducted automatically from the performance bond.

The West Zone was charged substantially more (90%) of the total amortization payments than the East Zone (10%) as concession fees.⁷ While **Tables 8** and **9** show the concession fees in pesos to be paid by the East and West Zones which decline sharply over time as existing debts are paid off. Part of the concession fees which covers the MWSS loans that the concessionaires had to assume are denominated in dollars. The concession fees are meant to cover the amortization payments of the local and foreign debts of the MWSS, and the costs of the operations of the residual MWSS and its regulatory office. For the latter, each concessionaire is to contribute ₱100 million of a total of ₱200 million which will be distributed equally between the Regulatory Office and the residual MWSS.

Other Provisions. (1) *Water and sewer charges.* The average tariffs were initially set at the bid⁸ price applied to the existing increasing block tariff structure with higher rates for commercial and industrial users relative to household consumers. **Tables 10** and **11** show the basic water tariff structure for households, semi-business, business one (1) and two (2) before and after the privatization up to January 2001. The concessionaires apply a currency exchange rate adjustment⁹ (CERA) charge of ₱1.00 per cubic meter of water consumed and collect a connection fee for water or sewer connection not exceeding ₱3,000 (to be adjusted annually for inflation using the consumer price index of the preceding year) for households which are less than 25 meters from the tapping point. For customers beyond this limit, a higher connection charge is collected. **Table 12** shows the annual total costs of water service connection for both Manila Water and Maynilad which include the connection fee, meter deposit, guarantee deposit as well as a 10% value-added tax since 1997 up to 2001.

The Concession Agreement calls for additional fees in 2001 to finance the piped sewerage program necessary to dispose of the increased wastewater supposedly from the improved water supply. However, these fees will be subject to review before final implementation.

⁵ Upon the takeover of the MWSS operations, a commencement fee of US\$5 million was to be collected from each concessionaire. This revenue was used to pay for the costs of the privatization process, including the technical assistance contract with the IFC.

⁶ This bond could be a bank guarantee or other forms of security acceptable to and in favor of MWSS to secure the Concessionaire's performance of its obligations.

⁷ In general, concessionaires are charged 90% of the amortization of all existing MWSS loans which have been disbursed prior to the commencement date; and the total amortization of the foreign and local loans, local component costs and cost overruns of the UATP and other existing projects that have not been disbursed at commencement date.

⁸ This is expressed as the percentage of the current average tariff to which the concessionaires are to reduce tariffs.

⁹ Note that this CERA component in the tariff as provided in the Concession Agreement maybe a misnomer since it is a fixed surcharge per cubic meter which is not linked to changes in the foreign exchange rate.

(2) *Rate adjustments.* Water tariff rate can be adjusted from time to time subject to the 12% rate of return but the government has no obligation to adjust water rates in real terms for the first ten years of the concession. There are three bases for rate adjustments: inflation, extraordinary circumstances, and rebasing. Inflation, which is to be determined by the consumer price index, is explicitly identified as a ground for changes in connection charges while in water tariffs, adjustment for inflation is also allowed implicitly through the assumption of zero inflation over the life of the contract given to the bidders. Extraordinary price adjustments will be allowed when any of the following occurs: amendments in the service obligations, changes in the law and other government regulations that affect cash flows, the existence of below-market interest rate financing from any multilateral or bilateral sources, movements in the exchange rate above 2%, erroneous bidding assumptions provided by MWSS prior to the bid, increases in the concession fees, delays in the completion of the UATP, and increases in the operational cost as a result of an uninsured event of 'force majeure'.¹⁰ The first two bases allow only for nominal adjustments in the water rate during the concession period.

While inflation and extraordinary circumstances may be allowed as grounds for price adjustment any time after the first year, rate rebasing follows a five-year cycle. From the tenth year or the second rate rebasing date, water tariffs are shall be set to allow concessionaires to recover over the concession period, operating, capital maintenance, and investment expenditures efficiently and prudently incurred. In addition, both concessionaires are allowed to recover Philippine business taxes and payments corresponding to debt service on the MWSS loans and concessionaire loans incurred to finance above expenditures and to earn a rate of return or the appropriate discount rate on these expenditures for the remaining term of the Concession. However, the regulatory office may decide to consider a rebasing adjustment on the first rebasing date or the fifth anniversary of the concession's commencement date. Note that only the MWSS Board of Trustees, upon the recommendation of the Regulatory Office, has the authority to adjust water and sewer rate.

The main reasons for allowing changes in tariff rates can be summed up as those which are beyond the control of the concessionaires and those even prior to privatization, the circumstances have resulted in price adjustment in the past. Any adjustment is supposed to merely return additional cost incurred by the concessionaires, not increase their profits and nor compensate the concessionaires for any inefficiencies or errors in bidding assumptions. For the first ten years, water rates after privatization will not exceed the projected rates without privatization but adjustments could be made in 2001 at the government's option through rebasing.¹¹

(3) *Taxes.* The concessionaires are granted a six-year income tax holiday, a preferential tariff of 3% on capital equipment imports and tax credits on locally fabricated capital equipment until the end of 1997. They are also exempted from local government and franchise taxes, and value added tax (VAT) on the supply and distribution of water but not on provision of sewerage and sanitation with a 10% VAT.

¹⁰ This includes among others, war, volcanic eruptions, unusually severe weather conditions, prolonged strikes, and any other event which is not within the reasonable control of the concessionaires.

¹¹ With rebasing, the government can lower rates if the concessionaire is making less than a reasonable return but rates cannot be increased through rebasing if the losses are due to their inefficiency. Adjustment will be made through mandatory rebasing in 2006 after a review of the concessionaires performance.

III. MWSS Privatization: Performance and Gains

Expected gains from privatization can be classified into (Solon and Pamintuan 1999): (1) lower prices to consumers, (2) better water service in terms of quantity (more water supply) and quality (better pressure and 24 hours availability), (3) relief of government from budgetary burden, (4) environmental benefits, and (5) fair rate of return for concessionaires.

On relieving government of financial burden, the concessionaires are paying a commencement fee of US\$5 million each (total of \$10 million) to cover for the fees for the International Fund Corporation (IFC) and a yearly fee of ₱50 million each (or a total of ₱100 million) for the regulatory office. The concessionaires also pay directly to the government the yearly budget of the residual MWSS estimated to be ₱200 million. The concession fees of both water companies cover debt service of the MWSS of which Maynilad shoulders 90 percent and Manila Water 10 percent. The entire project will contribute an investment of about US\$7 billion in new infrastructure in the span of 25 years which will be turned over to the government at the end of the concession. Lastly, an estimated US\$4 billion in income taxes over the life of the concession will be supposedly earned by the government.

The benefits of privatization of the MWSS to the consumers are the reduction in water tariffs, expansion in water service coverage, as well as better water quality. As shown in Tables 10 and 11 on tariff rates, the basic water rates declined by 74 percent (of water rate at the take over was only 26 percent of pre-privatization rate) for the Manila Water customers by 43 percent (or only 57 percent of pre-privatization rate) for the Maynilad customers at the start of operation in August 1997. While water rate adjustments were allowed, in January 1999 the basic rates were still lower relative to the pre-privatization level at only 30 percent and 66 percent for Manila Water and Maynilad, respectively. Despite the additional increases allowed by the Regulatory Office in 2000 and 2001, the basic water rates for both zones are still lower than before privatization at 33 percent and 75 percent.

Service expansion is shown in the number of new service connections of both concessionaires. Maynilad has about 105,000 new connections bringing total connections to 571,364 since August 1997 to end of December 2000 (Maynilad 2001). Manila Water has 37,391 service connections or an equivalent of 51,436 household connections bringing total connections to 339,491 or 408,894 household connections for the same period (Manila Water 2001).

Improvements in water quality for drinking are shown by overall compliance to standard of both concessionaires indicated in the quarterly reports to the regulatory office (**Tables 13 and 14**). In terms of quality of wastewater, the RO's own report which does not tally well with the concessionaires' reports, indicates that both concessionaires fail to satisfy some parameters with Maynilad not satisfying more parameters than Manila Water as of the last quarter of 2000 (**Tables 15 and 16**).

On the quality of service measured in terms of the number of hours water is available and good water pressure, the concessionaires claim some improvements but the target of 24-hours supply for all connections by mid 2000 is not yet achieved. Concessionaires complain of delays in the water supply projects which had been a major constraint in achieving targets. MWSS on the other hand, claims

otherwise and stressing that some of the projects are not really expected to be finished at the start of operation and are supposed to be completed sometime after (Vea 1999). But regardless of who has the correct claim, the reality is that a number of areas still do not have 24 hours waters, although many of the new connections since the take over have been enjoying good pressure water for longer hours if not for 24 hours. There were also areas located in the boundaries of the two zones which used to have water before the privatization but lost their water with the take over of both concessionaires which divided the distribution lines into two zones, adversely affecting some households in the boundary. With the installation and rehabilitation of pump and booster stations as well as the availability of more water, these connections are supposed to get back their water.

Performance of the two concessionaires in terms of some indicators such as profitability, cost control, marketing effort, financial position, production efficiency and personnel management are examined (**Tables 17** and **18**). In terms of profitability, the Manila Water appeared to be in a bad shape from the start of operation up to the last quarter of 1998 after which performance began to improve up to the last quarter of 2000. Maynilad on the other hand, appeared relatively better off in terms of net income to operating revenue ratio during the first few quarters but was worse off especially in the second and third quarters of 2000 reflecting net losses.

Trends in operating expense ratio which indicates the management's ability to control expense, show that Manila Water appears to be doing better relative to Maynilad especially after 1998 since its revenues from tariffs generally cover the operating and maintenance costs. Maynilad's performance in terms of the operating ratio has generally gone up in 2000 and reached a high of 1.76 as of the last quarter compared to only 0.88 for Manila Water. The above one ratios indicate that revenues are not enough to cover operating and maintenance costs which means that Maynilad has been experiencing problems since last year in controlling costs relative to revenues generated. While Manila Water seems to be doing well in terms of this indicator, the pre-privatization (1996) operating ratio was much lower at 0.71 indicating greater cost control.

The current ratios, which are measures of financial strength, show that Manila Water has enough current assets to meet the payment schedule of its current debts at a safe¹² margin while the same cannot be said of Maynilad since the start of operation. In terms of return on total assets as well as the net income to operating revenue ratios, which are indicators of profitability, Manila Water appears to be in a better shape than Maynilad especially in the last two years.

Total number of employees declined from 5,034 in 1996 to a combined staff of about 3,995 for both concessionaires in 2000 indicating an over 20 percent decline. Staff per 1000 connections ratio has been generally high in the history of MWSS indicating very low productivity of labor. This ratio has declined from 12.8 in 1990 to 9.8 in 1995. However, with privatization this ratio declined substantially indicating some efficiency gains with Maynilad having 4.3 while Manila Water has 4.5 as of last quarter of 2000. Compared to efficient utilities in the region with only two to three staffs per 1000 connection, the ratios for Maynilad and Manila Water are still slightly higher. Accounts receivable declined from 6 months in 1995 to just about 3.2 to 3.3 months for Manila Water while Maynilad given its critical financial position hesitates to give anymore details on this matter.

¹² Ratios above 2 are the generally acceptable.

The main source of water is the Angat River which provides 97 percent of total supply while the remaining 3 percent comes from groundwater sources. Average daily production in 1995 was at 2,800 million liters per day (mld) which increased to 3,064 mld in 1996. This average was even lowered to as low as 2,500 mld at the peak of El Niño. However, production has recovered since then and the combined figure for Maynilad and Manila Water shows an increasing trend, from about 3,700 mld to over 4,000 mld. But despite this increase from pre-privatization level, the increases in production continue to fall behind the rapid increase of population in the metropolis further widening the existing gap between demand and supply which has been contributing to groundwater mining. Also, the expected inputs from major water projects such as the Angat Reservoir water which includes the AWSOP¹³ as well as the Umiray-Angat Transbasin project which are supposed to deliver a total of 3,300 mld, were not realized on time. In addition, the 300 mld which is supposed to be available by 1999 (from the Laguna Lake) may not be expected anytime soon. The reason for this is that while the concessionaires expected MWSS to provide this additional water, MWSS is turning the table and is asking the concessionaires to obtain this additional water by themselves. These delays in the expected availability of additional raw water supply and the harvesting of much less than expected amount limit the raw water supply available to the concessionaires. Because of this constraint, the concessionaires cannot be too aggressive in their service expansion efforts and this problem has contributed to delays in provision of 24-hours supply to all connections supposedly as of last year much less the 16 psi pressure by the concessionaires.

Nonrevenue water (NRW) in 1996 was at 61 percent of total water produced attributed mainly to leaks, illegal connections, metering inaccuracies and non-paying connections. Manila Water's NRW went down to as low as 35 percent in the first quarter of 1998, lower than its average in 1997 of 41 percent perhaps partly due to the El Niño which reduced production to its lowest also since the take over. This figure went up to 40 percent in the first quarter to 45 percent of total production in the last quarter of 2000. Maynilad on the other hand, had 65 percent in the 1997 which was reduced to about 59 percent during the El Niño months but is back to the 64-67 percent in last year's operation. These figures show that both concessionaires seem not to have moved any lower than when they started operation in 1997 although the Manila Water's NRW is better than that of Maynilad. Manila Water attributed its substantial reduction in NRW to its increasing of meter reading efficiency and improving its billed volume by putting more resources into improving meter reading and training of meter readers as well aggressive leak repair activities, metering of illegal connections, replacement of defective meters, and closing of illegal connections. However, compared to before privatization level, the combined figures for both concessionaires would result in a total NRW in 1999 and 2000 ranging from 54 to 58 percent. The NRW as of the last quarter of 2000 is back to the 1995 NRW of 58 percent. It should be noted that interconnection flows (or the cross boundary volume) which is bulk water sold by Manila Water to Maynilad is contributing substantially to the latter's large NRW relative to the former. Excluding the cross boundary flows in the computation of NRW, it would appear that improvements in Manila Water's NRW would be much less relative to pre-privatization non revenue water. Much of the losses in terms of NRW are passed on to Maynilad which distributes the bulk water from Manila Water.

The trends in financial performance of both concessionaires appear consistent with general perception initially that Manila Water was financially in trouble purportedly because of its too low bid. That Maynilad is in trouble lately is also apparent in its financial performance which led it to declare

¹³ Angat Water Supply Optimization Project.

suspension of payment of its concession fees in early March (Philippine Daily Inquirer 2001) until the MWSS will grant its request for a price increase to cover for its losses. Just recently, a ₱4.75 per cubic meter price increase was supposed to be granted by the MWSS to Maynilad to cover for foreign exchange losses amounting to ₱2.7 billion. The price increase was supposed to take effect from July 1 up to end of December 2002 (Manila Bulletin 2001), as an extraordinary price adjustment (EPA) rather than the automatic currency exchange rate adjustment (CERA) that was originally requested by Maynilad. However, the government changed its mind and is considering the granting of a staggered increase to be spread into 3 smaller increases at six months apart. The memorandum of cooperation (MOC) which was supposed to be signed already by the government last June to enable Maynilad to have access to the \$350 million bridging loan from a consortium of banks which includes the Asian Development Bank and to implement the price increase, is still unsigned. Maynilad is supposed to resume payment of its concession fees which it suspended in early March and continue its capital expenditure projects which were also earlier suspended, upon implementation of the price increase. As of this writing, the MWSS-RO is still to give its recommendation to the MWSS Board which is then to decide on the petition for a price increase.

III. The Urban Poor¹⁴ and Their Water Supply and Sanitation Conditions

While the privatization of MWSS results in benefits to its consumers, an interesting question which arises is whether the poor are benefiting as well. Before discussing this, it is useful to define the poor and know how they have been served before and what improvements have been introduced by the two concessionaires.

Republic Act¹⁵ (R.A) 8425 and Administrative Order¹⁶ (AO) 36 define the poor as individual and families whose income fall below the poverty threshold as defined by the National Economic Development Authority and/or cannot afford in a sustained manner to provide their minimum basic needs for food, health, education, housing and other essential amenities of life. The urban poor is then defined as poor individual or families residing in urban centers and urbanizing areas. Executive Order¹⁷ (EO) 443 defines urban poor as unemployed, underemployed, or irregularly employed urban dwellers who because of lack of income became squatters and slum dwellers. Urban poor communities are then defined as all disadvantaged areas in all cities regardless of their population density and of municipalities where the population densities are at 500 persons per square kilometers.

The urban poor are often located in slums and informal urban settlements which are either found in low-lying, flood prone land, leading to drainage and sanitation problems or on steeply sloped areas, either often geographically isolated, dangerous or unhealthy and lack basic infrastructure and

¹⁴ Selection criteria for urban poor communities: (1) individuals or families who are residing in urban and urbanizing area and having no regular source of income or the total income of the family falls below poverty level set by the NEDA and (2) individuals residing in urban slums and depressed and underdeveloped community which lack the basic services and amenities needed by the person to survive as a decent human being.

¹⁵ Otherwise known as “An Act Institutionalizing the Social Reform and Poverty Alleviation Program, Creating for the Purpose the National Anti-Poverty Commission, Defining its Powers and Functions, and for Other Purposes.”

¹⁶ Also known as “Amending and Revoking Specific Provisions of the Implementing Rules and Regulations of R.A. 8425 Governing the National Anti-Poverty Commission.”

¹⁷ Also known as “Providing for the Adoption of the Comprehensive Integrated Delivery of Social Services as the National Delivery Mechanism for the Minimum Basic Need.”

services due to institutional as well as technical constraints. In these areas, households often relying on temporary low wage employment in the informal sector are into all sorts of vending, construction work/carpentry, and factory work, among others.

As of May 2000 census, the National Capital Region¹⁸ (NCR), has a total estimated population of 9.9 million. The Family Income and Expenditure Surveys (FIES) show that the magnitude and incidence of poor families in the NCR has been declining (**Table 19**) from 217,602 or 13.2 percent in 1991 to 127,873 or 6.4 percent in 1997. But the latest available survey (1998 Annual Poverty Indicator Survey) indicates that in 1998 there are about 275,678 poor families in NCR or 13.8 percent of total number of poor families in the country are in NCR. The highest magnitude of poor families are found in the city of Manila, followed by Quezon City and then Caloocan City. In terms of incidence or percentage of poor families relative to total number of families per city/municipality, Navotas is followed by Marikina and then Malabon.

Poor population in the NCR according to the 1997 Final Philippine Poverty Statistics (TWG on Income Statistics, NSCB) shows a declining trend from 2.02 million in 1985 to 0.9 million in 1997. The gini concentration ratios for the region (1997 Family Income and Expenditures Survey) from 1985 to 1997 show an overall worsening of distribution of income or an increase in income inequality from a 0.41 to 0.46 ratio.

Pattern of family expenditures in 1997 shows that in the NCR, about 36 percent of income is spent on food, followed by housing expenditures of 22 percent (1997 FIES). Fuel, light and water comprise about 6 percent of total. But in David and Inocencio (1996) the poorest spend up to 8 percent of their income for water only. Households who buy from vendors even spend up to 12 percent of their total income for water. Income received from different sources for the same year indicates that 49 percent of total income comes from wages and salaries followed by income from entrepreneurial activities of 19 percent and rental value of owner-occupied dwelling unit for income of 15 percent (1997 FIES).

In the NCR, FIES numbers show an increasing proportion of families with makeshift housing from 5 percent in 1991 to 7 percent in 1997. The 1998 Annual Poverty Indicator Survey (APIS) is however showing a much lower percentage of families with makeshift housing of 4 percent. The FIES reports that the proportion of families with access to safe¹⁹ water supply has been declining since 1988 from 92 percent to 88 percent in 1997 and the 1998 APIS shows a further decline to 86 percent. Figures on families with access to sanitary toilet facilities show that about 92 to 95 percent in 1997 and 1998 are with access to water-sealed flush to sewerage/septic tank and closed pit.

Water Supply Situation

Residents in suatter colonies in Metro Manila are often illegally squatting on private or public lots left vacant either because they are isolated, dangerous or unhealthy and lacking in basic infrastructure. So, they usually have no access to formal service provision such as water. In place of

¹⁸ Rizal Province has 1.7 million and the 6 city/municipalities in Cavite have about 0.8 million. This brings the total estimated population for the MWSS service area to about 12.5 million.

¹⁹ The definition of "safe" here is broad as it includes sources such as communal water system, tubed/piped deep and shallow wells.

formal provision, criminal gangs and profiteers operate a distribution system which takes advantage of this lack of access to the legal system. In these poor or unserved communities, the vulnerable groups are getting lower quality water often from water tenders or vendors sourcing legally or illegally from the MWSS main lines or from private wells which are several times more expensive.

Two household surveys conducted in 1995 and 1998 in Metro Manila by David and Inocencio (1996, 1999) indicated that the majority of low-income households do not have individual piped water connections but are mostly relying on vended water. This is because most poor households were not eligible for water connection either because they did not have titles to the land where their houses stood or the public or private owners of the land were not willing to give permission for a water connection so as not to “legitimize” or encourage the squatting. Thus, many poor households live in areas within the pipe distribution network but are not served by it.

With the privatization of MWSS, some policy changes have been effected in provision of water in poor or squatter communities. These areas often have been identified as areas where non-revenue water (NRW) is concentrated due mainly to illegal connections. Serving these areas means recovering the NRW and earning some revenues, at the same time addressing the service coverage expansion target. The nature of service innovations in these areas varies from individual connections to a shared meter to public faucets which deliver water by hose to a bulk water for a whole community.

When it comes to provision of water in squatter areas, the concessionaires face some challenge in the technical design and engineering aspects which should be suitable to these areas. In order to carry out said services, some design and engineering standards had to be relaxed and made flexible. Both the Manila Water and Maynilad came out with innovative ways of addressing the water needs of poor communities through provision of public faucets, bulk water, group meters, and individual connections. In areas which are too far from water lines or where there is not enough water from the main source, shallow and deepwells are provided.

Expansion of water services and sanitation to poor or low-income neighborhoods is a major challenge facing both water concessionaires as improvement and expansion requires significant investment. Providing the poor with household connections entails overcoming of technical constraints such as lack of roads among others, insecure land tenure accompanied by rapid and sprawling growth of the population, and the financial aspect which requires balancing costs with ability to pay the connect fee.

Public Faucets/Standpipes

The old MWSS established standpipes or public (community) faucets in squatter areas even before the privatization but these were very few. These public faucets serve as the most feasible as they provide relatively cheaper water to many households in poor communities and no connection fee is paid by the households served by them. The Asian Development Bank (1997) shows the ratio of standpipes to total number of connections to be about 0.2 %. However, an assessment suggested that a significant number of these are no longer operational or have been decommissioned already and are probably being operated illegally. The decommissioning was done because of failure of payment by the assigned tender or association or water supply had been so intermittent that the tender or the association or individuals managing them had not been willing to continue payment.

The concession agreement provides for the establishment of public standpipes for every 475 people within depressed areas with no installation charge. This project is to cover households who may not be able to afford individual connection fees (or where the cost of connection relative to expected revenue may be too high). The public faucets are either managed and operated by an individual, barangay²⁰ officials, or by community associations.

At present, Maynilad Services has two levels of public faucets, level I which is endorsed by the local government unit (LGU) and level II which is requested by a non-government organization (NGO) or community association. It has currently **402** public faucets scattered all over its service area which is billed based on the monthly meter readings at residential or domestic water rates which correspond to the average consumption per household.²¹ As a policy, Maynilad is now veering away from this type of service, unless no alternative sources can be provided, due to problems encountered in the payment (or non-payment) of the assigned association or barangay officials and abuses in the management and operations of these faucets such as charging of exorbitant rates and irregular operating hours limiting access to the faucets.

Beginning 1997, the Manila Water has been installing public faucets to poor communities which were not previously served or where household water connections cannot be made yet due to non availability of enough water. Public faucets operated by the barangay (called “public faucets for the Barangay”) are initially and temporarily provided. A total of **533** (includes inactive and converted to regular connections) public faucets are distributed in its service area. Technically, the billing system for public faucets of both concessionaires are the same. However, while Maynilad classify faucets serving a group of households whether managed by barangay officials or community associations as public faucets, Manila Water charges those faucets using its residential rates at the consumption block where its total falls and not divided by the total families benefiting from the (public) faucet.

Group Taps

Aside from the public faucets for poor communities, one of the concessionaires specifically Manila Water, has also been providing “water connections for poor communities” called “Tubig para sa Barangay.” This program relaxes some application requirements which makes household connections possible. Group taps are yard connections for 2 to 5 households which follow the concept of MERALCO²² in providing electricity in depressed areas. In this type of water service, users form groups, register connections and share the cost for usage. Households either form the groupings by themselves or by the assistance of barangay officials or area association. Generally, Manila Water staff had to assist or guide group formations and decision-making. The group is given one mother meter and while it is encouraged to install sub-meters to avoid problems with the sharing of cost, some households groups who are usually composed of relatives or close friends opted not to install sub-meters to avoid incurring further costs of installing sub-meters. In each group, a leader is chosen who is then tasked with the collection for the group and payment to Manila Water. To do this, upon receipt of the bill which is based on the mother meter, the leader gets the individual sub-meter readings and

²⁰ This is the smallest unit of government within a city or municipality.

²¹ The total monthly consumption divided by the number of registered families who obtain water from the public faucet gives the consumption block and the corresponding water rate upon which the monthly bill is based.

²² This is the public utility charged with electricity connections.

pro-rate²³ the cost according to the distribution in consumption. Then the leader collects from each member and pays Manila Water. As of December 2000, a total of 6,577 connections (**Table 20**) have been made under this “Tubig para sa Barangay” program distributed in its service area with most of the connections found in Quezon City and Marikina where non revenue water has been found to be quite high because of the illegal tapping.

In each community serviced by the Manila Water, the community was in some sense given the opportunity to “participate” in the project. Meetings are conducted at the beginning in coordination either with the barangay officials or community associations. At the initial stage, the community is consulted on its preferred type or level of service which it can afford. Then follow up meetings are conducted wherein Manila Water already conducts on-the-spot acceptance of applications and then collection of installment fees. The communities are also involved in the implementation of the plan and participated in the “management” of their faucets. The household groups have incentive to participate in the management which primarily entails guarding their lines against illegal tappings and immediately reporting leaks and other problems related to their connections to Manila Water.

BOX 1

Liwanag Area Residents. *The focus group discussion conducted in Liwanag area (a community in Barangay Old Balara in Quezon City) which is served by Manila Water Company was organized by the Barangay Kagawad who has been playing an active role in the Manila Water projects on water supply. The group was made up of all women who served as “purok” (or block) leaders in a portion of Barangay Old Balara. Members of the group freely expressed their appreciation of the water supply project in their respective areas. Aside from the largely reduced water expense, the group mentioned other benefits which include: more time available to them which now they can use for other household chores and even time for leisure such as going to the malls, no more stress from queuing (where rows often occurred when others do not follow the queues leading to so much stress) and waiting for water to become available, no more waking up at 3:00 a.m. to queue, more money for other household needs, and can now take a shower.*

One resident related her experience of having to spend up to ₱40 pesos per day for water bought from a vendor or obtained through a water carrier and now pays only ₱25 to ₱50 per month! Another resident who used to pay a flat rate of ₱300 per month to a neighbor with water, now spends only about ₱60 per month. The participants in the focus group discussion were one in saying that now they can enjoy the luxury of a daily shower because of the high pressure which makes the shower possible. Now households have spare time to go “mall” or even watch movies or attend meetings such as the focus group discussion called by the barangay kagawad without having to worry²⁴ of returning home without water for the day’s use.

²³ The pro-rating is done because the billing consumption would not coincide with the individual meter reading because of different reference dates and also the fact that part of the water which already passed through the mother meter must still be in the pipes just before the sub-meters.

²⁴ Although the residents in the area still need to store because water is not yet 24 hours, people are sure to have water for each day. This problem of less than 24 hours water may however, be addressed soon by the on-going projects in the area which include the rehabilitation of the Balara pumping station and new water supply lines.

In this particular water supply project, one active barangay official and the community cooperated with Manila Water to facilitate the realization of the project. The barangay kagawad facilitated the applications of households by sort of serving as the “public relations officer” and partly performing the job of Manila Water’s marketing staff and effectively helping in the promotion of the service by convincing especially those who doubted that the project will ever be realized based from the experience in the past and informing those who were unable to attend the presentation of the Manila Water on the requirements and process of application and getting more households to fill out and sign application forms. Majority of the households in the community showed willingness to connect and pay the connection fees and spend for the additional costs of installation from the mother meters to the respective households (even if they had to borrow from the informal credit market dominated by the “5-6” scheme of some small scale informal lenders which implies that households were even willing to borrow at an interest rate of 20% per month). To minimize project cost, the community coordinated and organized their efforts and contributed their (men, women, and children alike) labor in the digging and filling, laying of the pipes, and cementing of the surface to avoid illegal tapings and protect the pipes. This project which provided water to initially about 250 families was completed in just two days with the “bayanihan”²⁵ in the community.

An interesting feature of this program is that the people in the community was in some way involved in the project planning (informed and “consulted” of the technical plan, e.g., pipe layout inside the area) and implementation where households assisted in a coordinated and systematic manner in the digging and carrying of pipes to respective premises to facilitate laying of pipes and installation of mother meters and submeters.

Bulk Water Supply

In most informal settlements or poor areas where low economic returns is common (Bosch, Hommann, Sadoff and Travers 2000) combined with perceived high risk, and the legal constraints to deliver services, there is a low incentive for a utility to provide services. Bulk water at the edge or entrance of the informal settlement is often provided and is aimed at reducing costs and at the same time ensuring adequate economic returns (Bosch, et al. 2000). This type of service can be classified²⁶ further into a community-managed water connection and a privately-managed water distribution. The Manila Water provides both types of services. In the first, a whole community deals directly with the concessionaire, pays the bulk water bill, and sets up its own distribution, billing and collection system. In the latter case, a private contractor which provides water to the community invested in the infrastructure required to distribute the bulk water and Manila Water deals only with it and not with the community. In this case, the community is not organized unlike in the first case.

Community-Managed Water Connection. The Manila Water Company’s bulk water supply project in Durian Street, Barangay Pasong Tamo, Quezon City is a metered master connection where a community association acts as a distributor to the residents in the area through individual or shared

²⁵ This is a Filipino term for community cooperation and support to help a member(s) in need.

²⁶ This distinction is more to highlight the differences in form since from although from the point of view of Manila Water, both connections are officially classified as residential accounts and are charged exactly the same rate for a residential connection.

connections. This form of provision allows residents to organize, manage water distribution, and serve as a “local distribution net.” The community organization formed called the “Samahang Patubig ng Durian,”²⁷ with about 228 member households and individual connections, is however registered in the Manila Water accounts as a regular residential connection. So, while this connection is technically a bulk water supplying for a whole community, it is not charged the special rates for bulk water which is computed differently from a residential connection but is charged according to actual consumption multiplied by the applicable tariff step rates for a residential connection.

The Durian community chose the bulk water rather than the group taps because Manila Water is only willing to install meters at the entrance²⁸ of the compound and given the distance from the main road to the compound, the average cost of a connection would reach as high as ₱20,000 per household. This case is especially true for households who lived in the inner most parts of the subdivision. Also, given the number of households, there would be just too many hoses lying on the ground and crawling towards the household premises (see middle photo on page 32). Since the roads inside the compound are only about 4 to 6 meters wide, the group taps would mean too many pipes lining or even covering the streets. With many light and heavy vehicles going in and out of the compound, pipes would be prone to breakage which would mean even higher costs. Just at the entrance of the compound, a number of households who availed of the group taps whose pipes are just lying on the ground and open targets of moving vehicles, experienced a lot of busted pipes caused by vehicles and leakage due to the high water pressure and the inappropriate pipes used. These households used lower than standard materials to minimize on the installation costs supposedly against the technical advice of Manila Water staff.

Taking all the above factors into account, the Durian community was convinced by the Manila Water that it was best for them to organize and be serviced as one community through the bulk water with just one mother meter. This option is supposed to minimize the number of pipes crawling from the main road into the compound and to properly lay pipes, Manila Water recommended the hiring of a private contractor to install standard pipes properly laid inside the area. Such project was contracted for ₱670,000 which provided 2-inch diameter pipes or holes accommodating up to 4 connections per hole or node. So for 4 households sharing a node, the connection cost for one household was set²⁹ at ₱3,854 excluding in-house installations which could be another ₱1,000 or more, but still cheaper on the average. This installation cost was collected three months before water supply project was installed.

To be able to pay the bulk water charges to Manila Water, the association initially charged the following water rates:

²⁷ This can be translated as “Water Association of Durian.”

²⁸ This strategy is of course understandable because it will not only minimize installation cost on the part of Manila Water but it will also not increase its non-revenue water due to leakage, illegal connections, and water theft.

²⁹ The total amount was initially divided by 200 households (about ₱3,354), who were the first to agree on sharing the cost, plus ₱500 for the node. When other households decided to join, the amount of sharing was not changed and the balance was used for the other installation related costs not included in the contract amount such as mapping, snacks for the workers, cost of water used for flushing at the beginning, and grills for the bulk meter to protect it from being hit by vehicles.

| Consumption bracket (cubic meter) | Price per cubic meter (pesos) |
|--------------------------------------|----------------------------------|
| First 10 | 5.00 |
| Next 10 | 6.00 |
| Next 10 | 7.00 |
| Next 10 | 8.00 |
| Next 10 | 9.00 |
| Next 10 | 10.00 |
| Next 10 | 11.00 |
| Next 10 | 12.00 |
| Next 10 | 13.00 |
| Next 10 | 14.00 |
| Next 10 | 15.00 |

with paying dates set every 21st to 26th of the month so households can set aside money for water and bring their payments to the treasurer on said dates. The treasurer then supposedly pays Manila Water on the 27th of each month. This rate structure may look so different from the basic tariff structure of Manila Water since it takes into account not only the basic but also the other charges such as the CERA,³⁰ environmental fee, metering service charge, and the value added tax. In addition, these rates also include provisions for maintenance and repairs, a small payment for the person who reads the meters and distributes the bills and another small honorarium for the treasurer who spends time to compute and prepare the bills and who keeps the books upon the advice and assistance of Manila Water staff working in the area. Beginning the May 2001 billing, the above rates are increased uniformly by ₱1.00, so the first 10 cu.m. is now charged ₱6.00 and so on, and the highest is charged ₱16.00 per cubic meter.

As to whether the households are happy with the connection compared to before privatization, there is a general agreement that what they have now is much better than before. The benefits to residents are the reduced water expenses and the access to more reliable and safe water. One household who used to spend ₱25 up to ₱70 for water per day or ₱750 to ₱900 per month, now pays only ₱40 to ₱150 per month! However, a closer look reveals that the members of Durian community association must be paying more than twice than a household with a similar consumption but with an individual connection. The last two months water consumption of the whole association of 6,430 and 8,143 cubic meters implies an average price of ₱6.24 – ₱6.65 per cubic meter. Dividing the total consumption by the number of member households would indicate an average consumption of about 28 and 35 cubic meters (cu.m.). Assuming a 30 cubic meters consumption and using the Manila Water rate, a household with an average consumption of 30 cu.m. is supposed to pay only about ₱92 or an average price of ₱3.08 per cu.m. instead of the ₱6.65 that the association pays Manila Water. Using the association established water rates, a 30 cu.m. consumption will be charged ₱210 implying a unit price of ₱7.00.

Given the above computation, the association is charging much more than the Manila Water rate. This is to cover for their own water bill and cost of billing and collection, and saving some amount for maintenance and repairs. If the old rate is applied, the same consumption would cost only

³⁰ Currency and exchange rate adjustment.

₱180 implying an average price of ₱6.00 per cubic meter, lower than the ₱6.24-6.65 of Manila Water. But according to the association since there are quite a number of high users which are mostly households selling water to other³¹ households or those with extended families, even at the old rate they were even able to save about ₱3,000 per month for the maintenance and repairs. In addition, they were able to pay ₱2,000 per month for the meter reader who also distributes the bills and does small leak repairs, and give ₱500 honorarium to the area coordinator who does the checking and monitoring of the area for water-related problems such as leaks that need to be repaired, possible illegal connections, etc., and ₱500 honorarium for the treasurer who takes care of the bill preparation, collection, and record keeping. If the public or communal faucet rate is used, the average³² price would have been just ₱3.98 per cu.m., a little higher than the average for an individual connection of ₱3.08 and lower than the average price for a group³³ tap of about ₱5.08, but much smaller than the present rate actually collected from the association.

This type of water service appears to provide water access to more people faster, at a lower cost, higher revenues per cubic meter, and lower non revenue water to Manila Water. With this strategy, Manila Water earns higher revenues per cubic meter since the total community consumption reaches the highest consumption bracket with the maximum basic rate of ₱4.18 per cu.m. At the same time, installation costs as well as non-revenue water on the part of Manila Water are minimized with the mother meter located outside the compound, usually along main roads, where it can be easily seen and monitored for illegal tappings. In this type of service, the non-revenue water is reduced because all water that is lost or consumed legally or illegally after the mother meter is paid for by the community. So, there is an incentive for the community to guard their pipes against illegal connections and to report leaks immediately. Billing and collection costs are also minimized with only one bill for an entire community. And within the association there maybe some “community” pressure for the household members to pay bills on time else the entire community suffers in case of a disconnection for nonpayment. So, there is an incentive for the community to urge the delinquents to pay.

Privately-Managed Water Distribution. In Barangay Addition Hills in Mandaluyong City, another form of “Tubig para sa Barangay” project cropped up. The project was undertaken in coordination with the Office of the Ex-First Lady Estrada where a private contractor was given a permit to operate a water distribution system in the area with bulk water coming from the Manila Water Company. The private contractor takes care of all the investments required to set up the distribution system which is no different from the public faucets operated in depressed areas. The investment included a 100,000-gallon water tank, water pipes and meters, faucets, and hoses. Repairs and maintenance of the distribution system are also shouldered by the contractor.

The contract with Manila Water and the memorandum of agreement (MOA) with the Barangay effectively allowed the water retailing or reselling. Water is sold to the households at ₱1.50 per 20-liter container or roughly ₱75.00 per cubic meter. The contractor already supplies water to about

³¹ These are households who really cannot afford to have a connection even at the reduced amount or mostly renters who have no incentive to invest in a connection.

³² Assuming an average household consumption of 28-36 cu.m. with a maximum basic rate of ₱2.29, falling in the 3rd consumption bracket, and using 6,430 or 8,143 cu.m., will give an average price of ₱3.98 using public or communal faucet rate system.

³³ Assuming 5 households sharing a mother meter and consuming 30 cu.m. each.

4,000 families through a number of taps with long hoses scattered throughout the 41 blocks³⁴ with 100 to 200 households per block. The taps are operated by about 60 water tenders who are paid one third of the price per container or ₱0.50 per container. Each tender serves at least 50 families alternately every other day. As per the MOA with the Barangay, ten percent of the gross water revenue goes to the Barangay. Then the private contractor pays Manila Water Company the residential rate for water. At present consumption levels of 11,000 to 13,000 cubic meters (or an average of a little over 3 cubic meters per household per month) for the months of January to March, the average price per cubic meters falls at ₱6.25 which is more than twice that for an individual connection consuming 30 cu.m. of ₱3.08.

At first glance, the arrangement appears to be totally non pro-poor with households paying at least 12 times the Manila Water price. However, if we note that before this provider, people were getting water from sources of even more doubtful quality such as deepwells at a price which is 25 percent higher, the service already reflects some improvement. Note also that in this area Manila Water will not bring in its “Tubig para sa Barangay” which provides group taps because it cannot get any guarantee from the local government through its Urban Settlements Office and the Department of Social Welfare and Development that the area will not be demolished anytime soon.

The same private contractor servicing Barangay Additional Hills obtained a contract to distribute water in a government tenement (medium-rise) housing in Sta. Ana, Manila which is also under Manila Water. The contract was obtained through the same connection with the Office of the Ex-first Lady. The contractor operates 28 public faucets, with 4 faucets per floor, each is operated by one water tender who charges ₱1.50 per 20-liter container. This price is more expensive than the price of water which people fetch from a household (with a Manila Water Company connection and a booster pump) just a few meters away from the tenement compound which is at ₱1.00 per container. While most residents in the ground floor units continue to fetch and buy water from the water vendor, residents starting from the 2nd floor up to the 7th floor who used to either contract water carrier to fetch them water at ₱5.00 per 20-liter container or fetch their own water if they want cheaper water bringing it up through a push cart made of metal pipes, now appreciate the faucets. These faucets provide an alternative source which brings water directly to their kitchens or bathrooms through very long hoses (thus, more convenient) if no household member is available to fetch water. The higher price of the private contractor is supposedly due to use of booster pumps to bring the water up, cover the cost of the water tank at the ground level and the pressure tanks at the rooftop, as well as the cost of electricity.

Individual Household Connection

Maynilad Services began its “Bayan Tubig” (or “water for the community”) program which provides individual household connections in depressed areas in 1999. This program waives the land title requirement and allows payment of connection fees by installment for a period of 6 or 12 months but in some cases this has been made 24 months. These installments are lumped into the regular monthly water bills so that payment begins only upon receipt of first bill and not before the installation.

³⁴ Total land area for Welfareville which comprises Barangay Addition Hills and Barangay Nueve de Pebrero is 116 hectares divided into 41 blocks.

The Bayan Tubig is intended to provide blighted communities with cheap, potable and continuous supply of water. In the program, Maynilad is supposed to select “impoverished communities” and provide water connection to each household which indicated interest by filing an application for a water connection through on-the-spot application and or applications filed before through the branches but never entertained until this program. Through this program, Maynilad has gained three things: (1) expanded its customer base; (2) addressed the problem of illegal connections which is believed to comprise a substantial part of non-revenue water (NRW); and (3) in the process reduced NRW as well.

Before the Bayan Tubig project, residents of squatter areas in the West Zone or the Maynilad service area had to buy from vendors or pay a fixed weekly amount to gangsters illegally operating some water source or barangay/association officials commissioned to operate the public faucets in the area. Aside from having to pay so much for water, people had to queue or to walk some distance to get water and carry them home either by hand or through use of some carts. In the case of public faucets with hose, households also queued for the hose and at their turn were given an hour to fill all their water containers. Those who were unable to get water from the faucets had to find alternative sources which meant an even more expensive source or that they had to walk a farther distance.

A family in the blighted area spends so much on water per month which amount could have been used also for other basic needs. More importantly, time spent on queuing for water in communal faucets could have been spent in more productive activities. Lastly, the lack of water in these depressed communities often contributed to poor health and sanitation as people share public toilets and baths and cleaning of surroundings was not a priority.

The response to the Bayan Tubig proves that if given the opportunity, residents of blighted areas would prefer individual water connections rather than public faucets. The individual connections resulted in substantially cheaper water than before the connection where water was charged more and severely limited. Technically, this project’s framework is as follows: An underground line is built up to where it is possible. When it is not possible to bury the pipe (e.g., because the road is too narrow), the rest of the network is either above ground or on the ground, or partially covered or attached to a wall. Then this line goes up to a battery of meters. From the meters, each homeowner makes his own plastic connection, above ground. This scheme can be modified depending on the characteristics of the area.

Box 2

Bayan-Tubig in the Central Business Area. The Bayan-Tubig projects in the Central Business Area have contributed to observed improvements in the living conditions of beneficiary communities. One distinct observation was that the once mostly dilapidated houses have been slowly replaced by structures made of semi- or more permanent materials. With more time on their hands and water to use, the women can now clean their surroundings. And where storage containers or drums were a common site just outside the shanties, now many households have disposed of them since they no longer need to store as water is available from the tap anytime. This effect of the Bayan Tubig has addressed an important health concern such as dengue which arises due to the storing of water which provided a breeding ground for dengue-causing mosquitoes. Sanitation in

the areas covered has improved as households now have own toilets and bathrooms within their homes.

Suddenly with extra time in their hands, a number of households found ways of earning incomes to augment family budgets as evidenced by the mushrooming micro enterprises such as small eateries or “carenderias,” cold drink or “palamig” stalls, small “sari-sari” or variety stores, candy making which is dependent on availability of clean, and other sorts of vending, thus becoming productive. The availability of clean and reliable water made possible the micro enterprises or small business especially those which make use of a lot of water to sprout.

While provision of the Bayan-Tubig benefited the consumers, it also brought benefits to Maynilad in 3 ways: (1) it has enhanced Maynilad’s image as a service provider and Maynilad is considered by the local governments as their partner in the delivery of water services to the people and especially the poor communities, (2) it serves as an effective tool in reducing non-revenue water through the legalization of the once illegal connections and arresting further proliferation of the spaghetti connections including the eradication of water sellers who often sold pilfered water and thereby increasing the billed volume, (3) it resulted in decommissioning of many public faucets especially those with piled up bills because of the notion that public faucet water should be free and operators did not feel obliged to pay the bills or were managed by profiteering operators who controlled the prices as well as the access. The decommissioning of public faucets also contributed to the reduction in non-revenue water and its replacement with Bayan Tubig contributed to increased billed volume. Related to these gains for Maynilad is the preliminary observation by the manager of the Bayan Tubig program in the Central Business Area which notes the payment collection which she attributed to people’s fear of disconnection having known the difficulty of having no water for so many years.

Another gain for consumers also observed by the Bayan Tubig manager aside from the water access the program afforded these households in poor communities, is the increased water consumption per household as indicated in their monthly bills which must imply greater water use per capita. Estimate of per capita consumption of households getting water from public faucets or buying from water vendors ranged from 30-70 liters per capita per day (Inocencio, Padilla, and Javier 1999; Largo, Inocencio, and David 1998; David and Inocencio 1996).

Table 21 shows the total “Bayan Tubig” projects as of December 2000 of at least 10,219 individual connections spread quite evenly among the four business areas. The major Bayan Tubig projects of Maynilad are found in: (1) Parola of Tondo, Manila; (2) Paradise Village in Malabon; and (3) F. Carlos in Barangay Baesa/Apolonio Samson, Quezon City.

The Parola Bayan Tubig. Parola is a 15-hectare reclaimed land in the Philippine Ports Authority premises in Manila which is home to about 28,000 poor families many of whom are employed as stevedores, construction workers, and laborers. It serves as the showcase site of Maynilad’s “Bayan Tubig” project which as of last count has already connected 3,010 individual connections. Aside from the direct benefits to the households of this type of “Bayan Tubig” project of lowered water bills and freed up time from queuing, there are other benefits such as the employment opportunities created by the project (since the private contractor for the installation was mandated to

get their required labor from among the residents of the area) and support of community projects through commissioning of the area association to eventually³⁵ do the billing and collection.

A collection activity in a location like Parola is in itself a challenge because of the difficulty in locating the households which are mostly in temporary housing either piled on top of each other or are too close to each other and separated only by 2 to 3 feet wide alleys (despite earlier census and markings of houses supposedly for easy location) and there is also the danger of robberies because of the many dark alleys. Because of this inherent billing and collection problem for areas like Parola, the idea of commissioning resident associations to do the billing and collection is promising. Commissioning said association will take advantage of the association's familiarity of the area and residents as well as probably minimize if not eliminate the problem of collectors being robbed. The association can also provide some pressure on households who keep postponing payments of their bills.

While a lot of work remains in Parola with a target of 5,000 connections by the end of the first quarter, the present case is a good example of a working public-private-community partnership for provisions of water for poor communities. The Parola People's Council officers were even helping in the house-to-house collection of initial water bills being knowledgeable of the area and in locating its residents. While doing the collection, an officer was even rallying some households to support the Maynilad's bid for a price increase reflecting some understanding of the need to raise capital to finance water projects such as the one in their area which according a Maynilad official already reached ₱40 million as of that date, a much higher figure than the initial estimated cost of ₱8 million.

BOX 3

Maynilad's Bayan Tubig in Parola

Before Bayan Tubig. *In the past, the area was served by one public faucet managed by the Barangay Chairman. Thirty two sub-connections to the public faucet were made with each being operated by a water tender selected by the Barangay Chairman. The water tenders were responsible for manning the sub-connections and collecting money from residents who bought water from them. From their collection, they were supposed to remit a quota of ₱ 3,400.00 each per week to the Chairman. So, in order to meet the quota, they had to sell water at a price higher than the authorized rate of ₱0.25 per 20-liter container. With this system, the Chairman was collecting about half a million pesos per month. But despite this collection, the Chairman was not paying Maynilad for the billed water consumption from the public faucet. Unpaid water bills which eventually reached about ₱2.4 million prompted Maynilad to disconnect the public faucet in late 2000. The Legal Department of Maynilad subsequently filed a case against the Chairman.*

Early in 2001, before the implementation of the Bayan-Tubig program in the area due to technical and commercial issues which included the need to clarify with the Manila City government demolition possibilities, Maynilad entered into a contract with 3 organizations in Parola to temporarily manage 3 public faucets, as a stop gap solution. The contracts stipulate that the organizations shall temporarily manage the public faucets but once the Bayan-Tubig project is

³⁵ A MOA is being prepared for this kind of arrangement which will benefit both Maynilad and the members of the association which are planning to use their earnings to fund and ensure sustainability of on-going community projects like the day care center.

implemented, the public faucets will be decommissioned. Further, the associations were required to remit their collections to the branch on a daily basis. So far, these organizations have not violated the contracts and have performed satisfactorily.

The Bayan Tubig Connection Process. *In February 2000, after getting clearance from the city government that the Parola area would not be demolished, the technical issues on how to go about with the project was worked out by Central's Area Engineering Services and the Water Supply Group. In May 2000, through the joint efforts of Maynilad and the City Government, the Marketing Department of the Central Business Area started campaigning and disseminating information regarding the Bayan-Tubig project. Meeting with residents were conducted to ensure that information regarding the project is fully communicated. The information disseminated included those on the process of applying, application fees, and payment options available. Response from the residents was positive and applications for new water service connections started coming in. On the third week of August 2000, physical works for the installation of the individual connections had already taken off. Pipelaying of a 250 mmØ PVC mainline along MICT road including the simultaneous laying of laterals within the Parola area was in progress. A total of 5,000 individual service connections is being targeted for completion by the first quarter of year 2001.*

Bayan Tubig and More. *In addition to the delivery of water services to the area, Maynilad also concerned itself with the promotion of livelihood projects by tying up with different NGO's in the area. In fact, we already have initial talks with Congressman Osabel's group, Foundation for Social Investments, Center for Community Transformation (CCT) and Bayan Finance of ABS-CBN Foundation although nothing concrete was agreed yet. The company planned to involve the Parola People's Council, the organization currently managing the public faucet in the area. This organization, although not an NGO has saved money from the proceeds of the public faucet and has planned to put up a Day Care and a Health Care Center for the community. Since the public faucet which has been the association's source of income would soon be decommissioned, Maynilad plans to introduce other livelihood programs for the community to help implement and sustain its projects (Central Business Area Bayan Tubig Manager, March 2001).*

Paradise Village Bayan Tubig. *Paradise Village located in Municipality of Malabon, is a village divided into six phases covering a total of more than 6 hectares. Contrary to what "paradise" connotes, the village is one of the biggest slum communities in the northern periphery of Metro Manila with an estimated population of about 30,000. Since Malabon is below sea level, like most areas in the municipality, Paradise often experiences flooding even with slight rains. And being a squatters colony, it never enjoyed a regular MWSS connection before privatization but was serviced by some public faucets and private vendors who were most likely illegally tapping MWSS main lines. With the privatization, Maynilad implemented the Bayan Tubig project in the Village which initially connected over 500 households in Phases 1 and 2. Stories heard from other Bayan Tubig project areas were the same stories that were heard from households who benefited from the individual connections.*

For instance, a household which used to pay ₱50 to ₱60 per week to other households or some water syndicates now pays less than ₱40 a month for a 10 cubic meter consumption. As in other areas provided with Bayan Tubig connections, households who have been used to walking some distance (25-100 meters) or queuing for hours, truly appreciate the benefits and convenience of a connection in

which all they have to do is to open their taps when they need water. Also, before the connection, people used to invest in storage containers and store water for daily use but which they find to be unnecessary now.

An important aspect of this project is the role the non-government organizations (NGO) played in providing water and sanitation service in the area. A foreign NGO called the Medecins San Frontieres³⁶ (MSF) served a mediating role between the interests of the public (the community) and the private sector (in this case the Maynilad) with a lot of help from “Lingkuran sa Ikauunlad na Ganap ng Pamilya” (LINGaP)³⁷ Foundation, Inc., a local NGO, and the local government.

The MCF is a private international NGO which aims to improve the sanitary conditions in the slums encouraging active community participation and local NGO support, initiating and strengthening linkage between communities and public services, and providing education and training on sanitation and health. To carry out this objective, the MSF had to establish linkage with local partners which include the Letre Home Owners Association (LHOA) which includes a committee on health and sanitation (CHS) representing the community, LINGaP, the municipal government of Malabon specifically the Municipal Health Office through the Urban Health and Nutrition Development Program, Department of Public Works and Highways (DPWH), and Maynilad. The project initially conceived was a comprehensive one which will remove stagnant water in Phases 1 to 4, establish a drainage system, provide a water service, construct latrines, and educate the population on health and sanitation. In addition, the project aims to provide support to or complement the efforts of LINGaP, which is an the active local NGO in the area committed to work on sanitation and health education.

In the partnership forged, each partner has defined contributions. The involvement of the community was aimed to promote ownership of the project and to ensure its acceptability and sustainability. In the sanitation project component, the community provided the manpower, meals for the workers, storage and security for the materials, tools and equipment for the project. The manpower included: (1) transporting the materials, tools, and equipment from the storage area to the construction site; and (2) labor for the digging of canals, specifically each beneficiary was responsible for the canal in front of his house. On the meals, the residents who volunteered took care of their own food. Overall, each community member was responsible for connection for disposal of wastewater from his lavatory, kitchen and other taps, and bathroom to the new protected open canals.

Both LINGaP and MSF provided financial, logistic and technical support. But LINGaP specifically took charge of the community organizing, and the education and awareness programs on hygiene and the environment. Together with the committee on health and sanitation of the LHOA, LINGaP conducted meetings/ information dissemination and training on: (1) the health situation in the community; (2) most common diseases related to poor environmental conditions; (3) modes of disease prevention; (4) the role of the sanitation project in disease prevention; (5) the participation of the community in the sanitation project. The idea of the educational program on health and sanitation is to increase awareness on the issue, motivate the community to participate and become responsible for its own health and sanitation.

³⁶ Means “doctors without boards.”

³⁷ LINGaP means “to care” while this acronym and the full meaning means to “support for a holistic family development.”

The Medecins Sans Frontieres provided the technical team and supervised implementation of the project as well as contributed a substantial amount for the materials and equipment. The technical team composed of several masons and a foreman was recruited from the community itself through the committee on health and sanitation (CHS) and the Letre Home Owners Association. MSF paid the wages of the technical team members and provided the overall management and supervision. In addition, MSF organized a system of maintenance of the protected canals with the assistance of LINGaP and CHS.

The Malabon government contributed a total of P600,000 to purchase the part of the materials required to construct the drainage system and provided advice in the implementation of the “soft” part of the project which involved educating and training of the community on health and nutrition through its Urban Health and Nutrition Program (UHND). While the Department of Public Works and Highways provided the technical drawing and specification specially in the building of a small bridge from the main road to the Village entrance.

Maynilad provided individual water connection through its Bayan Tubig program following its procedure (see Box 3) and made sure the community satisfies the minimum requirements. Because of resistance from private owners for Phases 3 to 6, only Phases 1 and 2 were connected. Phases 3 to 6 continue to source their water from public faucets, vendors and households from Phases 1 and 2 who sell water. Technically, reselling is not allowed but Maynilad is tolerating this until individual connection can be provided in the other parts of Paradise Village.

While the water and sanitation project in Phases 1 and 2 is generally a success, it experienced set backs which has slowed it down like most participatory projects. Project experience indicated that it is often difficult to obtain good participation for a lot of reasons. For one, is the reality that some must work to feed their families while others refuse or hesitate to participate as they see others not participating. There are also households which are already satisfied with their own living conditions and find no incentive in joining the community work and helping out. Related to this is the lack of incentive to work on others’ canals as no direct benefits can be derived from it. Nonetheless, the project was completed and the community now enjoys the benefits.

F. Carlos Bayan Tubig Project. The Maynilad F. Carlos project covers a 3.9 hectare land owned by the government is situated under the MERALCO³⁸ electric towers in Barangays Baesa and A. Samson. This area is home to about 6,000 people³⁹ or about 1,200 families living in shanties and temporary housing. Residents in the area are mostly blue-collar workers such as carpenters and laborers, vendors or peddlers, or owners of small-scale business like “sari-sari” or variety stores, bakeries, eateries, and repair shops of small electric equipment. There are five existing neighborhood associations in the area which aim to unite families to promote the community’s welfare namely: F. CENA, NAMAFA, Tanglaw, SAMAKAPA, and Friendship. The F. CENA association was the most active and was the first collaborator of Maynilad in the area which eventually assisted the other associations in their succeeding applications with Maynilad.

Before the project, an estimated 40 percent of water needs of the community was supplied by six MWSI public faucets inherited from MWSS. The system of water supply in the area was for each

³⁸ This refers to Manila Electric Company.

³⁹ An average of 5 to 7 persons live in each house mostly composed of 2 to 3 families.

household to get one hour of water from the public faucet through a hose every other day at an hourly rate of ₱15 or a minimum of ₱255 per month per household assuming 15 days of use. The remaining needs were supplied by water vendors who were most likely selling water from illegal connections. If each household were to get one drum or 200 liters per day, it would have to pay ₱25 to ₱30 per drum. On a monthly basis, this cost would be about ₱750 to ₱900 per month per household or roughly ₱150 per cubic meter. Alternative water sources included a number of shallow wells existing in the area and during rainy season, the collected rain provided additional water.

With the successful first water project in Novaliches which provided individual water connections to a depressed area, the Maynilad Novaliches Branch met with residents of the other depressed areas in its jurisdiction and offered the same program to these communities which were primarily served by public faucets. The F. Cena Association officers in Barangays A. Samson and Baesa were among those who met with Maynilad people and welcomed the idea of individual connections.

As in the other Bayan Tubig projects, the Novaliches Branch of Maynilad campaigned for filing of applications and proceeded with the feasibility study in July and August 1999. Meetings with the different associations in the barangay were conducted discussing the procedures of registration and pricing. And to make installation charge affordable, it was agreed to have a minimum down payment of ₱400 and the balance of ₱2,000 to be paid in 10 months. The mass registration and application processing resulted in about 700 families applying and paying the down payment. On September 16, 1999 the project was started with the laying of the about 422 linear meters of 150 mmØ PVC main pipe by a private contractor which completed the job in seven days. The hydro-test was passed two days after. The installation of laterals or tertiary mainlines, where water meters were hooked up, by the in-house teams of Maynilad was completed by October 13. By the 31st of October, a total of 884 water connections were installed and the first bills were delivered about a month after.

In the Bayan Tubig Project, the community did its share of helping which facilitated the whole installation process. The officers of the different associations in the F. Carlos area, helped in the mapping, assisted the Maynilad in locating the houses to be connected, and thus facilitating the laying of pipes and installation of individual meters. Residents who were farther from the entrance of the area helped the Maynilad people in carrying of the pipes to their respective premises and assisted in laying them. In addition, the community provided security for all project materials, tools and equipment and Maynilad attested that in this particular project no problem of theft or looting was experienced.

After the individual water connection, some major physical changes were observed in the area. Where houses used to be made of temporary materials, now most of the houses are made of more permanent materials such as hollow blocks and cement. Before the connection, containers or drums were a common site just outside the houses as residents had to store water, now they are hardly seen as storing water is no longer needed. Many of these households have already disposed of their storage drums or containers and some even used the flattened metal drums to cover some open canals while others converted the drums into garbage bins. Other “indirect” benefits of the individual connections due to freed up time, include mothers having more time to care for their children and tend to their needs. Also, some residents have now time for more leisure while others found more productive ways of spending their time through income earning activities.

Before the Bayan Tubig project in September 1999, the F. CENA association availed of the public faucets two years before. This application was strongly opposed by the operators of illegal water in the area. Because of this problem, the women in the area took an active role in the installation of the public faucets which were eventually managed by the Association until they were decommissioned when the individual connections were installed. The women played a major role for two reasons: (1) most of the males were at work at the time of the construction work, and (2) while the gangsters running the distribution of the illegal water in the area would not hesitate to harm the men, they would not want to harm the women. The women together with some police escorts, served as the shields for the Maynilad workers. They helped in the carrying of materials, tools and equipment and assisted the Maynilad contractor in the digging and laying of pipes.

Manila Water's Addition Hills Project. Manila Water has also individual household connections for some poor communities. The more prominent is Manila Water's project in one barangay in Mandaluyong which has one of the largest number of squatters in the city. The case of water connections in Barangay Addition Hills is different from the regular Manila Water "Tubig Para sa Barangay" projects which serve clusters of 4 or 5 households. Since in this area there were already existing individual connections, there maybe a strong resistance to or some difficulty in implementing a group tap. So, the new water connections made had to be individual connections as well. The water projects in the area included rehabilitation through replacement of pipes and defective or lost water meters, and proper laying of pipes. Most of the "new" connections were primarily legalized or regularized illegal connections.

With the water service improvement project of Manila Water in the area which included the installation of a pumping or booster station, more households were encouraged to be reconnected or to be legalized. Before the project, water pressure had been very low and there was hardly any water to collect or store so people had to wake up at 3:00 in the morning, while most of the users are asleep, to fill their containers. Waking up at 4:00 a.m. meant no more water for the day and therefore one has to contend with this fact or find water from farther sources or even more expensive sources.

Old water bills for those who kept their accounts were set at minimum with a flat rate of ₱25 per month. The minimum bill was because of the fact that hardly any water came out of the taps and that most of the connections had already lost or defective meters. On the lost meters, some explained that the meters were intentionally removed to enable them to collect water just before the meter where pressure was a little better. With the rehabilitated connections, the results would be higher water bills than before in many parts of Addition Hills. However, despite this expected higher bills households are just happy and thankful to now have water for most of the day. The 100 households near Fabella Road for example according to an association official are willing to pay the "correct" bill in exchange for availability and reliability of water supply and "less sleepless" nights. These households no longer had to wake up at 3:00 am to make sure they still have water to collect for their use each day.

Sanitation and Sewerage

Sanitation conditions can be inferred from the kind of toilet facility used by households in Metro Manila from the 1990 Census of Population and Housing. **Table 22** shows that in 1990 only 64 percent of the households in the National Capital Region have water sealed toilets which are connected

to a sewer or septic tank for exclusive use while 18 percent share the same toilet type with other households. About 9 percent of the households also use water-sealed toilets but with depositories other than the sewer or septic tank (e.g. river, lake, stream or canal, etc.). Households using closed⁴⁰ pit and open⁴¹ pit total to about 3 percent while about 4 percent of the households mostly located in Navotas and Malabon areas are without toilet facilities at all or no regular system of waste disposal.

Poor sanitation and sewerage have possible adverse impacts on the health of the population and the environment. Since existing conditions on sanitation and sewerage in Metro Manila are unsatisfactory, there is reason for concern. This apparent lack of attention on sanitation is probably due to its nature rather than for lack of concern at all. First, is the huge financial requirements for sewerage and treatment facilities. Second, where water access is not yet provided to all, efforts have been focused on catching up with the ever increasing water demand such that sewerage takes a back seat.

The MWSS sewerage service before privatization covers less than 7 percent of the households in its service area with the sewerage facilities confined only to some areas in the city of Manila and parts of Makati City. While most households utilize own septic tanks or common septic tanks, those in the slum areas are without public sewers and drains and rely primarily on rudimentary latrines without any proper drainage system.

With the privatization, coverage targets for sewerage and sanitation services (as shown in Tables 6 and 7) are made to address the poor condition of sanitation and sewerage in the MWSS service area. The first commitments begin in 2001 with Manila Water supposed to be increasing the coverage for the East zone to 3 percent while Maynilad increasing the coverage for the West zone from 13 to 16 percent while sanitation is supposed to decline to 38 and 43 percent, respectively. Given these targets, both concessionaires are working toward their targets with their respective strategies.

Strategy of Maynilad

A 2001 draft report of Maynilad's sanitation project (2001) in low-income areas gives details on the concessionaire's two pilot projects to be implemented in the West zone. The report cites an estimate by the Philaqua Consultants (2000) that 35 percent of the population in its service area live in densely populated shanty towns. Given this condition, Maynilad believes that "it is necessary to readjust (its) service offerings through the development of low-cost, simplified technologies that are both technically and economically viable." The goal of the pilot projects is to develop a water network for areas not yet covered as well as to install a sewerage system which will include an in-house design. The first pilot project which is a sanitation project only will be implemented as a regular project which will use a commercial approach and will primarily involve marketing of the service. The other pilot project which will include coordination of the installation of a storm water drainage, the collection of household refuse, and the supply of electrical power services. In addition,

⁴⁰ This is the type of toilet which has no water-sealed bowl and the depository is constructed usually of a large circular tubes made of clay or concrete, a pit with concrete sides or an ordinary pit or drum, covered on top and has a small opening.

⁴¹ This is a dry pit without any enclosure and usually without toilet bowls.

the project will provide education on hygiene, training of technical personnel, recycling of small water vendors and micro-financing arrangements.

The idea of implementing the two types of service is to be able to evaluate the impact of the integrated project vs. that of a pure sewerage project only and to assess the need for what the concessionaire calls the “soft” part of the project. The two approaches can then be compared in terms of costs, success, and impact. At present, Maynilad has already done a characterization of the possible areas for the pilot projects, the field visits and survey, and has even carried out a pre-selection process for the candidate areas based on some defined selection criteria and procedures. Final selection is yet to be carried out with focus group meetings with the community together with the sector managers and engineers of Maynilad, and barangay officials. In these meetings, the respective projects will be presented to the target areas and the willingness of the residents to connect will be assessed.

Innovative solutions for low-cost effective sewerage systems for low-income areas in Metro Manila slums have been sought to provide in-house sanitary options. Given limited space inside and outside the houses and the existing sanitation facilities, three levels of services were suggested by the consultant hired by Maynilad: (1) private, (2) public, and (3) shared. These options will be presented to the target pilot communities. Under the private level of services, 9 options are presented: (a) water closet only, (b) option *a* plus lavatory, (c) option *b* plus shower and faucet, (d) option *c* plus kitchen sink, (e) option *d* plus wash tub, (f) water closet plus faucet, (g) option *f* plus kitchen sink, (h) water closet plus kitchen sink, and (i) option *h* plus shower and faucet.

The public level of service will include water closets, urinals for male users, wash bay areas, and showers. The shared option will be similar to the public option but collectively used by two or three families who live in separate houses. Then for each option, two sets of costs will be presented to take into account financial ability of the poor. One set will be made of cheap materials, accessories and fixtures while the other will be made of better quality and more expensive materials, accessories and fixtures.

The detailed plan of Maynilad appears promising and indicates working closely with the community even in the planning and working with the local government through the barangay. The results of these pilot projects will determine what forms and levels of sanitation services will be finally implemented to the rest of its service area especially in the depressed communities. However, implementation is dependent on availability of funds which Maynilad currently does not have given its existing problems.

Manila Water Strategy

The Manila Water service area is characterized by quite a number of medium-rise residential buildings (which includes tenements) for poor to middle income families. These housing facilities have units ranging from a hundred to about four thousand with an estimated population of about 1000 to over 25,000. Manila Water estimated the total population living in the 26 sanitation project sites to be about 200,000 housed in a total of 21,500 units. Given this nature of its service area, Manila Water believes that the best strategy is to install communal sanitation projects which would provide small treatment facilities in these housing. An important feature of these types of housing is that they often have common septic tanks, so what is needed is the installation of small treatment plants for the

wastewater and connect the septic tanks to the plant and safely dispose the treated wastewater to the storm drains. This strategy of serving these densely populated housing allows Manila Water to deliver service to more people per unit of investment and raise revenues from the sewerage connection. At the same time it would be a faster way of reaching its (especially the immediate) targets specified in the concession agreement.

In this project, the Manila Water seeks community approval and formalizes or seals the arrangement with a memorandum of agreement (MOA) signed by the officers of the associations representing the communities. Community approval is done through different approaches: (1) house-to-house campaigning on the merits of a treatment facility and the corresponding cost and getting individual household agreement to the sewer connection and payment of the corresponding fee; (2) approaching the officers of the associations only and getting their approval and commitment and the officers take charge of convincing their members; and (3) negotiating with a government agency (e.g. National Housing Authority, Bases Conversion Development Corporation) managing the residential buildings not yet turned over to an association.

Of the 26 residential buildings approached as of mid June this year, one project is already operational and another will be completed in July. Already 10 community approvals were already obtained and MOAs with Manila Water for the establishment of the common sewage treatment facilities within their premises and as a commitment for the residents to pay for sewerage connection once the facilities are installed have already been signed. The rest of the residential buildings are either with MOAs for signature already or Manila Water is still doing its community work⁴² or campaigning while the other communities are currently reviewing its proposal. So far, at least two communities have shown strong resistance to the proposal of putting up treatment facilities in their areas. In addition to the 26 projects, there are 8 new ones that are being developed.

The first completed common treatment plant was in an upper middle income subdivision which took at least 3 months of community work. The community work consists of mostly meetings with association officers and residents and convincing them to “connect” to Manila Water sewer system and then pay the monthly sewage bill which is equivalent to 50% of basic water charge. The MOA includes not only the agreement to pay the sewerage charge but also to provide a piece of land for the treatment plant. And since the area of 115 households already had common septic tanks and pipes to the tanks, no connection fee was charged since the task done was mainly to connect the septic tanks to the treatment plant. The wastewater from the septic tank goes to the small treatment plant with a capacity of 0.1 million liters per day (MLD) which is then operated and maintained by Manila Water. The total cost of the project was shouldered by Manila Water.

The second sewage treatment plant (STP) which will be completed in July is the “Makati Pabahay” project which includes water supply as well. When completed, the STP will have a capacity of 0.6 MLD as it will be servicing not only the medium rise residential building but the adjoining public school as well. Construction of all the succeeding treatment facilities is pending upon release

⁴² The Manila Water sanitation and sewerage team has done already a lot of community work (usually done in the evenings and weekends since most of the target respondents are working during weekdays) getting the agreement and signatures of majority of the residents in the residential medium-rise buildings already and getting the officials to sign an agreement with them to make the arrangement binding for the association to provide land for the treatment plant and for its members to pay the monthly sewage charge which will be collected together with the water bill.

of funds from a World Bank loan intended for sanitation and sewerage. The Manila Water team in-charge of this project expects to start construction of treatment systems for sites with already signed MOAs by October or November this year.

In areas with problems related to their sanitation, the Manila Water team did not encounter much difficulty in convincing the residents of the benefits of the wastewater treatment plant in addressing of the foul smell due to non-treatment of sewage. When the residential buildings are still under the management of the National Housing Authority (NHA), the decision to connect is made by the NHA on behalf of the residents, lessening much the community work. In areas which presently do not have water supply, Manila Water is promoting the wastewater treatment system by promising to supply water together with the sewage treatment. This strategy is of course closely coordinated with the business areas which are responsible for the water connection to guarantee connection upon construction of the treatment plant. In most cases, households were convinced to have the sewerage connection through use of a simplified illustration of the benefits of the sewage treatment plant and highlighting of the relatively low price to be paid which is only half of their water charge. An example cited in the brochure written in Pilipino was that if the household is paying ₱100 per month for its water, it will just add ₱50 per month for sewage treatment which is a very small price to pay for a healthier community and environment.

IV. Lessons Learned and Future Directions

Private sector participation in the water sector in the Philippines has encouraged various partnerships in water and sanitation provision for the urban population especially the urban poor. With the privatization of MWSS in 1997, different forms and levels of partnerships were instrumental in extending a basic service to poor households. In the experience in the MWSS service area, a number of important lessons can already be gathered and learned in terms of addressing the needs of the poor and poor communities and alleviating poverty in the process:

- Benefits from the Public-Private Partnership. From the interviews of households and the focus group discussions, it is clear that the serviced households have benefited in terms of: (1) access to and availability of safe and better quality water; (2) much reduced cost of water per cubic meter; (3) increased per capita consumption which is higher than the 30-70 liters per capita per day average for households buying from vendors, (4) and freed-up time from queuing which households now utilize for income earning activities, more time to care for children or more leisure. Indirect benefits were obtained by households still without connections in depressed areas served by the water projects of both water concessionaires in terms of slightly reduced prices (in some cases) but more importantly in terms of greater convenience since they do not walk far anymore to get water and there is hardly any queue since they now buy from households just next to them.

The above benefits to the poor and poor communities have been realized through the relaxation of earlier stringent technical and institutional requirements in providing water service connections by both concessionaires. Specifically, the waiving of land title requirement and allowing installments in the payment of connection fees spread over 3 months to 2 years made possible the provision for poor communities. This policy of the concessionaires reduced cost

of connection and paved the way for regularizing illegal connections in squatter communities which in turn reduced non-revenue water and benefited the concessionaires as well. This differentiated service approach (adapting technology) for the poor or easing or setting aside of standards for system construction which often lead to high start-up costs and create a disincentive to expand services, actually raises the quantity as well as quality (relative to before provision) of services delivered in poor communities. Although these services fall short of the standards, these represents a big improvement in terms of providing better quality water at much reduced price.

- Forms and Levels of Partnerships and Roles of Partners. There are several levels and forms of partnerships. First, is the public-private partnership with the first represented by the MWSS and the latter by the two concessionaires. Second, is the private and community partnership with the community represented by community associations and leaders. Partnerships with the communities can range from the formal partnership forged through a mini water distribution system or a water bill collection contract and in the sanitation and sewerage project provision of land to less formal which mainly involved the community at the beginning of the project implementation. Another partnership is that of private (Manila Water or Maynilad) and local government partnership where local government is represented by the barangay officials or the municipal or city officials. Yet another level is that of private, non-government organizations, and community partnership as in the case of Maynilad project in a village in Malabon where the NGOs were instrumental in facilitating connections and providing a sanitation and drainage system. A private-private, where the other private is a sub-contractor, and private (subcontractor)-LGU partnerships characterize the Manila Water projects in Sta. Ana Tenement and Addition Hills.

For water projects, community participation in the case of Maynilad was more of active participation of area associations (especially officers) in identification of member residents and certification of residency, facilitating applications by helping in giving out application forms to member residents and submitting this to Maynilad (in some instances), and in the implementation providing security for materials, tools and equipment, assistance to workers in locating households which facilitated installation. The process starts with consultation with the community on the water project and the community's acceptance of the project.

Community participation in the case of Manila Water begins with the consultation stage with the concessionaires encouraging the community to unite and agree on phasing out of all illegal connections and decide on the form of service which is appropriate to the community and acceptable to the majority whether the bulk water or a group tap. Once the community agrees on the form of service, officers collect the individual connection fees and pay Manila Water or a private contractor hired to do the individual household connections in the case of bulk water. The partnership with the community continues in the bulk water where the community association manages a local distribution net for the entire area. In some water projects of Manila Water, community participation was in the form of labor contributions especially in the diggings and fillings during installations of pipes from the battery of water meters to the respective households which reduced the costs of installation.

In almost all cases, both concessionaires had to work with barangay⁴³ or area association officials. Most of the coordination and linking is done with the barangay and/or association officials who do the community mobilizing so the concessionaires can have the opportunity to market the service, i.e., explain the project, convince the community to unite and cooperate in the project by agreeing to legalize illegal connections, and extending all support necessary. Barangays also give endorsements for issuance of an environmental certificate of conveyance (ECC) by the Department of Environment and Natural Resources (DENR).

The role of the city/municipality is mainly in giving permits to dig and fill and in some cases the city/municipality can show more support by granting global permits which will only require the concessionaire to inform it of the project. In this case, a barangay project clearance is enough to implement the project and this clearance is often given free of charge. Maynilad identified delays in permit granting of the city as a major constraint in fast-tracking water projects especially those which require excavation and digging of main roads. In some cases the municipality/city waives the excavation or digging fees while the barangay may also forego the permit fees. In other instances, the city/municipality also provides financial support for some materials as in the sanitation and drainage project in Malabon or in the water projects of Manila Water in Marikina and Pasig.

On partnerships with NGOs, the role of NGOs was primarily on information, education, and communication campaigns as well as in community mobilization. In some areas where NGOs have already established their presence, partnerships with them are forged. In other projects where no existing NGOs work, no partnership was formed. In the experience of Maynilad, all of the active NGOs are local except in the case of Paradise Village where Maynilad worked with an international NGO.

While the partnership by Manila Water with another private partner whose business is in water reselling is far from ideal and a lot could still be desired, it made possible provision of an alternative source which serves as an improvement to the existing system in the areas served. The private partner shouldered the investment requirements to put up a working mini water (hose) distribution system in an area which may otherwise would have a long wait because of the large capital cost required to bring better water service to households in terms of better pressure and more water which otherwise will not yet be provided by the concessionaire responsible to the area. Note that the area was serviced before by public faucets which were decommissioned by the old MWSS because of the nonpayment by the barangay officials operating them.

The success factors in local community participation and partnerships in water and sanitation and sewerage services provision, include the presence of a strong NGO or people's organization (PO) which contributed much to the successful implementation of water projects in the depressed areas while the cooperation and support from the barangay officials also facilitated project completion. In instances where there was some resistance from parties who

⁴³ Mayors are usually invited upon completion of the project and in the inauguration. This act promotes good rapport with the local government and gives advantage to succeeding water projects in terms of easily getting permits to dig and fill among others. This has been generally the experience shared by two concessionaires.

were operating the public faucets or running the illegal water distribution, the people provided support and some protection to the construction workers with assistance from the local police to push through with the installations without interruptions.

In the experience of Maynilad, significant factors which contributed to the success of its water projects include: (1) the effective coordination with city and local officials; (2) effective information dissemination to the beneficiaries on the Bayan-Tubig Program; (3) cooperation from the residents; and (4) getting public confidence by making good of the promise of providing water (Maynilad 2001).

Factors which serve as constraints in the successful implementation of water and sanitation and sewerage projects include conflict of interests of parties involved when the officials concerned are/were operators of the public faucets which had been “earning or profiting” from the sale of water to the area residents. Another major constraint is when the land squatted on is privately owned, in many cases the owners refuse to allow connections as it would only legitimize the squatting and when the owner decides to use his land, it would even be more difficult to “uproot” the existing squatters. Lastly, the technical problems encountered on how to install the service connections considering the location of the area (tapping point of tertiary line was across the estero) have slowed down the process.

Overall, the form, level, and degree of partnerships formed differ from area to area depending on the local conditions. Participation of parties can be small, informal, and immediate as in the contribution of labor and construction materials, or mobilization of the community, or capability building and empowering of the community, or can be more substantial, formal, and continuing such as management of a mini water distribution system or a billing and collection contract.

- Strategies/Approaches to Water Supply. The strategy of providing group taps or bulk water seems to provide a wider reach per unit of investment as it services either a whole community with bulk water or group taps with just one mother meter. So, one connection can imply right away servicing 2 to 5 households or over a 1000 households with the bulk water. These types of service can: (1) reduce or at least not increase the non-revenue water proportionately with the increase in connections and households have incentives to report leaks and illegal tappings as the financial burden of these problems are on them; (2) obtain effectively higher water revenue per cubic meter; (3) lower investment cost per household service connection and reduce billing and collection costs, thus be more cost effective; (4) cover more households per unit of investment; and (5) generally lower connection cost to households. The disadvantages of these types of service include: (1) charging of households at least twice or three times the price of an individual connection, thus these types of service are inequitable and still regressive as the poor pay more for the same amount of water consumed relative to the middle and upper income households who have individual connections; (2) sustainability of these types of service depends on a reliable and responsible leader or officers in the case the bulk water who can be trusted with water payments of households and who will be able to run a mini distribution system efficiently. Also, this reliance on a strong individual leadership which may not be always present in a community can be a constraint and local systems always face the problems of local politics.

On the other hand, the individual connections are ideal as they are equitable with households paying the same price as all other households within a service area and there is no added community work of forming groups and identifying a leader to be responsible for the connection nor is there a need to form and empower water associations to run an efficient and sustainable mini distribution nets. Among the weaknesses of this type of service are: (1) relative to the group taps or bulk water, it can be more costly and have higher investment requirements per service connection due to the technical and physical difficulties of installations in depressed areas; (2) it can still be prone to illegal tapplings; (3) it can lead to higher NRW to concessionaires and households may not have as much incentive to report leaks and illegal tapplings as in the other types where the financial burden is on the households; and (4) billing and collection can be difficult and dangerous in big squatters area.

- Sanitation and Sewerage. It is clear that not much has been done yet on sanitation and sewerage. Expansion of actual service has been low particularly for sewerage and sanitation for the poor. This aspect of water provision will continue to be the bigger challenge facing both concessionaires in Metro Manila given the huge investment requirements. The otherside of the problem is the technical challenge of providing the suitable sewerage system given the existing structure of the metropolis and the nature of coverage area. The other challenge will be in convincing people to connect and making them pay the price especially those who have been connected before but allowed to disconnect because of problems experienced with the sewer connections.

However, with privatization it appears that sewerage and sanitation is getting more attention than before because of the specified target improvements in the service. Without the private sector, it may have been the case that this component will continue to take a back seat to water supply given limited public resources and its huge investment requirements. The substantial contribution of the private concessionaires in this area is still to be seen.

In the case of the first sanitation project of Manila Water, the community through the association was willing to contribute and provide land for the small treatment plant as its share in the project. The experience of Paradise Village in Malabon shows an international NGO working closely with a local NGO and the LGU for a sanitation project which included toilet facilities and a drainage system. Such system is still far from ideal but it is already a start toward creating consciousness in keeping the environment and surroundings clean. The partnerships with the community, LGUs and NGOs contributed to the realization and facilitated the implementation of a sanitation system in a depressed area. Thus, there is a big potential to work and partner with NGOs with interest on health and sanitation as part of overall family welfare and the LGU (city /municipality level) not only in information, education and communication campaigns but even in sharing of some costs. Then the private concessionaires may just provide a small treatment facility at some point before the wastewater goes to the main drainage or canals or creeks/rivers.

- Poverty Alleviation and Water and Sanitation. There are indications and good reasons to believe that provision of water for the poor and poor communities can be a potent tool for poverty alleviation. Lack of water and sanitation impact on poverty through four dimensions:

(1) health; (2) education; (3) gender and social inclusion; and (4) income and consumption (Bosch, Hommann, Sadoff, and Travers 2000).

In the case of the poor in Metro Manila, the lack water and proper sanitation has certainly affected income earning potentials due to time spent on collecting water which could have been used for more productive activities, or due to poor health, or lack of opportunity for businesses requiring water inputs. As gathered from the interviews of poor households, the provision of water by the two concessionaires has given them not only water but more time in their hands which they now use for more child care, income earning activities, and even more leisure time. Also, while households used to spend so much on water before the connections and dividing whatever is left for all the other basic needs, now with reduced water budget, more money can be spent on food and the other needs.

The women and the children who often shared the burden of water collection as the husbands are out working have benefited much from the provision of water. Now, the women have more time to care for their children as well as venture into income earning activities. In the squatter areas in Metro Manila which have been given water by the concessionaires, the sprouting of small or micro enterprises is striking. In one Maynilad Bayan Tubig project which serviced a group of households along a creek in Manila, a candy making business, which requires substantial water input, is said to have flourished with the availability of clean and reliable water.

In the water projects of Maynilad, the collaboration or partnership directly contributed to employment through the concessionaire's agreement with its private contractor to hire local workers in the project construction with the latter primarily responsible for the design and supervision of the work. In this sense, the provision of water contributes to poverty alleviation although not in a sustainable manner. The livelihood opportunity for the community-based organization that will be implemented through the billing and collection contract may be more sustainable and will benefit not only a few workers or households but the whole community itself through the community projects that will be undertaken by the association upon implementation of the contract and once enough income can be earned.

On social inclusion, the residents in the poor communities that now have water connections feel that they have become a legitimate part of society, receiving the same services that the rest has been enjoying. The water service has given some sense of self-esteem and has encouraged many to pursue further improvements in standard of living as evident in the changing of house structures into more permanent ones and maintaining of cleaner environment.

Opportunities for Improvement

- On Partnerships. In the case of the community running a mini-water distribution system, there may be a need to properly empower the community association at the same time provide it with the right incentives to make the arrangement more equitable and to ensure sustainability. Specifically, discounts for technical losses may be granted. This discount should take into account the reduction in non revenue water (due to technical problems) plus the savings in the billing and collection costs on the part of the concessionaire. An example which has been

applied in computing charges for public faucets, is the 10 percent reduction in total consumption of the community. As an additional incentive, continuous technical support and “empowering” of the water association should be provided. The MWSS regulatory office should be able to monitor prices and if necessary, regulate. Part of the empowering and capability-building is the technical assistance in tariff setting and subsequent adjustments. In the longer term when the service area is almost completely served however, the concessionaire can choose to take over the operation and convert the mother meter or bulk water into individual connections. An alternative option would be to charge the community the price which would approximate individual connection charges so members would not be paying at least twice as much.

At present the private sub-contractor distributing water in “high” risk areas has unregulated price. A system must be set up to regulate prices by retailers of this type described above especially if water being distributed is obtained from one of the concessionaires. In the present set up, the MWSS Regulatory Office is tasked with monitoring and regulating prices charged by the concessionaires with the basic idea of protecting the consumers from monopoly prices. Since the prices charged by the private subcontractor are borne by the final consumers, they must be regulated to ensure that reaping of monopoly profits is not merely passed on from the private concessionaire to the private sub-contractor. However, regulation must be balanced with enough incentives for private subcontractors to continue to provide capital investments and bear more risks. This type of arrangement is especially relevant in areas or communities where the concessionaire is not willing to go into because of too much risk exposure or initial investment or infrastructure requirement is just too high and would be most likely served at near end of the concessionaire’s contract if at all.

With the disadvantage and higher cost of billing and collection in squatters area, going into a billing and collection contract with an area association with a tested performance appears to be promising. First, the contract will minimize cost as well as the risks on the part of the concessionaire. Second, it may also serve as an incentive for the community through the association to protect the concessionaire’s interests by reporting leaks and illegal connections to minimize non revenue water.

The Concession Agreement did not make any specific provision on how poor households or poor communities are to be served except for provision of public faucets in depressed areas which cannot be given connections. Thus, poor households covered by the performance targets are being served through sharing water connections as in the group taps or public faucets or bulk water, paying higher prices than middle and higher-income households with individual connections. Future partnerships or contracts should consider this weakness and explicitly take into account the needs of the poor and poor communities starting from the design, to contract preparation, and implementation such that they would not be disadvantaged even more or at least arrangements for them will not be regressive.

- Water Supply. Regardless of the good intentions and programs to provide for the poor if there is no water to deliver, the programs will be ineffective. The failure of MWSS Residual office to comply with its obligation to provide on time the additional raw water for distribution as stipulated in the concession agreement (CA) has partly served a constraint for the

concessionaires to achieve their targets of providing 24 hours water at adequate pressure. In the CA, while there was some understanding for MWSS to provide additional raw water, now this responsibility of developing new sources is passed on to the concessionaires. However, regardless of who is responsible, demand in Metro Manila continues to grow and MWSS or the concessionaires should act fast or even more shortages can be expected in the near future.

The performance targets and other provisions of the MWSS concession agreement together with revised projections of water demand indicate that a significant share of water supply will have to be met through groundwater pumping by individual households, commercial, and industrial establishments and by private water markets (David 2000). The study stressed that without some adjustments in the concession agreement with the concessionaires and acceleration of water supply expansion projects, specifically the Laiban Dam project, the water shortage problem will persist. This delay would mean that the poor, who have not been connected yet because there is not enough water to distribute, will continue to pay much higher price for water as they are rationed out of the low-priced MWSS water.

- Water Pricing. The present rising block tariff structure which applies an increasing unit charge to successive blocks of consumption is supposed to ensure that a basic level of consumption is affordable to all consumers while providing a strong incentive for conservation at high levels of use. This principle however, does not apply to bulk water (especially the community-managed water connections) and even the group taps. The progressive water price structure of MWSS water ends up having regressive effects as the poorer households have to rely on shared water connection or bulk water with residential rates or public faucets and thereby pay higher prices per cubic meter of water. Government should control possible monopoly profits by the two concessionaires. David (2000) suggests that pricing policy must be evaluated more broadly as a means of establishing the correct level of incentives so that adequate water, sewerage and sanitation service may be provided to all at the minimum cost and the price the consumers are willing to pay. Specifically, an adjustment formula to connections serving multiple dwellings especially in poor communities may be applied as suggested above. This maybe complicated to apply but the concessionaires can start with the bulk water serving entire communities served by mother meters.
- On Non-Revenue Water. Metro Manila consumers effectively pay the NRW. The existing concession agreements do not explicitly require reduction of NRW. While lost water means lost revenues and therefore lost profit, and the concessionaires seem to recognize that reduction of NRW is important in keeping the viability of the privatization arrangement, the lack of an explicit policy to reduce NRW can still be a channel of passing on to consumers inefficiencies in the water systems through the tariffs. This in turn can serve as a disincentive for water system managers to optimally reduce NRW. The role of the regulatory office is critical in ensuring that operational inefficiencies will not be passed on to consumers as higher prices.
- Role of Government and Regulation. On the impacts of privatization, the initial assessment of David (2000) done just a year after of the privatization of MWSS on the requirements to fully realize the gains the privatization, is still very much applicable, four years hence. According to David, attainment of the full potential gains from the privatization will depend on the following: (1) “the ability of the Regulatory Office and the residual MWSS to enforce the

contractual agreements in spirit as well as to the letter, to anticipate potential problems arising from possible weaknesses in the contract design and changes in the underlying assumptions, data, and analysis used in developing the contract and the technical and financial bids, and to implement expeditiously the necessary adjustments in the contract and mode of operation; (2) the willingness of the Regulatory Office and the residual MWSS to adopt a more integrated and holistic approach in dealing with the inherently interrelated issues of water supply and sewerage planning and operations, demand management, pollution control, and watershed and groundwater protection; and (3) the government's ability to undertake the necessary institutional, regulatory, and policy reforms in the water sector to ensure effective coordination of policies and programs and establish appropriate incentive and control structures for more efficient, equitable, and sustainable management and utilization of water."

While in theory the MWSS Board decides on the water tariff subject to the rate of return cap of 12 percent of the book value of assets, in practice the price of MWSS water has been politically determined and ultimately even decided by the President (David 2000) of the country. A recent example is the bid of Maynilad to raise its tariffs to cover for foreign exchange losses which amounted to close to ₱3 billion, without such increase the concessionaire's viability is severely threatened. This bid was acted upon only after the May elections but still no final decision has been made with the concessionaire pushing for a large one time increase while the President favors a gradual increase. It was deemed a high political risk to raise water prices just before an election as it would adversely affect the administration's party candidates. This experience clearly illustrates the government's strong intervention in the water sector especially in the case of MWSS which has been historically heavily subsidized. In view of this, the government's credibility as a long-term contractual partner or regulator may become a deterrent for future or more private sector participation in water. Credibility is critical to keeping the private sector interest and willingness to invest in the water sector.

As David (2000) also pointed out, regulation and management of the privatized MWSS structure must be evaluated from the perspective of achieving the overall objective of economic efficiency, social equity, and environmental sustainability and should not be viewed narrowly from the perspective of enforcing contractual agreements and minimizing water prices.

- On Poverty Alleviation. Public-private-community partnerships are delivering water to the poor communities which in turn are contributing to poverty alleviation. The valuable lessons learned in the case of Metro Manila may be operationalized and improved to comprise good (if not best) practices applicable to other water utilities in the country. A well designed water and sanitation program which explicitly takes into account the situation and preferences of the poor and the interests and possible contributions of other stakeholders and potential partners can become a potent tool in alleviating poverty. Given a range of choices, many poor households will prefer individual connections rather than public faucets or vendor type service for convenience and because it is also the cheapest despite the initial connection costs. Providing a range of service levels for different consumer groups which includes low-cost approach with innovative engineering and community involvement to immediately cater to the needs of the

poor as well rather than aiming for a universal quality of service should be aimed in the short term but there should be plans and preparations for more long term arrangements.

Community support at the outset of the project can facilitate design and implementation. The extensive experience of NGOs in mobilizing community participation in the design and implementation of water and wastewater systems that suit the needs and situation in depressed or poor communities may be tapped.

A participative type of service based on a partnership with the poor, LGUs, NGOs, and private sector may succeed if partners are realistic and flexible, as partnerships take time as it takes time to design responses that meet needs and goals of major players. It is clear that partnerships formed in the provision of water especially for the poor and poor communities will be a continuous process which would “need trust and patience and a willingness to compromise to achieve the objectives” (Franceys 2001).

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Annex 1. Key Informants Interviewed

Manila Water Company, Inc.

Joel D. Lacsamana
Corporate Communications Director

Mario B. Lising
Territory Manager for Customer Services
Balara Business Area

Jun M. Dizon
Balara Area Business Manager

Cora Lodripas
Corporate Program Manager

Ma. Fiorella Delos Reyes-Fabella
Manager
Wastewater Project Development

Roland Polido
Manager
Mandaluyong Area Business

Ricardo H. Pile
Territory Manager for Customer Services
Mandaluyong Business Area

Maynilad Services, Inc.

Lisette C. Provencher
(Sanitation and Sewerage)
Lyonnaise des Eaux

Atty. Mai A. Flor
Director
Business Development
Lyonnaise des Eaux Philippines, Inc.

Francisco Arellano
Assistant Senior Vice President Maynilad Environmental Management
and Corporate Communications

Joualdee C. Fuentes

Manager, Bayan Tubig Project
Central Business Area

Minerva C. Presa
Assistant Manager
South Business Area

Nestor Divinagracia
Manager, Novaliches Sector
Northeast Business Area

Celso L. Susas
Head, Network Management
Roosevelt Sector

MWSS Regulatory Office

Ed Santos
Deputy Administrator for Technical Regulation

Angel Efren J. Agustin
Deputy Administrator for Customer Service Regulation

Subicwater and Sewerage Company, Inc.

Graham J. Fairclough
Director and Business Consultant
Biwater Supply Limited

Oliver B. Butalid
General Manager

POs/NGOs

Stella Laylo
Treasurer
Samahang Patubig ng Durian (buys bulk water from MWCI)
Barangay Pasong Tamo
Quezon City

Fely Alejandrino
Purok Leader and Officer of *Samahang Patubig ng Durian*
Barangay Pasong Tamo
Quazon City

Susana Revilla
Founder and Board Member
Fabelleian Stall Owners Association
Fabella Road (Talipapa), Plain View
Mandaluyong City

Ruben Gutlay
President
Parola People's Council
Tondo, Manila

Irene Villa
Secretary
Parola People's Council
Tondo, Manila

Efren Reyes
President of F. CENA Association
F. Carlos. St.
Barangays Apolinio Samson/BAESA
Quezon City

Dr. Nick Silberstein
Head of Mission/Medical Coordinator
Medecins Sans Frontieres
(Doctors Without Borders)
Palm Village, Makati City

Michael Castaneda
Assistant Project Coordinator
Medecins Sans Frontieres
(Doctors Without Borders)
Palm Village, Makati City

Others

Romulos Devanadera
Inpart Engineering (small-scale private water contractor)
Novaliches

Dr. Armando Andaya
Environmental Specialist
Louis Berger Group, Inc.
Public Performance Assessment Project - PMO

Annex 2. Focus Group Discussion Participants

Venue: Liwanag Area (with water supply project under MWCI)
Barangay Old Balara
Commonwealth Avenue
Quezon City

Marilyn H. Diche
Brgy. Kagawad
Barangay Old Balara
Quezon City

Erlina Alim
Purok Leader, Dupax

Nancy Dugan
Purok Leader, Liwanag

Lolita Navarro
Purok Leader, Pook dela Paz

Godofreda Labong
Purok Leader, Liwanag

Maritess Calamiong
Treasurer, Lingkod Association

Ma. Elvira Damasdan
Purok Leader

Annex 3. Project Sites Visited and Number and Profile of Households Interviewed

| Project Sites | Concessionaire | Type of Service | Connection fees (CF) and water rates (WR) | Number of Households Interviewed |
|--|----------------------------|--|---|----------------------------------|
| Munoz, Barangay Bahay Turo, Quezon City | Maynilad Services, Inc. | individual connection part of “Bayan Tubig Proj” | CF = P3,800 to P4,000 to be paid in 6 mos. to 12 months WR = standard rate for residential A and semi-business | 5 |
| Paradise Village Malabon | Maynilad Services, Inc. | individual connection part of “Bayan Tubig Proj” | CF = P3,800 to be paid in 6 mos. to 12 months WR = standard rate for residential A and semi-business | 5 |
| Tarhville, Novaliches Quezon City | Maynilad Services, Inc. | individual connection part of “Bayan Tubig Proj” | CF = P3,800 paid in 6 mos. WR = standard rate for residential A and semi-business | 4 |
| Parola Barangay, Manila | Maynilad Services, Inc. | individual connection part of “Bayan Tubig Proj” | CF = P4,000 to be paid in 6 mos. to 24 months WR = standard rate for residential A and semi-business | 4 |
| Durian Barangay Pasong Tamo, Quezon City | Manila Water Company, Inc. | bulk water from MWCI distributed by the association with indiv meters but charges a different water tariff since will need to pay for meter reader | CF = P3,854 to be paid in a maximum of 6 mos. WR = assoc. pays for bulk water and collects from 228 members every 21 st - 26 th of the month based on their decided water tariff which covers the MWCI charges for the bulk water, wage of meter reader, costs of supplies, small allowance for the treasurer/book keeper, | 5 |

| | | | | |
|--|----------------------------|--|--|---|
| Barangay Old Balara Quezon City | Manila Water Company, Inc. | | CF = P7,000 / 3 to 5 Households but with indiv. Sub-meters WR = standard rate but pays mother meter bill | 2 |
| Sta. Ana Tenement Barangays 901 & 902 Manila | Manila Water Company, Inc. | 28 public faucets (pf) in the whole Tenement which comprises 2 barangays | 2 pfs per floor up to the 7 th floor and then provide water to units (representing at least one household depending on type of family – if extended or not and if renting out rooms) by hose -- each pf serves from 24-48 units | 4 |
| Addition Hills, Mandaluyong City | Manila Water Company, Inc. | Public faucets | | 2 |

Table 1. Philippine Private Sector Participation Program, National Projects, 4th Quarter 2000

| | Power | | Transport | | Water | | Solid Waste | | Others | |
|--|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|------------|-----------------|------------|
| | No. of Projects | Cost | No. of Projects | Cost | No. of Projects | Cost | No. of Projects | Cost | No. of Projects | Cost |
| I. Publicly Bid Projects | | | | | | | | | | |
| A. Potential Projects | - | - | - | - | - | - | - | - | 1 | ne |
| B. Projects Under Feasibility Study/ /Tender Document Preparation | - | - | 5 | 1122 | 4 | 853 | - | - | 1 | ne |
| C. Bidding Stage | 1 | 106 | 1 | 270 | - | - | 1 | 117 | - | - |
| D. Awarded (Under or For Construction) | 6 | 2571 | 2 | 443 | - | - | - | - | 5 | 672 |
| E. Completed/Operational | 35 | 6158 | 3 | 1205 | 3 | 7175 | - | - | 3 | 15 |
| II. Unsolicited Projects | | | | | | | | | | |
| A. For First Pass Approval (ICC/Local Sanggunian) | - | - | 1 | 478 | 1 | 79 | - | - | - | - |
| B. Negotiation | - | - | - | - | - | - | - | - | - | - |
| C. For Second Pass Approval (ICC/Local Sanggunian)/For Price Challenge* | - | - | 3 | 2230 | 1 | 86 | - | - | - | - |
| D. Undergoing Price Challenge | - | - | - | - | - | - | - | - | - | - |
| E. Contract Award | 2 | 850 | 3 | 1121 | 1 | 165 | - | - | 1 | 9 |
| TOTAL | 44 | 9685 | 18 | 6869 | 10 | 8358 | 1 | 117 | 11 | 696 |

Notes:

Project costs are in US\$ million.

ne - no estimate available

*Others" include property development, information technology

* The price challenge in an unsolicited project occurs when comparative or competitive proposals for the same proposed project are received by the national government agency or LGU concerned in which case the original proposal is given the right to match the best financial proposal within a designated period, else the contract will be awarded to the challenger

Table 2. Philippine Private Sector Participation Program, LGU Projects, 4th Quarter 2000

| | Power | | Transport | | Water | | Solid Waste | | Others | |
|---|-----------------|----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|------------|
| | No. of Projects | Cost | No. of Projects | Cost | No. of Projects | Cost | No. of Projects | Cost | No. of Projects | Cost |
| I. Publicly Bid Projects | | | | | | | | | | |
| A. Potential Projects | - | - | 1 | ne | - | - | - | - | 4 | 17 |
| B. Projects Under Feasibility Study/ /Tender Document Preparation | - | - | 2 | 81 | - | - | - | - | 11 | 56 |
| C. Bidding Stage | - | - | 1 | 1 | - | - | - | - | 1 | 1 |
| D. Awarded (Under or For Construction) | 1 | 5 | 1 | 4 | 1 | 14 | | | 3 | 10 |
| E. Completed/Operational | - | - | - | - | - | - | - | - | 2 | 24 |
| II. Unsolicited Projects | | | | | | | | | | |
| A. For First Pass Approval (ICC/Local Sanggunian) | - | - | 1 | 5 | 1 | ne | 1 | 12 | 1 | 0.4 |
| B. Negotiation | - | - | - | - | - | - | - | - | v | |
| C. For Second Pass Approval (ICC/Local Sanggunian)/For Price Challenge | - | - | - | - | - | - | - | - | 1 | 4 |
| D. Undergoing Price Challenge | - | - | - | - | - | - | - | - | - | - |
| E. Contract Award | - | - | - | - | - | - | - | - | - | - |
| TOTAL | 1 | 5 | 6 | 92 | 2 | 14 | 1 | 12 | 23 | 112 |

Notes:

Project costs are in US\$ million.

ne - no estimate available

"Others" include property development, information technology

Source: Coordinating Council for Private Sector Participation (2000)

Table 3. PSP in Water Sector Projects, 4th Quarter 2000

| Project Name | Status | Agency | Proponent | Scheme | Est. Cost (US\$ Million) | |
|---------------------|-----------------------------------|---|------------------|--|------------------------------------|-------------|
| National | | | | | | |
| 1 | Mananga Dam (Phase II) | Under Feasibility Study/Document Preparation | MCWD | | BOT | 160 |
| 2 | Kidapawan Water Supply | Under Feasibility Study/Document Preparation | MKWD | | OC | 10 |
| 3 | Puerto Princesa Water Supply | Under Feasibility Study/Document Preparation | PPWD | | | 37 |
| 4 | Laiban Dam | Under Feasibility Study/Document Preparation | MWSS | | | 646 |
| 5 | MWSS Privatization | Completed/Operational | MWSS | Benpres Holdings/Lyonaise des Eaux (Phil/France) & Ayala Corp/Bechtel | CAOM | 7000 |
| 6 | Subic Water and Sewerage | Completed/Operational | SBMA | BI Water/DMCI (Britain/Phil) | JV | 120 |
| 7 | Clark Water Supply and & Sewerage | Completed/Operational | CDC | Compagnie Gonorales des Eaux (France) | CA | 55 |
| 8 | Metro Iloilo Water Concession | Unsolicited for first-pass approval | MIWD | Benpres Holdings (Phil) | CAOT | 79 |
| 9 | Legaspi City Water Concession | Unsolicited for second-pass approval (ICC/Local Sanggunian)/for Price challenge | LCWD | Vivendl/Abitiz Corp./SIG Construction (France/Phil) | CAOT | 86 |
| 10 | Bulacan Bulk Central Water Supply | Contract Award | BWSSI | Bulacan Water Corporation/CGE/Aboitiz Corp/SIG Const. (France/Phil.) | BOT | 165 |
| LGU | | | | | | |
| 1 | Bohol Water Supply Systems | Awarded (Under for Construction) | Mun'l Gov't | Balcon Consortium (Phil) | JV | 14 |
| 2 | Cavite Water Supply | Unsolicited - For 1st pass (ICC/Local Sanggunian Approval) | City Gov't | OMI, Int'l (USA) | JV | - |
| TOTAL | | | | | | 8372 |

Notes:

CAOM - Concession Agreement on Operation and Management

CAOT - Concession Agreement on Operation and Transfer

JV - Joint Venture

BOT - Build, Operate, Transfer

CA - Concession Agreement

Source: Coordinating Council for Private Sector Participation (2000)

Table 4. Water supply coverage targets in the East Zone¹ (%)

| City/Municipality | 2001 | 2006 | 2011 | 2016 | 2021 |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|
| NCR | | | | | |
| Mandaluyong | 100 | 100 | 100 | 100 | 100 |
| Makati ² | 92 | 100 | 100 | 100 | 100 |
| Marikina ² | 92 | 100 | 100 | 100 | 100 |
| Quezon City ² | 100 | 100 | 100 | 100 | 100 |
| Pasig | 92 | 100 | 100 | 100 | 100 |
| Pateros | 84 | 100 | 100 | 100 | 100 |
| San Juan | 96 | 100 | 100 | 100 | 100 |
| Taguig | 44 | 100 | 100 | 100 | 100 |
| Rizal | | | | | |
| Angono | 51 | 96 | 98 | 100 | 100 |
| Antipolo | 78 | 95 | 95 | 95 | 97 |
| Baras | 34 | 51 | 53 | 55 | 58 |
| Binangonan | 40 | 81 | 83 | 85 | 87 |
| Cainta | 64 | 80 | 77 | 75 | 79 |
| Cardona | 34 | 51 | 53 | 55 | 58 |
| Jala-Jala | 34 | 51 | 53 | 55 | 58 |
| Morong | 34 | 51 | 53 | 55 | 58 |
| Pililla | 34 | 51 | 53 | 55 | 58 |
| Rodriguez | 83 | 95 | 95 | 95 | 98 |
| San Mateo | 84 | 100 | 100 | 100 | 100 |
| Tanay | 39 | 75 | 75 | 75 | 76 |
| Taytay | 92 | 100 | 100 | 100 | 100 |
| Teresa | 52 | 60 | 60 | 60 | 61 |
| Total area³ | 77 | 94 | 94 | 94 | 95 |

¹Expressed as a percentage of the total population in the designated city of municipality at the time of the target (excluding users who are connected to a piped source of water other than from the MWSS system).

²A portion of this municipality is covered by the West Zone.

³The East concessionaire is responsible for meeting the new water supply coverage targets (but not the corresponding sewerage targets), in the percentages set out in the other operator's (West) concession agreement, for part of Manila in the service area West.

Source: Adapted from David (2001)

Table 5. Water supply coverage targets in the West Zone (%)

| City/Municipality | 2001 | 2006 | 2011 | 2016 | 2021 |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|
| NCR | | | | | |
| Manila ¹ | 100 | 100 | 100 | 100 | 100 |
| Pasay | 100 | 100 | 100 | 100 | 100 |
| Caloocan | 100 | 100 | 100 | 100 | 100 |
| Las Piñas | 58 | 91 | 93 | 95 | 98 |
| Malabon | 84 | 100 | 100 | 100 | 100 |
| Valenzuela | 84 | 100 | 100 | 100 | 99 |
| Muntinlupa | 53 | 86 | 88 | 90 | 95 |
| Navotas | 92 | 100 | 100 | 100 | 100 |
| Parañaque | 76 | 100 | 100 | 100 | 100 |
| Cavite | | | | | |
| Cavite City | 100 | 100 | 100 | 100 | 100 |
| Bacoor | 58 | 90 | 92 | 93 | 95 |
| Imus | 36 | 61 | 63 | 65 | 72 |
| Kawit | 84 | 100 | 100 | 100 | 100 |
| Noveleta | 60 | 100 | 100 | 100 | 100 |
| Rosario | 42 | 90 | 90 | 90 | 90 |
| Total area ² | 87 | 97 | 97 | 98 | 98 |

¹ Expressed as a percentage of the total population in the designated city or municipality at the time of the target (excluding users who are connected to a piped source of water other than from the MWSS system).

² The Concessionaire (West) shall also be responsible for meeting the new water supply coverage targets (but not the corresponding sewerage targets), in the percentages set out in Table 5.5 as it appears in the other Operator's (East) Concession Agreement, for parts of the following cities or municipalities in the East Zone: Quezon City, San Mateo, Makati, Marikina and Rodriguez.

Source: Adapted from David (2001)

Table 6. Sewer and sanitation coverage targets in the East Zone (%)¹

| City/Municipality | 2001 | 2006 | 2011 | 2016 | 2021 | 2001 | 2006 | 2011 | 2016 | 2021 |
|-------------------|--------------------|-----------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|-----------|
| | Sewer ² | | | | | Sanitation ³ | | | | |
| NCR | | | | | | | | | | |
| Quezon City | 0 | 0 | 83 | 87 | 98 | 24 | 21 | 16 | 12 | 2 |
| Mandaluyong | 0 | 0 | 100 | 100 | 100 | 0 | 0 | 0 | 0 | 0 |
| Makati | 22 | 52 | 100 | 100 | 100 | 0 | 0 | 0 | 0 | 0 |
| Marikina | 0 | 0 | 0 | 0 | 0 | 63 | 79 | 73 | 64 | 60 |
| Pasig | 0 | 41 | 68 | 68 | 68 | 83 | 58 | 32 | 27 | 25 |
| Pateros | 0 | 60 | 100 | 100 | 99 | 0 | 0 | 0 | 0 | 0 |
| San Juan | 0 | 0 | 100 | 100 | 100 | 0 | 0 | 0 | 0 | 0 |
| Taguig | 0 | 52 | 75 | 84 | 100 | 0 | 0 | 0 | 0 | 0 |
| Rizal | | | | | | | | | | |
| Angono | 0 | 0 | 0 | 0 | 0 | 19 | 30 | 49 | 44 | 41 |
| Antipolo | 0 | 0 | 0 | 0 | 0 | 57 | 53 | 63 | 50 | 44 |
| Baras | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Binangonan | 0 | 0 | 0 | 0 | 0 | 12 | 21 | 26 | 23 | 22 |
| Cainta | 0 | 0 | 0 | 0 | 14 | 38 | 40 | 34 | 28 | 27 |
| Cardona | 0 | 0 | 0 | 0 | 0 | 10 | 13 | 12 | 10 | 10 |
| Jala-Jala | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Morong | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pililla | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rodriguez | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| San Mateo | 0 | 0 | 0 | 0 | 0 | 66 | 65 | 58 | 49 | 44 |
| Tanay | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Taytay | 0 | 0 | 0 | 0 | 15 | 82 | 78 | 70 | 60 | 54 |
| Teresa | 0 | 0 | 0 | 0 | 0 | 25 | 25 | 23 | 21 | 20 |
| Total | 3 | 16 | 51 | 52 | 55 | 38 | 32 | 27 | 24 | 19 |

¹ Expressed as a percentage of the total population in the designated city or municipality connected to the Concessionaire's water system at the time of the target.

² The Concessionaire will also be responsible for meeting sewer coverage targets specified in Schedule 4 in the part of the cities or municipalities of Makati, San Mateo, Marikina, and Rodriguez covered by the other Operator unless obstructed from doing so by a natural waterway.

³ The Concessionaire shall also be responsible for meeting sanitation coverage targets as it appears in the other Operator's Concession Agreement for the part of the city of Manila in the West Zone.

Table 7. Sewer and sanitation coverage targets in the West Zone (%)¹

| City/Municipality | 2001 | 2006 | 2011 | 2016 | 2021 | 2001 | 2006 | 2011 | 2016 | 2021 |
|-------------------|--------------------|-----------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|-----------|
| | Sewer ² | | | | | Sanitation ³ | | | | |
| NCR | | | | | | | | | | |
| Manila | 55 | 71 | 77 | 83 | 91 | 9 | 9 | 9 | 9 | 9 |
| Pasay | 0 | 0 | 0 | 16 | 95 | 73 | 68 | 66 | 47 | 0 |
| Quezon City | 0 | 0 | 0 | 0 | 54 | 41 | 37 | 38 | 97 | 45 |
| Caloocan | 3 | 2 | 2 | 32 | 79 | 30 | 61 | 47 | 42 | 21 |
| Las Piñas | 0 | 0 | 0 | 0 | 50 | 46 | 57 | 50 | 41 | 27 |
| Malabon | 2 | 2 | 2 | 38 | 94 | 7 | 42 | 39 | 35 | 6 |
| Muntinlupa | 0 | 44 | 57 | 54 | 61 | 27 | 36 | 31 | 26 | 24 |
| Navotas | 3 | 3 | 3 | 36 | 90 | 14 | 65 | 60 | 54 | 10 |
| Parañaque | 0 | 0 | 0 | 0 | 52 | 53 | 59 | 53 | 46 | 42 |
| Valenzuela | 0 | 0 | 0 | 24 | 59 | 67 | 90 | 80 | 68 | 36 |
| Cavite | | | | | | | | | | |
| Cavite | 0 | 0 | 0 | 0 | 0 | 100 | 89 | 84 | 91 | 86 |
| Bacoor | 0 | 0 | 0 | 0 | 0 | 52 | 67 | 60 | 56 | 50 |
| Imus | 0 | 0 | 0 | 0 | 0 | 11 | 15 | 15 | 24 | 24 |
| Kawit | 0 | 0 | 0 | 0 | 0 | 67 | 68 | 61 | 52 | 47 |
| Noveleta | 0 | 0 | 0 | 0 | 0 | 28 | 41 | 39 | 35 | 33 |
| Rosario | 0 | 0 | 0 | 0 | 0 | 14 | 25 | 23 | 20 | 18 |
| Total | 16 | 20 | 21 | 31 | 66 | 43 | 46 | 43 | 39 | 27 |

¹ Expressed as a percentage of the total population in the designated city or municipality connected to the concessionaire's water system at the time of the target.

² The concessionaire will also be responsible for meeting sewer coverage targets in the part of the City of Manila covered by the other operator unless obstructed from doing so by a natural waterway.

³ The concessionaire shall also be responsible for meeting sanitation coverage targets (in the percentages set out in the other operator's concession agreement) for parts of Makati, San Mateo, Marikina, and Rodriguez in the East Zone.

Source: Adapted from David (2001)

Table 8. Breakdown of concession fees, East Zone (million pesos)

| Year | Concession fee 1 ^a | Concession fee 2 ^b | Total concession |
|------|-------------------------------|-------------------------------|------------------|
| 1997 | 164 | 134 | 298 |
| 1998 | 227 | 219 | 446 |
| 1999 | 192 | 240 | 432 |
| 2000 | 158 | 215 | 373 |
| 2001 | 129 | 203 | 332 |
| 2002 | 118 | 301 | 419 |
| 2003 | 115 | 260 | 375 |
| 2004 | 93 | 257 | 350 |
| 2005 | 89 | 255 | 344 |
| 2006 | 76 | 217 | 293 |
| 2007 | 65 | 217 | 282 |
| 2008 | 58 | 216 | 274 |
| 2009 | 55 | 215 | 270 |
| 2010 | 47 | 215 | 262 |
| 2011 | 48 | 214 | 262 |
| 2012 | 49 | 214 | 263 |
| 2013 | 41 | 213 | 254 |
| 2014 | 38 | 236 | 274 |
| 2015 | 16 | 160 | 176 |
| 2016 | 15 | 158 | 193 |
| 2017 | 14 | 56 | 70 |
| 2018 | 15 | 57 | 72 |
| 2019 | 15 | 58 | 73 |
| 2020 | 15 | 59 | 74 |
| 2021 | 0.7 | 0 | 0.7 |

^a includes

i - 90% of the aggregate peso equivalent due under any MWSS loan which has been disbursed prior to the commencement date (including MWSS loans for existing projects and the UATP project on the relevant payment dates; plus

ii - 90% of the aggregate peso equivalent due under any MWSS loan designated for the UATP project which has not been disbursed prior to the commencement date on the relevant payment date; plus

iii - 90% of the local component costs and cost overruns related to the UATP project.

^b includes:

iv - 100% of the aggregate peso equivalent due under any MWSS loan designated for existing projects which have not been disbursed prior to the commencement date and have been either awarded to third party bidders or been elected by the concessionaire for continuation; plus

v - 100% of the local component costs and cost overruns related to existing projects

Source: Adapted from David (2001)

Table 9. Breakdown of concession fees, West Zone (million pesos)

| Year | Concession fee 1 ^a | Concession fee 2 ^b | Total concession |
|------|-------------------------------|-------------------------------|------------------|
| 1997 | 1,475 | 218 | 1,693 |
| 1998 | 2,047 | 445 | 2,492 |
| 1999 | 1,731 | 390 | 2,121 |
| 2000 | 1,424 | 378 | 1,802 |
| 2001 | 1,158 | 362 | 1,520 |
| 2002 | 1,067 | 454 | 1,521 |
| 2003 | 1,038 | 398 | 1,436 |
| 2004 | 839 | 396 | 1,235 |
| 2005 | 799 | 394 | 1,193 |
| 2006 | 688 | 392 | 1,080 |
| 2007 | 584 | 391 | 975 |
| 2008 | 252 | 389 | 914 |
| 2009 | 493 | 388 | 881 |
| 2010 | 425 | 387 | 812 |
| 2011 | 431 | 386 | 817 |
| 2012 | 444 | 385 | 829 |
| 2013 | 368 | 385 | 753 |
| 2014 | 343 | 426 | 769 |
| 2015 | 142 | 307 | 449 |
| 2016 | 133 | 317 | 450 |
| 2017 | 131 | 69 | 200 |
| 2018 | 132 | 57 | 189 |
| 2019 | 135 | 58 | 193 |
| 2020 | 138 | 59 | 197 |
| 2021 | 6.3 | 0 | 6 |

^a includes

- i - 90% of the aggregate peso equivalent due under any MWSS loan which has been disbursed prior to the commencement date (including MWSS loans for existing projects and the UATP project) on the relevant payment dates; plus
- ii - 90% of the aggregate peso equivalent due under any MWSS loan designated for the UATP project which has not been disbursed prior to the commencement date on the relevant payment date; plus
- iii - 90% of the local component costs and cost overruns related to the UATP project.

^b includes:

- iv - 100% of the aggregate peso equivalent due under any MWSS loan designated for existing projects which have not been disbursed prior to the commencement date and have been either awarded to third party bidders or been elected by the concessionaire for continuation; plus
- v - 100% of the local component costs and cost overruns related to existing projects

Source: Adapted from David (2001)

Table 10. Water tariff rate structure of the MWSS before and after privatization for residential and semi-business dwellings

| Blocks | Residential | | | | | | | | | Semi - business | | | | | | | | |
|-----------------------|-------------|--------|-------|--------|-------|--------|-------|--------|-------|-----------------|--------|-------|--------|-------|--------|-------|--------|-------|
| | Before | After | | | | | | | | Before | After | | | | | | | |
| | | Jul-97 | | Jan-99 | | Jan-00 | | Jan-01 | | | Jul-97 | | Jan-99 | | Jan-00 | | Jan-01 | |
| | | MWCI | MWSI | MWCI | MWSI | MWCI | MWSI | MWCI | MWSI | | MWCI | MWSI | MWCI | MWSI | MWCI | MWSI | MWCI | MWSI |
| Minimum charge | 29.50 | 7.78 | 16.69 | 8.75 | 19.52 | 9.25 | 20.63 | 9.88 | 22.15 | 49.50 | 13.06 | 28.01 | 14.70 | 32.76 | 15.53 | 34.63 | 16.58 | 37.20 |
| Next 10 cu.m. | 3.60 | 0.95 | 2.03 | 1.07 | 2.37 | 1.17 | 2.51 | 1.21 | 2.70 | 6.05 | 1.59 | 3.42 | 1.79 | 4.00 | 1.42 | 4.23 | 2.02 | 4.54 |
| Next 20 cu.m. | 6.85 | 1.81 | 3.47 | 2.03 | 4.53 | 2.14 | 4.79 | 2.29 | 5.14 | 7.45 | 1.97 | 4.21 | 2.21 | 4.92 | 2.33 | 5.20 | 2.49 | 5.59 |
| Next 20 cu.m. | 9.00 | 2.37 | 5.09 | 2.67 | 5.95 | 2.02 | 6.25 | 3.01 | 6.75 | 9.45 | 2.49 | 5.32 | 2.60 | 6.24 | 2.95 | 6.60 | 3.16 | 7.09 |
| Next 20 cu.m. | 10.50 | 2.77 | 5.94 | 3.12 | 6.95 | 3.29 | 7.35 | 3.52 | 7.89 | 11.00 | 2.90 | 6.22 | 3.26 | 7.27 | 3.45 | 7.68 | 3.66 | 8.25 |
| Next 20 cu.m. | 11.00 | 2.90 | 6.22 | 3.26 | 7.27 | 3.45 | 7.68 | 3.68 | 8.25 | 11.50 | 3.03 | 6.50 | 3.41 | 7.60 | 3.80 | 8.03 | 3.85 | 8.63 |
| Next 50 cu.m. | 11.50 | 3.03 | 6.50 | 3.41 | 7.60 | 3.60 | 8.03 | 3.85 | 8.62 | 12.00 | 3.16 | 6.79 | 3.50 | 7.94 | 3.76 | 8.39 | 4.01 | 9.01 |
| Next 50 cu.m. | 12.00 | 3.16 | 6.79 | 3.56 | 7.94 | 3.78 | 8.39 | 4.01 | 9.01 | 12.50 | 3.29 | 7.07 | 3.70 | 8.27 | 3.91 | 8.74 | 4.18 | 9.39 |
| Over 200 cu.m. | 12.50 | 3.30 | 7.07 | 3.70 | 8.27 | 3.91 | 8.74 | 4.18 | 9.39 | 13.00 | 3.43 | 7.35 | 3.55 | 8.60 | 4.00 | 9.09 | 4.35 | 9.76 |

Note: The unit is in pesos per cu.m. except for the minimum charge which is in pesos.

Sources: MWCI (2001), MWSI (2001)

Table 11. Water tariff rate structure of the MWSS before and after privatization for residential and semi-business dwellings

| Blocks | Business Group I | | | | | | | | | Business Group II | | | | | | | | |
|------------------|------------------|--------|-------|--------|-------|--------|-------|--------|--------|-------------------|--------|-------|--------|-------|--------|--------|--------|--------|
| | Before | After | | | | | | | | Before | After | | | | | | | |
| | | Jul-97 | | Jan-99 | | Jan-00 | | Jan-01 | | | Jul-97 | | Jan-99 | | Jan-00 | | Jan-01 | |
| | | MWCI | MWSI | MWCI | MWSI | MWCI | MWSI | MWCI | MWSI | | MWCI | MWSI | MWCI | MWSI | MWCI | MWSI | MWCI | MWSI |
| Minimum charge | 134.00 | 35.36 | 75.75 | 39.79 | 88.68 | 42.08 | 93.73 | 44.89 | 100.66 | 145.00 | 37.24 | 82.05 | 43.05 | 95.95 | 45.31 | 101.42 | 48.57 | 108.91 |
| Next 90 cu.m. | 13.45 | 3.54 | 7.61 | 3.98 | 8.90 | 4.21 | 9.41 | 4.49 | 10.11 | 14.60 | 3.75 | 8.26 | 4.33 | 9.66 | 4.56 | 10.21 | 4.89 | 10.96 |
| Next 100 cu.m. | 13.50 | 3.56 | 7.63 | 4.01 | 8.93 | 4.23 | 9.44 | 4.52 | 10.14 | 14.70 | 3.77 | 8.31 | 4.35 | 9.72 | 4.56 | 10.27 | 4.91 | 11.03 |
| Next 100 cu.m. | 13.55 | 3.57 | 7.66 | 4.02 | 8.96 | 4.25 | 9.47 | 4.53 | 10.17 | 14.80 | 3.80 | 8.37 | 4.29 | 9.79 | 4.54 | 10.35 | 4.95 | 11.11 |
| Next 100 cu.m. | 13.60 | 3.59 | 7.69 | 4.03 | 8.99 | 4.26 | 9.50 | 4.54 | 10.20 | 14.90 | 3.83 | 8.43 | 4.42 | 9.86 | 4.87 | 10.42 | 4.99 | 11.19 |
| Next 100 cu.m. | 13.65 | 3.60 | 7.72 | 4.05 | 9.03 | 4.26 | 9.54 | 4.57 | 10.24 | 15.00 | 3.85 | 8.45 | 4.44 | 9.92 | 4.7 | 10.49 | 5.01 | 11.27 |
| Next 100 cu.m. | 13.70 | 3.61 | 7.75 | 4.06 | 9.05 | 4.23 | 9.58 | 4.58 | 10.29 | 15.10 | 3.98 | 8.54 | 4.46 | 9.99 | 4.73 | 10.56 | 5.05 | 11.34 |
| Next 100 cu.m. | 13.75 | 3.63 | 7.78 | 4.07 | 9.10 | 4.31 | 9.62 | 4.60 | 10.33 | 15.20 | 4.01 | 8.60 | 4.51 | 10.06 | 4.77 | 10.63 | 5.09 | 11.42 |
| Next 100 cu.m. | 13.80 | 3.64 | 7.80 | 4.10 | 9.13 | 4.33 | 9.65 | 4.62 | 10.36 | 15.30 | 4.03 | 8.65 | 4.53 | 10.12 | 4.79 | 10.7 | 5.12 | 11.49 |
| Next 100 cu.m. | 13.85 | 3.65 | 7.83 | 4.11 | 9.16 | 4.34 | 9.68 | 4.63 | 10.40 | 15.40 | 4.06 | 8.71 | 4.57 | 10.19 | 4.83 | 10.77 | 5.15 | 11.57 |
| Next 100 cu.m. | 13.90 | 3.66 | 7.86 | 4.12 | 9.19 | 4.35 | 9.71 | 4.65 | 10.43 | 15.50 | 4.09 | 8.77 | 4.60 | 10.26 | 4.88 | 10.84 | 5.19 | 11.64 |
| Next 200 cu.m. | 13.95 | 3.68 | 7.89 | 4.14 | 9.23 | 4.33 | 9.76 | 4.67 | 10.48 | 15.60 | 4.11 | 8.82 | 4.62 | 10.31 | 4.59 | 10.9 | 5.22 | 11.71 |
| Next 200 cu.m. | 14.00 | 3.69 | 7.92 | 4.15 | 9.26 | 4.32 | 9.79 | 4.68 | 10.51 | 15.70 | 4.14 | 8.88 | 4.68 | 10.38 | 4.92 | 10.97 | 5.26 | 11.78 |
| Next 200 cu.m. | 14.05 | 3.70 | 7.95 | 4.16 | 9.30 | 4.43 | 9.83 | 4.70 | 10.56 | 15.80 | 4.16 | 8.93 | 4.55 | 10.45 | 4.95 | 11.05 | 5.28 | 11.87 |
| Next 200 cu.m. | 14.10 | 3.72 | 7.97 | 4.19 | 9.33 | 4.42 | 9.86 | 4.72 | 10.59 | 15.90 | 4.19 | 8.99 | 4.72 | 10.51 | 4.98 | 11.11 | 5.32 | 11.93 |
| Next 200 cu.m. | 14.15 | 3.73 | 8.00 | 4.20 | 9.36 | 4.44 | 9.89 | 4.74 | 10.62 | 16.00 | 4.22 | 9.05 | 4.75 | 10.58 | 5.02 | 11.18 | 5.36 | 12.01 |
| Next 500 cu.m. | 14.20 | 3.75 | 8.03 | 4.21 | 9.39 | 4.45 | 9.93 | 4.75 | 10.66 | 16.10 | 4.25 | 9.10 | 4.77 | 10.65 | 5.04 | 11.26 | 5.38 | 12.09 |
| Next 500 cu.m. | 14.25 | 3.76 | 8.06 | 4.23 | 9.43 | 4.47 | 9.97 | 4.77 | 10.71 | 16.20 | 4.27 | 9.16 | 4.81 | 10.71 | 5.08 | 11.32 | 5.42 | 12.16 |
| Next 500 cu.m. | 14.30 | 3.77 | 8.09 | 4.24 | 9.46 | 4.48 | 10.00 | 4.79 | 10.74 | 16.30 | 4.30 | 9.22 | 4.84 | 10.78 | 5.11 | 11.39 | 5.46 | 12.23 |
| Next 500 cu.m. | 14.35 | 3.79 | 8.11 | 4.25 | 9.50 | 4.50 | 10.04 | 4.80 | 10.78 | 16.40 | 4.32 | 9.27 | 4.86 | 10.85 | 5.14 | 11.47 | 5.48 | 12.32 |
| Next 500 cu.m. | 14.40 | 3.80 | 8.14 | 4.28 | 9.52 | 4.52 | 10.06 | 4.82 | 10.80 | 16.50 | 4.35 | 9.33 | 4.90 | 10.91 | 5.17 | 11.53 | 5.52 | 12.38 |
| Next 500 cu.m. | 14.45 | 3.80 | 8.17 | 4.29 | 9.55 | 4.53 | 10.09 | 4.84 | 10.84 | 16.60 | 4.38 | 9.39 | 4.83 | 10.98 | 5.21 | 11.61 | 5.56 | 12.47 |
| Next 500 cu.m. | 14.50 | 3.82 | 8.20 | 4.30 | 9.59 | 4.54 | 10.14 | 4.85 | 10.89 | 16.70 | 4.40 | 9.44 | 4.95 | 11.05 | 5.23 | 11.68 | 5.59 | 12.54 |
| Next 500 cu.m. | 14.55 | 3.83 | 8.23 | 4.32 | 9.62 | 4.57 | 10.17 | 4.87 | 10.92 | 16.80 | 4.43 | 9.50 | 4.99 | 11.11 | 5.27 | 11.74 | 5.62 | 12.61 |
| Next 500 cu.m. | 14.60 | 3.84 | 8.26 | 4.33 | 9.66 | 4.56 | 10.21 | 4.89 | 10.96 | 16.90 | 4.45 | 9.56 | 5.02 | 11.18 | 5.3 | 11.82 | 5.66 | 12.69 |
| Next 500 cu.m. | 14.65 | 3.85 | 8.28 | 4.34 | 9.69 | 4.58 | 10.24 | 4.90 | 11.00 | 17.00 | 4.47 | 9.61 | 5.04 | 11.25 | 5.33 | 11.89 | 5.69 | 12.77 |
| Next 500 cu.m. | 14.70 | 3.87 | 8.31 | 4.35 | 9.72 | 4.58 | 10.27 | 4.91 | 11.03 | 17.10 | 4.51 | 9.67 | 5.05 | 11.31 | 5.36 | 11.95 | 5.73 | 12.83 |
| Next 500 cu.m. | 14.75 | 3.89 | 8.34 | 4.38 | 9.75 | 4.60 | 10.31 | 4.94 | 11.07 | 17.20 | 4.53 | 9.73 | 5.10 | 11.38 | 5.39 | 12.03 | 5.75 | 12.92 |
| Next 500 cu.m. | 14.80 | 3.90 | 8.37 | 4.38 | 9.79 | 4.83 | 10.35 | 4.95 | 11.11 | 17.30 | 4.56 | 9.78 | 5.13 | 11.45 | 5.42 | 12.1 | 5.79 | 12.99 |
| Next 500 cu.m. | 14.85 | 3.91 | 8.40 | 4.40 | 9.82 | 4.84 | 10.38 | 4.96 | 11.15 | 17.40 | 4.59 | 9.84 | 5.17 | 11.51 | 5.48 | 12.17 | 5.83 | 13.07 |
| Next 500 cu.m. | 14.90 | 3.93 | 8.43 | 4.42 | 9.88 | 4.87 | 10.42 | 4.99 | 11.19 | 17.50 | 4.62 | 9.90 | 5.19 | 11.58 | 5.48 | 12.24 | 5.85 | 13.14 |
| Next 500 cu.m. | 14.95 | 3.94 | 8.45 | 4.43 | 9.89 | 4.89 | 10.45 | 5.00 | 11.22 | 17.60 | 4.64 | 9.95 | 5.22 | 11.65 | 5.52 | 12.31 | 5.89 | 13.22 |
| Over 10000 cu.m. | 15.00 | 3.95 | 8.48 | 4.44 | 9.92 | 4.70 | 10.49 | 5.01 | 11.27 | 17.70 | 4.67 | 10.01 | 5.23 | 11.71 | 5.55 | 12.38 | 5.93 | 13.29 |

Note: The unit is in pesos per cu.m. except for the minimum charge which is in pesos.

Sources: MWCI (2001), MWSI (2001)

Table 12. Connection Fees for Manila Water and Maynilad Water, 1997-2001 (pesos)

| Year | Connection fee | VAT (10% of conn. fee) | Meter deposit | Guaranty deposit | Total connection charges |
|-----------------------|-----------------------|-------------------------------|----------------------|-------------------------|---------------------------------|
| Manila Water | | | | | |
| 1997 | 3000.00 | 300.00 | 750.00 | 200.00 | 4250.00 |
| 1998 | 3177.00 | 317.70 | 750.00 | 200.00 | 4444.70 |
| 1999 | 3488.35 | 348.84 | 1020.00 | 200.00 | 5057.19 |
| 2000 | 3718.58 | 371.86 | 1020.00 | 200.00 | 5310.44 |
| 2001 | 3882.20 | 388.22 | 1020.00 | 200.00 | 5490.42 |
| Maynilad Water | | | | | |
| 1997 | 3000.00 | 300.00 | 0.00 | 200.00 | 3500.00 |
| 1998 | 3177.00 | 317.70 | 0.00 | 200.00 | 3694.70 |
| 1999 | 3488.35 | 348.84 | 0.00 | 200.00 | 4037.19 |
| 2000 | 3718.58 | 371.86 | 0.00 | 200.00 | 4290.44 |
| 2001 | 3882.20 | 388.22 | 0.00 | 200.00 | 4470.42 |

Note: These fees apply to households which are 25 meters or less from the tapping point.
For households which are beyond 25 m. from the source, a corresponding higher fee is charged.
The CPIs used for annual adjustments starting 1998 to 2001 which refer to the CPIs the year before are as follows: 5.9, 9.8, 6.6, and 4.4.

Sources: MWCI (2001), MWSI (2001)

Table 13. Water Quality for the East Zone, December 2000

| | 4th Quarter | | |
|---|--------------------|-----------------|-----------------|
| | October | November | December |
| Surface Water Compliance | | | |
| Bacteriological Compliance | 99.75 | 100 | 100 |
| Target Compliance Level | 95 | 95 | 95 |
| Number of Samples Taken | 403 | 404 | 404 |
| Ground Water (Deepwell) Compliance | | | |
| Bacteriological Compliance | 100 | 100 | 100 |
| Target Compliance Level | 95 | 95 | 95 |
| Number of Samples Taken | 63 | 63 | 63 |
| Overall Water Quality Compliance | | | |
| Bacteriological Compliance | 99.8 | 100 | 100 |
| Target Compliance Level | 95 | 95 | 95 |
| Number of Samples Taken | * | * | * |

Source: MWSS Regulatory Office, 2000

* no data given

Table 14. Water Quality for the West Zone, December 2000

| | 4th Quarter | | |
|---|--------------------|-----------------|-----------------|
| | October | November | December |
| Surface Water Compliance | | | |
| Bacteriological Compliance | 99.37 | 99.69 | 99.7 |
| Target Compliance Level | 95 | 95 | 95 |
| Number of Samples Taken | 638 | 651 | 664 |
| Ground Water (Deepwell) Compliance | | | |
| Bacteriological Compliance | 95.16 | 98.61 | 95.71 |
| Target Compliance Level | 95 | 95 | 95 |
| Number of Samples Taken | 62 | 72 | 70 |
| Overall Water Quality Compliance | | | |
| Bacteriological Compliance | 99 | 99.59 | 99.32 |
| Target Compliance Level | 95 | 95 | 95 |
| Number of Samples Taken | 700 | 723 | 734 |

Source: MWSS Regulatory Office (2000)

Table 15. Wastewater Effluent Quality for the East Zone, 4th Quarter 2000

| | DENR STANDARD | October | November | December |
|--|-----------------------|------------|-----------------------|------------|
| As Reported by Manila Water | | | | |
| Ayala Wastewater Treatment Plant | | | | |
| Color (pcu) | 150 | 20 | nsc | 10 |
| pH | 6.5 - 9 | 7.6 | nsc | 7.8 |
| COD (ppm) | 100 | 49 | nsc | 74 |
| Settleable Solids (ppm) | 0.5 | 0 | nsc | 0 |
| BOD (ppm) | 50 | 44.4 | nsc | 50 |
| TSS (ppm) | 70 | 41 | nsc | 37 |
| Surfactants (ppm) | 5 | 1.208 | nsc | 0.392 |
| Oil and Grease (ppm) | 5 | 4.8 | nsc | 1.7 |
| Total Coliforms (mpn / 100 ml) | 1.0 x 10 ⁴ | 700 | nsc | 50 |
| Karangalan Bio - module | | | | |
| Color (pcu) | 150 | 15 | 5 | 10 |
| pH | 6.5 - 9 | 7.5 | 7.3 | 8.2 |
| COD (ppm) | 100 | 9.5 | 14 | 22.4 |
| Settleable Solids (ppm) | 0.5 | 0.4 | 0 | 0 |
| BOD (ppm) | 50 | 9 | 26.1 | 19.5 |
| TSS (ppm) | 70 | 22 | 6 | 26 |
| Surfactants (ppm) | 5 | 0.652 | 0.9 | 0.236 |
| Oil and Grease (ppm) | 5 | 1.6 | 3.4 | 1 |
| Total Coliforms (mpn / 100 ml) | 1.0 x 10 ⁴ | 23 | <2 | <2 |
| As Monitored by the Regulatory Office | | | | |
| Ayala Wastewater Treatment Plant | | | | |
| Color (pcu) | 150 | < 5 | 25 | 90 |
| pH | 6.5 - 9 | not tested | 7.2 | 7.3 |
| COD (ppm) | 100 | 120 | 108 | 110 |
| Settleable Solids (ppm) | 0.5 | not tested | not tested | not tested |
| BOD (ppm) | 50 | no result | 32 | 33 |
| TSS (ppm) | 70 | 41 | 37 | 16 |
| Surfactants (ppm) | 5 | not tested | not tested | not tested |
| Oil and Grease (ppm) | 5 | 14 | 4 | 2 |
| Total Coliforms (mpn / 100 ml) | 1.0 x 10 ⁴ | 230 | 1.6 x 10 ⁴ | 1300 |
| Karangalan Bio - module | | | | |
| Color (pcu) | 150 | < 5 | 5 | 50 |
| pH | 6.5 - 9 | not tested | 6.8 | 8 |
| COD (ppm) | 100 | 36 | 24 | 30 |
| Settleable Solids (ppm) | 0.5 | not tested | not tested | not tested |
| BOD (ppm) | 50 | no result | 2 | 3 |
| TSS (ppm) | 70 | 26 | 6 | 24 |
| Surfactants (ppm) | 5 | not tested | not tested | not tested |
| Oil and Grease (ppm) | 5 | 2 | 2 | 2 |
| Total Coliforms (mpn / 100 ml) | 1.0 x 10 ⁴ | 130 | < 20 | < 20 |

Source: Technical Division, MWSS Regulatory Office (2001)

Notes:

pcu = platinum cobalt unit
 ppm = parts per million
 mpn = most probable number
 nsc = no sample collected

Table 16. Wastewater Effluent Quality for the West Zone, 4th Quarter 2000

| | DENR STANDARD | October | November | December |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| As Reported by Maynilad Water | | | | |
| Project 7 Communal Septic Tank | | | | |
| Color (pcu) | 150 | 10 | 15 | 20 |
| pH | 6.5 - 9 | 6.89 | 7.15 | 7.25 |
| COD (ppm) | 100 | 203.5 | 157.5 | 170.5 |
| Settleable Solids (ppm) | 0.5 | 1 | 0.6 | 1.05 |
| BOD (ppm) | 50 | 83.8 | 84.25 | 112.25 |
| TSS (ppm) | 70 | 52 | 75 | 72 |
| Surfactants (ppm) | 5 | not tested | not tested | not tested |
| Oil and Grease (ppm) | 5 | 13 | 13 | 28 |
| Total Coliforms (mpn / 100 ml) | 1.0 x 10 ⁴ | 1.1 x 10 ⁷ | 1.2 x 10 ⁷ | 3.0 x 10 ⁷ |
| Dagat - Dagatan Sewage Treatment Plant | | | | |
| Color (pcu) | 150 | 10 | 10 | 20 |
| pH | 6.5 - 9 | 8.32 | 8.2 | 7.85 |
| COD (ppm) | 100 | 51.8 | 63 | 63 |
| Settleable Solids (ppm) | 0.5 | 0 | 0 | 0 |
| BOD (ppm) | 50 | 47 | 52.8 | 52.75 |
| TSS (ppm) | 70 | 20 | 29 | 23 |
| Surfactants (ppm) | 5 | not tested | not tested | not tested |
| Oil and Grease (ppm) | 5 | 3 | 7 | 7.5 |
| Total Coliforms (mpn / 100 ml) | 1.0 x 10 ⁴ | 119000 | 15000 | 2650 |
| Tondo Sewage Pumping Station | | | | |
| Color (pcu) | 150 | 20 | nsc | 15 |
| pH | 6 - 9 | 7.04 | nsc | 7.25 |
| COD (ppm) | 200 | 192.7 | nsc | 123.5 |
| Settleable Solids (ppm) | - | 1.2 | nsc | 0.05 |
| BOD (ppm) | 100 | 95.8 | nsc | 68.3 |
| TSS (ppm) | 150 | 90 | nsc | 26 |
| Surfactants (ppm) | 10 | not tested | nsc | not tested |
| Oil and Grease (ppm) | 10 | 22.6 | nsc | 14 |
| Total Coliforms (mpn / 100 ml) | - | 1.7 x 10 ⁸ | nsc | 1.9 x 10 ⁷ |
| As Monitored by the Regulatory Office | | | | |
| Project 7 Communal Septic Tank | | | | |
| Color (pcu) | 150 | 10 | 15 | 20 |
| pH | 6.5 - 9 | 6.89 | 7.15 | 7.25 |
| COD (ppm) | 100 | 203.5 | 157.5 | 170.5 |
| Settleable Solids (ppm) | 0.5 | 1 | 0.6 | 1.05 |
| BOD (ppm) | 50 | 83.8 | 84.25 | 112.25 |
| TSS (ppm) | 70 | 52 | 75 | 72 |
| Surfactants (ppm) | 5 | not tested | not tested | not tested |
| Oil and Grease (ppm) | 5 | 13 | 13 | 28 |
| Total Coliforms (mpn / 100 ml) | 1.0 x 10 ⁴ | 1.1 x 10 ⁷ | 1.2 x 10 ⁷ | 3.0 x 10 ⁷ |
| Dagat - Dagatan Sewage Treatment Plant | | | | |
| Color (pcu) | 150 | 10 | 10 | 20 |
| pH | 6.5 - 9 | 8.32 | 8.2 | 7.85 |
| COD (ppm) | 100 | 51.8 | 63 | 63 |
| Settleable Solids (ppm) | 0.5 | 0 | 0 | 0 |
| BOD (ppm) | 50 | 47 | 52.8 | 52.75 |
| TSS (ppm) | 70 | 20 | 29 | 23 |
| Surfactants (ppm) | 5 | not tested | not tested | not tested |
| Oil and Grease (ppm) | 5 | 3 | 7 | 7.5 |
| Total Coliforms (mpn / 100 ml) | 1.0 x 10 ⁴ | 119000 | 15000 | 2650 |
| Tondo Sewage Pumping Station | | | | |
| Color (pcu) | 150 | 20 | nsc | 15 |
| pH | 6 - 9 | 7.04 | nsc | 7.25 |
| COD (ppm) | 200 | 192.7 | nsc | 123.5 |
| Settleable Solids (ppm) | - | 1.2 | nsc | 0.05 |
| BOD (ppm) | 100 | 95.8 | nsc | 68.3 |
| TSS (ppm) | 150 | 90 | nsc | 26 |
| Surfactants (ppm) | 10 | not tested | nsc | not tested |
| Oil and Grease (ppm) | 10 | 22.6 | nsc | 14 |
| Total Coliforms (mpn / 100 ml) | - | 1.7 x 10 ⁸ | nsc | 1.9 x 10 ⁷ |

Source: Technical Division, MWSS Regulatory Office (2001)

Notes:

pcu = platinum cobalt unit
 ppm = parts per million
 mpn = most probable number
 nsc = no sample collected

Table 17. Selected Performance Indicators for Manila Water, 1996 - 2000

| Indicators | 1996 ¹ | 1997 ² | 1998 | 1999 | 2000 |
|--|-------------------|-------------------|---------|---------|---------|
| Cost Control | | | | | |
| Operating ratio (%) | 71 | 109 | 107 | 92 | 88 |
| Operating expense / month (in thousands) | 265,209 | 38,285 | 88,049 | 100,756 | 30,028 |
| Operating expense / Volume of Water Billed | 7.25 | 6.07 | 3.77 | 3.29 | 1.02 |
| Marketing Effort | | | | | |
| Operating revenue / month (thousands) | 374,071 | 35,118 | 82,495 | 109,128 | 34,284 |
| Operating revenue / Volume of Water Billed | 10.23 | 5.57 | 3.53 | 3.57 | 1.17 |
| Volume of Water Billed (in cu.m.) | 438,730 | 75,649 | 280,621 | 367,060 | 352,810 |
| Financial Position | | | | | |
| Total debt / total assets | 0.20 | 0.32 | 0.18 | 0.37 | 0.51 |
| Current ratio | 2 | 4 | 3 | 5 | 5 |
| Profitability | | | | | |
| Net income / operating revenue | 0.04 | -0.09 | -0.07 | 0.08 | 0.12 |
| Interest expense / operating revenue | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| Internal cash ratio (%) | 40 | -9 | -6 | 14 | 22 |
| Return on total assets (%) | 0.00 | -0.03 | -0.03 | 0.03 | 0.01 |
| Production Efficiency | | | | | |
| Non-Revenue Water (%) | 60.8 | 40.8 | 43.5 | 37.5 | 44.5 |
| Volume of Water Produced (in mld) | 3064 | 1167 | 1473 | 1697 | 1669 |
| Personnel Management | | | | | |
| Number of employees | 5304 | 2065 | 1664 | 1568 | 1538 |
| Salary / operating expense | 0.39 | 0.49 | 0.10 | 0.12 | 0.31 |

Sources: Regulatory Office, MWSS (various years)

MWSS (for 1996 figures)

Notes:

¹ Figures for 1996 refer to the old MWSS

² Figures for 1997 are based from the annual financial report of the same year

Operating Ratio = Operating Expense/Operating Revenue

Current Ratio = Current Assets/Current Liabilities

Internal Cash Ratio = [(Net Income + Interest Expense + Depreciation)/Operating Revenue]*100

Return on Total Assets = Net Income/Total Assets

Table 18. Selected Performance Indicators for Maynilad, 1996 - 2000

| Indicators | 1996 ¹ | 1997 ² | 1998 | 1999 | 2000 |
|--|-------------------|-------------------|---------|---------|---------|
| Cost Control | | | | | |
| Operating ratio (%) | 71 | 128 | 148 | 130 | 176 |
| Operating expense / month (in thousands) | 265,209 | 79,938 | 200,712 | 251,462 | 382,742 |
| Operating expense / Volume of Water Billed | 7.25 | 15.91 | 11.19 | 11.44 | 16.79 |
| Marketing Effort | | | | | |
| Operating revenue / month (thousands) | 374,071 | 62,586 | 135,591 | 193,252 | 217,868 |
| Operating revenue / Volume of Water Billed | 10.23 | 12.46 | 7.56 | 8.79 | 9.56 |
| Volume of Water Billed (in cu.m.) | 438,730 | 60,275 | 215,146 | 263,679 | 273,590 |
| Financial Position | | | | | |
| Total debt / total assets | 0.20 | 0.39 | 0.42 | 0.49 | 0.65 |
| Current ratio | 2 | 3 | 1 | 0 | 0 |
| Profitability | | | | | |
| Net income / operating revenue | 0.04 | 0.07 | -0.48 | -0.30 | -0.75 |
| Interest expense / operating revenue | 0.14 | 0.00 | 0.01 | 0.09 | 0.01 |
| Internal cash ratio (%) | 40 | 7 | -46 | -17 | -70 |
| Return on total assets (%) | 0.34 | 2.00 | -14.88 | -7.63 | -13.20 |
| Production Efficiency | | | | | |
| Non-Revenue Water (%) | 60.8 | 65.3 | 62.4 | 67.8 | 67.2 |
| Volume of Water Produced (in mld) | 3,064 | 1,893 | 1,662 | 2,250 | 2,374 |
| Personnel Management | | | | | |
| Number of employees | 5,304 | 2,982 | 2,673 | 2,449 | 2,457 |
| Salary / operating expense | 0.39 | 0.38 | 0.04 | 0.17 | 0.19 |

Sources: Regulatory Office, MWSS (various years)

MWSS (for 1996 figures)

Notes:

¹ Figures for 1996 refer to the old MWSS

² Figures for 1997 are based from the annual financial report of the same year

Operating Ratio = Operating Expense/Operating Revenue

Current Ratio = Current Assets/Current Liabilities

Internal Cash Ratio = [(Net Income + Interest Expense + Depreciation)/Operating Revenue]*100

Return on Total Assets = Net Income/Total Assets

Table 19. Poverty Incidence of Families for the National Capital Region, Rizal and Cavite: 1991, 1994, 1997 and 1998

| | 1991 | | 1994 | | 1997 | | 1998 | |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | Magnitude | Incidence | Magnitude | Incidence | Magnitude | Incidence | Magnitude | Incidence |
| National Capital Region | 217,602 | 13.2 | 141,671 | 8 | 127,873 | 6.4 | 275,678 | 13.7 |
| Manila | 43,134 | 12 | 27,141 | 7 | 33,135 | 8 | 62,009 | 15 |
| Pasig | 8,512 | 10 | 5,320 | 6 | 5,403 | 5 | 15,041 | 13 |
| Quezon City | 43,901 | 13 | 22,516 | 6 | 21,338 | 5 | 48,602 | 12 |
| Caloocan City | 20,272 | 16 | 17,287 | 13 | 13,598 | 9 | 22,745 | 15 |
| Makati | 9,620 | 10 | 5,730 | 5 | 2,234 | 2 | 10,613 | 10 |
| Pasay City | 10,305 | 14 | 5,428 | 7 | 4,795 | 5 | 12,959 | 14 |
| Marikina | 9,952 | 16 | 4,728 | 7 | 7,543 | 10 | 16,376 | 20 |
| Valenzuela | 14,294 | 17 | 13,471 | 14 | 3,432 | 3 | 17,349 | 14 |
| Paranaque | 8,926 | 13 | 4,458 | 6 | 4,500 | 5 | 10,604 | 11 |
| Other Metro | 48,685 | 14 | 35,592 | 9 | 31,897 | 7 | - | - |
| Mandaluyong City | - | - | - | - | 3,150 | 5 | 8,108 | 13 |
| San Juan | - | - | - | - | 1,816 | 5 | 2,381 | 7 |
| Malabon | - | - | - | - | 3,601 | 6 | 10,210 | 17 |
| Navotas | - | - | - | - | 5,675 | 14 | 10,240 | 24 |
| Las Pinas | - | - | - | - | 9,571 | 10 | 11,472 | 11 |
| Muntinlupa City | - | - | - | - | 4,890 | 7 | 10,296 | 15 |
| Taguig/Pateros | - | - | - | - | 3,194 | 5 | 6,673 | 10 |
| Rizal | 44236 | 28 | 25017 | 14 | 19712 | 10 | 39756 | 19 |
| Cavite | 42963 | 19 | 21563 | 9 | 21291 | 8 | 46044 | 16 |

Sources: FIES for 1991, 1994, 1997; APIS for 1998

Table 20. Manila Water Tubig Para Sa Barangay^{1/} Projects, as of December 2000.

| Business Area | Municipality | Location | No. of HSC^{2/} meter | No. of Household Families | Date Completed | |
|--|---------------------|---|--------------------------------------|----------------------------------|-----------------------|-------|
| Balara | Quezon City | Luzon | 594 | 3,981 | 12/00 | |
| | | Villa Laura, Commonwealth | 20 | 100 | 12/00 | |
| | | North Zuzuaregui | 16 | 80 | 12/00 | |
| | | South Zuzuaregui | 12 | 60 | 12/00 | |
| | | Samonte | 38 | 190 | 12/00 | |
| | | Villa Beatriz/Feria | 83 | 415 | 12/00 | |
| | | Pook De La Paz | 20 | 100 | 12/00 | |
| | | Liwanag St., Commonwealth | 50 | 250 | 12/00 | |
| | | Sition Evergreen | 87 | 87 | 12/00 | |
| | | NIA, BIR Road | 151 | 755 | 12/00 | |
| | | BIR Central Bank | 31 | 155 | 12/00 | |
| | | San Roque, EDSA | 12 | 60 | 12/00 | |
| | | Agham Road cor. North Avenue | 30 | 150 | 12/00 | |
| | | Damside, San Roque | 30 | 150 | 12/00 | |
| | | Lynnors Garden | 50 | 250 | 12/00 | |
| | | SSS Garden | 66 | 330 | 12/00 | |
| | | Botanical Garden, Brgy. Central | 161 | 805 | 12/00 | |
| | | C.P. Garcia | 7 | 35 | 12/00 | |
| | | Sitio Lambak, Krus na Ligas | 38 | 220 | 12/00 | |
| | | BFD, East Avenue | 16 | 80 | 12/00 | |
| | | Kaingin 2, Brgy. Pansol | 43 | 215 | 12/00 | |
| | | Pag-asa, Weather Bureau, Old Balara | 14 | 14 | 12/00 | |
| | | DAR, Elliptical Road | 17 | 85 | 12/00 | |
| | | Abra, Lagun | 12 | 48 | 12/00 | |
| | | Pael | 180 | 354 | 12/00 | |
| | | Cenacle Drive, Sunville | 10 | 40 | 12/00 | |
| | | BAI, Vasra | 50 | 250 | 12/00 | |
| | | Kalayaan, Teacher's Village | 55 | 208 | 12/00 | |
| | | San Vicente | 22 | 52 | 12/00 | |
| | | C. Salvador/B. Gonzales, Loyola Heights | 40 | 200 | 12/00 | |
| | | <i>Sub-total</i> | | 1,955 | 9,719 | |
| | | Pasig | Pasig City | NAPICO | 13 | 6,804 |
| E. Santos St., Damayan and Taon St., Palatiw | 376 | | | 376 | 12/00 | |
| Paseo de Animales | 59 | | | 59 | 12/00 | |
| <i>Subtotal</i> | 448 | | | 7,239 | | |
| San Juan/ Mandaluyong | Mandaluyong City | Correctional Institute for Women Housing | 46 | 50 | 12/00 | |
| | | Block 1-26, 28, 31-40, Brgy. Addition Hills | 1 | 4,000 | 12/00 | |
| | | Block 6, Correctional Road, Mauway154 | 154 | 154 | 12/00 | |
| | | Castañeda, Namayan | - | - | On-going | |
| | | GUCNA, Block 1, Bliss Compound | 12 | 12 | 12/00 | |
| | | Block 5, Bliss Compound | 50 | 71 | 12/00 | |
| | Pasig City | Pinagkakaisahang Naninirahan sa Tulip Ugong | 60 | 60 | 12/00 | |
| | | Int. 14 Gen. Malvar, San Antonio Village | 16 | 18 | 12/00 | |
| | | Lakeview | 75 | 75 | On-going | |
| | Quezon City | Int. R. Pascual - along R. Pascual corner Rodriguez | 129 | 140 | 12/00 | |
| | | BGK Home Owners Association, J.P. Rizal | 65 | 71 | 12/00 | |
| | | Int. Santolan, Valencia | - | - | On-going | |
| | <i>Sub-total</i> | | 608 | 4,651 | | |
| Makati | Makati City | Suter St., Sta. Ana | 8 | 8 | 12/00 | |
| | | Brgy. Kapampangan, Sta. Ana | 15 | 15 | 12/00 | |
| | | Tejeros Garden Bliss | 9 | 9 | 12/00 | |
| | | 027 Sunrise St., Brgy. Singkamas | 8 | 8 | 12/00 | |
| | | Laperal Compound, Bernardino St., Guadalupe Viejo | 49 | 500 | 12/00 | |
| | | Block 59 Lot 9 Bayabas St., Brgy. Rizal | 5 | 5 | 12/00 | |
| | | Block 2 Lot 1 Milkweed St., Brgy. Rizal | 4 | 4 | 12/00 | |
| | | Calvary Hills, Calvary, East Rembo | 87 | 87 | 12/00 | |
| | | Prefab Compound, Gov. Noble St., Guadalupe Nuevo | 95 | 300 | 12/00 | |

| Business Area | Municipality | Location | No. of HSC^{2/} meter | No. of Household Families | Date Completed |
|----------------------|---------------------|--|--------------------------------------|----------------------------------|-----------------------|
| | | MACDA, Cembo | 130 | 800 | 12/00 |
| | | General Santos | 5 | 5 | 12/00 |
| | | Teacher's Compound, Phase II, West Rembo | 63 | 153 | 12/00 |
| | | <i>Sub-total</i> | 478 | 1,894 | |
| Marikina | Marikina City | Doña Petra Compound, Concepcion | 345 | 373 | |
| | | Purok 3, Kabayani St. | 146 | 160 | |
| | | Purok 4-6, Kabayani st. | 171 | 200 | |
| | | Purok 7, Kabayani St. | 334 | 576 | |
| | | Libis, Sto. Niño | 140 | 160 | |
| | | Champaca Project, Marikina Heights | 420 | 420 | |
| | | <i>Sub-total</i> | 1,556 | 1,889 | |
| Cubao | Quezon City | Obrero | 7 | 14 | |
| | | Roxas | 6 | 10 | |
| | | South Triangle | 16 | 36 | |
| | | Kanluran | 2 | 2 | |
| | | Paligsahan | 10 | 19 | |
| | | Sta. Cruz | 1 | 2 | |
| | | Kamuning | 4 | 8 | |
| | | West Kamias | 3 | 9 | |
| | | Tagumpay | 147 | 293 | |
| | | Socorro | 6 | 10 | |
| | | E. Rodriguez | 225 | 449 | |
| | | Silangan | 11 | 27 | |
| | | Bagumbayan | 1 | 1 | |
| | | Ugong | 2 | 6 | |
| | | Corazon de Jesus | 122 | 366 | |
| | | Ermitanio | 15 | 30 | |
| | | Balong Bato | 1 | 2 | |
| | | Immaculate Concepcion | 1 | 1 | |
| | | Kaunlaran | 1 | 2 | |
| | | San Martin de Porres | 12 | 12 | |
| | | Damayang Lagi | 9 | 14 | |
| | | Kristong Hari | 3 | 6 | |
| | | <i>Sub-total</i> | 605 | 1,319 | |
| Taguig/Pateros | Pateros | Masagana | 11 | 11 | 12/00 |
| | Taguig | SK Ramirez, Tuktukan | 19 | 19 | 12/00 |
| | | Western Bicutan | 295 | 295 | 12/00 |
| | | Signal Village | 124 | 124 | 12/00 |
| | - | Villa monsod | 15 | 15 | 12/00 |
| | - | Ugong Homeowners | 54 | 54 | 12/00 |
| | - | DC Clamp, Mendoza Compound | 55 | 55 | 12/00 |
| | - | AFPOVAI | 33 | 33 | 12/00 |
| | | <i>Sub-total</i> | 606 | 606 | |
| Rizal | Cainta | Sitio Lubak, Balanti | 85 | 85 | 12/00 |
| | Antipolo | San Juan St., Mayamot | 151 | 151 | 12/00 |
| | | MC Adam Ext., Mayamot | 56 | 56 | 12/00 |
| | | F. Oldan, Mayamot | 29 | 37 | 12/00 |
| | | <i>Sub-total</i> | 321 | 329 | |
| Total | | | 6,577 | 27,646 | |

^{1/} Includes group taps, individual connections, and communal/public faucets.

^{2/} HSC means household service connection.

Source: Manila Water (2001).

Table 21. Major *Bayan-Tubig*^{1/} Projects of Maynilad, December 2000

| Business Area | Municipality | Location | No. of HSC meter^{2/} | Date Completed | |
|---|---------------------|--|--------------------------------------|-----------------------|------|
| Northwest ^{3/} | Kaloocan | KBS Compound, D-dagatan | 262 | 3/30/00 | |
| | | BMBA, 2nd Avenue | 25 | | |
| | | Sapang Saging | 175 | | |
| | | Daang Bakal, Acacia | 195 | | |
| | Malabon | Sitio Gulayan II | 123 | 1/99 | |
| | | PNR Railroad Track | 310 | 3/99 | |
| | | Sitio 6 I | 123 | 7/30/00 | |
| | | Sitio 6 II | 270 | 12/30/00 | |
| | | Paradise Village Phase I & II | 520 | 3/8/00 | |
| | | Malon and Chesa | 88 | - | |
| | | Sub-total | 1,434 | | |
| | Central | Manila | MICT Road, Parola | 2,700 | - |
| | | | Canal dela Reina, Tondo | 89 | - |
| Sub-total | | | 2,789 | | |
| South | Las Piñas | Bernabe Compound, Quirino | 808 | 1/18/00 | |
| | | Green Valley, Gatchalian | 218 | 5/8/00 | |
| | | Salvador Compound | 172 | 11/19/99 | |
| | | Lozada Compound | 176 | 12/28/00 | |
| | | Evergreen Subdivision | 393 | On-going | |
| | Parañaque | Lower Barangay | 173 | On-going | |
| | | Fatima | 163 | 3/20/00 | |
| | | Seaside Square Neighborhood Ass. | 287 | Completed | |
| | Pasay/Makati | Morales Compound, Twin Pioneer Extension | 174 | 9/8/00 | |
| | | Sub-total | 2,564 | | |
| | Northeast | Quezon City | Sitio San Jose | 119 | 9/00 |
| | | | NPC Ambuklao/Mandez | 301 | 9/00 |
| | | | Sitio Mendez Phase I | 141 | 9/00 |
| Cluster 4, 119 Kaliraya | | | 102 | 9/00 | |
| Salanap Compound Baesa | | | 216 | 9/00 | |
| Asamba | | | 230 | 9/00 | |
| Sinagtala | | | 300 | 9/00 | |
| Apolonio Samson/BAESA (F. Carlos) | | | 884 | 11/99 | |
| Brgy. Talipapa, Campo I | | | 100 | - | |
| San Antonio de Padua Home Owners Association (SAPHOA), Roosevelt Avenue | | | 140 | - | |
| Bagong Tuklas, Brgy. San Agustin, Novaliches | | | 100 | 6/00 | |
| | Sub-total | 2,633 | | | |
| Total | | | 10,219 | | |

Notes:

¹ Means 'Water for the Community.'

² The number of house service connection (HSC) is equal to the number of household families served.

³ Another Bayan Tubig Project was completed last February 23, 2001 with 142 house service connections in Pinagsabugan Creek, Malabon

Source: Maynilad Water (2001).

Table 22. Households by Kind of Toilet Facility Being Used and City/Municipality, 1990

| City/Municipality | Total Households | Kind of Toilet Facility | | | | | | | |
|------------------------------------|------------------|--|---|---|--|------------|----------|----------------------------|--------|
| | | Water-sealed, Sewer/Septic Tank, Used Exclusively by the Household | Water-sealed, Sewer/Septic Tank, Shared with other Households | Water-sealed, Other Depository, Used Exclusively by the Household | Water-sealed, Other Depository, Shared with Other Households | Closed Pit | Open Pit | Others (Pail System, etc.) | None |
| National Capital Region | 1,569,588 | 1,008,554 | 278,592 | 77,471 | 61,933 | 30,054 | 23,404 | 30,933 | 58,647 |
| Kaloookan City | 151,132 | 90,484 | 25,917 | 11,005 | 5,973 | 6,561 | 4,290 | 3,111 | 3,791 |
| Manila | 308,909 | 199,291 | 60,827 | 6,929 | 8,828 | 3,003 | 2,063 | 8,449 | 19,519 |
| Pasay City | 73,846 | 44,466 | 17,667 | 2,297 | 2,114 | 873 | 1,711 | 1,556 | 3,162 |
| Quezon City | 332,283 | 220,807 | 52,500 | 18,548 | 18,399 | 7,565 | 5,375 | 4,305 | 4,784 |
| Las Pinas | 57,670 | 39,838 | 6,212 | 4,020 | 2,055 | 1,364 | 1,052 | 768 | 2,361 |
| Makati | 89,295 | 61,058 | 20,637 | 2,037 | 2,178 | 1,017 | 444 | 956 | 968 |
| Malabon | 58,367 | 34,325 | 10,108 | 2,119 | 1,412 | 1,034 | 2,218 | 1,957 | 5,194 |
| Mandaluyong | 49,774 | 32,421 | 10,769 | 2,088 | 2,606 | 322 | 143 | 973 | 452 |
| Marikina | 60,088 | 42,039 | 11,642 | 1,912 | 1,549 | 798 | 375 | 795 | 978 |
| Muntinlupa | 53,499 | 33,245 | 7,407 | 5,002 | 3,382 | 1,454 | 755 | 1,173 | 1,081 |
| Navotas | 38,995 | 18,240 | 5,801 | 1,116 | 808 | 356 | 1,102 | 3,255 | 8,317 |
| Paranaque | 61,128 | 41,983 | 7,084 | 3,127 | 1,816 | 1,270 | 1,265 | 1,656 | 2,927 |
| Pasig | 77,642 | 52,707 | 14,433 | 4,171 | 2,067 | 1,314 | 383 | 606 | 1,961 |
| Pateros | 9,808 | 7,009 | 1,934 | 383 | 226 | 73 | 61 | 31 | 91 |
| San Juan | 24,356 | 17,869 | 5,237 | 323 | 450 | 136 | 80 | 179 | 82 |
| Taguig | 53,153 | 29,272 | 9,428 | 6,871 | 3,085 | 1,678 | 664 | 534 | 1,621 |
| Valenzuela | 69,643 | 43,500 | 10,989 | 5,523 | 4,985 | 1,236 | 1,423 | 629 | 1,358 |
| Percent to Total Households | | | | | | | | | |
| National Capital Region | 100 | 64 | 18 | 5 | 4 | 2 | 1 | 2 | 4 |
| Kaloookan City | 100 | 60 | 17 | 7 | 4 | 4 | 3 | 2 | 3 |
| Manila | 100 | 65 | 20 | 2 | 3 | 1 | 1 | 3 | 6 |
| Pasay City | 100 | 60 | 24 | 3 | 3 | 1 | 2 | 2 | 4 |
| Quezon City | 100 | 66 | 16 | 6 | 6 | 2 | 2 | 1 | 1 |
| Las Pinas | 100 | 69 | 11 | 7 | 4 | 2 | 2 | 1 | 4 |
| Makati | 100 | 68 | 23 | 2 | 2 | 1 | 0 | 1 | 1 |
| Malabon | 100 | 59 | 17 | 4 | 2 | 2 | 4 | 3 | 9 |
| Mandaluyong | 100 | 65 | 22 | 4 | 5 | 1 | 0 | 2 | 1 |
| Marikina | 100 | 70 | 19 | 3 | 3 | 1 | 1 | 1 | 2 |
| Muntinlupa | 100 | 62 | 14 | 9 | 6 | 3 | 1 | 2 | 2 |
| Navotas | 100 | 47 | 15 | 3 | 2 | 1 | 3 | 8 | 21 |
| Paranaque | 100 | 69 | 12 | 5 | 3 | 2 | 2 | 3 | 5 |
| Pasig | 100 | 68 | 19 | 5 | 3 | 2 | 0 | 1 | 3 |
| Pateros | 100 | 71 | 20 | 4 | 2 | 1 | 1 | 0 | 1 |
| San Juan | 100 | 73 | 22 | 1 | 2 | 1 | 0 | 1 | 0 |
| Taguig | 100 | 55 | 18 | 13 | 6 | 3 | 1 | 1 | 3 |
| Valenzuela | 100 | 62 | 16 | 8 | 7 | 2 | 2 | 1 | 2 |

Note: Estimates based on a 10% sample.
Source: National Statistics Office