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PDAM KOTA BOGOR ANALYSIS OF FINANCIAL CONDITION AND PRELIMINARY FINANCIAL FEASIBILITY ANALYSIS OF INVESTMENT PROPOSAL



DECEMBER 2005

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PDAM KOTA BOGOR

**ANALYSIS OF FINANCIAL CONDITION
AND PRELIMINARY FINANCIAL
FEASIBILITY ANALYSIS OF INVESTMENT
PROPOSAL**

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|---|---|
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I. PRELIMINARY PERFORMANCE ANALYSIS (2001-2004)

I.1. PRODUCTION AND DEMAND

The productive capacity of this PDAM is 1,157 lit/sec, excluding an incremental 500 lit/sec from expanded treatment plant works completed in mid-2005, the distribution of which is the subject of an investment proposal analysis in Section C. 30% of this capacity comes from three spring water sources and 70% from two surface water intakes. Since 2000, capacity has been increased by just over 25% in order to maintain a discrete reserve over rising demand. The service is 24 hours per day, although whether regular flow is delivered over 24 hours is still to be determined.

PDAM states that most of its bulk water meters are not operational. Non-revenue water (NRW) from 2001 to 2004 has fluctuated narrowly between 31.6% and 34.9%; however, all these results are estimates and it is likely that the real figure is higher – perhaps 40%. Relevant statistics are provided in Table 1.

Table 1 Production Capacity, Capacity Constraints and NRW (2001-2004)

| | 2001 | 2002 | 2003 | 2004 |
|---|-----------|-----------|-----------|-----------|
| Production Capacity (lit/sec) | 919 | 997 | 1,055 | 1,154 |
| Non-Revenue Water (%) | 31.6% | 31.6% | 32.1% | 34.9% |
| Ratio Production : Consumption ¹ | 1.35:1.00 | 1.23:1.00 | 1.26:1.00 | 1.28:1.00 |

The service area presently includes about 70% of the total population. Connections have grown by 20% since 2001. Household connections represented nearly 94% of total connections and 82% of consumption in 2004. PDAM calculates its service coverage on the basis of 6 persons per household connection. More conventional parameters of 5 persons served per connection and 100 persons by each public tap suggest that the domestic service ratio at the end of 2004 was 44% in terms of the entire population of Kota Bogor and 62% in terms of the service area population. Domestic per capita daily consumption has remained quite stable in the order of 165 litres (lcd). 2004 unit demand in all sectors (household, public tap and non-domestic) was very robust notwithstanding a tariff increase at mid-year. 2001-04 demand is shown in Table 2.

¹ Average day demand. With maximum day demand 10% higher, a minimum ratio of 1.1:1.0 is required.

Table 2 Connection and Water Demand

| | 2001 | 2002 | 2003 | 2004 |
|---|--------|--------|--------|--------|
| Household Connections (no) | 52,605 | 59,065 | 61,887 | 63,187 |
| Unit Consumption (lcd) | N/A | 164 | 164 | 167 |
| Public Taps (no) | 449 | 529 | 557 | 584 |
| Unit Consumption (lcd) | N/A | 17 | 17 | 17 |
| Non-Domestic Connections (no) | 3,385 | 3,507 | 3,579 | 3,701 |
| Unit Consumption (m ³ /day) | N/A | 3.56 | 3.21 | 3.22 |
| Total Connections (no) | 56,439 | 63,101 | 66,023 | 67,472 |
| Annual Change (no) | | 6,662 | 2,922 | 1,449 |
| Domestic Service Ratio – Bogor (%) | | 54% | 62% | 62% |
| Domestic Service Ratio – Service Area (%) | | 43% | 43% | 44% |

Note: The ESP team should review the reasons for technical and administrative water losses and assist PDAM in the design of remedial action plans, including budgets, to reduce NRW.

1.2. FINANCIAL PERFORMANCE

1.2.1. RECURRENT COSTS

Table 3 below shows unit costs per m³ of water sold for major PDAM expenditure categories during the period analysed. The average annual increase over the period is also calculated. To facilitate comparison, the GDP deflator has been applied to convert all nominal prices into Year 2000 constant prices.

Table 3 PDAM Unit Costs (Rp per M³ of Water Sold) 2001-2004 (2000 Constant Prices)

| Item | 2001 (Rp) | 2002 (Rp) | 2003 (Rp) | 2004 (Rp) | Av Annual Increase |
|-----------------------|--------------|--------------|--------------|--------------|-----------------------|
| Personnel | 324 | 317 | 321 | 393 | 7% |
| Power (Operational) | 28 | 42 | 67 | 72 | 37% |
| Chemicals | 34 | 39 | 48 | 57 | 19% |
| Maintenance Materials | 67 | 108 | 103 | 142 | 28% |
| Overheads | 158 | 169 | 204 | 209 | 10% |
| Raw Water | 10 | 10 | 8 | 9 | (6%) |
| Total | 621 | 685 | 751 | 882 | |
| % Year-on-Year Change | | 10.3% | 9.6% | 17.4% | |

The number of personnel increased by 35% between 2001 and 2004. The number of employees per 1,000 connections rose from 5.8 to 6.6. The ratio is considered reasonable for a kota PDAM. PDAM tend to be particularly labour-intensive because most consumers do not have a bank account, and therefore delivery of bills and collections are mostly carried out door-to-door. The unit personnel cost per m³ of water sold increased by 7% per annum in real terms from 2001 to 2004. All of this growth was due to a substantial wages increase in 2004 following the May 2004 tariff adjustment, a normal practice in PDAM.

Whilst the price of power (electricity and fuel) has risen sharply in real terms, as GOI gradually eliminates subsidies, the average annual real increase of 37% seems excessive.

Note: The ESP team should investigate to what extent PDAM dependence on pumping (as opposed to gravity) has increased. There may also be a lack of adequate storage capacity, which requires PDAM to pump on-line during peak daytime hours. There may also be uneconomic pumping practices. At any rate, further analysis is needed, since power prices are likely to continue increasing at levels higher than inflation.

The unit cost of chemicals has also increased beyond what might be reasonably attributed to a gradually greater dependence on surface water than groundwater. Most chemicals are imported, and some of the real increase may therefore be due to devaluation of the rupiah since 2000. Another possible reason may be a requirement for more intensive treatment of surface water; intensified levels of deforestation tend to cause greater levels of soil erosion and runoff into water courses during the rainy season.

Maintenance costs have risen sharply in real terms in the last three years.

Note: This is a matter which should be discussed with PDAM. If the system is showing signs of deterioration, new investment should perhaps be re-directed towards rehabilitation instead of expansion.

Overheads are defined as PDAM general and administrative expenses minus wages, interest payments, bad debts allowances, and maintenance and depreciation costs related to general and administrative fixed expenses. Unit overhead costs show a 20% increase in 2003 over 2002 in real terms, largely because of higher office operating and rental costs and increased contributions for staff welfare and insurance. Overhead control in PDAM is generally an opaque science, but it seems that at PDAM Kota Bogor, these costs are well monitored. Overheads were 53% of salary costs in 2004, a reasonable indicator.

1.2.2. TARIFFS

The tariff structure is typical of PDAM throughout Indonesia, being based on blocks of consumption, with high-income households and commercial/industrial consumers subsidising low-income households and social services. The Factor A tariff (the tariff for the 0-10m³ consumption band for Category A – low income - households) was increased in May 2004 by 57% to Rp 550 from the previous rate of Rp 350 in effect since May 2000 (4 years).

The average tariff per m³ of water sold rose by 31% between May 2004 and April 2005. Nevertheless, the increase has had no effect in constraining demand which rose from an average of 29m³ per month per connection in 2003 and 2004 to nearly 31 m³ by April 2005. All consumer categories have monthly demands in the third and highest tariff block (more than 20 m³ per month), including low-income Category A households.

Note: The above indicates that there is still a significant consumer surplus and thus a need for tariff advocacy with local government and DPRD.

The historical revenue and cost situation of water sold is summarised below:

Table 4 Tariff Relationship to Cost Nominal Prices

| | 2001 (Rp) | 2002 (Rp) | 2003 (Rp) | 2004 (Rp) |
|---|--------------|--------------|--------------|--------------|
| Average Tariff per m ³ | 1,298 | 1,360 | 1,451 | 1,854 |
| O&M per m ³ Water Sold | 934 | 1,076 | 1,237 | 1,519 |
| O&M + Interest per m ³ Water Sold | 1,090 | 1,203 | 1,362 | 1,673 |
| O&M + Int + Dep'n per m ³ Water Sold | 1,324 | 1,430 | 1,618 | 1,967 |

Apart from a sharp rise in maintenance materials expense, much of the benefit from the mid-2004 tariff increase has already been consumed by salary increases. Since PDAM is not servicing all its debt (ref Paragraph 3) and does not re-value its fixed assets, it is clear that the tariff is not adequate and that PDAM should begin preparing for another tariff review with DPRD with an objective of obtaining a further increase in 2006.

Note: The ESP team could offer its assistance in this process. The Permendagri 2/1998 tariff methodology could be applied.

It is not known whether or not PDAM makes a minimum standing charge for consumption. Most PDAM do and it is inequitable. PDAM Kota Bogor should be encouraged to eliminate this practice and to bill on the basis of metered consumption only. This could be introduced progressively on a zonal basis as old and non-functional meters are replaced.

In this regard, the monthly meter rental and administrative charges should be reviewed. PDAM states that 24,000 meters are more than 5 years and that 15,000 will be replaced in 2005.

Note: The meter rental charge should be capable of recovering at least a significant amount of meter replacement costs.

The current connection charge for households is Rp 1,200,000. This price suggests a high level of margin for PDAM, although it does not seem to discourage households from wanting the connection, since there is a long waiting list.

Note: The ESP team should investigate the means by which PDAM updates its customer list in terms of category and location, as well as meter status.

1.2.3. ACCOUNTS RECEIVABLE

PDAM has a good and still improving control over its accounts receivable and its write-offs of bad debts are well below the national average.

Table 5 Collection Efficiencies (2001-2004)

| | 2001 | 2002 | 2003 | 2004 |
|---|------|------|------|------|
| Days Outstanding Receivables (no) | 61 | 61 | 50 | 50 |
| % Bad Debts Allowance of Water Revenues | 1.1% | 0.2% | 0.0% | 0.3% |

PDAM's un-audited 2004 financial report gives a full and transparent accounting of its receivables. 90% of these were 30-90 days outstanding at the end of 2004, of which 12% owed by government agencies and the armed forces. 2.5% were 3-6 months overdue and 1.3% 6-12 months. The balance was 1-2 years outstanding or 2-3 years overdue and therefore classified as doubtful. Most of these doubtful accounts are owed by government agencies and cannot be aged or written off.

Note: The ESP team should try to establish whether or not government agencies actually budget for water consumption. If not, representations should be made to the local government secretary (Sekretaris Daerah – Setda).

1.2.4. INVENTORY MANAGEMENT

PDAM keeps consumables on the current assets side of the balance sheet and classifies investment materials as long-term assets.

The consumables inventory accounting is based on the FIFO system and seems to be well managed, with the major items (chemicals, fuel, maintenance materials and office supplies) all having a 30-day coverage or less.

The fixed assets inventory carries pipes, water meters and other undefined items which are used to replace defective materials in the water supply system. This inventory is declining and stood at Rp 1.7 billion (or 2% of the assets side of the balance sheet) at the end of 2004. A further item in the balance sheet consists of fixed assets (pumps, and transmission and distribution pipes) which have never been used. These have been carried at a gross book value of Rp 1 billion throughout the period of 2001-2004. It would not be entirely surprising to find that these items exist only on the balance sheet.

1.2.5. CURRENT RATIO AND CASH FLOW

As shown in Table 6, PDAM is insolvent because of its arrears on a loan with the Ministry of Finance (Paragraph 3). The quality of its current assets appears to be good, with doubtful items such as pre-paid dividends to its local government owner or accounts receivable from other PDAM not in evidence on the balance sheet. PDAM's problems with cash flow are also emphasised by its cash cover of operating costs (i.e. excluding interest payments).

Note: Even after the mid-2004 tariff increase, cash cover was only 1.3 months, further evidence that tariff advocacy with DPRD is needed.

Table 6 Current Ratio and Cash Flow

| | 2001 | 2002 | 2003 | 2004 |
|------------------------------|------|------|------|------|
| Current Ratio | 1.2 | 0.6 | 0.7 | 0.9 |
| Cash = Number of Months Opex | 2.7 | 0.6 | 0.9 | 1.3 |

I.3. OUTSTANDING LOANS

PDAM has a raft of outstanding loans and leasing arrangements, as follows:

- a) SLA 709/1993 – a subsidiary loan from the Ministry of Finance (MOF) from ADB loan proceeds in connection with the Bogor Palembang Urban Development Project. This is almost certainly a standard (at the time) Regional Development Account loan over 25 years, with a 5-year grace period and 20 years repayment, an interest rate of 10.5% per annum and grace period interest capitalized.

The original loan amount was Rp 30.5 billion. It has become increasingly non-performing and PDAM has probably been accumulating arrears since repayments became due in 1998. Table 7 records this development.

Table 7 PDAM Arrears on MOF Loan SLA 709/1993 (Rp Million)

| 2001 | 2002 | 2003 | 2004 |
|-------|-------|-------|-------|
| 1,799 | 1,774 | 4,300 | 5,306 |

The composition of arrears at the end of 2004 is stated in the PDAM Financial report to be:

| | |
|-----------------|-------|
| Commitment Fees | 716 |
| Interest | 4,288 |
| Penalties | 302 |

This indicates that PDAM has been paying down its principal installments.

Note: It is understood that this is the only loan in the PDAM portfolio with arrears. This should also be checked with PDAM.

Law 17/2003 on State Finances provides an authorisation for the writing down of state credit. Implementing regulation PP 14/2005 has recently been issued and provides the following procedures for write-downs which must be applied in sequence in terms of borrower affordability: a) feasibility of capitalising all outstanding debt (including arrears) and spreading repayments over the original period at the original rate; b) extending the repayment period and/or lowering the interest rate; and c) writing off arrears and interest payments (including grace period interest), but not the original principal. An MOF decree (*Peraturan Menteri*) is being prepared for rescheduling and restructuring of PDAM debt.

Recommendation: Given PDAM's existing debt burden and its plans to take on additional debt, an early resolution of this non-performing loan is recommended. The ESP team should ascertain whether PDAM wishes to avail itself of the new legislation and if so, whether the team can offer assistance which could probably be provided before the PerMen is issued. Given the list of 30 PDAM already prepared for rescheduling/restructuring, the ESP team should investigate the possibility of obtaining a preferential position.

- b) A loan of Rp 2.5 billion from the West Java Regional Development Bank (BPD). This is a 6-year loan with an 18-month grace period and a fixed interest rate of 19.5% per annum.
- c) A lease arrangement with PT Jasuka for up-rating a water treatment plant. Under this arrangement, PDAM invited three contractors to bid with financing. The contract amount was Rp 5.7 billion and repayments consist of 20% in up-front payments spread over 5 months (the construction period?) and two years of monthly repayments of principal at an interest rate of 19.5% per annum.
- d) A lease arrangement with PT Pundi Kencana Mas for construction of a 3000 m³ reservoir. There appears to be a grace period during construction (unspecified) followed by repayment of the contract amount of Rp 6.4 billion over a 30-month period at an interest rate of 19.5% per annum.
- e) A lease arrangement with PT Juasinas Perdana for 13,000 water meters and 5,000 sets of water meter moving parts (PDAM re-uses meter bodies from scrap units). The contract amount is Rp 2.4 billion, with two up-front payments of 10% each and the balance repayable in equal instalments over 18 months at an interest rate of 14.5% per annum.
- f) There is also a minor lease agreement for supply of vehicles.

The debt service covering ratio (DSCR) has been calculated in Table 8 for each year analysed in terms of PDAM's actual debt service obligations (i.e. not debt service actually paid).

Table 8 Debt Service Coverage Ratio (2001-2004)

| 2001 | 2002 | 2003 | 2004 |
|------|------|------|------|
| 2.3 | 2.3 | 2.5 | 1.5 |

With higher debt service for leasing payments due in 2005, the DSCR is likely to fall to dangerously low levels.

Note: The reasons for PDAM's aversion to borrowing from MOF through access to donor proceeds, or indeed borrowing from any financial institution, either of which options requires DPRD approval, are well understood; however, there is, in principal, cause for alarm at PDAM taking on leasing additional arrangements, in effect medium-term loans of less than five years, for long-run capital assets. The ESP should examine carefully the impact of these and future planned actions.

I.4. EQUITY

Notwithstanding the above, PDAM has a particularly low (and still declining) gearing (debt-to-equity) ratio (Table 9).

Table 9 Debt-to-Equity Ratio

| 2001 | 2002 | 2003 | 2004 |
|-------|-------|-------|-------|
| 51.6% | 48.2% | 48.8% | 47.8% |

The free-of-charge transfer by real estate developers of water supply fixed assets in new residential estates to PDAM for operation and maintenance at PDAM's own cost and care has played an increasingly important role in PDAM's development in recent years. These transfers represented more than 30% of PDAM's equity at the end of 2004 (25% at the end of 2003).

I.5. AUDIT

The 2002 audit was performed by a certified public accountant from Bandung. The 2003 audit was carried out by the State Audit Agency (BPK). The 2004 audit is reported to be in progress.

I.6. CONCLUSIONS

PDAM appears to be well managed on a day-to-day cash flow basis but seems to be in need of assistance with investment planning and finance. Its debt structure is becoming dangerously unbalanced because of its failure to understand the link between term loans and the economic useful life of assets procured through loan finance. Resolution of its loan with MOF is an urgent matter if PDAM is to invest further in order to expand its service area. Preparation of a new tariff proposal and tariff advocacy with Pemda and DPRD should proceed forthwith.

Conclusion: The planned investment of Rp. 34 billion should not proceed until the above matters are well on course to resolution.

2. 2005 PDAM BUDGET

The projection of PDAM's financial performance in 2005 is based on its budget. PDAM expects an increase of 3,100 connections, equivalent to annual growth of 4.5% and a water demand increase of 4.8%, i.e. unit demand is forecast to remain essentially the same as that of 2004. NRW is forecast to decline from 35% to 34%. If PDAM replaces 15,000 consumer meters which are more than 5 years, as it has stated it will do, this projection is pessimistic.

Unit costs per m³ of water produced, compared with those of 2004, are as follows:

| Item | Unit Cost | Change |
|-----------------------|-----------|---------|
| Personnel | Rp. 400 | + 8.7% |
| Power | Rp. 53 | (9.4%) |
| Chemicals | Rp. 56 | + 8.7% |
| Maintenance Materials | Rp. 140 | + 22.8% |
| Raw Water | Rp. 10 | + 25% |
| Administration | Rp. 270 | + 38.5% |

The ratio of personnel per 1,000 connections is expected to decline slightly from 6.5% to 6.4%.

Note: Power, maintenance and, especially, administration budgets require some explanation.

Water revenues are forecast to rise by 20% over 2004, due to the effect of the mid-2004 increase being exerted over the entire year. After interest expense accruals, PDAM forecasts a 2005 profit of Rp 6.2 billion.

Note: PDAM's 2005 corporate tax liability (not provided in the budget) needs to be reviewed, since the amount actually paid will have an impact on what could be a severe cash flow problem in 2006.

In 2005, PDAM proposes paying Rp 8.6 of principal and Rp 6.0 billion of interest, Rp 1.8 billion more than the accrued interest expensed in the profit and loss budget statement. This excess represents an intention to pay down arrears on its MOF loan from Rp 5.3 billion at the end of 2004 to Rp 3.5 billion at the end of 2005. PDAM also forecasts investments from its own cash resources of Rp 7 billion.

Note: In addition, PDAM expects to improve its collection efficiencies by reducing days of accounts receivable outstanding from 53 to 6, which is clearly not possible. The net effect of all the above is a reduction of cash available at the end of 2005 to Rp 2.3 billion, with a current ratio of 0.4 and an operational cash cover of only 24 days. However, the impossibility of PDAM's accounts receivable target means that PDAM will have to reduce cash outflows by either by scaling back on its 2005 investment schedule or not meeting its debt service forecast.

3. ANALYSIS OF PDAM INVESTMENT PROPOSAL

3.1. SCOPE OF INVESTMENT

The proposed investment comprises three discrete components aimed at extending the existing service area, using the incremental 500 lit/sec production capacity obtained through expansion of treatment facilities which was completed in mid-2005. These three components are:

- a) A reservoir of 1,500 m³ capacity
- b) A 5,100 meter HDPE raw water transmission main
- c) An extension of the distribution and reticulation system which is forecast to yield 6,000 incremental connections

It is assumed that construction will take place in 2006, with the investments becoming operational at the beginning of 2007. The 6,000 new connections are assumed to be introduced linearly over 2007 and 2008.

The bill of materials and base engineering unit costs (May 2005 prices) were provided by PDAM. Detailed engineering design has already been carried out, and it is therefore not appropriate to apply physical contingencies to the engineering base costs. However, price contingencies have been included to an average mid-2006 reference point, using World Bank-supplied domestic inflators of 7% for 2005 and 6.55 for 2006.

After adding material and installation costs for 6,000 incremental connections from the investment, engineering base costs (May 2005 prices) are Rp 33.069 billion. This sum excludes investments already made for detailed engineering design and up-rating an existing treatment plant, as well as land acquisition for the reservoir site which is included in the 2005 PDAM budget. After conversion into nominal prices, investment costs are Rp 38.832 billion. A detailed bill of material is shown at Annex I. A breakdown is provided in Table 10.

Table 10. PDAM 2006 System Expansion Project Cost.

| Item | 2005 Base Costs | 2006 Nominal |
|------------------------------|-----------------|-----------------|
| Preliminaries & Mobilisation | 188.5 | 221.4 |
| Civil Works | 6,446.7 | 7,570.5 |
| Pipes | 24,968.1 | 29,318.8 |
| Mechanical & Electrical | 1,465.9 | 1,721.3 |
| Total | 33,069.2 | 38,831.5 |

4. FEASIBILITY OF INVESTMENT

4.1. PRODUCTION AND DEMAND

The forecast assumes 2,000 connections to be installed on the existing system in 2006 and 1,500 in each of 2007 and 2008. The investment is expected to yield an additional 6,000 connections to be installed linearly in 2007 and 2008. Connection demand is flat after 2008, so that the feasibility of the investment can be measured.

Minor increases of non-domestic connections are projected (5 public taps, 7 social services, 7 government, 50 small and 5 large commercial/industrial connections per annum). Most incremental connections will be installed for households (15% in Category A, 60% in Category B and 25% in Category C households). Since demand has been relatively price inelastic in reaction to the 2004 tariff increase, existing consumption is applied as a proxy for future demand. Household demand forecasts are 150 lcd for Category A, 160 lcd for Category B and 200 lcd for Category C households. Annex II contains the detailed demand forecasts.

Production, including the 5000 lit/sec capacity added in 2005, will be constant at 1,657 litres per second (lps), with a 24-hours/day supply assumed. This volume includes the incremental 500 lps from the treatment plant already up-rated in 2005. Maximum day demand is taken as 110% of average day demand. NRW is expected to be reduced by 1% per annum from the 34.9% result of 2004.

By the end of 2008, the ratio of capacity to production is forecast at 128% of production, with 110% taken as the trigger point for new investment in production. This leaves adequate margin for at least one further round of investment to expand the distribution system in accordance with PDAM's medium-term investment programme from existing production facilities. Annex III summarises the production and demand forecast.

Note: PDAM should provide comments on all aspects of the production and demand forecasts. The customer waiting list should be reviewed.

4.2. FINANCING PLAN

The investment is expected to be 100% credit-financed. Financing of all capital works, except customer meters, is assumed to be sourced via a contractor-supplied leasing arrangement, with a one-year grace period and 10 years repayment of equal; amounts of principal. The principal amount is Rp 37.070 billion and the interest rate is fixed at 14.5% per annum. Disbursement is based on completion of construction of the investment in 2006, with operation scheduled for the beginning of 2007.

Customer meters and all short-run assets should be financed via medium-term loans. In this case, the funding for customer meters is based on a three-year loan with equal amounts of principal repayment and an annual interest rate of 14.5%.

Annex IV provides the loan disbursement and amortisation schedule of these loans.

Note: PDAM should confirm availability of these loans on the above terms, including the assumption of a one-year grace period.

4.3. FIXED ASSETS CAPITALISATION AND DEPRECIATION/AMORTISATION SCHEDULE

Capital expenditure is forecast to be completed in 2006, with customer meters installed in 2007 and 2008. It is assumed that Rp 5 billion will be invested in the existing system in 2006, with this amount adjusted annually to compensate for inflation. It is expected to include the expense of incremental meters on the existing system, the costs of reducing NRW, as well as other capital requirements. Annual allocations across the fixed asset categories are assumed to be the same as those in the PDAM 2005 budget.

All new investment is carried as work-in-progress in the year of expenditure and capitalised in the following year. Depreciation is calculated on the useful life basis for tariff purposes and at the fiscal rate for accounting purposes, as follows:

| Asset Category | Useful Life | Fiscal |
|-------------------------|-------------|--------|
| Land | 0% | 0% |
| Civil Works (inc Pipes) | 3.3% | 10% |
| Equipment | 5% | 10% |
| Others | 10% | 10% |

Fixed assets are carried throughout the forecast at historical cost, as is the current PDAM practice. The provisions of KepMenKeu 507/KMK/.04/1996 and relevant legislation precedent treat revaluation surpluses as capital gains, with the tax payable immediately. PDAM is not expected to consider re-valuation of its fixed assets while this decree is still in effect.

Capitalised interest and construction preliminaries and demobilisation expenses are treated as deferred expenses and amortised at 10% per annum on the outstanding balance.

The fixed asset capitalisation, depreciation and amortisation schedules are carried in Annex V.

Note: PDAM should confirm the annual investments assumed for the existing system.

4.4. RECURRENT EXPENDITURES

Recurrent expenditure for each major cost item is treated on the following basis in 2005 constant price terms:

Personnel and Salaries: Staff numbers are assumed not to increase in 2006, and to be fixed in 2007 and thereafter at 6 per 1,000 connections. Because of connection growth, this will not result in any redundancies. Salaries are forecast to grow at 3% per annum in real terms.

Power, Chemicals and Raw Water: The 2005 budget provides for Rp 53, Rp 50 and Rp 10 per m³ of water sold.

Note: These unit costs are carried into the forecast. These should be reviewed as PDAM uses progressively more surface water in its raw water sourcing. National policies for future reductions of the electricity and fuel subsidies should also be considered, as well as energy saving measures such as those suggested in Section A2 above.

Maintenance Materials: Expenditure has risen considerably in recent years, both in real terms and as a percentage of fixed assets in operation. This includes supplies and pipe connection items (biaya pemakaian bahan/perlengkapan dan pipa persil) expensed annually as transmission and distribution system recurrent costs. Gross fixed assets will increase as a result of the investment and maintenance costs are forecast at 2.5% in 2006 and 2% thereafter.

Note: As noted in Section A, the subject of maintenance on the existing system requires discussion with PDAM.

Administration: These are defined as PDAM general and administrative expenses minus wages, interest payments, bad debts allowances, and maintenance and depreciation costs related to general and administrative fixed expenses. These expenses have also tended to rise during the historical period reviewed in Section A, and are estimated at 68% of staff costs in the 2005 budget.

Note: PDAM should be asked to review the potential for overhead reduction. Provisionally, the forecast is a reduction to 60% in 2006, 55% in 2007 and 50% of personnel in 2008 and thereafter.

4.5. WATER TARIFFS

As a result of the mid-2004 tariff increase, tariffs are as currently shown in Table 11.

Table II. Current Tariffs (Rp /m³).

| Consumer Type | 0-10 m ³ | 11-20 m ³ | > 20 m ³ |
|-------------------------|---------------------|----------------------|---------------------|
| Group I | | | |
| Public Tap | 250 | 300 | 350 |
| Group II | | | |
| Social Services | 400 | 600 | 800 |
| Group III | | | |
| Household A | 550 | 750 | 1,900 |
| Household B | 700 | 1,000 | 2,600 |
| Government Agencies | 1,400 | 3,100 | 3,500 |
| Group IV | | | |
| Household C | 1,100 | 2,000 | 3,200 |
| Small Commerce/Industry | 2,200 | 2,900 | 4,400 |
| Large Commerce/Industry | 3,000 | 4,100 | 5,250 |

PDAM will propose another tariff increase in 2006 to the mayor and local government legislative council (DPRD), with the intention of having the new tariff approved and effective by January 2007. The ESP team has prepared a cost recovery tariff based on Permendagri 2/1998. The Permen provides for annual adjustments to compensate for annual inflation (no requirement for DPRD approval), plus a cyclical adjustment when significant additional investment is required.

The methodology produces three types of tariff categories:

- Biaya rendah – a tariff category which recovers O&M (including salaries) and overheads only
- Biaya dasar – a tariff category which recovers biaya rendah plus debt service (principal and interest)
- Biaya penuh – a tariff category which recovers biaya rendah plus depreciation based on the economic (useful) life factor applied against re-valued fixed assets plus a 10% return on the net book value of re-valued assets.

For 2007, the tariff per m³ is as follows:

| Category | Rp/m ³ |
|--------------|-------------------|
| Biaya rendah | 1,328 |
| Biaya dasar | 1,750 |
| Biaya penuh | 2,045 |

The immediate conclusions from the above are that:

- The current tariff, as shown in Table II, does not adequately recover recurrent costs (biaya rendah);
- The differences between biaya rendah and the other two categories are quite small and demonstrate a relatively low level of debt and the fact that the book value of fixed assets is far below replacement value at present.

The next step is to apply a percentage against each consumer bracket for each tariff block. The principle is to allow some degree of subsidy for basic household needs (up to 10 m³ per month) as well as for public taps and social services. Table 12 provides a working example of 2007 tariffs.

Table 12. Example of 2007 Tariffs (Rp /m3).

| Consumer Type | 0-10 m ³ | 11-20 m ³ | > 20 m ³ |
|-------------------------|---------------------|----------------------|---------------------|
| Biaya Rendah | | | |
| Public Tap | 400 | 400 | 400 |
| Social Services | 675 | 1,000 | 1,325 |
| Household A | 800 | 2,000 | 3,300 |
| Biaya Dasar | 400 | 600 | 800 |
| Household B | 1,050 | 2,100 | 3,500 |
| Government Agencies | 2,100 | 3,500 | 5,250 |
| Biaya Penuh | | | |
| Household C | 1,500 | 2,650 | 4,100 |
| Small Commerce/Industry | 2,050 | 4,100 | 6,150 |
| Large Commerce/Industry | 3,050 | 5,100 | 7,150 |

The above tariffs include the monthly meter rental charge and the administrative fee. It is these tariffs, multiplied by the detailed consumer category demands of Annex II, which produce the annual water tariff revenues.

Note: It is emphasised that the above are working examples only of a new tariff proposal, and the ESP team will assist PDAM to formulate a comprehensive and equitable tariff structure and in the presentation of the proposal to the DPRD. However, the ESP team strongly recommends the use of Permen methodology in order to support the principle of cost recovery.

Connection fees are charged at the current standard rate of Rp 1.2 million for a ½ inch pipe and Rp 1.7 million for a ¾ inch pipe, with no adjustment for inflation before the end of 2008.

4.6. FINANCIAL RESULTS

All projections are to the end of 2016, when debt service on the loan to finance the proposed investment will have been completed.

4.6.1. INCOME STATEMENT

The tariff and connection revenues are carried from the revenue calculation into the income statement, whilst the 2005 constant price revenues discussed above in Section C4 are converted into nominal prices through application of the annual GDP inflator. A bad debts allowance of 0.5% is assumed for tariff revenues. Profits are taxed at the corporate rates currently prevailing in Indonesia.

The income statement shows a pre-tax profit in all years except 2009 when there is theoretically no connection revenue. The level of profit suggests that a somewhat higher tariff for 2007 should be proposed.

Detailed income statements are presented in Annex VI.

4.6.2. SOURCES AND APPLICATIONS OF FUNDS STATEMENT

The cash flow statement (Annex VII) demonstrates that the investment is financially feasible under the cost and revenue assumptions provided above. The debt service coverage ratio (DSCR) is a minimum 1.5 under both the annual and three-year average scenarios. Projections assume that local government will re-invest annual dividends with PDAM.

The statement assumes debt service of existing loans in accordance with schedules provided to the ESP team, including payment in 2006 of outstanding arrears of Rp 3.5 billion on the SLA to MOF. It will be noted that this repayment schedule produces a cash deficit of Rp 4.5 billion at the end of 2006. This essentially demonstrates the inadequacy of the mid-2004 tariff adjustment. Cash flow is restored to positive status (Rp 2 billion) at the end of 2007 as a consequence of the proposed new tariff.

Note: Incremental investments to expand the system are endangered over the short-term by PDAM's inability to service existing debt. The proposed investment is feasible. In order to resolve the problem, PDAM should apply to MOF for re-scheduling of its SLA in order to permit the investment to proceed.

4.6.3. BALANCE SHEET

Balance sheet projections (Annex VIII) assume 40-day receivables from 2006 onwards and a 45-day inventory point for chemicals and maintenance materials. The current ratio rises above par by 2008. Cash as a percentage of monthly operating expenses will not reach the 90-day comfort zone until 2011. This cramps PDAM's ability to provide equity for future investment and increases its potential debt burden.

4.7. CONCLUSIONS

PDAM's short-term cash flow problem can only be solved by either continued default on its MOF SLA or by re-scheduling. A reasonable solution should not be willing to find. The proposed investment can proceed, provided a cost recovery tariff can be agreed with DPRD.

As an incentive to its negotiations with DPRD to obtain anew tariff and an automatic annual increase in accordance with inflation, PDAM should enter into a performance contract with the local government and the community. This should include annual efficiency benchmarks such as personnel numbers, accounts receivable collections, non-revenue water, number of shutdowns, number of complaints received, etc.

Finally, the ESP team should review the other elements of PDAM's medium-term investment programme in order to produce a comprehensive and agreed strategy for PDAM's orderly development.

5. ANNEXES

ANNEX 1: PROJECT COSTS

ANNEX 2: DETAILED DEMAND PROJECTIONS (2002-2016)

ANNEX 3: PRODUCTION & DEMAND SUMMARY FORECASTS (2002-2016)

ANNEX 4: NEW LOANS - DISBURSEMENT AND AMORTISATION SCHEDULES

ANNEX 5: INCOME STATEMENT - 2001-2016 (RP M)

ANNEX 6: SOURCES AND APPLICATION OF FUNDS 2001-2016 (RP M)

ANNEX 7: BALANCE SHEETS 2001-2016 (RP M)

Annex I: Project Costs

Project: Kota Bogor System Expansion

Base Costs at Mid-2005

(Rp Million unless Stated)

| Item | Component Category | Component Description | Unit | Qty | Unit Price (Rp '000) | Base Cost | Pri Con | PPN | Nominal Price |
|--|--------------------|--|------|-------|----------------------|----------------|--------------|--------------|----------------|
| 1 Reservoir | | | | | | | | | |
| 1.01 | de | Preliminaries and Demobilisation | ls | 1 | 54,279 | 54,3 | 3,7 | 5,8 | 63,7 |
| 1.02 | ps | Site Preparation | ls | 1 | 105,603 | 105,6 | 7,1 | 11,3 | 124,0 |
| 1.03 | ps | Concrete Works | ls | 1 | 1,500,171 | 1,500,2 | 101,3 | 160,1 | 1,761,4 |
| 1.04 | ps | Reinforced Sreel | ls | 1 | 26,244 | 26,2 | 1,8 | 2,8 | 30,8 |
| 1.05 | wp | Pipework | ls | 1 | 331,217 | 331,2 | 22,4 | 35,4 | 388,9 |
| 1.06 | me | Mechanical & Electrical | ls | 1 | 228,388 | 228,4 | 15,4 | 24,4 | 268,2 |
| 1.07 | ps | Access Road | ls | 1 | 225,309 | 225,3 | 15,2 | 24,1 | 264,6 |
| Sub-Total Item 1 | | | | | | 2,471,2 | 166,8 | 263,8 | 2,901,8 |
| 2 Raw Water Transmission Main | | | | | | | | | |
| 2.01 | de | Preliminaries and Demobilisation | ls | 1 | 53,888 | 53,9 | 3,6 | 5,8 | 63,3 |
| 2.02 | | Procure Pipes | | | | | | | |
| 2.02.01 | wp | HDPE ND 1000 mm | lm | 3,969 | 4,321 | 17,149,5 | 1,157,6 | 1,830,7 | 20,137,7 |
| 2.02.02 | wp | HDPE ND 600 mm | lm | 1,142 | 1,620 | 1,849,6 | 124,8 | 197,4 | 2,171,9 |
| 2.03 | | HDPE Socket Mechanical Joint Bending | | | | | | | |
| 2.03.01 | wp | ND 1000 x 11.5 | no | 15 | 13,427 | 201,4 | 13,6 | 21,5 | 236,5 |
| 2.03.02 | wp | ND 1000 x 22.5 | no | 45 | 13,427 | 604,2 | 40,8 | 64,5 | 709,5 |
| 2.03.03 | wp | ND 1000 x 45 | no | 17 | 16,112 | 273,9 | 18,5 | 29,2 | 321,6 |
| 2.03.04 | wp | ND 1000 x 90 | no | 2 | 20,409 | 40,8 | 2,8 | 4,4 | 47,9 |
| 2.03.05 | wp | ND 600 x 22.5 | no | 2 | 6,175 | 12,3 | 0,8 | 1,3 | 14,5 |
| 2.03.06 | wp | ND 600 x 45 | no | 4 | 7,360 | 29,4 | 2,0 | 3,1 | 34,6 |
| 2.03.07 | wp | ND 600 x 90 | no | 1 | 18,094 | 18,1 | 1,2 | 1,9 | 21,2 |
| 3 Pipe Jointing Procurement | | | | | | | | | |
| 3.01 | | Flange Tees | | | | | | | |
| 3.01.01 | wp | ND 1000 x 1000 mm | no | 1 | 14,704 | 14,7 | 1,0 | 1,6 | 17,3 |
| 3.01.02 | wp | ND 1000 x 600 mm | no | 1 | 13,811 | 13,8 | 0,9 | 1,5 | 16,2 |
| 3.01.03 | wp | ND 400 x 400mm | no | 1 | 2,313 | 2,3 | 0,2 | 0,2 | 2,7 |
| 3.02 | | Gate Valves | | | | | | | |
| 3.02.01 | wp | ND 1000 mm | no | 1 | 260,768 | 260,8 | 17,6 | 27,8 | 306,2 |
| 3.02.02 | wp | ND 600 mm | no | 1 | 58,643 | 58,6 | 4,0 | 6,3 | 68,9 |
| 3.02.03 | wp | ND 400 mm | no | 1 | 27,825 | 27,8 | 1,9 | 3,0 | 32,7 |
| 3.03 | | HDPE Socket Mechanical Joint Bending | | | | | | | |
| 3.03.01 | wp | ND 1000 X 90 | no | 1 | 14,676 | 14,7 | 1,0 | 1,6 | 17,2 |
| 3.04 | | Flange Bending | | | | | | | |
| 3.04.01 | wp | ND 600 x 90 | no | 2 | 6,573 | 13,1 | 0,9 | 1,4 | 15,4 |
| 3.05 | | Flange Adaptor Mechanical Joint for HDPE | | | | | | | |
| 3.05.01 | wp | ND 1000 mm | no | 1 | 5,904 | 5,9 | 0,4 | 0,6 | 6,9 |
| 3.05.02 | wp | ND 600 mm | no | 2 | 3,010 | 6,0 | 0,4 | 0,6 | 7,1 |
| 3.05.03 | wp | ND 400 (for steel) | no | 1 | 1,161 | 1,2 | 0,1 | 0,1 | 1,4 |
| 3.06 | | Giboult Joint for HDPE | | | | | | | |
| 3.06.01 | wp | ND 1000 mm | no | 1 | 5,468 | 5,5 | 0,4 | 0,6 | 6,4 |
| 3.07 | | Loose Steel Flange | | | | | | | |
| 3.07.01 | wp | ND 1000 mm | no | 2 | 5,080 | 10,2 | 0,7 | 1,1 | 11,9 |
| 3.07.02 | wp | ND 600 mm | no | 2 | 3,148 | 6,3 | 0,4 | 0,7 | 7,4 |
| 3.07.03 | wp | ND 400 mm | no | 2 | 2,310 | 4,6 | 0,3 | 0,5 | 5,4 |
| 3.08 | | Reducer, All Flanges | | | | | | | |
| 3.08.01 | wp | ND 600 x 400 mm | no | 1 | 2,445 | 2,4 | 0,2 | 0,3 | 2,9 |
| 3.09 | | Steel Pipe | | | | | | | |
| 3.09.01 | wp | ND 600 mm | lm | 6 | 1,190 | 7,1 | 0,5 | 0,8 | 8,4 |
| 4 Wash-Out Procurement (4 per Pipeline) | | | | | | | | | |
| 4.01 | wp | Tee ND 1000 x 300 mm Flanges | no | 4 | 13,105 | 52,4 | 3,5 | 5,6 | 61,6 |
| 4.02 | wp | Bend ND 300 x 90 | no | 20 | 832 | 16,6 | 1,1 | 1,8 | 19,5 |
| 4.03 | wp | Flange Adaptor Mechanical Joint for HDPE ND 1000 mm | no | 8 | 5,904 | 47,2 | 3,2 | 5,0 | 55,5 |
| 4.04 | wp | Flange for Gate Valve ND 300 mm | no | 4 | 10,915 | 43,7 | 2,9 | 4,7 | 51,3 |
| 4.05 | wp | Steel Pipe with Slave ND 300 mm | no | 60 | 754 | 45,2 | 3,1 | 4,8 | 53,1 |
| 4.06 | wp | Loose Steel Flange ND 300 mm | no | 16 | 788 | 12,6 | 0,9 | 1,3 | 14,8 |
| 5 Air Valve (12 per Pipeline) | | | | | | | | | |
| 5.01 | wp | Double Anti-Vacuum Air Valve with Shut-Off ND 150 mm | no | 12 | 7,969 | 95,6 | 6,5 | 10,2 | 112,3 |
| 5.02 | wp | Gate Valve All Flanges ND 150 mm | no | 12 | 3,638 | 43,7 | 2,9 | 4,7 | 51,3 |
| 5.03 | wp | Flange Reducer ND 150 mm | no | 12 | 483 | 5,8 | 0,4 | 0,6 | 6,8 |
| 5.04 | wp | Tee All Flanges ND 1000 x 300 mm | no | 12 | 13,105 | 157,3 | 10,6 | 16,8 | 184,7 |
| 5.05 | wp | Flange Adaptor Mechanical Joint for HDPE ND 1000 mm | no | 12 | 5,904 | 70,8 | 4,8 | 7,6 | 83,2 |
| 6 Flow Meter Procurement | | | | | | | | | |
| 6.01 | wp | Flange Adaptor Mechanical Joint for HDPE ND 1000 mm | no | 1 | 5,904 | 5,9 | 0,4 | 0,6 | 6,9 |
| 6.02 | wp | Reducer, All Flanges, ND 1000 x 700 mm | no | 1 | 5,833 | 5,8 | 0,4 | 0,6 | 6,8 |
| 6.03 | | Loose Steel Flange | | | | | | | |
| 6.03.01 | wp | ND 700 mm | no | 5 | 3,148 | 15,7 | 1,1 | 1,7 | 18,5 |
| 6.03.02 | wp | ND 300 mm | no | 1 | 788 | 0,8 | 0,1 | 0,1 | 0,9 |
| 6.04 | wp | Steel Pipe with Slave ND 700 mm | lm | 18 | 4,572 | 82,3 | 5,6 | 8,8 | 96,6 |
| 6.05 | wp | Tee All Flanges ND 700 x 300 mm | no | 2 | 8,269 | 16,5 | 1,1 | 1,8 | 19,4 |
| 6.06 | wp | Bend All Flanges ND 300 x 90 | no | 2 | 832 | 1,7 | 0,1 | 0,2 | 2,0 |
| 6.07 | | Gate Valve All Flanges | | | | | | | |
| 6.07.01 | wp | ND 700 mm | no | 1 | 107,153 | 107,2 | 7,2 | 11,4 | 125,8 |
| 6.07.02 | wp | ND 300 mm | no | 1 | 10,915 | 10,9 | 0,7 | 1,2 | 12,8 |
| 6.08 | | Flange Adaptor Mechanical Joint for Steel | | | | | | | |
| 6.08.01 | wp | ND 300 mm | no | 1 | 733 | 0,7 | 0,0 | 0,1 | 0,9 |
| 6.08.02 | wp | ND 700 mm | no | 1 | 3,524 | 3,5 | 0,2 | 0,4 | 4,1 |
| 6.09 | wp | Dresser Coupling ND 700 mm | no | 2 | 4,286 | 8,6 | 0,6 | 0,9 | 10,1 |
| 6.10 | me | Magnetic Flow Meter ND 700 | no | 1 | 157,500 | 157,5 | 10,6 | 16,8 | 184,9 |

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| 7 Pipe Bridge Procurement (11 m) with Air Valve Wash-Out | | | | | | | | | | |
|--|----|--|-----|--------|--------|-----------------|----------------|----------------|-----------------|--|
| 7.01 | | Steel Pipe | | | | | | | | |
| 7.01.01 | wp | ND 1000 mm | lm | 24 | 2,761 | 66.3 | 4.5 | 7.1 | 77.8 | |
| 7.01.02 | wp | ND 300 mm | lm | 15 | 754 | 11.3 | 0.8 | 1.2 | 13.3 | |
| 7.02 | | Bend All Flanges | | | | | | | | |
| 7.02.01 | wp | ND 1000 x 45 | no | 4 | 10,343 | 41.4 | 2.8 | 4.4 | 48.6 | |
| 7.02.02 | wp | ND 300 x 90 | no | 5 | 832 | 4.2 | 0.3 | 0.4 | 4.9 | |
| 7.03 | wp | Tee All Flanges ND 1000 x 300 mm | no | 2 | 13,105 | 26.2 | 1.8 | 2.8 | 30.8 | |
| 7.04 | wp | Reducer All Flanges ND 300 x 150 mm | no | 1 | 483 | 0.5 | 0.0 | 0.1 | 0.6 | |
| 7.05 | | Gate Valve All Flanges | | | | | | | | |
| 7.05.01 | wp | ND 300 mm | no | 1 | 10,915 | 10.9 | 0.7 | 1.2 | 12.8 | |
| 7.05.02 | wp | ND 150 mm | no | 1 | 3,638 | 3.6 | 0.2 | 0.4 | 4.3 | |
| 7.06 | wp | Double Anti-Vacuum Air Valve with Shut-Off ND 150 mm | no | 1 | 7,970 | 8.0 | 0.5 | 0.9 | 9.4 | |
| 7.07 | | Loose Steel Flange | | | | | | | | |
| 7.07.01 | wp | ND 1000 mm | no | 6 | 5,080 | 30.5 | 2.1 | 3.3 | 35.8 | |
| 7.07.02 | wp | ND 300 mm | no | 4 | 788 | 3.2 | 0.2 | 0.3 | 3.7 | |
| 8.01 | wp | Flange Adaptor Mechanical Joint for Steel ND 1000 mm | no | 2 | 5,904 | 11.8 | 0.8 | 1.3 | 13.9 | |
| 9.01 | wp | Reinforcing Bar | no | 2 | 670 | 1.3 | 0.1 | 0.1 | 1.6 | |
| 8 Pipe Bridge Procurement (10 m) with Air Valve Wash-Out | | | | | | | | | | |
| 8.01 | | Steel Pipe | | | | | | | | |
| 7.01.01 | wp | ND 1000 mm | lm | 21 | 2,761 | 58.0 | 3.9 | 6.2 | 68.1 | |
| 7.01.02 | wp | ND 300 mm | lm | 15 | 754 | 11.3 | 0.8 | 1.2 | 13.3 | |
| 7.02 | | Bend All Flanges | | | | | | | | |
| 7.02.01 | wp | ND 1000 x 45 | no | 2 | 10,343 | 20.7 | 1.4 | 2.2 | 24.3 | |
| 7.02.02 | wp | ND 300 x 90 | no | 6 | 832 | 5.0 | 0.3 | 0.5 | 5.9 | |
| 7.03 | wp | Tee All Flanges ND 1000 x 300 mm | no | 2 | 13,105 | 26.2 | 1.8 | 2.8 | 30.8 | |
| 7.04 | wp | Reducer All Flanges ND 300 x 150 mm | no | 1 | 483 | 0.5 | 0.0 | 0.1 | 0.6 | |
| 7.05 | | Gate Valve All Flanges | | | | | | | | |
| 7.05.01 | wp | ND 300 mm | no | 1 | 10,915 | 10.9 | 0.7 | 1.2 | 12.8 | |
| 7.05.02 | wp | ND 150 mm | no | 1 | 3,638 | 3.6 | 0.2 | 0.4 | 4.3 | |
| 7.06 | wp | Double Anti-Vacuum Air Valve with Shut-Off ND 150 mm | no | 1 | 7,970 | 8.0 | 0.5 | 0.9 | 9.4 | |
| 7.07 | | Loose Steel Flange | | | | | | | | |
| 7.07.01 | wp | ND 1000 mm | no | 6 | 5,080 | 30.5 | 2.1 | 3.3 | 35.8 | |
| 7.07.02 | wp | ND 300 mm | no | 4 | 788 | 3.2 | 0.2 | 0.3 | 3.7 | |
| 8.01 | wp | Flange Adaptor Mechanical Joint for Steel ND 1000 mm | no | 2 | 5,904 | 11.8 | 0.8 | 1.3 | 13.9 | |
| 9.01 | wp | Reinforcing Bar | no | 2 | 670 | 1.3 | 0.1 | 0.1 | 1.6 | |
| 9 Laying Raw Water Transmission Main | | | | | | | | | | |
| 9.01 | ps | Excavate in Hard Earth 2m Depth | m3 | 3,314 | 41 | 134.9 | 9.1 | 14.4 | 158.4 | |
| 9.02 | ps | Excavate in Soft Earth 2m Depth | m3 | 13,345 | 29 | 380.4 | 25.7 | 40.6 | 446.6 | |
| 9.03 | ps | Backfill and Compacting | m3 | 2,608 | 86 | 225.4 | 15.2 | 24.1 | 264.6 | |
| 9.04 | ps | Backfill and Compacting | m3 | 12,378 | 9 | 110.2 | 7.4 | 11.8 | 129.4 | |
| 9.05 | ps | Remove Waste Soil | m3 | 4,013 | 25 | 98.3 | 6.6 | 10.5 | 115.4 | |
| 9.06 | ps | Pipe Transportation | bkg | 594 | 375 | 222.8 | 15.0 | 23.8 | 261.6 | |
| 9.07 | ps | Lay HDPE Pipe ND 1000 mm | lm | 4,050 | 75 | 303.8 | 20.5 | 32.4 | 356.7 | |
| 9.08 | ps | Lay HDPE Pipe ND 600 mm | lm | 1,142 | 47 | 53.8 | 3.6 | 5.7 | 63.2 | |
| 9.09 | ps | Fit Socket Bends | no | 88 | 275 | 24.2 | 1.6 | 2.6 | 28.4 | |
| 9.10 | ps | Weld HDPE Pipe 1000 mm | no | 450 | 325 | 146.3 | 9.9 | 15.6 | 171.7 | |
| 9.11 | ps | Weld HDPE Pipe 600 mm | no | 127 | 292 | 37.0 | 2.5 | 4.0 | 43.5 | |
| 9.12 | ps | Cut and Weld Cup Pipe | ls | 1 | 31,499 | 31.5 | 2.1 | 3.4 | 37.0 | |
| 9.13 | ps | Test HDPE Pipe ND 1000 mm | lm | 4,050 | 16 | 64.8 | 4.4 | 6.9 | 76.1 | |
| 9.14 | ps | Test HDPE Pipe ND 600 mm | lm | 1,142 | 14 | 15.5 | 1.0 | 1.7 | 18.2 | |
| 10 Other Works | | | | | | | | | | |
| 10.01 | ps | Make Wash-Out Chambers | no | 4 | 4,736 | 18.9 | 1.3 | 2.0 | 22.2 | |
| 10.02 | ps | Install Air Valves | no | 12 | 3,773 | 45.3 | 3.1 | 4.8 | 53.2 | |
| 10.03 | ps | Make Manhole for Air Valve Chamber | no | 12 | 6,953 | 83.4 | 5.6 | 8.9 | 98.0 | |
| 10.04 | ps | Joint HDPE Pipe ND 1000 mm | no | 1 | 8,813 | 8.8 | 0.6 | 0.9 | 10.3 | |
| 10.05 | ps | Joint HDPE Pipe ND 600 mm | no | 2 | 6,629 | 13.3 | 0.9 | 1.4 | 15.6 | |
| 10.06 | ps | Make Pipe Crossing and Lay Steel Pipe ND 1100 mm | lm | 18 | 2,678 | 48.2 | 3.3 | 5.1 | 56.6 | |
| 10.07 | ps | Make Pipe Crossing and Lay Steel Pipe ND 700 mm | lm | 12 | 1,682 | 20.2 | 1.4 | 2.2 | 23.7 | |
| 10.08 | ps | Make Cement Rock Bed 1:3 ratio Length 221 m | m3 | 663 | 320 | 211.8 | 14.3 | 22.6 | 248.7 | |
| 10.09 | ps | Construct Retaining Wall | lm | 95 | 4,686 | 445.2 | 30.0 | 47.5 | 522.7 | |
| 10.10 | ps | Construct Pipe Bridge ND 1000 mm | no | 2 | 45,944 | 91.9 | 6.2 | 9.8 | 107.9 | |
| 10.11 | ps | Construct Concrete Thrust Blocks | m3 | 55 | 523 | 28.8 | 1.9 | 3.1 | 33.8 | |
| 10.12 | ps | Clean and Tidy Site Works | ls | 1 | 10,000 | 10.0 | 0.7 | 1.1 | 11.7 | |
| 10.13 | ps | Make Good Asphalt Road (Hot Mix) | m2 | 600 | 102 | 61.2 | 4.1 | 6.5 | 71.9 | |
| 10.14 | ps | Make Good Asphalt Road (Penetration) | m2 | 1,000 | 39 | 39.0 | 2.6 | 4.2 | 45.8 | |
| Sub-Total, Items 2-10 | | | | | | 25,081.2 | 1,693.0 | 2,677.4 | 29,451.6 | |

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| 11 Distribution and Reticalation Works | | | | | | | | | | |
|--|----|-------------------------------------|------|--------|--------|---------|------|-------|---------|--|
| Procurement | | | | | | | | | | |
| 11.01.01 | wp | 1/2" PVC Pipe | lm | 72,000 | 9 | 648.0 | 43.7 | 69.2 | 760.9 | |
| 11.01.02 | wp | 2" PVC Pipe | lm | 15,088 | 15 | 222.7 | 15.0 | 23.8 | 261.5 | |
| 11.01.03 | wp | 3" PVC Pipe | lm | 4,831 | 30 | 145.5 | 9.8 | 15.5 | 170.9 | |
| 11.01.04 | wp | 4" PVC Pipe | lm | 4,128 | 45 | 183.8 | 12.4 | 19.6 | 215.8 | |
| 11.01.05 | wp | 6" PVC Pipe | lm | 4,920 | 95 | 467.3 | 31.5 | 49.9 | 548.7 | |
| 11.01.06 | wp | 8" PVC Pipe | lm | 3,000 | 147 | 439.6 | 29.7 | 46.9 | 516.2 | |
| 11.01.07 | wp | 2" GI Pipe | lm | 48 | 71 | 3.4 | 0.2 | 0.4 | 4.0 | |
| 11.01.08 | wp | 3" GI Pipe | lm | 30 | 86 | 2.6 | 0.2 | 0.3 | 3.0 | |
| 11.01.09 | wp | 4" Steel Pipe | lm | 28 | 257 | 7.2 | 0.5 | 0.8 | 8.5 | |
| 11.01.10 | wp | 6" Steel Pipe | lm | 92 | 359 | 33.1 | 2.2 | 3.5 | 38.8 | |
| 11.01.11 | wp | 8" Steel Pipe | lm | 6 | 288 | 1.7 | 0.1 | 0.2 | 2.0 | |
| 11.01.12 | wp | PVC Elbow 2 x 45° | no | 25 | 25 | 0.6 | 0.0 | 0.1 | 0.7 | |
| 11.01.13 | wp | PVC Elbow 2" x 90° | no | 167 | 31 | 5.2 | 0.3 | 0.6 | 6.1 | |
| 11.01.14 | wp | PVC Valve Socket Dia 2" | no | 121 | 20 | 2.4 | 0.2 | 0.3 | 2.8 | |
| 11.01.15 | wp | PVC Tee Dia 2" x 2" x 2" | no | 105 | 225 | 23.6 | 1.6 | 2.5 | 27.7 | |
| 11.01.16 | wp | PVC Long Bend Dia 2" x 45 | no | 27 | 25 | 0.7 | 0.0 | 0.1 | 0.8 | |
| 11.01.17 | wp | PVC Long Bend Dia 2" x 90 | no | 78 | 31 | 2.4 | 0.2 | 0.3 | 2.8 | |
| 11.01.18 | wp | PVC Cap Dia 2" | no | 90 | 24 | 2.2 | 0.1 | 0.2 | 2.5 | |
| 11.01.19 | wp | PVC Elbow 3" x 45° | no | 4 | 55 | 0.2 | 0.0 | 0.0 | 0.3 | |
| 11.01.20 | wp | PVC Elbow 3" x 90° | no | 32 | 67 | 2.1 | 0.1 | 0.2 | 2.5 | |
| 11.01.21 | wp | PVC Valve Socket Dia 3" | no | 4 | 64 | 0.3 | 0.0 | 0.0 | 0.3 | |
| 11.01.22 | wp | PVC Reducer Socket 3" x 2" | no | 7 | 35 | 0.2 | 0.0 | 0.0 | 0.3 | |
| 11.01.23 | wp | PVC Tee Dia 3" x 2" x 3" | no | 36 | 274 | 9.9 | 0.7 | 1.1 | 11.6 | |
| 11.01.24 | wp | PVC Tee Dia 3" x 3" x 3" | no | 6 | 295 | 1.8 | 0.1 | 0.2 | 2.1 | |
| 11.01.25 | wp | PVC Flange Socket Dia 3" | no | 19 | 144 | 2.7 | 0.2 | 0.3 | 3.2 | |
| 11.01.26 | wp | PVC Flange Spigot Dia 3" | no | 18 | 141 | 2.5 | 0.2 | 0.3 | 3.0 | |
| 11.01.27 | wp | PVC Long Bend Dia 3" x 22.5 | no | 8 | 48 | 0.4 | 0.0 | 0.0 | 0.5 | |
| 11.01.28 | wp | PVC Long Bend Dia 3" x 45 | no | 8 | 55 | 0.4 | 0.0 | 0.0 | 0.5 | |
| 11.01.29 | wp | PVC Cap Dia 3" | no | 12 | 44 | 0.5 | 0.0 | 0.1 | 0.6 | |
| 11.01.30 | wp | PVC Gibout Joint Dia 3" | no | 2 | 232 | 0.5 | 0.0 | 0.0 | 0.5 | |
| 11.01.31 | wp | PVC Flange Socket Dia 4" | no | 36 | 178 | 6.4 | 0.4 | 0.7 | 7.5 | |
| 11.01.32 | wp | PVC Reducer Socket 4" x 2" | no | 9 | 46 | 0.4 | 0.0 | 0.0 | 0.5 | |
| 11.01.33 | wp | PVC Reducer Socket 4" x 3" | no | 4 | 39 | 0.2 | 0.0 | 0.0 | 0.2 | |
| 11.01.34 | wp | PVC Long Bend Dia 4" x 45° | no | 4 | 94 | 0.4 | 0.0 | 0.0 | 0.4 | |
| 11.01.35 | wp | PVC Long Bend Dia 4" x 90° | no | 21 | 126 | 2.6 | 0.2 | 0.3 | 3.1 | |
| 11.01.36 | wp | PVC Tee Dia 4 x 2 x 4 | no | 36 | 317 | 11.4 | 0.8 | 1.2 | 13.4 | |
| 11.01.37 | wp | PVC Tee Dia 4" x 3" x 4" | no | 1 | 317 | 0.3 | 0.0 | 0.0 | 0.4 | |
| 11.01.38 | wp | PVC Tee Dia 4" x 3" x 4" RR | no | 4 | 724 | 2.9 | 0.2 | 0.3 | 3.4 | |
| 11.01.39 | wp | PVC Tee Dia 4" x 4" x 4" | no | 3 | 338 | 1.0 | 0.1 | 0.1 | 1.2 | |
| 11.01.40 | wp | PVC Cap Dia 4" | no | 4 | 85 | 0.3 | 0.0 | 0.0 | 0.4 | |
| 11.01.41 | wp | PVC Gibout Joint Dia 4" | no | 4 | 309 | 1.2 | 0.1 | 0.1 | 1.5 | |
| 11.01.42 | wp | PVC Flange Socket Dia 6" | no | 34 | 288 | 9.8 | 0.7 | 1.0 | 11.5 | |
| 11.01.43 | wp | PVC Reducer Socket 6" x 3" | no | 1 | 143 | 0.1 | 0.0 | 0.0 | 0.2 | |
| 11.01.44 | wp | PVC Reducer Socket 6" x 4" | no | 2 | 85 | 0.2 | 0.0 | 0.0 | 0.2 | |
| 11.01.45 | wp | PVC Long Bend Dia 6" x 45° | no | 6 | 225 | 1.4 | 0.1 | 0.1 | 1.6 | |
| 11.01.46 | wp | PVC Long Bend Dia 6" x 90° | no | 16 | 302 | 4.8 | 0.3 | 0.5 | 5.7 | |
| 11.01.47 | wp | PVC Tee Dia 6" x 3" x 6" (So-So-So) | no | 7 | 767 | 5.4 | 0.4 | 0.6 | 6.3 | |
| 11.01.48 | wp | PVC Hydrant Tee 6" x 3" x 6" | no | 4 | 638 | 2.6 | 0.2 | 0.3 | 3.0 | |
| 11.01.49 | wp | PVC Tee Dia 6" x 4" x 6" (So-So) RR | no | 16 | 671 | 10.7 | 0.7 | 1.1 | 12.6 | |
| 11.01.50 | wp | PVC Tee Dia 6" x 6" x 6" | no | 4 | 749 | 3.0 | 0.2 | 0.3 | 3.5 | |
| 11.01.51 | wp | PVC Tee Dia 6" x 6" x 6" (So-So) RR | no | 2 | 1,351 | 2.7 | 0.2 | 0.3 | 3.2 | |
| 11.01.52 | wp | PVC Cap Dia 6" | no | 3 | 129 | 0.4 | 0.0 | 0.0 | 0.5 | |
| 11.01.53 | wp | PVC Gibout Joint Dia 6" | no | 2 | 586 | 1.2 | 0.1 | 0.1 | 1.4 | |
| 11.01.54 | wp | PVC Flange Socket Dia 8" | no | 4 | 527 | 2.1 | 0.1 | 0.2 | 2.5 | |
| 11.01.55 | wp | PVC Reducer Socket 8" x 6" | no | 1 | 234 | 0.2 | 0.0 | 0.0 | 0.3 | |
| 11.01.56 | wp | PVC Long Bend Dia 8" x 45° | no | 1 | 441 | 0.4 | 0.0 | 0.0 | 0.5 | |
| 11.01.57 | wp | PVC Long Bend Dia 8" x 90° | no | 1 | 636 | 0.6 | 0.0 | 0.1 | 0.7 | |
| 11.01.58 | wp | PVC Tee Dia 8" x 6" x 8" | no | 2 | 1,621 | 3.2 | 0.2 | 0.3 | 3.8 | |
| 11.01.59 | wp | PVC Cap Dia 8" | no | 1 | 183 | 0.2 | 0.0 | 0.0 | 0.2 | |
| 11.01.60 | wp | 2" GI Socket | no | 18 | 12 | 0.2 | 0.0 | 0.0 | 0.2 | |
| 11.01.61 | wp | GI Bocht Dia 2" x 90 | no | 14 | 25 | 0.3 | 0.0 | 0.0 | 0.4 | |
| 11.01.61 | wp | GI FIF Elbow 2 x 90° | no | 40 | 18 | 0.7 | 0.0 | 0.1 | 0.8 | |
| 11.01.62 | wp | GI Double Nipple Dia 2" | no | 12 | 9 | 0.1 | 0.0 | 0.0 | 0.1 | |
| 11.01.63 | wp | 3" GI Socket | no | 6 | 26 | 0.2 | 0.0 | 0.0 | 0.2 | |
| 11.01.64 | wp | GI Bocht Dia 3" x 90 | no | 6 | 16 | 0.1 | 0.0 | 0.0 | 0.1 | |
| 11.01.65 | wp | GI FIF Elbow 3 x 90° | no | 8 | 46 | 0.4 | 0.0 | 0.0 | 0.4 | |
| 11.01.66 | wp | GI MIF Elbow 3 x 90° | no | 2 | 46 | 0.1 | 0.0 | 0.0 | 0.1 | |
| 11.01.67 | wp | GI Gibout Joint Dia 3" | no | 5 | 143 | 0.7 | 0.0 | 0.1 | 0.8 | |
| 11.01.68 | wp | GI Gibout Joint Dia 4" | no | 20 | 257 | 5.1 | 0.3 | 0.5 | 6.0 | |
| 11.01.69 | wp | GI Gibout Joint Dia 6" | no | 30 | 586 | 17.6 | 1.2 | 1.9 | 20.6 | |
| 11.01.70 | wp | GI Gibout Joint Dia 8" | no | 3 | 601 | 1.8 | 0.1 | 0.2 | 2.1 | |
| 11.01.71 | wp | GI Double Nipple Dia 3" | no | 4 | 29 | 0.1 | 0.0 | 0.0 | 0.1 | |
| 11.01.72 | wp | 6" Steel Flange | no | 48 | 615 | 29.5 | 2.0 | 3.1 | 34.6 | |
| 11.01.73 | wp | 4" Flange Socket | no | 14 | 178 | 2.5 | 0.2 | 0.3 | 2.9 | |
| 11.01.74 | wp | 6" Flange Socket | no | 18 | 288 | 5.2 | 0.3 | 0.6 | 6.1 | |
| 11.01.75 | wp | 4" Steel Flange | no | 20 | 35 | 0.7 | 0.0 | 0.1 | 0.8 | |
| 11.01.76 | wp | 6" Steel Flange | no | 28 | 61 | 1.7 | 0.1 | 0.2 | 2.0 | |
| 11.01.77 | wp | 8" Steel Flange | no | 6 | 471 | 2.8 | 0.2 | 0.3 | 3.3 | |
| 11.01.78 | wp | Steel Bend 4" x 45° | no | 4 | 23 | 0.1 | 0.0 | 0.0 | 0.1 | |
| 11.01.79 | wp | Steel Bend 6" x 45° | no | 20 | 48 | 1.0 | 0.1 | 0.1 | 1.1 | |
| 11.01.80 | wp | Steel Bend FIFI 6" x 45° | no | 36 | 1,229 | 44.2 | 3.0 | 4.7 | 52.0 | |
| 11.01.81 | wp | Steel Bend 8" x 45° FLFC | no | 4 | 342 | 1.4 | 0.1 | 0.1 | 1.6 | |
| 11.01.82 | wp | CI Bend Dia 3" x 45 | no | 6 | 64 | 0.4 | 0.0 | 0.0 | 0.5 | |
| 11.01.83 | wp | CI Bend Dia 3" x 90 | no | 4 | 64 | 0.3 | 0.0 | 0.0 | 0.3 | |
| 11.01.84 | wp | CI Bend Dia 4" x 45 | no | 8 | 450 | 3.6 | 0.2 | 0.4 | 4.2 | |
| 11.01.85 | wp | CI Bend Dia 8" x 90° FLFL | no | 2 | 251 | 0.5 | 0.0 | 0.1 | 0.6 | |
| 11.01.86 | wp | CI Reducer Dia 12" x 8" FLFL | no | 1 | 522 | 0.5 | 0.0 | 0.1 | 0.6 | |
| 11.01.87 | wp | Duck Foot Bend Dia 3" x 90 FIFI | no | 5 | 357 | 1.8 | 0.1 | 0.2 | 2.1 | |
| 11.01.88 | wp | 2" Gate Valve | no | 49 | 398 | 19.5 | 1.3 | 2.1 | 22.9 | |
| 11.01.89 | wp | 3" Stop Valve | no | 16 | 3,029 | 48.5 | 3.3 | 5.2 | 56.9 | |
| 11.01.90 | wp | 4" Stop Valve | no | 20 | 3,784 | 75.7 | 5.1 | 8.1 | 88.9 | |
| 11.01.92 | wp | 6" Stop Valve | no | 11 | 10,039 | 110.4 | 7.5 | 11.8 | 129.7 | |
| 11.01.93 | wp | 8" Stop Valve | no | 2 | 12,165 | 24.3 | 1.6 | 2.6 | 28.6 | |
| 11.01.94 | wp | Riser Joint Dia 3" x 12" | no | 10 | 197 | 2.0 | 0.1 | 0.2 | 2.3 | |
| 11.01.95 | wp | Rubber Gasket Dia 4" | no | 30 | 5 | 0.1 | 0.0 | 0.0 | 0.2 | |
| 11.01.96 | wp | Rubber Gasket Dia 8" | no | 12 | 12 | 0.1 | 0.0 | 0.0 | 0.2 | |
| 11.01.97 | wp | Rubber Gasket Dia 12" | no | 1 | 33 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 11.01.98 | wp | Small Cover Box | no | 49 | 121 | 5.9 | 0.4 | 0.6 | 7.0 | |
| 11.01.99 | wp | Stop Valve Cover Box | no | 45 | 208 | 9.3 | 0.6 | 1.0 | 11.0 | |
| 11.01.100 | wp | Street Box | no | 4 | 172 | 0.7 | 0.0 | 0.1 | 0.8 | |
| 11.01.101 | wp | Concrete Slab 40cm x 1m | no | 5 | 100 | 0.5 | 0.0 | 0.1 | 0.6 | |
| 11.01.102 | wp | Fire Hydrant Assembly | no | 5 | 3,028 | 15.1 | 1.0 | 1.6 | 17.8 | |
| 11.01.103 | wp | Pipe Cleaner | can | 165 | 23 | 3.8 | 0.3 | 0.4 | 4.4 | |
| 11.01.104 | wp | Bolt & Bracket Set | no | 170 | 33 | 5.7 | 0.4 | 0.6 | 6.7 | |
| 11.01.105 | wp | Solvent Cement | can | 91 | 69 | 6.3 | 0.4 | 0.7 | 7.4 | |
| 11.01.106 | wp | PTFE Tape | roll | 200 | 2 | 0.4 | 0.0 | 0.0 | 0.5 | |
| 11.01.107 | me | Domestic Water Meters | no | 6,000 | 180 | 1,080.0 | 72.9 | 115.3 | 1,268.2 | |

PDAM TIRTA PAKUAN BOGOR MUNICIPALITY: FINANCIAL CONDITION ANALYSIS AND PRELIMINARY FINANCIAL ANALYSIS ON INVESTMENT PROPOSAL FEASIBILITY

| Civil Works | | | | | | | | | | |
|---------------------------|----|--|----|--------|--------|-----------------|----------------|----------------|-----------------|--|
| 11.02.01 | de | Preliminaries | | 1 | 80,361 | 80.4 | 5.4 | 8.6 | 94.4 | |
| 11.02.02 | ps | Lay 1/2" Pipe | lm | 72,000 | 5 | 338.4 | 22.8 | 36.1 | 397.4 | |
| 11.02.03 | ps | Lay 2" PVC Pipe | lm | 15,088 | 5 | 70.9 | 4.8 | 7.6 | 83.3 | |
| 11.02.04 | ps | Lay 3" PVC Pipe | lm | 4,833 | 6 | 28.0 | 1.9 | 3.0 | 32.9 | |
| 11.02.05 | ps | Lay 4" PVC Pipe | lm | 4,128 | 6 | 26.4 | 1.8 | 2.8 | 31.0 | |
| 11.02.06 | ps | Lay 6" PVC Pipe | lm | 4,920 | 8 | 40.3 | 2.7 | 4.3 | 47.4 | |
| 11.02.07 | ps | Lay 8" PVC Pipe | lm | 3,000 | 11 | 31.8 | 2.1 | 3.4 | 37.3 | |
| 11.02.08 | ps | Lay 2" GI Pipe | lm | 48 | 5 | 0.3 | 0.0 | 0.0 | 0.3 | |
| 11.02.09 | ps | Lay 3" GI Pipe | lm | 30 | 7 | 0.2 | 0.0 | 0.0 | 0.2 | |
| 11.02.10 | ps | Lay 4" Steel Pipe | lm | 20 | 34 | 0.7 | 0.0 | 0.1 | 0.8 | |
| 11.02.11 | ps | Pipe Jointing Dia 2" | no | 1 | 72 | 0.1 | 0.0 | 0.0 | 0.1 | |
| 11.02.12 | ps | Pipe Jointing Dia 3" | no | 2 | 85 | 0.2 | 0.0 | 0.0 | 0.2 | |
| 11.02.13 | ps | Pipe Jointing Dia 6" | no | 3 | 106 | 0.3 | 0.0 | 0.0 | 0.4 | |
| 11.02.14 | ps | Excavate in Soft Earth | m3 | 6,079 | 17 | 104.0 | 7.0 | 11.1 | 122.1 | |
| 11.02.15 | ps | Excavate in Hard Earth | m3 | 2,134 | 20 | 43.7 | 3.0 | 4.7 | 51.3 | |
| 11.02.16 | ps | Backfill with Earth | m3 | 6,568 | 9 | 58.5 | 3.9 | 6.2 | 68.6 | |
| 11.02.17 | ps | Backfill with Sand | m3 | 1,318 | 86 | 113.8 | 7.7 | 12.2 | 133.7 | |
| 11.02.18 | ps | Horizontal Boring 2" PVC Pipe | lm | 6 | 284 | 1.7 | 0.1 | 0.2 | 2.0 | |
| 11.02.19 | ps | Horizontal Boring 3" PVC Pipe | lm | 20 | 309 | 6.2 | 0.4 | 0.7 | 7.3 | |
| 11.02.20 | ps | Horizontal Boring 6" PVC Pipe | lm | 68 | 392 | 26.7 | 1.8 | 2.9 | 31.4 | |
| 11.02.21 | ps | Construct 4" Steel Pipe Bridge 8 m | lm | 1 | 6,855 | 6.9 | 0.5 | 0.7 | 8.0 | |
| 11.02.22 | ps | Construct 6" Steel Pipe Bridge 6 m | no | 1 | 5,142 | 5.1 | 0.3 | 0.5 | 6.0 | |
| 11.02.23 | ps | Construct 6" Steel Pipe Bridge 8 m | no | 4 | 6,855 | 27.4 | 1.9 | 2.9 | 32.2 | |
| 11.02.24 | ps | Construct 6" Steel Pipe Bridge 12 m | no | 1 | 10,283 | 10.3 | 0.7 | 1.1 | 12.1 | |
| 11.02.25 | ps | Construct 6" Steel Pipe Bridge 16 m | no | 2 | 15,000 | 30.0 | 2.0 | 3.2 | 35.2 | |
| 11.02.26 | ps | Install 3" Stop Valve | no | 4 | 85 | 0.3 | 0.0 | 0.0 | 0.4 | |
| 11.02.27 | ps | Install 4" Stop Valve | no | 9 | 113 | 1.0 | 0.1 | 0.1 | 1.2 | |
| 11.02.28 | ps | Install 6" Stop Valve | no | 6 | 163 | 1.0 | 0.1 | 0.1 | 1.1 | |
| 11.02.29 | ps | Install 8" Stop Valve | no | 2 | 245 | 0.5 | 0.0 | 0.1 | 0.6 | |
| 11.02.30 | ps | Install Small Cover Box | no | 49 | 109 | 5.3 | 0.4 | 0.6 | 6.3 | |
| 11.02.31 | ps | Install Stop Valve Cover Box | no | 44 | 173 | 7.6 | 0.5 | 0.8 | 8.9 | |
| 11.02.32 | ps | Install Street Box | no | 2 | 173 | 0.3 | 0.0 | 0.0 | 0.4 | |
| 11.02.33 | ps | Install Fire Hydrant | no | 2 | 235 | 0.5 | 0.0 | 0.1 | 0.6 | |
| 11.02.34 | ps | Install Hydrant Pillar | no | 3 | 220 | 0.7 | 0.0 | 0.1 | 0.8 | |
| 11.02.35 | ps | Construct Thrust Block | no | 8 | 523 | 4.2 | 0.3 | 0.4 | 4.9 | |
| 11.02.36 | ps | Make and Install AC Connection Pipe Dia 6" | no | 1 | 106 | 0.1 | 0.0 | 0.0 | 0.1 | |
| 11.02.37 | ps | Make Good Concrete Road | m2 | 2,163 | 27 | 58.6 | 4.0 | 6.3 | 68.8 | |
| 11.02.38 | ps | Make Good Paving Blocks | m2 | 199 | 38 | 7.6 | 0.5 | 0.8 | 8.9 | |
| 11.02.39 | ps | Make Good Soft Asphalt Road | m2 | 684 | 39 | 26.7 | 1.8 | 2.8 | 31.3 | |
| 11.02.40 | ps | Make Good Asphalt Road (Hot Mix) | m2 | 1,972 | 55 | 108.5 | 7.3 | 11.6 | 127.4 | |
| 11.02.41 | ps | Install Domestic Water Meter | no | 6,000 | 70 | 420.0 | 28.4 | 44.8 | 493.2 | |
| Sub-Total, Item 11 | | | | | | 5,516.8 | 372.4 | 588.9 | 6,478.1 | |
| Total | | | | | | 33,069.2 | 2,232.2 | 3,530.1 | 38,831.5 | |

ANNEX II

PDAM KOTA BOGOR

DETAILED DEMAND PROJECTIONS (2002-2016)

| PDAM KOTA BOGOR | | | | | | | | | | | | | | | |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| DETAILED DEMAND PROJECTIONS (2002-2016) | | | | | | | | | | | | | | | |
| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Group I | | | | | | | | | | | | | | | |
| Public Taps | 529 | 557 | 584 | 576 | 581 | 586 | 591 | 591 | 591 | 591 | 591 | 591 | 591 | 591 | 591 |
| # Service Connection (Annual Average) | 489 | 543 | 571 | 580 | 579 | 584 | 589 | 591 | 591 | 591 | 591 | 591 | 591 | 591 | 591 |
| Unit Consumption - m3/person/day | 0.017 | 0.017 | 0.017 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 |
| Water Demand - 000 M3/Yr | 310 | 328 | 355 | 348 | 347 | 350 | 353 | 354 | 354 | 354 | 354 | 354 | 354 | 354 | 354 |
| Group II | | | | | | | | | | | | | | | |
| Social Services | 395 | 401 | 419 | 414 | 421 | 428 | 435 | 435 | 435 | 435 | 435 | 435 | 435 | 435 | 435 |
| # Service Connections (Annual Average) | 394 | 398 | 410 | 417 | 418 | 425 | 432 | 435 | 435 | 435 | 435 | 435 | 435 | 435 | 435 |
| Unit Consumption - M3/Conn/day | 9.840 | 7.971 | 7.049 | 7.187 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 |
| Water Demand - 000 M3/Yr | 1,413 | 1,158 | 1,055 | 1,093 | 1,067 | 1,085 | 1,102 | 1,111 | 1,111 | 1,111 | 1,111 | 1,111 | 1,111 | 1,111 | 1,111 |
| Group III | | | | | | | | | | | | | | | |
| Household Category A | | | | | | | | | | | | | | | |
| # Service Connections (Annual Average) | 16,893 | 14,364 | 13,517 | 14,029 | 14,740 | 15,222 | 15,886 | 16,218 | 16,218 | 16,218 | 16,218 | 16,218 | 16,218 | 16,218 | 16,218 |
| Unit Consumption - M3/Conn/day | 0.152 | 0.154 | 0.156 | 0.152 | 0.150 | 0.150 | 0.150 | 0.150 | 0.150 | 0.150 | 0.150 | 0.150 | 0.150 | 0.150 | 0.150 |
| Water Demand - 000 M3/Yr | 4,678 | 4,041 | 3,840 | 3,897 | 4,035 | 4,167 | 4,349 | 4,440 | 4,440 | 4,440 | 4,440 | 4,440 | 4,440 | 4,440 | 4,440 |
| Household Category B | | | | | | | | | | | | | | | |
| # Service Connections (Annual Average) | 30,325 | 35,385 | 37,393 | 38,485 | 39,743 | 41,671 | 44,326 | 45,654 | 45,654 | 45,654 | 45,654 | 45,654 | 45,654 | 45,654 | 45,654 |
| Unit Consumption - M3/Conn/day | 0.158 | 0.156 | 0.159 | 0.163 | 0.160 | 0.160 | 0.160 | 0.160 | 0.160 | 0.160 | 0.160 | 0.160 | 0.160 | 0.160 | 0.160 |
| Water Demand - 000 M3/Yr | 8,767 | 10,092 | 10,834 | 11,446 | 11,605 | 12,168 | 12,943 | 13,331 | 13,331 | 13,331 | 13,331 | 13,331 | 13,331 | 13,331 | 13,331 |
| Government Agencies | | | | | | | | | | | | | | | |
| # Service Connections (Annual Average) | 303 | 279 | 284 | 284 | 290 | 297 | 304 | 307 | 307 | 307 | 307 | 307 | 307 | 307 | 307 |
| Unit Consumption - M3/Conn/day | 12.364 | 11.780 | 11.479 | 11.271 | 11.000 | 11.000 | 11.000 | 11.000 | 11.000 | 11.000 | 11.000 | 11.000 | 11.000 | 11.000 | 11.000 |
| Water Demand - 000 M3/Yr | 1,367 | 1,200 | 1,188 | 1,166 | 1,162 | 1,190 | 1,219 | 1,233 | 1,233 | 1,233 | 1,233 | 1,233 | 1,233 | 1,233 | 1,233 |
| Group IV | | | | | | | | | | | | | | | |
| Household Category C | | | | | | | | | | | | | | | |
| # Service Connections (Annual Average) | 8,440 | 10,551 | 11,628 | 12,219 | 12,794 | 13,597 | 14,704 | 15,257 | 15,257 | 15,257 | 15,257 | 15,257 | 15,257 | 15,257 | 15,257 |
| Unit Consumption - M3/Conn/day | 0.212 | 0.205 | 0.204 | 0.213 | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 |
| Water Demand - 000 M3/Yr | 3,265 | 3,948 | 4,333 | 4,744 | 4,670 | 4,963 | 5,367 | 5,569 | 5,569 | 5,569 | 5,569 | 5,569 | 5,569 | 5,569 | 5,569 |
| Small Commercial/Industry | | | | | | | | | | | | | | | |
| # Service Connections (Annual Average) | 2,000 | 2,134 | 2,232 | 2,276 | 2,294 | 2,344 | 2,394 | 2,419 | 2,419 | 2,419 | 2,419 | 2,419 | 2,419 | 2,419 | 2,419 |
| Unit Consumption - M3/Conn/day | 1.279 | 1.345 | 1.538 | 1.573 | 1.573 | 1.573 | 1.573 | 1.573 | 1.573 | 1.573 | 1.573 | 1.573 | 1.573 | 1.573 | 1.573 |
| Water Demand - 000 M3/Yr | 934 | 1,048 | 1,253 | 1,306 | 1,317 | 1,345 | 1,374 | 1,388 | 1,388 | 1,388 | 1,388 | 1,388 | 1,388 | 1,388 | 1,388 |
| Large Commercial/Industry | | | | | | | | | | | | | | | |
| # Service Connections (Annual Average) | 750 | 769 | 776 | 773 | 779 | 784 | 789 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 |
| Unit Consumption - M3/Conn/day | 2.764 | 2.809 | 2.997 | 2.976 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| Water Demand - 000 M3/Yr | 756 | 788 | 849 | 839 | 852 | 858 | 863 | 866 | 866 | 866 | 866 | 866 | 866 | 866 | 866 |

ANNEX III

PDAM KOTA BOGOR

PRODUCTION & DEMAND SUMMARY FORECASTS (2002-2016)

| PDAM KOTA BOGOR PRODUCTION & DEMAND SUMMARY FORECASTS (2002-2016) | | | | | | | | | | | | | | | |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Households | 58,710 | 61,887 | 63,187 | 66,277 | 68,277 | 72,703 | 77,129 | 77,129 | 77,129 | 77,129 | 77,129 | 77,129 | 77,129 | 77,129 | 77,129 |
| # Service Connections (Annual Average) | 55,658 | 60,299 | 62,537 | 64,732 | 67,277 | 70,490 | 74,916 | 77,129 | 77,129 | 77,129 | 77,129 | 77,129 | 77,129 | 77,129 | 77,129 |
| Annual Incremental Connections | 6,105 | 3,177 | 1,300 | 3,090 | 2,000 | 4,426 | 4,426 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Households Per Connection | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Persons Per Household | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Unit Consumption - lcd | 165 | 164 | 167 | 170 | 165 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 |
| Water Demand - 000 M3/Yr | 16,709 | 18,082 | 19,007 | 20,088 | 20,310 | 21,298 | 22,659 | 23,339 | 23,339 | 23,339 | 23,339 | 23,339 | 23,339 | 23,339 | 23,339 |
| Public Tap | 529 | 557 | 584 | 576 | 581 | 586 | 591 | 591 | 591 | 591 | 591 | 591 | 591 | 591 | 591 |
| # Service Connection (Annual Average) | 489 | 543 | 571 | 580 | 579 | 584 | 589 | 591 | 591 | 591 | 591 | 591 | 591 | 591 | 591 |
| Unit Consumption - M3/Conn/day | 0.017 | 0.017 | 0.017 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 |
| Water Demand - 000 M3/Yr | 310 | 328 | 355 | 348 | 347 | 350 | 353 | 354 | 354 | 354 | 354 | 354 | 354 | 354 | 354 |
| Total Domestic Demand - 000 M3/Yr | 17,020 | 18,410 | 19,362 | 20,436 | 20,657 | 21,648 | 23,012 | 23,694 | 23,694 | 23,694 | 23,694 | 23,694 | 23,694 | 23,694 | 23,694 |
| Non-Domestic | 3,507 | 3,651 | 3,751 | 3,745 | 3,814 | 3,883 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 |
| # Service Connection | 3,446 | 3,579 | 3,701 | 3,748 | 3,780 | 3,780 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 |
| Unit Consumption - M3/Conn/day | 3.554 | 3.210 | 3.216 | 3.219 | 3.188 | 3.188 | 3.188 | 3.188 | 3.188 | 3.188 | 3.188 | 3.188 | 3.188 | 3.188 | 3.188 |
| Water Demand - 000 M3/Yr | 4,470 | 4,193 | 4,344 | 4,404 | 4,398 | 4,478 | 4,559 | 4,599 | 4,599 | 4,599 | 4,599 | 4,599 | 4,599 | 4,599 | 4,599 |
| Total Demand - 000 m3/yr | 21,490 | 22,603 | 23,706 | 24,840 | 25,055 | 26,126 | 27,570 | 28,293 |
| Total Connections | 59,593 | 64,421 | 66,809 | 69,056 | 71,638 | 74,856 | 79,459 | 81,672 |
| Forecast Production Capacity | | | | | | | | | | | | | | | |
| Existing Sources - lps | 919 | 997 | 1,055 | 1,157 | 1,657 | 1,657 | 1,657 | 1,657 | 1,657 | 1,657 | 1,657 | 1,657 | 1,657 | 1,657 | 1,657 |
| Additional Sources - lps | 78 | 58 | 102 | 500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Capacity - lps | 997 | 1,055 | 1,157 | 1,657 |
| Production and Sales-lps | | | | | | | | | | | | | | | |
| Demand, Maximum | 750 | 788 | 827 | 866 | 874 | 911 | 962 | 987 | 987 | 987 | 987 | 987 | 987 | 987 | 987 |
| Demand, Average | 681 | 717 | 752 | 788 | 794 | 828 | 874 | 897 | 897 | 897 | 897 | 897 | 897 | 897 | 897 |
| Sales | 681 | 717 | 752 | 788 | 794 | 828 | 874 | 897 | 897 | 897 | 897 | 897 | 897 | 897 | 897 |
| Production | 997 | 1,055 | 1,154 | 1,191 | 1,183 | 1,216 | 1,265 | 1,298 | 1,298 | 1,298 | 1,298 | 1,298 | 1,298 | 1,298 | 1,298 |
| Production and Sales-000 m3/yr | | | | | | | | | | | | | | | |
| Demand | 21,490 | 22,603 | 23,706 | 24,840 | 25,055 | 26,126 | 27,570 | 28,293 | 28,293 | 28,293 | 28,293 | 28,293 | 28,293 | 28,293 | 28,293 |
| Sales | 21,490 | 22,606 | 23,706 | 24,840 | 25,055 | 26,126 | 27,570 | 28,293 | 28,293 | 28,293 | 28,293 | 28,293 | 28,293 | 28,293 | 28,293 |
| Distribution | 31,300 | 32,664 | 36,190 | | | | | | | | | | | | |
| Production | 31,444 | 33,275 | 36,398 | 37,562 | 37,323 | 38,347 | 39,882 | 40,926 | 40,926 | 40,926 | 40,926 | 40,926 | 40,926 | 40,926 | 40,926 |
| Factors | | | | | | | | | | | | | | | |
| Losses (% Production) | 31.7% | 32.1% | 34.9% | 33.9% | 32.9% | 31.9% | 30.9% | 30.9% | 30.9% | 30.9% | 30.9% | 30.9% | 30.9% | 30.9% | 30.9% |
| Average Connected Demand Satisfied (%) | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| % Capacity/Consumption (110% required) | 92.2% | 94.5% | 91.4% | 97.1% | 140.0% | 136.3% | 131.0% | 127.7% | 127.7% | 127.7% | 127.7% | 127.7% | 127.7% | 127.7% | 127.7% |

ANNEX IV

NEW LOANS

A. All Capital Works excluding Customer Meters

Loan Disbursement and Amortisation Schedule (2005-2016)

| | |
|---------------------------------|--------|
| Loan Amount | 37,070 |
| Interest Rate | 14.50% |
| Loan Start Year | 2006 |
| Loan Start Month | 1 |
| Interest Capitalised Until Year | 2007 |
| Amortisation Start Year | 2007 |
| Amortisation Start Month | 1 |
| Capitalised Interest Sum | 1344 |
| No. Years Repayment | 10 |
| Loan End Year | 2016 |

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-----------------------------------|------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|
| Annual Disbursement | 0 | 37,070 | 0 | | | | | | | | | |
| Cumulative Disbursement | 0 | 37,070 | 37,070 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Loan Amortization | 0 | 0 | 3,707 | 3,707 | 3,707 | 3,707 | 3,707 | 3,707 | 3,707 | 3,707 | 3,707 | 3,707 |
| Loan Balance | 0 | 37,070 | 33,363 | 29,656 | 25,949 | 22,242 | 18,535 | 14,828 | 11,121 | 7,414 | 3,707 | 0 |
| Operational Interest | 0 | 1,344 | 5,375 | 4,838 | 4,300 | 3,763 | 3,225 | 2,688 | 2,150 | 1,613 | 1,075 | 538 |
| Of Which Capitalised Interest | 0 | 1,344 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cumulative Capitalised Interest | 0 | 1,344 | 1,344 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Capitalised Interest Amortisation | 0 | 0 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 |
| Capitalised Interest Balance | 0 | 1,344 | 1,209 | 1,075 | 941 | 806 | 672 | 538 | 403 | 269 | 134 | 0 |
| Interest on Capitalised Interest | 0 | 0 | 195 | 175 | 156 | 136 | 117 | 97 | 78 | 58 | 39 | 19 |

B. Customer Meters

| | |
|--------------------------|-------|
| Loan Amount | 1,761 |
| Interest Rate | 14.5% |
| Loan Start Year | 2007 |
| Loan Start Month | 1 |
| Amortisation Start Year | 2007 |
| Amortisation Start Month | 1 |
| No. Years Repayment | 3 |
| Loan End Year | 2009 |

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-------------------------|------|-------|------|------|------|------|------|------|------|------|------|
| Annual Disbursement | 0 | 1,761 | | | | | | | | | |
| Cumulative Disbursement | 0 | 1,761 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Loan Amortization | 0 | 587 | 587 | 587 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Loan Balance | 0 | 1,174 | 587 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Operational Interest | 0 | 64 | 170 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

ANNEX V

PDAM KOTA BOGOR

INCOME STATEMENT - 2001-2016 (RP M)

| PDAM KOTA BOGOR | | | | | | | | | | | | | | | | |
|---------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| INCOME STATEMENT - 2001-2016 (RP M) | | | | | | | | | | | | | | | | |
| | Audited | Audited | Audited | Audited | Budget | Forecast |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Tariff Revenues | 21,531 | 24,547 | 26,930 | 40,892 | 49,166 | 49,591 | 58,453 | 57,864 | 60,210 | 64,296 | 68,651 | 71,897 | 75,186 | 78,601 | 82,147 | 85,779 |
| Connection Fees | 3,285 | 3,990 | 5,011 | 2,050 | 3,430 | 2,517 | 5,429 | 5,429 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Revenues | 571 | 693 | 870 | 997 | 699 | 744 | 785 | 816 | 849 | 883 | 918 | 955 | 993 | 1,033 | 1,074 | 1,117 |
| Total Operating Revenues | 25,387 | 29,229 | 32,811 | 43,940 | 53,294 | 52,853 | 64,667 | 64,109 | 61,059 | 65,179 | 69,570 | 72,852 | 76,179 | 79,634 | 83,221 | 86,896 |
| Personnel | 7,147 | 8,433 | 9,849 | 13,410 | 15,031 | 16,488 | 17,826 | 20,186 | 22,107 | 23,529 | 25,017 | 26,573 | 28,199 | 29,900 | 31,676 | 33,533 |
| Power | 614 | 1,111 | 1,756 | 2,099 | 2,000 | 2,116 | 2,287 | 2,463 | 2,615 | 2,702 | 2,789 | 2,876 | 2,964 | 3,051 | 3,138 | 3,225 |
| Chemicals | 744 | 1,036 | 1,253 | 1,670 | 1,890 | 2,013 | 2,103 | 2,238 | 2,408 | 2,553 | 2,636 | 2,718 | 2,801 | 2,883 | 2,965 | 3,048 |
| Maintenance Materials | 1,486 | 2,884 | 2,701 | 4,148 | 5,270 | 2,908 | 3,167 | 3,294 | 3,426 | 3,544 | 3,667 | 3,793 | 3,924 | 4,058 | 4,197 | 4,340 |
| Raw Water Retribution | 228 | 278 | 237 | 297 | 358 | 379 | 410 | 441 | 469 | 484 | 500 | 515 | 531 | 547 | 562 | 578 |
| Administration - General | 3,479 | 4,513 | 6,248 | 7,110 | 10,158 | 9,893 | 9,804 | 10,093 | 11,054 | 11,765 | 12,509 | 13,286 | 14,100 | 14,950 | 15,838 | 16,767 |
| Bad Debts Allowance | 232 | 58 | 0 | 105 | 112 | 248 | 292 | 289 | 301 | 321 | 343 | 359 | 376 | 393 | 411 | 429 |
| Total Operating Expenses | 13,929 | 18,313 | 22,044 | 28,839 | 34,820 | 34,046 | 35,889 | 39,004 | 42,379 | 44,899 | 47,460 | 50,122 | 52,894 | 55,781 | 58,788 | 61,919 |
| Income (Loss) before Deprec. | 11,458 | 10,916 | 10,767 | 15,101 | 18,474 | 18,807 | 28,778 | 25,105 | 18,680 | 20,279 | 22,109 | 22,731 | 23,285 | 23,853 | 24,434 | 24,977 |
| Depreciation | 4,579 | 4,878 | 5,795 | 6,966 | 7,853 | 8,368 | 12,543 | 13,150 | 13,781 | 14,342 | 14,923 | 15,524 | 16,143 | 16,782 | 17,441 | 18,118 |
| Amortization of Deferred Expenses | 0 | 0 | 0 | 0 | 0 | 169 | 169 | 169 | 169 | 169 | 169 | 169 | 169 | 169 | 169 | 0 |
| Operating Income (Loss) | 6,879 | 6,038 | 4,972 | 8,135 | 10,621 | 10,270 | 16,066 | 11,785 | 4,730 | 5,768 | 7,017 | 7,038 | 6,973 | 6,902 | 6,824 | 6,859 |
| Interest | 2,817 | 2,674 | 2,829 | 3,556 | 4,228 | 2,839 | 7,733 | 7,023 | 6,110 | 5,269 | 4,546 | 3,826 | 3,100 | 2,377 | 1,654 | 932 |
| Net Operating Income (Loss) | 4,062 | 3,364 | 2,143 | 4,579 | 6,393 | 7,430 | 8,333 | 4,763 | (1,380) | 499 | 2,471 | 3,212 | 3,873 | 4,525 | 5,170 | 5,927 |
| Non-Operating Income (Loss) | 58 | 135 | (4) | (72) | (183) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net Income (Loss) before Tax | 4,121 | 3,499 | 2,139 | 4,507 | 6,211 | 7,430 | 8,333 | 4,763 | (1,380) | 499 | 2,471 | 3,212 | 3,873 | 4,525 | 5,170 | 5,927 |
| Corporate Tax | 1,176 | 1,116 | 780 | 1,462 | 2,168 | 2,595 | 2,911 | 1,661 | 0 | 169 | 859 | 1,118 | 1,350 | 1,578 | 1,804 | 2,068 |
| Net Income (Loss) | 2,944 | 2,383 | 1,359 | 3,045 | 4,043 | 4,836 | 5,422 | 3,102 | (1,380) | 330 | 1,612 | 2,094 | 2,524 | 2,947 | 3,367 | 3,859 |
| RATIOS AND COMPARATORS: | | | | | | | | | | | | | | | | |
| O&M per M3 Sold (Rp) | N/A | 852 | 975 | 1,217 | 1,402 | 1,359 | 1,374 | 1,415 | 1,498 | 1,587 | 1,677 | 1,772 | 1,870 | 1,972 | 2,078 | 2,189 |
| O&M + Interest per M3 Sold (Rp) | N/A | 977 | 1,100 | 1,367 | 1,572 | 1,472 | 1,670 | 1,669 | 1,714 | 1,773 | 1,838 | 1,907 | 1,979 | 2,056 | 2,136 | 2,221 |
| O&M + Int + Dep'n per M3 Sold (Rp) | N/A | 1,204 | 1,357 | 1,660 | 1,888 | 1,806 | 2,150 | 2,146 | 2,201 | 2,280 | 2,366 | 2,455 | 2,550 | 2,649 | 2,753 | 2,862 |
| Operating Ratio | 0.73 | 0.79 | 0.85 | 0.81 | 0.80 | 0.81 | 0.75 | 0.82 | 0.92 | 0.91 | 0.90 | 0.90 | 0.91 | 0.91 | 0.92 | 0.92 |
| Average Asset Rate Base | N/A | 49,036 | 54,967 | 60,677 | 60,430 | 55,936 | 69,196 | 80,531 | 73,538 | 65,731 | 57,116 | 48,115 | 38,707 | 28,875 | 18,597 | 7,856 |
| RoR on Revalued Assets excl. Interest | N/A | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.4 | 0.9 |

PDAM TIRTA PAKUAN BOGOR MUNICIPALITY: FINANCIAL CONDITION ANALYSIS AND PRELIMINARY FINANCIAL ANALYSIS ON INVESTMENT PROPOSAL FEASIBILITY

ANNEX VI

PDAM KOTA BOGOR

SOURCES AND APPLICATION OF FUNDS 2001-2016 (RP M)

| PDAM KOTA BOGOR | | | | | | | | | | | | | | | | |
|---|-----------------|-----------------|-----------------|-----------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| SOURCES AND APPLICATION OF FUNDS 2001-2016 (RP M) | | | | | | | | | | | | | | | | |
| | Audited 2001 | Audited 2002 | Audited 2003 | Audited 2004 | Budget 2005 | Forecast 2006 | Forecast 2007 | Forecast 2008 | Forecast 2009 | Forecast 2010 | Forecast 2011 | Forecast 2012 | Forecast 2013 | Forecast 2014 | Forecast 2015 | Forecast 2016 |
| Sources of Funds | | | | | | | | | | | | | | | | |
| Income before Depreciation after Tax | 10,302 | 11,094 | 12,502 | 11,497 | 21,095 | 16,212 | 25,867 | 23,444 | 18,680 | 20,111 | 21,251 | 21,612 | 21,936 | 22,275 | 22,630 | 22,909 |
| Non-Operating Income (Loss) | 58 | 135 | (4) | (72) | (183) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gross Internal Cash Generation | 10,360 | 11,230 | 12,498 | 11,425 | 20,912 | 16,212 | 25,867 | 23,444 | 18,680 | 20,111 | 21,251 | 21,612 | 21,936 | 22,275 | 22,630 | 22,909 |
| Central and Local Government Equity | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Gov't Reinvestment | 400 | 1,400 | 1,350 | 0 | 2,224 | 2,660 | 2,982 | 1,706 | 0 | 182 | 887 | 1,152 | 1,388 | 1,621 | 1,852 | 2,122 |
| Total Equity / Grants | 400 | 1,400 | 1,350 | 0 | 2,224 | 2,660 | 2,982 | 1,706 | 0 | 182 | 887 | 1,152 | 1,388 | 1,621 | 1,852 | 2,122 |
| Borrowings : | | | | | | | | | | | | | | | | |
| SLA/RDA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Loans | 0 | 0 | 2,500 | 0 | 0 | 37,070 | 1,761 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Capitalized Interest | 0 | 0 | 0 | 0 | 0 | 1,344 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Borrowings | 0 | 0 | 2,500 | 0 | 0 | 38,414 | 1,761 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Sources of Funds | 10,760 | 12,630 | 16,348 | 11,425 | 23,136 | 57,285 | 30,611 | 25,150 | 18,680 | 20,292 | 22,137 | 22,764 | 23,324 | 23,896 | 24,482 | 25,031 |
| Applications of Funds | | | | | | | | | | | | | | | | |
| Loan Funded Capital Works | 0 | 0 | 0 | 0 | 0 | 37,070 | 1,761 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Capital Works | 3,280 | 7,076 | 10,780 | 7,976 | 7,021 | 5,163 | 4,591 | 6,593 | 5,916 | 6,120 | 6,324 | 6,528 | 6,732 | 6,936 | 7,140 | 7,344 |
| Capitalized Interest | 0 | 0 | 0 | 0 | 0 | 1,344 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Capital Expenditures | 3,280 | 7,076 | 10,780 | 7,976 | 7,021 | 43,576 | 6,352 | 6,593 | 5,916 | 6,120 | 6,324 | 6,528 | 6,732 | 6,936 | 7,140 | 7,344 |
| Amortisation of Short-Term Debt | 863 | 2,978 | 2,650 | 1,027 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Loan Arrears | | | | | | 3,543 | | | | | | | | | | |
| Amortization of L/T Debt | | | | | 8,596 | 7,167 | 6,453 | 6,453 | 6,453 | 5,366 | 5,366 | 5,366 | 5,366 | 5,366 | 5,366 | 5,366 |
| Interest | | | | | 6,002 | 2,839 | 7,733 | 7,023 | 6,110 | 5,269 | 4,546 | 3,826 | 3,100 | 2,377 | 1,654 | 932 |
| Total Debt Service | 4,390 | 3,420 | 1,524 | 762 | 14,598 | 13,549 | 14,186 | 13,476 | 12,563 | 10,635 | 9,912 | 9,192 | 8,466 | 7,742 | 7,019 | 6,297 |
| Working Capital Needs | 0 | 0 | 0 | 0 | 0 | 4,473 | 868 | 234 | 660 | 387 | 278 | 264 | 275 | 289 | 304 | 303 |
| Other Asset/Liability Changes | 0 | 0 | 0 | 0 | 0 | (150) | (131) | (98) | (100) | (102) | (104) | (106) | (108) | (110) | (112) | (114) |
| Profit Distribution | 1,243 | 1,405 | 704 | 136 | 2,224 | 2,660 | 2,982 | 1,706 | 0 | 182 | 887 | 1,152 | 1,388 | 1,621 | 1,852 | 2,122 |
| Total Applications of Funds | 9,776 | 14,878 | 15,658 | 9,901 | 23,842 | 64,108 | 24,257 | 21,910 | 19,040 | 17,222 | 17,297 | 17,030 | 16,753 | 16,479 | 16,202 | 15,952 |
| CASH INCREASE (DECREASE) | 985 | (2,248) | 690 | 1,482 | (707) | (6,823) | 6,354 | 3,240 | -360 | 3,070 | 4,841 | 5,735 | 6,571 | 7,417 | 8,279 | 9,079 |
| Cash Balance, Beginning | 2,144 | 3,128 | 880 | 1,570 | 3,052 | 2,345 | (4,478) | 1,876 | 5,116 | 4,756 | 7,826 | 12,667 | 18,402 | 24,972 | 32,390 | 40,669 |
| Cash Balance, Ending | 3,128 | 880 | 1,570 | 3,052 | 2,345 | (4,478) | 1,876 | 5,116 | 4,756 | 7,826 | 12,667 | 18,402 | 24,972 | 32,390 | 40,669 | 49,748 |
| Minimum Cash Requirement | 1,161 | 1,526 | 1,837 | 2,403 | 2,902 | 2,837 | 2,991 | 3,250 | 3,532 | 3,742 | 3,955 | 4,177 | 4,408 | 4,648 | 4,899 | 5,160 |
| DEBT COVERAGE RATIO, 1992 Definition | | | | | 1.4 | 1.2 | 1.8 | 1.7 | 1.5 | 1.9 | 2.1 | 2.4 | 2.6 | 2.9 | 3.2 | 3.6 |
| DEBT COVERAGE RATIO, 3-Year Average | | | | | | 1.5 | 1.6 | 1.7 | 1.7 | 1.8 | 2.1 | 2.4 | 2.6 | 2.9 | 3.2 | N/A |

PDAM TIRTA PAKUAN BOGOR MUNICIPALITY: FINANCIAL CONDITION ANALYSIS AND PRELIMINARY FINANCIAL ANALYSIS ON INVESTMENT PROPOSAL FEASIBILITY

ANNEX VII

BALANCE SHEETS 2001-2016 (RP M)

| PDAM KOTA BOGOR | | | | | | | | | | | | | | | | |
|--|---------------|---------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| BALANCE SHEETS 2001-2016 (RP M) | | | | | | | | | | | | | | | | |
| | Audited | Audited | Audited | Audited | Budget | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Fixed Assets in Operation | 74,251 | 84,922 | 96,587 | 109,101 | 110,913 | 116,334 | 158,345 | 164,697 | 171,290 | 177,206 | 183,326 | 189,650 | 196,178 | 202,910 | 209,846 | 216,986 |
| Accumulated Depreciation | 28,212 | 32,890 | 38,685 | 45,650 | 53,504 | 61,872 | 74,415 | 87,565 | 101,346 | 115,688 | 130,611 | 146,135 | 162,278 | 179,060 | 196,501 | 214,619 |
| Net Fixed Assets | 46,039 | 52,032 | 57,902 | 63,451 | 57,409 | 54,462 | 83,930 | 77,132 | 69,944 | 61,518 | 52,715 | 43,515 | 33,900 | 23,850 | 13,345 | 2,366 |
| Work In Progress | 512 | 284 | 208 | 1,812 | 5,421 | 42,011 | 6,352 | 6,593 | 5,916 | 6,120 | 6,324 | 6,528 | 6,732 | 6,936 | 7,140 | 7,344 |
| Cash and Bank | 3,128 | 880 | 1,570 | 3,052 | 2,345 | (4,478) | 1,876 | 5,116 | 4,756 | 7,826 | 12,667 | 18,402 | 24,972 | 32,390 | 40,669 | 49,748 |
| Accounts Receivable | 3,567 | 4,075 | 3,669 | 5,874 | 774 | 5,407 | 6,374 | 6,310 | 6,565 | 7,011 | 7,486 | 7,840 | 8,198 | 8,571 | 8,957 | 9,353 |
| Less: Aging of Accounts | (325) | (284) | (180) | (252) | 0 | | | | | | | | | | | |
| Inventory | 409 | 445 | 516 | 494 | 588 | 607 | 650 | 682 | 719 | 752 | 777 | 803 | 829 | 856 | 883 | 911 |
| Other Receivables | 17 | 85 | 58 | 70 | 75 | 77 | 79 | 81 | 83 | 84 | 86 | 88 | 89 | 91 | 93 | 95 |
| Other Current Assets | 434 | 312 | 620 | 258 | 276 | 285 | 292 | 298 | 304 | 310 | 316 | 323 | 329 | 336 | 343 | 349 |
| Total Current Assets | 7,231 | 5,512 | 6,252 | 9,495 | 4,058 | 1,898 | 9,272 | 12,487 | 12,428 | 15,984 | 21,332 | 27,455 | 34,418 | 42,243 | 50,945 | 60,457 |
| Deferred Expenses | 15 | 1,759 | 166 | 116 | 125 | 1,521 | 1,352 | 1,183 | 1,014 | 845 | 676 | 507 | 338 | 169 | 0 | 0 |
| Other Assets | 4,385 | 3,886 | 3,096 | 1,915 | 2,049 | 2,115 | 2,173 | 2,217 | 2,261 | 2,306 | 2,353 | 2,400 | 2,448 | 2,497 | 2,547 | 2,597 |
| Total Assets | 58,181 | 63,473 | 67,624 | 76,789 | 69,061 | 102,008 | 103,079 | 99,611 | 91,563 | 86,773 | 83,400 | 80,404 | 77,836 | 75,695 | 73,977 | 72,765 |
| Accounts Payable | 666 | 370 | 374 | 353 | 377 | 390 | 400 | 408 | 417 | 425 | 433 | 442 | 451 | 460 | 469 | 479 |
| Loan Arrears | 1,799 | 1,774 | 4,300 | 5,306 | 3,543 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Current Liabilities | 1,883 | 4,530 | 2,340 | 2,042 | 2,185 | 2,256 | 2,318 | 2,364 | 2,411 | 2,460 | 2,509 | 2,559 | 2,610 | 2,662 | 2,716 | 2,770 |
| Income Tax Payable | 351 | 429 | 583 | 917 | 1,093 | 1,200 | 1,279 | 966 | 551 | 593 | 766 | 831 | 889 | 946 | 1,002 | 1,068 |
| Current Maturing L/T Debt | 1,524 | 1,524 | 1,524 | 1,524 | 1,524 | 6,453 | 6,453 | 6,453 | 5,366 | 5,366 | 5,366 | 5,366 | 5,366 | 5,366 | 5,366 | 5,366 |
| Total Current Liabilities | 6,223 | 8,627 | 9,121 | 10,142 | 8,722 | 10,298 | 10,450 | 10,192 | 8,745 | 8,843 | 9,074 | 9,197 | 9,315 | 9,434 | 9,552 | 5,841 |
| Deferred Income | 3,292 | 4,687 | 3,250 | 3,241 | 3,241 | 3,241 | 3,241 | 3,241 | 3,241 | 3,241 | 3,241 | 3,241 | 3,241 | 3,241 | 3,241 | 3,241 |
| Other Liabilities | 1,461 | 2,666 | 4,692 | 6,218 | 6,653 | 6,869 | 7,058 | 7,199 | 7,343 | 7,490 | 7,640 | 7,793 | 7,948 | 8,107 | 8,270 | 8,435 |
| Long-term Debt - Net | 23,626 | 22,102 | 23,884 | 26,552 | 20,507 | 46,826 | 42,135 | 35,682 | 30,316 | 24,951 | 19,585 | 14,219 | 8,854 | 3,488 | (1,878) | (3,402) |
| Total Liabilities | 34,602 | 38,081 | 40,947 | 46,152 | 39,123 | 67,234 | 62,883 | 56,314 | 49,645 | 44,525 | 39,539 | 34,450 | 29,358 | 24,270 | 19,185 | 14,115 |
| Assets Revaluation Surplus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Retained Earnings | 2,944 | 2,383 | 1,359 | 3,045 | 2,345 | 7,181 | 12,603 | 15,705 | 14,325 | 14,655 | 16,267 | 18,361 | 20,885 | 23,832 | 27,199 | 31,057 |
| Grant / Central & Local Gov't Equity | 20,635 | 23,009 | 25,318 | 27,593 | 27,593 | 27,593 | 27,593 | 27,593 | 27,593 | 27,593 | 27,593 | 27,593 | 27,593 | 27,593 | 27,593 | 27,593 |
| Total Equity | 23,579 | 25,392 | 26,677 | 30,638 | 29,938 | 34,774 | 40,196 | 43,298 | 41,918 | 42,248 | 43,860 | 45,954 | 48,478 | 51,425 | 54,791 | 58,650 |
| Total Equity and Liabilities | 58,181 | 63,473 | 67,624 | 76,789 | 69,061 | 102,008 | 103,079 | 99,611 | 91,563 | 86,773 | 83,400 | 80,404 | 77,836 | 75,695 | 73,977 | 72,765 |
| Current Ratio | 1.2 | 0.6 | 0.7 | 0.9 | 0.5 | 0.2 | 0.9 | 1.2 | 1.4 | 1.8 | 2.4 | 3.0 | 3.7 | 4.5 | 5.3 | 10.4 |
| Working Capital, excl Cash | 1,203 | (696) | 1,386 | 3,132 | (1,942) | 2,531 | 3,398 | 3,632 | 4,292 | 4,679 | 4,957 | 5,221 | 5,496 | 5,786 | 6,089 | 6,392 |
| % Debt on Debt plus Equity | 51.6% | 48.2% | 48.8% | 47.8% | 42.4% | 60.5% | 54.7% | 49.3% | 46.0% | 41.8% | 36.3% | 29.9% | 22.7% | 14.7% | 6.0% | -3.3% |
| % Debt on Debt plus Equity (3-Year Average) | NA | 49.5% | 48.3% | 46.3% | 50.2% | 52.5% | 54.9% | 50.0% | 45.7% | 41.3% | 36.0% | 29.6% | 22.4% | 14.5% | 5.8% | N/A |
| % Debt on Debt plus Equity (exc Revaluation Surplus) | 51.6% | 48.2% | 48.8% | 47.8% | 42.4% | 60.5% | 54.7% | 49.3% | 46.0% | 41.8% | 36.3% | 29.9% | 22.7% | 14.7% | 6.0% | -3.3% |
| % Debt on Debt plus Equity (3-Year Average of Above) | NA | 49.5% | 48.3% | 46.3% | 50.2% | 52.5% | 54.9% | 50.0% | 45.7% | 41.3% | 36.0% | 29.6% | 22.4% | 14.5% | 5.8% | N/A |
| # Days Accounts Receivable | 61 | 61 | 50 | 53 | 6 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Cash = # Month Operating Expenses | 2.7 | 0.6 | 0.9 | 1.3 | 0.8 | (1.6) | 0.6 | 1.6 | 1.4 | 2.1 | 3.2 | 4.4 | 5.7 | 7.0 | 8.4 | 9.7 |
| Assets/Liabilities Balance-Checked | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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