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Changes in Joint Venture Company Check System Clean Water Sector in North Sumatera to Community Service for Improvement

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Abstract: Determination of water tariff has a goal to service to the community for the better. Tariff adjustment should always be done by a professional management rates. Rates must be constantly adjusted to inflation. PT. Tirta Lyonnaise field as a joint venture between Suez environment France and PDAM Tirtanadi Medan established a tariff formula that monthly payment-fixed operating expenditures+finance and investment costs+volumetric fee. Corporate debt originally in Euro converted into dollars. Both sides companies namely PT, Tirta Lyonnaise Medan and PDAM Tirtanadi Medan, agreed to refund the foreign debt in the Euro with domestic debt in the form of dollars, given the company's overall revenues in the form of dollars. So, the calculation becomes more precise. Upon conversion of this debt goes well then US Dollar exchange rate and inflation does not affect the general United States again, the components used are inflation component of Medan and energy costs, chemical costs and the cost of raw water according to the actual cost of PT. Tirta Lyonnaise field. Changes in tariff system has recently been agreed by both parties and research conducted to date does not occur or disputes barriers that interfere with cooperation.

Key words: Tariff, joint venture, Fixed Operating Expenditures (FOE), Finance and Investment Cost (FIC), voluментric fee, inflation, water supply

INTRODUCTION

One of the important problems faced by the government in order to maintain continuity of national development is the attempt to seek capital funds for financing national development. In Indonesia already has a foundation to manage national development in order to provide an opportunity for investors, both domestic and abroad to invest is based on the Constitution of 1945 in Article 33. In the national sustainable development efforts, one of the ways taken by the Indonesian government is to provide an opportunity for foreign investors to invest in Indonesia. Investment from foreign investors to developing countries principally concerned with three phases, namely the economic, political and legal. All three of these factors had an effect on the entry of foreign capital into the country.

The success of a national development cannot be separated from foreign investment as an additional factor and helped determine economic development, among others, can create jobs, the transfer of technology, providing the input in terms of taxation and estate and local revenues. Foreign investment plays an important role in two respects. Firstly in order to support the Indonesian economy and the second in order to reduce Indonesia's dependence on foreign debt. With the water resources policy reform in Indonesia, the involvement of the private sector increasingly punctuated water. Sources of funds for any type of financing can be:

- Government budget
- Private budgets and/or
- The results of the cost of services revenue water resources management (Undang-Undang No. 7, 2004 on Water Resources)

In setting the basic policy, the government gives equal treatment for domestic investment and foreign investment to keep watching the national interest. Then ensure legal certainty, the certainty of business and security in the investment, since the licensing process until the expiry of investment activities in accordance with the statutory provisions (Undang-Undang No.25 of 2007 on Investment).

To create production capacity of clean water, foreign investors are interested in investingwith locations in Kabupaten Deli Serdang of North Sumatra province, namely the French Environment Suez (Suez Group) which establishes a Joint Venture company with PDAM Tirtanadi North Sumatera Province, who was given the name of PT. Tirta Lyonnaise Medan. For Shareholding, 85% of Suez Environment and 15% of PDAM Tirtanadi to establish clean water treatment plant with a production capacity of 500 liters per second. Site selection in

Kabupaten Deli Serdang is close to the source of raw water is Belumei River in the village of Tanjung Morawa District of Limau Manis.

On July 18, 2000, a cooperation agreement was signed between PT. Tirta Lyonnaise Medan with PDAM Tirtanadi Medan and to cooperate BOT (Build, Operate and Transfer). This installation was inaugurated on October 8, 2001, then start on the production of clean water to improve services to the community through PDAM Tirtanadi.

In the Amended and Restasted Agreement Cooperation Concerning Clean Water Production and Supply for the City of Medan between PDAM Tirtanadi with PT. Tirta Lyonnaise Medan is made on July 18, 2000, has approved 23 contents and 15 schedules.

Among the systems studied were tariffs and progressed through PT. Tirta Lyonnaise Medan in order to improve customer service to the public drinking water or clean water.

Literature review: Determination of rates or increase water tariff has the aim that the public service can be maintained as well as possible. If the rate increase is not done, then the service to the community is bound to decline continuously. This is due to the public service costs. These costs from year to year will be greater due to inflation every year. In order that the quality of service can be maintained, then the cost is getting bigger it must be fulfilled. To be able to cover these costs, it is necessary to increase revenue through a rate increase local water company. Increasing cost of service, caused by inflation set lap year, so the increase in the inflation rate should also be based on the existing (Harun, 2013).

Tariff adjustment should always be done with a good rate management. If not fare so well maintained too long does not change rates, the rates are very likely to be incompatible with the needs of enterprise and public drinking water. Having determined the appropriate rate, making it suitable for drinking water and public companies, in the next period rates must be constantly adjusted to inflation. Determining the purpose of the rate increase should also be clear that the measurement of success is easy. In addition in determining the rate increase plan must set appropriate and realistic assumptions. The last is very important in the management of tariff plan is the realization that what was planned actually achieved (Utama, 2010).

The increase in water rates to some degree with good fare management is the right choice so that the water company has sufficient internal funds to finance the entire construction of a new pipeline network that touches the poor (McIntosh, 2003).

According to the Queensland Competition Authority in the statement of regulatory pricing principles for the water sector, described some of the criteria that must be considered in the determination of tariff. A criterion for determining the efficiency of the tariff should be based on the marginal cost is an additional charge for each additional unit of production.

Set price equal to marginal cost efficient because consumers usually buy products with greater added value than the marginal cost of goods produced. Criteria for equality and fairness, in the determination of rates must also consider equity and fairness which should be seen in the form of horizontal dimensions of equity consistency rates for the same user, vertical equity is the difference of income and ability to pay and intertemporal equity is fairness among different users throughout time. Another criterion is the guarantee that the company generates enough revenue. Water companies typically have high fixed costs, the marginal cost given is usually very small.

Therefore, the determination of rates based on marginal costs, may not be sufficient in this business. Could set rates based on the average cost. Rates also consider the cost of investment thirsty and investment expansion. Besides the above, there is a Ramsey pricing that divides consumers into groups and assign different rates based on their sensitivity to price. Sensitivity to price depends on consumer willingness to pay is determined by the alternative source of income and the rate itself.

While PT. Tirta Lyonnaise Medan is a joint venture between Suez Environment (85%) of private companies from France with PDAM Tirtanadi Medan (15%), through a contract 'Ammended and Restated Cooperation Agreement "between the two founders of the company mentioned above are valid for 25 year, then listed therein apply tariff system.

Monthly payment: FOE+FIC+Volumetric Fee. FOE (Fixed Operating Expenditures) and FIC (Finance and Investment Costs) and Volumetric Fee will be in a review every 6 months which will occur following the tariff changes that affect components. As the purchaser of the product water PT. Tirta Lyonnaise Medan is PDAM Tirtanadi Medan which is then delivered to the communities in Medan.

MATERIALS AND METHODS

This research was conducted in the joint venture company, PT. Tirta Lyonnaise Medan which is located in the village of Tanjung Morawa District of Limau Manis Deli Serdang regency of North Sumatra Province. This research is descriptive research that aims to descriptions systematic, factual and accurate information about the facts and the properties of a particular object. Descriptive research is often also referred to as survey research because the data used were collected by interview technique supported by questionnaires schedule or interview guide (Sinulingga, 2011). The data used in this study are primary data and secondary data obtained from PT. Tirta Lyonnaise field and literature studies.

This study focuses on the description of new tariff structures in accordance with the agreed amended and restasted cooperation agreement concerning clean water production and supply for the city of Medan between PDAM Tirtanadi with PT. Tirta Lyonnaise Medan ("Agreement")

RESULTS

PT. Tirta Lyonnaise Medan is collaboration between the company Suez Environment (85%) of private companies from France, with PDAM Tirtanadi Medan (15%) which is a company-owned North Sumatera Province. Through the cooperation contract "of the Cooperation Agreement Amendment and Restatement/Ammended and Restated Cooperation Agreement" between the two founders of the company above is valid for 25 year, then the system in which the listed rates prevailing. System applicable rate under this Cooperative Agreement is as set out in Appendix I (attached).

Monthly Payment = Operating Costs+Fixed Costs Fixed Investment+Cost Volumetric. Monthly Payment: FOE+FIC+Volumetric Fee.

FOE, FIC and Volumetric Fee will be in a review every 6 months which will follow tariff changes that affect components. FOE, components affecting gains are: inflation component of Medan City. For FIC, components that affect the gains are:

- Components of general inflation in the United States
- Component Dollar Exchange Rates against Rupiah

For volumetric fee, components that affect the increase is:

- Index component chemicals, seen through economic indicators groceries Medan
- Component energy index, seen from the increase of electricity tariff
- Components of the price of raw water in accordance with the laws of North Sumatera Governor

The use of the above tariff system, especially for components that use component FIC general inflation in the United States and parts of the United States Dollar Exchange amount originally imposed Rupiah considering financing this investment financed by foreign debt in the form of dollar.

Along with the travel company and the state of US dollar exchange rate and the amount Rupiah that is not so stable, the company along with its shareholders agreed to refund the foreign debt with domestic debt in the form of Rupiah, given the overall revenue in the form of Rupiah, so the calculation becomes more precise mean income in Rupiah and the debt was in the form of Rupiah.

In 2007, made a loan to one of the private banks in Indonesia to cover the entire loan to the foreign party.

Upon conversion of this debt went smoothly and the components of the exchange rate and inflation Dollar General United States no longer affect the monthly rate proposed by PT. Tirta Lyonnaise Medan then both sides of PT. Tirta Lyonnaise Medan and PDAM Tirtanadi Medan considering that the prevailing tariff system is not so appropriate that needs to find a formula which is more appropriate and fair to both parties. Then in 2009 approved a new formulation with rates as listed in Appendix 2 (attached):

Monthly Payment = Operating Costs+Fixed Costs
Fixed Investment+Cost Volumetric

Monthly Payment = FOE + FIC + Volumetric Fee

FOE, FIC and volumetric fee will be in a review every 6 months which will happen, following tariff changes components-components that influence it. FOE, components that affect the gains are:

- Inflation component of Medan

For FIC, components that affect the gains are:

- Inflation component of Medan

For volumetric fee, components consist of the energy cost, cost of materials chemistry and raw water cost will be paid by PDAM Tirtanadi Medan to PT. Tirta Lyonnaise Medan within Actual cost field in accordance with PT. Tirta Lyonnaise Medan audited by the Independent Auditor and the Internal Audit verified by PDAM Tirtanadi Medan.

With this new tariff imposed PT. Tirta Lyormaise Medan every 6 months should prepare reports on the use of chemicals, energy use and actual use of raw water and

Table 1: Table summarized the evolution of calculated FIC Capex and FIC non Capex since Jan 2007

Factors	Jan 2007	Jul 2007	Jan 2008	Jul 2008	Jan 2009	Jul 2009
FIC Capex	615,342,123	615,342,143	615,342,143	615,342,143	615,342,143	615,342,143
Sn	424.34	429,05	451,15	478,35	494,85	489,8
$S_{Jan2007}$	424.34	424,34	424,34	424,34	424,34	424,34
FIC NonCapex	727,416,463	735,490,487	773,374,976	820,002,039	848,286,838	839,629,974
FIC(n)New	1,342,758,606	1,350,832,630	1,388,717,119	1,435,344,182	1.463,628,981	1,454,972,117

then submitted to an independent auditor and internal audit (internal Audit / SPI) PDAM Tirtanadi. By using this new system, the processing and the financial system PT Tirta Lyonnaise Medan becomes more open and can be reviewed directly by PDAM Tirtanadi Medan.

In terms of value rates, there is a decline in the value of the payment rates and a reduction in the risk of fluctuations in the exchange rate change US dollar against the rupiah.

Addendum: Amended and Restated Cooperation Agreement concerning Clean Water Production and Supply for the city of Medan ("Agreement").

Part 1-Amendment to Part B of the Agreement: Montnly Subscribing Fee Structure. With effect from 1 July 2007, the Monthly Subscribing Fee MFn(i) in respect of each month for the semester n is the sum in Rupiah in three (3) terms:

$$\mathrm{MFn}(i) = \left\{ \begin{matrix} \mathrm{FOEn(i)x}\dfrac{\mathrm{Sn}}{\mathrm{So}} + \\ \mathrm{FICC\ Jan\ 2007\,x}\ \dfrac{\mathrm{Sn}}{S_{\mathrm{Jan07}}} \end{matrix} \right\} = \left\{ \begin{matrix} \mathrm{FOEn(i)x}\dfrac{\mathrm{Sn}}{\mathrm{So}}\ 615{,}342{,}143 + \\ 727{,}416{,}463\ \mathrm{x}\ \dfrac{\mathrm{Sn}}{S_{\mathrm{Jan07}}} \end{matrix} \right\}$$

FOEn(i) is the part of the Monthly Subscribing Fee for the nth semester corresponding to the Fixed Operating Expenditures (item (a) in Part A of the Agreement) and is 190.5 MRp/mth from the start of operations of 500 I/sec as defined in Table Bl of the Agreement.

Sn is the latest available index representing the cost of services in Indonesia as represented by the Consumer Price Index for North Sumatera Province as published on a monthly basis by Biro Pusat Statistik in "Indikator Ekonomi" (Table 1).

So is the above index as of April 2000, So = 217.21 S_{jan07} is the above index approved for tariff review for the semester commencing Jan 2007, S_{jan07} = 424.34.

Addendum: Amended and Restated Cooperation Agreement concerning Clean Water Production and Supply for the city of Medan ("Agreement")

FIC $C_{jan2007}$ is expressed in Indonesian Rupiah represents the investment or capital expenditure costs calculated according to table Bl and Part E as of Jan 2007 as follows:

$$= 1{,}006{,}000{,}000 \times 0.5 \times \frac{U_{\mathrm{jan\,2007}}}{\mathrm{Uo}} \times \frac{X_{\mathrm{Jan\,2007}}}{\mathrm{Xo}}$$
$$= 612{,}342{,}143$$

FIC NC $_{Jan2007}$ is expressed in Indonesian Rupiah represents the non-investment or non-capital expenditure costs calculated as of Jan 2007 as follows:

$$= 1{,}006{,}000{,}000 \times 0.5 \times 84.59\% \times \frac{U_{\mathrm{jan\,2007}}}{\mathrm{Uo}} \times \frac{X_{\mathrm{Jan\,2007}}}{\mathrm{Xo}} = 727{,}416{,}463$$

Where:

U_{JAN07} = The general inflation index of the United States approved for tariff review for the semester commencing Jan 2007 UJano7 = 201.80

Uo = Is the above index as of April 2000

Uo = 171.20

X_{jan07} = The Indonesian Rupiah versus the United States Dollar currency exchange rate approved for tariff review for the semester commencing Jan 2007

$X_{Jan}07$ = 8,950. Xo is the Indonesian Rupiah versus the United States Dollar currency exchange rate as the average exchange rate during the 6 months period before April 2000

Xo = 7,295

Addendum: Amended and Restated Cooperation Agreement concerning Clean Water Production and Supply for the city of Medan ("Agreement"). Part 2; Amendment to Part D of the Agreement: Volumetric Fee Escalation Formula.

With effect from 1 January 2009, to take into consideration as far as practicable, the actual operating expenses (electricity, chemicals and raw water), the Volumetric Rates Rn will be adjusted according to the following equation:

$$\mathrm{Rn} = \left\{ \begin{matrix} \dfrac{\mathrm{TE}_{(n-1)} + \mathrm{TC}_{(n-1)}}{V_{(n-1)}} + \\ (+/-\Delta) + \mathrm{RW}_{(n-1)} \end{matrix} \right\}$$

Where:

Rn = The Volumetric Rate to be applied to the monthly actual production for each month of the nth relevant semester of operation to be adjusted on a half-yearly basis according to the afore-mentioned formula

$TE_{(n-1)}$ = The actual electricity and generator fuel costs for the preceding 6 months from the beginning of the nth semester as verified by independent auditors

$TC_{(n-1)}$ = The actual chemicals costs for the preceding 6 months from the beginning of the nth semester as verified by independent auditors

$RW_{(n-1)}$ = The actual raw water cost for the preceding 6 months from the beginning of the nth semester as verified by independent auditors

$V_{(n-1)}$ = The actual volume produced and billed for the preceding 6 months from the beginning of the nth semester as verified by independent auditors

Addendum: Amended and Restated Cooperation Agreement concerning Clean Water Production and Supply for the city of Medan (“Agreement”).

(+/-∆) is difference between the actual average unit cost of energy and chemicals audited and verified in the previous n-1 semester and the applied and calculated average unit cost in energy and chemicals for the same period.

Part D

The volumetric fee: The Volumetric Rate (Rn) from January 2009 onward is to be based on the actual costs of energy (including fuel), chemicals and raw water against the actual production achieved for the respective period, audited by independent auditors on a 6 monthly basis using the following equation:

$$\text{Rn New} = \frac{TE(n-1)+TC(n-1)}{V(n-1)} +/-\Delta + RW(n-1)$$

$$Rn_{Jan2000} = \frac{TE2008+TC2008}{V2008} + RW2008$$

$$= \frac{4{,}984{,}085{,}605 + 2{,}435{,}489{,}282}{14{,}157{,}667} + 10\,IDR/m^3$$

$$= 534.07\ IDR/m^3$$

Where:

RnNew = The volumetric rate to be applied to the monthly actual production for each month of the nth relevant semester of operation to be adjusted on a half-yearly basis according to the afore-mentioned formula

$TE_{(n1i):}$ = The actual electricity and generator fuel costs for the preceding 6 months as verified by independent auditors

$TC_{(n-1)}$ = The actual chemicals costs for the preceding 6 months as verifed by independent auditors.

∆ = Cost adjustment for under/over billing for energy and chemicals in the preceding 6 months period as verified by independent auditors

$RW_{(n-1)}$ = The actual raw water unit cost for the preceding 6 months as verified by independent auditors

V(n-l) = The actual volume produced and billed for the preceding 6 months as verified by independent auditors

$Rn_{Jan\ 2000}$ = The initial volumetric fee be applied from January to June 2009 and which shall be adjusted based on the actual costs of energy and generator fuel, chemicals and raw water as verified by independent auditors for the same period and shall be adjusted in the 2nd semester of 2009

TE 2008 = The audited figure for total energy and fuel cost in 2008

TC 2008 = The audited figure for total chemicals cost in 2008

V2008 = The total production of Treated Water in 2008

DISCUSSION

Addendum to Amended and Restated Cooperation Agreement Concerning Clean water production and supply for the city of Medan between PDAM Tirtanadi with PT. Tirta Lyonnaise Medan. has agreed in Kuala Lumpur on August 6, 2009 From the PT. Tirta Lyonnaise Medan signed by President Director Christophe Comte, from the PDAM Tirtanadi signed by President Director Sjahril Effendy Pasaribu, then acknowledged by the supervisory body PDAM Tirtanadi signed by the chairman Rustam Effendi Nainggolan.

The use of fare system PT. Tirta Lyonnaise, especially for components that use component FIC general inflation in the United States and the exchange rate component of the United States dollar against the rupiah enforced, given the initial financing of the investment was financed by foreign debt in the form of dollar. Along with the company US Dollar exchange rate and the dollars are not so stable, the company along with its shareholders agreed to refund the foreign debt with domestic debt in the form rupiah, given the overall revenue in the form of rupiah, so the calculation becomes faster . This means that revenue in dollars and the debt was in the form of rupiah. Therefore, in 2007, the company has made a loan to one of the private banks in Indonesia to cover the entire loan to the foreign party. Upon conversion of this debt went smoothly and components Dollar exchange rate and inflation does not affect the general United States again on the monthly rates proposed by PT. Tirta Lyonnaise Medan, then both parties (the PT. Tirta Lyonnaise Medan and PDAM Tirtanadi Medan) considers that the existing tariff system is not so suitable that is necessary to find a formula which is more appropriate and fair to both parties. In the later stages of 2009 a new formula agreed with rates as described in the above results, namely: Monthly payment: FOE+FIC+Volumetric Fee. FOE, FIC and Volumetric Fee wfll be reviewed every six months which will retrace rate changes influencing components.

For the FOE, the components that affect the increase is inflation component of Medan. For FIC, components that affect the increase is inflation component of Medan.

For volumetric Fee, components consist of the cost of energy, the cost of chemicals and raw water costs; will be paid by PDAM Medan Tirtanadi to PT. Tirta Lyonnaise Medan in accordance with the actual cost of PT. Tirta Lyonnaise Medan audited by independent auditors and the Internal Audit verified by PDAM Tirtanadi Medan.

With this new tariff imposed, then the PT. Tirta Lyonnaise Medanshould specify the use of chemicals report energy usage and actual usage of raw water and then submitted to an independent auditor and internal audit (Internal Audit PDAM Tirtanadi Medan). By using this new system, eating clean water treatment systems and financial management of PT. Tirta Lyonnaise Medan becomes more open and can be reviewed directly by PDAM Tirtanadi. In terms of value rates, there is a decline in the value of the payment rates and a reduction in the riskoffluctuationsintheexchangeratechangeUSdollaragainsttherupiah.

Changes in the above tariff system in line with what was stated by Utama (2010) that rates must be continuously adjusted for inflation. Determining the purpose of the rate increase must be clear so that the measurement of success is easy. In addition, in determining the rate increase plan must set appropriate and realistic assumptions. The fare system changes PT. Tirta Lyonnaise Medan above can be said to be in line with the proposed QCA that some of the criteria that must be considered in the determination of tariff. Efficiency criteria based on the marginal cost is an additional charge for each additional unit of production. Then have to consider equity and fairness which should be seen in the form of horizontal dimensions of equity that is consistent rates for the same user, vertical equity is the difference of income and ability to pay and intertemporal equity is fairness among different users over time. Another criterion is the guarantee that the company generates enough revenue. Water companies typically have high fixed costs, the marginal cost given is usually very small. Determination of tariff based on marginal costs may not be sufficient in this business. Could set rates based on the average cost. Rates also have to consider the cost of investment and investment expansion.

In the conduct of the application of this tariff system which means that there are no obstacles, because the clause agreed remuneration of the BOT Company (PT. Tirta Lyonnaise Medan) as follows:

PDAM Tirtanadi and the BOT Company hereby agree that in consideration of the BOT Company undertaking the financing, development, construction and implementation of the Project, the BOT Company shall be entitled to supply treated water and shall be entitled to received the monthly subscribing fee and volumetric fee which shall be subject to the minimum monthly off-take volumes.

Should for any reason not attributable to the BOT company the amount of treated water that is delivered to PDAM Tirtanadi in any month be less than the guaranteed minimum monthly volume for that month, then the volumetric fee for that month shall be calculated based upon the relevant minimum quaranteed volume for that month.

The parties acknowledge that water tariffs are set by the Governor of North Sumatera Province based on PDAM's suggestion and that the governar either sets tariff at sufficient levels or will otherwise put PDAM Tirtanadi in sufficient funds to enable it to meet its financial obligations to the BOT Company.

The BOT company shall conduct a six monthly review of the monthly subscribing fee and the volumetric rate to PDAM Tirtanadi accordance with the escalation procedures. At the end of six months from the date of the start operation and each six months thereafter, the BOT company shall carry out a review in order to compute the monthly subscribing fee and the volumetric rate for the following six months. The revised monthly subscribing fee and the volumetric rate shall be effective on the first day of the succeeding six months the BOT company shall inform PDAM Tirtanadi thirty days prior to the adjustment of the monthly subscribing fee and the volumetric rate of any increase thereof.

Not later than fivedays after the end of each month or after the date on which this cooperation agreement expires or is terminated, the BOT company shall deliver a payment statement to PDAM Tirtanadi in respect of that month. The first payment statement shall be delivered in respect of the month any payment first becomes payable by either party under this agreement and the last payment statement shall be delivered in respect of the period since the previous payment statement and the date of expiry or termination of this cooperation aggrement.

PDAM Tirtanadi shall pay the total amount shown on the payment statement (and all other payments required to bemade by it pursuant to this coorperation agreement) when do from PDAM Tirtanadi to the BOT company in immediately availables and freely transferable cleared funds by direct transfer from PDAM Tirtanadi to the BOT Company's nominated account as advised by the BOT Company in writing.

Interest shall accrue at the rate of three percent ever LIBOR perannum on payments properly due but not made by the due data. Interest shall accrue from day to day and be compounded with monthly rest from the date when payment was due until the amount due is actually received by the payee.

Any dispute a rising in connection with this cooperation agreement (each "Dispute") shall first be settled through deliberation between the parties if the Dispute cannot be settled through deliberation, then parties may refer such dispute after a period of 30 days to the President Directors of each party for further discussions.

CONCLUSION

System renewal rates in the joint venture company. PT. Tirta Lyonnaise Medan water sector agreed by both the parties are the PT. Tirta Lyonnaise Medan and PDAM Tirtanadi Medan. Monthly payment rates formula is = FOE+FIC+Volumetric Fee. FOE, FIC and volumetric Fee will be reviewed every six months. After conversion of the original debt is paid by the foreign debt in the form of US Dollar into debt in the form Rupiah of loans obtained from one of the private banks in Indonesia, the US Dollar exchange rate component and a general inflation does not affect the United States again to the monthly rate. FOE and FIC, components that affect the increase is inflation component of Medan. For volumetric Fee. components consist of the cost of energy, the cost of chemicals and raw water costs will be paid by PDAM Tirtanadi Medan to PT. Tirta Lyonnaise Medan to the actual cost of PT. Tirta Lyonnaise Medan is audited by an independent auditor and verified by internal audits PDAM Tirtanadi Medan.

Until the time of the study, there were no significant barriers or dispute on both sides. There is a dispute arising out of the trip so far can be resolved through consultation. Both sides have a high awareness by prioritizing the provision of drinking water to the community regarding water continuity, water quantity and water quality is good. Revenue obtained from the rate increase is also used to improve the public service and the welfare of its employees. This cooperation implemented during 25 years starting in 2000 until 2014 it was has been years and this partnership will end 9 year again.

APPENDIX

Appendix 1: For the minutes of meetingexisting tariff structure: Monthly Payment = Fixed Operating Epenses+Fixed Investmet Cost+Volumetric Fee:

$$\mathrm{MPn(l)} = \mathrm{FOEn(I)} + \mathrm{FICn(l)} + \mathrm{V(1)}$$

$$\mathrm{FOEn\ (I)} = \mathrm{FOE(i)} \times \frac{(\mathrm{Sn})}{\mathrm{So}}$$

$$\mathrm{FICn(1)} = \mathrm{FIC(1)} \times \frac{(\mathrm{U_n})}{\mathrm{U_0}} \times \frac{(\mathrm{X_n})}{\mathrm{X_0}} \times \left[1 + \partial x\%(i)\right]$$

$$\mathrm{V\ (i)} = \mathrm{Q(i)} \times \left[\mathrm{E(i)}\right] \frac{(\mathrm{E_n})}{\mathrm{E_0}} + \mathrm{C(i)} \times \frac{(\mathrm{C_n})}{\mathrm{C_0}} + \left[\mathrm{RW(i)} \times \frac{\mathrm{RWn}}{\mathrm{RW_0}}\right]$$

Where:

MPn (I)	= Monthly payment
FOEn (i)	= Monthly Subscribing Fee for Fixed Operating Expenses
FICn(i)	= Monthly Subscribing Fee for Fixed Finance and Investment Cost
V(i)	= The monthly volumetric fee
FOE(i)	= Montly Subscribing Fee for Fixed Operating Expenses on the April 2000
Sn	= the latest CPI for North Sumatera Province SoThe CPI for North Sumatera Province on April 2000
FIC (I)	= Monthly Subscribing Fee for Fixed Finance and Investment Cost on the April 2000
Un	= The latest available CPI-U of the United States
Uo	= The Index of Un per April 2000
Xn	= The average of The Indonesian Rupiah vs the United States Dollar currency exchange rate as the six month forward rate
Xo	= The average of The Indonesian Rupiah vs the United States Dollar currency exchange rate during the 6 months period April 2000
Q(i)	= The volume of Treated Water per month (m3)
E(i)	= The actual initial cost of energy per m3 di Treated Water.
En	= The actual cost of one (1) kWh of electricity, tarif 20, Category 1-3 for usage during the period 22.00-18.00 WIB valid at the beginning on the n^{th} semester of operation
Eo	= The actual cost of one (1) kWh of electricity, tarif 20, Category 1-3 for usage during the period 22.00-18.00 WIB on April 2000
C(i)	= The actual initial cost of chemical per one (1) m3 of Treated Water
Cn	= The latest chemical index as published in "indikator Ekonomi". CoThe chemical index per April 2000 as published in "Indikator Ekonomi"
RW (i)	= The actual initial cost of raw water per one (1) m3 of Treated Water
RW (n)	= The actual cost of one (1) m3 of raw water to be for the n^{th} semester of operation
RW(0)	= The actual cost one (l)m3 of raw water to be paid per April 2000

Appendix 2: For the minutes of meeting new tariff structures agreed:

FOE = Monthly Subsciribing Fee for Fixed Operating Expenses. Formula remains unchanged

FIC = Monthy Subscribing Fee for Fixed Finance and Investment Cost. FIC components shall be treated as follow

FIC_{New} = FIC Capex+FIC NonCapex

FIC Capex-the calculated figure as of January 2007 to remain fixed (without revision) for the remaining years of the Cooperation Agreement.

FIC NonCapex-the calculated figure as of January 2007 to be revised starting from July 2007 based on the variation of the Indonesian inflation, North Sumatera Province. The Calculated Figure for January 2007 is:

$$\text{FIC Capex}=1.006{,}000{,}000\times 0{,}5\times 84.59\%\times\frac{U_n}{U_o}=615{,}342{,}143$$

$$\text{FIC NonCapex}=1.006{,}000{,}000\times 0{,}5\times\frac{U_n}{U_o}=727{,}416{,}463$$

Where:

Un = US Inflation Index from year 2000 to Jan 2007 (201.8).

Uo = US Inflation Index April 2000 (171.2)

Xn = The average of The Indonesian Rupiah vs the United States Dollar currency exchange rate as the six months forward rate (8,950)

Xo = The average of The Indonesian Rupiah vs the United States Dollar currency exchange rate during the 6 months period before April 2000 (7,295). The total approved FIC Monthly Payment between January 2007 to June 2007 is:

$$=615{,}342{,}143+727{,}416{,}463$$
$$=1{,}342{,}756{,}606$$

From July 2007 onward, the received FIC_{How} will be calculated as follow:

$$\text{FIC(n) New}=\text{FIC Capex Jan 2007}+\text{FIC NonCapex}_{\text{Jan 2007}}\times\frac{Sn}{S_{\text{Jan 2007}}}$$

$$=615{,}342{,}143+727{,}416{,}463\times\frac{Sn}{424.34}$$

Where:

Sn = The latest CPI for North Sumatera Province

$S_{jan2007}$ = The CPI for North Sumatera Province on Jan 2007 (424.34) (Table 1)

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