

## PLANNING \& DESIENS DIVISTON <br> 

## SUPPLY OF TYPE 600 PVC PIPES

Table A - PVC/1

1
2
3
4

| Diameter <br> $(\mathrm{mm})$ | Supply Rate <br> (Rs:/m) | Supply Rate <br> Transmission Main <br> (Rs:/m) | Supply Rate <br> Distribution System <br> (Rs:/m) |
| :---: | ---: | ---: | ---: |
| $\mathbf{3 2}$ | 39.00 | 47.00 | 53.00 |
| 40 | 53.00 | 64.00 | 72.00 |
| $\mathbf{5 0}$ | 83.00 | 100.00 | 113.00 |
| 63 | 133.00 | 160.00 | 180.00 |
| $\mathbf{7 5}$ | 199.00 | 239.00 | 269.00 |
| $\mathbf{9 0}(\mathbf{R R J})$ | 265.00 | 318.00 | 358.00 |
| $\mathbf{1 1 0 ( R R J )}$ | 452.00 | 543.00 | 611.00 |
| $\mathbf{1 6 0}$ | 799.00 | 959.00 | $1,079.00$ |
| $\mathbf{2 2 5}$ | $1,570.00$ | $1,884.00$ | $2,120.00$ |
| $\mathbf{2 8 0}$ | $2,457.00$ | $2,949.00$ | $3,317.00$ |
| $\mathbf{3 1 5}$ | $4,131.00$ | $4,958.00$ | $5,577.00$ |

Table A - PVC/2

## SUPPLY OF TYPE 1000 PVC PIPES

1 2

| Diameter <br> $(\mathrm{mm})$ | Supply Rate <br> (Rs:/m) | Supply Rate <br> Transmission Main <br> (Rs:/m) | Supply Rate <br> Distribution System <br> (Rs:/m) |
| :---: | ---: | ---: | ---: |
| 20 | 26.00 | 32.00 | 36.00 |
| 25 | 39.00 | 47.00 | 53.00 |
| 32 | 52.00 | 63.00 | 71.00 |
| 40 | 83.00 | 100.00 | 113.00 |
| $\mathbf{5 0}$ | 129.00 | 155.00 | 175.00 |
| $\mathbf{6 3}$ | 219.00 | 263.00 | 296.00 |
| 75 | 312.00 | 375.00 | 422.00 |
| $90($ RRJ | 432.00 | 519.00 | 584.00 |
| $\mathbf{1 1 0 ( R R J )}$ | 573.00 | 688.00 | 774.00 |
| $\mathbf{1 6 0}$ | $1,350.00$ | $1,620.00$ | $1,823.00$ |
| 225 | $2,592.00$ | $3,110.00$ | $3,500.00$ |
| $\mathbf{2 8 0}$ | $4,175.00$ | $5,010.00$ | $5,637.00$ |
| $\mathbf{3 1 5}$ | $8,141.00$ | $9,770.00$ | $10,991.00$ |

## Note:

1. Supply rate includes cost of rubber rings and lubricants.
2. Supplier's $\mathrm{O} / \mathrm{H} \& \mathrm{P}$ included.
3. To obtain supply rate for transmission main, $20 \%$ added to the basic supply rate to accommodate cost of fittings, specials and valves for Valves, Culvert crossings and, bridge crossings etc. that are incorporated in the Transmission Main.
4. To obtain supply rate for distribution Systems, $35 \%$ added to basic supply rate to accommodate cost of fittings, specials and valves for Valves, Culvert crossings and, bridge crossings etc. that are that are incorporated in the Distribution System.
5. An additional $20 \%$ added for supplying and laying contracts, for transport from supplier's store to site store, loading, unloading, investment cost, storage, protection, overhead and profit of the supply \& laying contractor.

Source:
Tender Prices (NWS\&DB) - $20143^{\text {rd }}$ and $4^{\text {th }}$ quarters
Supplier's Price Lists
Table A - PVC/3

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Transmis | on Main | Distributi | System |  |  |  |
| Pipe Dia. <br> mm | Cost (Firm <br> Sand) Rs: /m | Laying Cost for Specials $\qquad$ | Total <br> Laying Cost Rs: /m | Laying Cost for Specials Rs: /m | Total <br> Laying Cost <br> Rs: /m | Excavation <br> Cost (Firm Sand) <br> Rs: /m | Earthwork Support (Firm Sand) <br> Rs:/m | Dewatering (Firm Sand) Rs:/m |
| 63 | 177.00 | 54.00 | 231.00 | 71.00 | 248.00 | 299.00 | 1,737.00 | 133.00 |
| 75 | 177.00 | 54.00 | 231.00 | 71.00 | 248.00 | 299.00 | 1,737.00 | 133.00 |
| 90 | 209.00 | 63.00 | 272.00 | 84.00 | 293.00 | 348.00 | 1,612.00 | 155.00 |
| 110 | 217.00 | 66.00 | 283.00 | 87.00 | 304.00 | 348.00 | 1,759.00 | 155.00 |
| 160 | 299.00 | 90.00 | 389.00 | 120.00 | 419.00 | 464.00 | 1,759.00 | 207.00 |
| 225 | 387.00 | 117.00 | 504.00 | 155.00 | 542.00 | 580.00 | 1,906.00 | 258.00 |
| 280 | 517.00 | 156.00 | 673.00 | 207.00 | 724.00 | 760.00 | 1,906.00 | 338.00 |
| 315 | 639.00 | 192.00 | 831.00 | 256.00 | 895.00 | 908.00 | 1,979.00 | 404.00 |

[^0]LAYING OF PVC PIPES

## SUPPLY \& DELIVERY OF HDPE Pipes (PR 100-SDR 17 PN10)

Asian Countries without Malaysia

|  | 2 | 4 |  | 5 | 6 | 8 |  | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Transmis | ion main |  |  | Distribut | ion main |  |
| Pipe Dia. mm | $\begin{aligned} & \text { CIF Value } \\ & \text { Rs./m } \end{aligned}$ | CIF value for Specials Rs./m | (Col.2+3) <br> Total <br> CIFCost <br> Rs./m |  <br> Clearance Rs./m | Custom Duty Rs./m | CIF value for Specials Rs./m | (Col.2+7) <br> Total CIFCost Rs./m |  <br> Clearance Rs./m | Custom Duty Rs./m |
| 20 | 54.00 | 17.00 | 71.00 | 4.00 | 30.00 | 22.00 | 76.00 | 4.00 | 32.00 |
| 25 | 81.00 | 25.00 | 106.00 | 6.00 | 44.00 | 33.00 | 114.00 | 6.00 | 47.00 |
| 32 | 95.00 | 29.00 | 124.00 | 7.00 | 51.00 | 38.00 | 133.00 | 7.00 | 55.00 |
| 40 | 111.00 | 34.00 | 145.00 | 8.00 | 60.00 | 45.00 | 156.00 | 8.00 | 64.00 |
| 50 | 173.00 | 52.00 | 225.00 | 12.00 | 93.00 | 70.00 | 243.00 | 13.00 | 100:00 |
| 63 | 271.00 | 82.00 | 353.00 | 18.00 | 145.00 | 109.00 | 380.00 | 19.00 | 156.00 |
| 75 | 367.00 | 111.00 | 478.00 | 24.00 | 196.00 | 147.00 | 514.00 | 26.00 | 211.00 |
| 90. | 528.00 | 159.00 | 687.00 | 35.00 | 282.00 | 212.00 | 740.00 | 37.00 | 304.00 |
| 110 | 787.00 | 237.00 | 1,024.00 | 52.00 | 420.00 | 315.00 | 1,102.00 | 56.00 | 452.00 |
| 125 | 1,006.00 | 302.00 | 1,308.00 | 66.00 | 537.00 | 403.00 | 1,409.00 | 71.00 | 578.00 |
| 140 | 1,261.00 | 379.00 | 1,640.00 | 82.00 | 673.00 | 505.00 | 1,766.00 | 89.00 | 725.00 |
| 160 | 1,642.00 | 493.00 | 2,135.00 | 107.00 | 876.00 | 657.00 | 2,299.00 | 115.00 | 943.00 |
| 180 | 2,087.00 | 627.00 | 2,714.00 | 136.00 | 1,113.00 | 835.00 | 2,922.00 | 147.00 | 1,199.00 |
| 200 | 2,866.00 | 860.00 | 3,726.00 | 187.00 | 1,528.00 | 1,147.00 | 4,013.00 | 201.00 | 1,646.00 |
| 225 | 3,251.00 | 976.00 | 4,227.00 | 212.00 | 1,734.00 | 1,301.00 | 4,552.00 | 228.00 | 1,867.00 |
| 250 | 4,010.00 | 1,203.00 | 5,213.00 | 261.00 | 2,138.00 | 1,604.00 | 5,614.00 | 281.00 | 2,302.00 |
| 280 | 5,053.00 | 1,516.00 | 6,569.00 | 329.00 | 2,694.00 | 2,022.00 | 7,075.00 | 354.00 | 2,901.00 |
| 315 | 6,403.00 | 1,921.00 | 8,324.00 | 417.00 | 3,413.00 | 2,562.00 | 8,965.00 | 449.00 | 3,676.00 |
| 355 | 8,154.00 | 2,447.00 | 10,601.00 | 531.00 | 4,347.00 | 3,262.00 | 11,416.00 | 571.00 | 4,681.00 |
| 400 | 10,497.00 | 3,150.00 | 13,647.00 | 683.00 | 5,596.00 | 4,199.00 | 14,696.00 | 735.00 | 6,026.00 |
| 450 | 13,026.00 | 3,908.00 | 16,934.00 | 847.00 | 6,943.00 | 5,211.00 | 18,237.00 | 912.00 | 7,478.00 |
| 500 | 16,112.00 | 4,834.00 | 20,946.00 | 1,048.00 | 8,588.00 | 6,445.00 | 22,557.00 | 1,128.00 | 9,249.00 |
| 560 | 20,178.00 | 6,054.00 | 26,232.00 | 1,312.00 | 10,756.00 | 8,072.00 | 28,250.00 | 1,413.00 | 11,583.00 |
| 630 | 25,560.00 | 7,668.00 | 33,228.00 | 1,662.00 | 13,624.00 | 10,224.00 | 35,784.00 | 1,790.00 | 14,672.00 |
| 710 | 36,680.00 | 11,004.00 | 47,684.00 | 2,385.00 | 19,551.00 | 14,672.00 | 51,352.00 | 2,568.00 | 21,055.00 |
| 800 | 46,508.00 | 13,953.00 | 60,461.00 | 3,024.00 | 24,790.00 | 18,604.00 | 65,112.00 | 3,256.00 | 26,696.00 |
| 900 | 65,817.00 | 19,746.00 | 85,563.00 | 4,279.00 | 35,081.00 | 26,327.00 | 92,144.00 | 4;608.00 | 37,780.00 |

Note:

1. Column (4) includes additional $30 \%$ of CIF value for transmission mains and Column (8) includes additional $40 \%$ of CIF value for distribution mains to cover the costs of fittings,specials, accessories, valves and miscellaneous items.
2. Column ( 5 and 9 ) - $5 \%$ of total CIF cost added for clearance $\&$ transport (up to site stores) for supply only Contracts and additional $20 \%$ added for supply \& laying Contracts for transport from supplier's store to site store, loading, unloading, investment cost, storage, protection, overhead and profit of the supply \& laying Contractor.
3. Custom Duty is taken as $41.00 \%$ of CIF value.
4. Supplier's $\mathrm{O} / \mathrm{H} \& \mathrm{P}$ are included in the CIF value.

## Source:

Based on supplier's rates and forecast tender prices of 2014 to 2015

## LAYING OF HDPE PIPES (PE 100 - SDR 17 PN10)

|  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Basic Laying Cost | Transmission main |  | Distribution main |  | Excavation Cost (firm sand) Rs./m | EWS Cost Rs./m | $\begin{gathered} \text { Dewatering } \\ \text { Rs./m } \end{gathered}$ |
| Pipe <br> Dia. <br> mm |  | Laying Cost for Specials Rs./m | Total Laying Cost | Laying Cost for Specials Rs./m | Total Laying Cost |  |  |  |
| 50 | 260.00 | 78.00 | 338.00 | 104.00 | 364.00 | 370.00 | 1,447.00 | 207.00 |
| 63 | 303.00 | 91.00 | 394.00 | 122.00 | 425.00 | 427.00 | 1,737.00 | 238.00 |
| 75 | 306.00 | 92.00 | 398.00 | 123.00 | 429.00 | 427.00 | 1,737.00 | 238.00 |
| 90 | 366.00 | 110.00 | 476.00 | 147.00 | 513.00 | 504.00 | 1,930.00 | 282.00 |
| 110 | 450.00 | 135.00 | 585.00 | 180.00 | 630.00 | 616.00 | 1,642.00 | 344.00 |
| 125 | 458.00 | 138.00 | 596.00 | 184.00 | 642.00 | 616.00 | 1,671.00 | 344.00 |
| 140 | 466.00 | 140.00 | 606.00 | 187.00 | 653.00 | 616.00 | 1,686.00 | 344.00 |
| 160 | 601.00 | 181.00 | 782.00 | 241.00 | 842.00 | 792.00 | 1,715.00 | 443.00 |
| 180 | 616.00 | 185.00 | 801.00 | 247.00 | 863.00 | 792.00 | 1,744.00 | 443.00 |
| 200 | 632.00 | 190.00 | 822.00 | 253.00 | 885.00 | 792.00 | 1,774.00 | 443.00 |
| 225 | 697.00 | 210.00 | 907.00 | 279.00 | 976.00 | 853.00 | 1,818.00 | 477.00 |
| 250 | 722.00 | 217.00 | 939.00 | 289.00 | 1,011.00 | 853.00 | 1,847.00 | 477.00 |
| 280 | 804.00 | 242.00 | 1,046.00 | 322.00 | 1,126.00 | 924.00 | 1,891.00 | 517.00 |
| 315 | 849.00 | 255.00 | 1,104.00 | 340.00 | 1,189.00 | 924.00 | 1,950.00 | 517.00 |
| 355 | 1,034.00 | 311.00 | 1,345.00 | 414.00 | 1,448.00 | 1,109.00 | 2,008.00 | 620.00 |
| 400 | 1,106.00 | 332.00 | 1,438.00 | 443.00 | 1,549.00 | 1,109.00 | 2,067.00 | 620.00 |
| 450 | 1,281.00 | 385.00 | 1,666.00 | 513.00 | 1,794.00 | 1,233.00 | 2,140.00 | 689.00 |
| 500 | 1,514.00 | 455.00 | 1,969.00 | 606.00 | 2,120.00 | 2,090.00 | 2,214.00 | 744.00 |
| 560 | 1,690.00 | 507.00 | 2,197.00 | 676.00 | 2,366.00: | 2,177.00 | 2,404.00 | 775.00 |
| 630 | 1,866.00 | 560.00 | 2,426.00 | 747.00 | 2,613.00 | 2,177.00 | 2,404.00 | 775.00 |
| 710 | 2,298.00 | 690.00 | 2,988.00 | 920.00 | 3,218.00 | 2,612.00 | 2,404.00 | 930.00 |
| 800 | 2,586.00 | 776.00 | 3,362.00 | 1,035.00 | 3,621.00 | 2,612.00 | 2,492.00 | 930.00 |
| 900 | 3,084.00 | 926.00 | 4,010.00 | 1,234.00 | 4,318.00 | 2,903.00 | 2,785.00 | 1,033.00 |

Note:
1 Column (2) Basic laying cost includes placing, jointing, transporting from site stores, pressure testing, and cleaning \& disinfection.
2 Column (4) includes additional $30 \%$ of basic laying cost for transmission mains and Column (6) includes additional $40 \%$ of basic laying cost for distribution mains to cover the laying cost of fittings, specials, accessories and miscellaneous items including other costs such as culvert crossings, bridge crossings, valve chambers, thrust blocks, pipe supports etc.
3 Column (7) Basic excavation cost includes excavation in 'normal' ground conditions (firm sand), preparation of bottom of excavation, backfilling with selected excavated material, ramming (consider $98 \%$ compaction) and disposal of surplus excavated material.
4 Contractor's O/H \& P not included.
5 Rock excavation, traffic management, dust controlling, maintenance of roads and preliminaries are not included in basic cost.
6 Add $40 \%$ to the total cost of laying and excavation to cover the additional cost for removing asphalt layer with base courses and other relevant additional costs for highways.

## Source:

Based on work study and established data from published books (Refer Annex 9).

## CHAPTER 4

REVIEW OF PHASE 2 PROJECT








## Issues

>Balance 210 km distribution pipe laying
>Batampara Tower site modification work

Appendix 4．1－2 Water Quality of Raw Water and Treated Water of Ruhunupura WSS
（1）Treated Water
TREATED WATER QUALITY MONITORING OF HAMBANTOTA REGION－2015

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|  | 3 | $8$ | $\begin{aligned} & \mathbf{O} \\ & 0 \end{aligned}$ | O | 응 | O | $\bigcirc$ | $\stackrel{\square}{0}$ |
|  | $\stackrel{0}{\mathrm{~N}}$ | $\stackrel{\sim}{\sim}$ | $\stackrel{\sim}{\square}$ | － | $\stackrel{\text {－}}{\text {－}}$ | 억 | － | $\bigcirc$ |
| 1／8u－（tod se）әepydsoud | $\begin{aligned} & \mathrm{O} \\ & \mathbf{i} \end{aligned}$ | $\stackrel{\rightharpoonup}{0}$ | $8$ | $\underset{~ N}{\text { N}}$ | 응 | $\hat{0}$ | $\stackrel{\circ}{0}$ | $\frac{\infty}{0}$ |
|  | $\stackrel{9}{-}$ | $\stackrel{त}{\mathrm{C}}$ | $\stackrel{N}{\text { No }}$ | $\stackrel{n}{0}$ | $\stackrel{N}{n}$ | $\underset{\sim}{m}$ | J | $\stackrel{\sim}{0}$ |
| （／3m－（zon se）－ | $m$ | $\begin{aligned} & 2 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 0 \\ & \hline 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & N \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | O. | 8－ | $\stackrel{\circ}{-1}$ |
|  | 8 | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\frac{\pi}{0}$ | $\stackrel{\infty}{\infty}$ | $\stackrel{\infty}{\infty}$ | $\frac{\mathrm{m}}{\circ}$ | $\stackrel{\infty}{\circ}$ | $\xrightarrow{\circ}$ |
| 1／8ur－e！ | $\begin{aligned} & 0 \\ & \hline \end{aligned}$ | $\begin{aligned} & \infty \\ & 0 \\ & 0 \end{aligned}$ | $\stackrel{n}{6}$ | $\begin{aligned} & 0 \\ & 0 \\ & \hline \end{aligned}$ | $0$ | $\stackrel{0}{0}$ | $\stackrel{\square}{0}$ | ¢ |
|  | 잉 | 인 | $\xrightarrow{4}$ | $\stackrel{\mathrm{a}}{\mathrm{a}}$ | $\stackrel{\text { 을 }}{ }$ | $\stackrel{\mathrm{N}}{=}$ | $\cdots$ | $\stackrel{\circ}{\square}$ |
| 1／8u－（1）se ）әр！о／ч） | $\stackrel{\rightharpoonup}{N}$ | ㅇ | \％ | $\stackrel{\infty}{6}$ | $\stackrel{\sim}{\sim}$ | $\stackrel{\sim}{2}$ | テ | $\stackrel{\infty}{\sim}$ |
|  |  | 웅 | od | $\stackrel{\infty}{+}$ | $\stackrel{\square}{7}$ | $\frac{m}{7}$ | ¢ | $\stackrel{\infty}{0}$ |
| $\mathrm{Hd}^{\text {d }}$ | $\begin{aligned} & \text { m } \\ & \substack{0 \\ i \\ 0} \end{aligned}$ | $\vec{\sim}$ | $\stackrel{n}{\sim}$ | $\cdots$ | $\bar{\sim}$ | ¢0． | $\stackrel{?}{?}$ | $\vec{i}$ |
|  | $N$ | $\stackrel{n}{n}$ | $\stackrel{\infty}{0}$ | $\begin{gathered} m \\ 0 \end{gathered}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\stackrel{O}{0}$ | ก | $\stackrel{\sim}{\infty}$ |
| （7ٕun uazeh）solos | $\sim$ | $n$ | n | $n$ | n | $n$ | n | 응 |
| ！ $00-3$ | $\overline{\bar{z}}$ | 0 | 0 | － | － | O | $\bigcirc$ | － |
| யגO！！ $10 \bigcirc$｜еłOL | $m$ | － | － | － | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
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| －ON•qE7 | 20 | ＊ | 8 | $\cdots$ | O | 앗 | $\cdots$ | $\stackrel{\sim}{\sim}$ |
| 2m！ | $\stackrel{\bar{z}}{5}$ | $\begin{aligned} & \stackrel{\rightharpoonup}{\mathrm{p}} \\ & \stackrel{\rightharpoonup}{*} \end{aligned}$ | $\begin{aligned} & \sim \\ & \underset{\square}{\prime} \end{aligned}$ | $\begin{aligned} & n \\ & \stackrel{n}{0} \end{aligned}$ | $\stackrel{\infty}{\infty} \underset{\infty}{\infty}$ | $n_{n}^{\infty}$ | $\cdots$ | $\stackrel{\sim}{\square}$ |
| әде | $\underset{\sim}{3}$ | N | $\stackrel{\sim}{\sim}$ | $\sigma$ | $\stackrel{N}{2}$ | N | $\infty$ | $N$ |
| 47uow | $\left.\begin{aligned} & \ddot{寸} \\ & 6 \\ & n \\ & 5 \end{aligned} \right\rvert\,$ |  | 棫 |  | 気 | $\pm$ | $\stackrel{0}{3}$ | 3 |


| August | 3 | 10.40 | 1345 | 0.8 | 0 | 0 | 5 | 0.49 | 7.1 | 337 | 38 | 112 | 0.02 | 0.08 | 0.023 | 0.38 | 0.18 | 114 | 0.03 | 10 | 222 | 27.8 |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Septembel | 22 | 9.30 | 1705 | 1.5 | 0 | 0 | 5 | 0.48 | 7.1 | 335 | 34 | 120 | 0.05 | 0.08 | 0.016 | 0.38 | 0.02 | 118 | 0.03 | 9 | 221 | 30.0 |  |
| October | 16 | 9.10 | 1925 | 1.5 | 0 | 0 | 5 | 0.32 | 6.9 | 333 | 42 | 106 | 0.04 | 0.04 | 0.019 | 0.39 | 0.09 | 118 | 0.04 | 9 | 220 | 29.9 |  |

（2）Raw Water
SURFACE WATER QUALITY MONITORING OF HAMBANTOTA REGION－2015

|  | $\bigcirc$ | \％ | 9 | $a$ | \％ | $\stackrel{\circ}{7}$ | $\stackrel{m}{\sim}$ | の | ¢ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | m | $\stackrel{\sim}{0}$ | \％ | 8 | \％ | 욱 | $\stackrel{m}{\sim}$ | m | ¢ |
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|  | $\stackrel{\sim}{1}^{1}$ | $\underset{\sim}{\sim}$ | $\underset{\sim}{\sim}$ | $\stackrel{\sim}{\sim}$ | 8 | $\xrightarrow{-}$ | $\stackrel{0}{-}$ | $\stackrel{\square}{7}$ | $\stackrel{0}{7}$ |
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## Terms of Reference (TOR)

Consulting Services<br>(Detailed Design and Tender Assistance)<br>for Anuradhapura North Water Supply Project Phase 2

## 1. The Background including the Project Summary

### 1.1 Background

The Government of Sri Lanka will undertake the Anuradhapura North Water Supply Project, (the Project) with financial assistance from the Japan International Cooperation Agency (hereinafter referred to as "JICA"). Anuradhapura is located about 205km away from Colombo. The Project area covers the four (4) Divisional Secretariat Divisions (DSDs) namely Kebithigollewa, Kahatagasdigiliya, Horowpothana and Padaviya in Anuradhapura District. The location map is attached as Annex 1. The objective of the Project is to provide safe drinking water to the area which does not have access to water supply system and to increase water supply coverage by constructing surface water supply systems in Anuradhapura North area where the people depend on unsafe ground water which causes dental and skeletal fluorosis, Chronic Kidney Disease (CKD) and thereby contributing to improved hygienic status and health condition in the area.

### 1.2 Project Summary

The Project comprises the following sub scheme:
Wahalkada Water Supply Scheme which provides drinking water supply to the four (4) Divisional Secretariat Divisions (DSDs) namely Kebithigollewa, Kahatagasdigiliya, Horowpothana and Padaviya.

The detail components of the project are attached as Annex 2.

### 1.3 Project Implementation Arrangement

The National Water Supply and Drainage Board (NWSDB) will be the Project's Implementing Agency. The Executing Agency will be the Ministry of City Planning and Water Supply.

Project Management Unit (PMU) has been set up in NWSDB for project implementation. The PMU is headed by the Project Director who is reporting to the Additional General Manager of Water Supply Projects [Addl. GM WSP] of NWSDB. The organization chart of NWSDB is attached as Annex 3.1 and the organization chart of PMU is attached as Annex 3.2.

## 2. The Consulting Services

The consulting services shall be provided by an international consulting firm (hereinafter referred to as "the Consultant") in association with national consultants
in compliance with the Guidelines for the Employment of Consultants under Japanese ODA Loans (April 2012). The Anuradhapura North Water Supply Project plans to be implemented under Japanese ODA loan and the Consulting Services consists of the following parts;

Phase 2: Pre Design, Detail Design and Preparation of Bid documents, Procurement Assistance, Environmental Matters, Technology Transfer, and Awareness Programmes of Wahalkada Water Supply System.

This TOR is for "Anuradhapura North Water Supply 'Project Phase 2".

### 2.1 The Objectives of the Consultancy Assignment

The objective of the consulting services assignment is to achieve and ensure the quality and efficiency of the project implementation through the proper and correct detailed designs, preparation of bidding documents, procurement assistance, environmental matters, technology transfer and awareness programs of Wahalkada Water Supply System.

### 2.2 Funding Source for Consultancy Services

The Government of Sri Lanka intends to use part of the proceeds of the Japanese ODA Loan No. SL-P 110 for eligible payments for consulting services for which this TOR is issued.

### 2.3 The Scope Consulting Services

### 2.3.1 Pre Design Stage

The Consultants shall;
(a) Review the Final Report of Preparatory Survey study carried out by M/s. NJS Consultants Co., Ltd. \& M/s. Nihon Suido Consultants Co., Ltd. for any deviation from the scope ensuring;

1. Adequacy of foundation investigations
2. Cost effectiveness
3. Compatibility with site conditions
(b) Review and verify all available primary and secondary data collected during the above referenced preparatory survey study.
(c) Carry out all the required engineering surveys and investigations such as topographical survey, hydrological survey, geotechnical survey, material availability survey, raw water quality survey, etc., as applicable to the concerned project components.
(d) Investigate and recommend water treatment plant effluent disposal routes and effluent reuse systems.
(e) Plan the consultancy services in such a way that procurement of works of at least one package could commence within the first six months of the consultancy services.
(f) Submit the Inception Report
(g) Prepare detailed work plan, progress reports and implementation schedule
for the Project to ensure effective monitoring and timely project outputs, and regularly update the same during other stages;

### 2.3.2 Detailed Design Stage

The Consultants shall;
(a) Carry out detailed designs and prepare Bidding Documentation for Wahalkada Water Supply System which shall include, but not limited to, following:

- Water Intake of Capacity $28,800 \mathrm{~m}^{3} /$ day (approx) with associated Mechanical \& Electrical installations having pumping capacity of $16,000 \mathrm{~m}^{3} /$ day (approx) by keeping provisions for future installation up to full capacity of $28,800 \mathrm{~m}^{3} /$ day.
- Raw Water Main from Wahalkada Intake to Wahalkada WTP including surge arresting 'system, suitable line flushing and flow measuring devices etc.,
- Water Treatment plant of capacity of $27,400 \mathrm{~m}^{3} /$ day (approx) to cater to year 2034 projected demand in a manner that $15,000 \mathrm{~m}^{3} /$ day capacity treatment plant could be implemented as the first stage and the number of process trains shall be more than two as appropriate and shall accommodate the minimum of the given treatment plant components of the preparatory survey study including flocculator, sedimentation tank, Rapid Sand filters, sludge treatment, clear water storage units. The following components and related appurtenances shall suit the WTP capacity of $27,400 \mathrm{~m}^{3} /$ day.
i. Receiving Well
ii. Distribution Chamber
iii. Activated Carbon Filters (ACF) including a sump
iv. Backwash water recycle tank
v. Blower room including blowers
vi. Chlorine mixing chamber
vii. Chlorine house including Chlorinators, neutralization facilities
viii. Chemical building, including chemical storing, Chemical preparation and delivering facilities
ix. Clear water tank
x. High lift pumping Station
xi. Elevated service water tank
xii. Sludge lagoon
xiii. Administrator building including process laboratory
xiv. Warehouse
xv. Watchers hut, parking shed etc;
xvi. Quarters
xvii. Boundary walls internal roads yard piping \& Landscaping
- Transmission Mains and Sub mains from Wahalkada WTP to Kahatagollewa Bogahawewa, KAH-KEB Median, Kebithigollewa , Weerasole, North Horowpothana, Horowpothana, West Horowpothana, Rathmalgahawewa, Hamillewa and Kahatagasdigiliya of total length 142 km including required surge arresting systems
- Distribution model design to cover Horowpothana, Kahatagasdigiliya,

Kebithigollewa, and Padaviya divisions and Distribution Systems to cater to said areas of total length 873 km approx.

- Ground Reservoirs at
i. Kahatagollewa $\left(1,000 \mathrm{~m}^{3}\right)$
ii. Kebithigollewa ( $500 \mathrm{~m}^{3}$ )
iii. Weerasole ( $1,500 \mathrm{~m}^{3}$ )
iv. Horowpothana $\left(1,000 \mathrm{~m}^{3}\right)$
v. Kahatagasdigilliya $\left(500 \mathrm{~m}^{3}\right)$
- Elevated Tank
i. Wahalkada ( $500 \mathrm{~m}^{3}$ )
ii. Kahatagollewa $\left(250 \mathrm{~m}^{3}\right)$
iii. Bogahawewa $\left(2,000 \mathrm{~m}^{3}\right)$
iv. KAH-KEB Median $\left(250 \mathrm{~m}^{3}\right)$
v. Kebithigollewa ( $750 \mathrm{~m}^{3}$ )
vi. North Horowpothana ( $250 \mathrm{~m}^{3}$ )
vii. Horowpothana $\left(500 \mathrm{~m}^{3}\right)$
viii. West Horowpothana $\left(750 \mathrm{~m}^{3}\right)$
ix. Rathmalgahawewa ( $500 \mathrm{~m}^{3}$ )
x. $\quad$ Hamillewa $\left(1,250 \mathrm{~m}^{3}\right)$
xi. Kahatagasdigiliya $\left(1,500 \mathrm{~m}^{3}\right)$
xii. Other 5 tanks ( $250 \mathrm{~m}^{3}$ each)
- Chlorine Building $100 \mathrm{~m}^{2}$ (approx.) including chlorinators at
i. Weerasole
ii. Horowpothana
iii. North Horowpothana
iv. West Horowpothana
v. Hamillewa
vi. Kahatagasdigiliya
vii. Rathmalgahawewa
viii. Kebithigollewa
ix. KAH-KEB Median
x. Kahatagollewa
xi. Bogahawewa
- Area Engineer's Office with Operational complex, SCADA system, Consumer counter, Zonal lab (Residual Chlorine, Turbidity, pH) at;
i. Horowpothana
ii. Kahatagasdigiliya
iii. Kebithigollewa
iv. Bogahawewa
- OIC Office with SCADA system, Consumer counter, Zonal lab (RCI, Turbidity, pH ) and Room for crews etc., at
i. Kahatagasdigiliya
ii. Kebithigollewa
iii. Bogahawewa
- Work Shop buildings at
i. Horowpothana
ii. Kebithigollewa
- Care taker Quarters $100 \mathrm{~m}^{2}$ approx. at
i. Weerasole
ii. Horowpothana
iii. North Horowpothana
iv. West Horowpothana
v. Hamillewa
vi. Kahatagasdigiliya
vii. Rathmalgahawewa
viii. Kebithigollewa
ix. KAH-KEB Median
x. Kahatagollewa
xi. Bogahawewa
- Staff Quarters at
i. Horowpothana
ii. Kahatagasdigiliya
iii. Kebithigollewa
iv. Bogahawewa

Note: It should be noted that the consultant shall not be limited to the above referenced components but shall design a complete scheme by incorporating additional components/items as appropriate. The Consultants shall accommodate reasonable requests made by the Project Director, if necessary, for the completeness of the scheme within the given inputs.
(b) Prepare bidding documents for procurement activities of Wahalkada WSS in accordance with the latest version of Standard Bidding Documents under Japanese ODA Loans for Procurement of Works together with all relevant specifications, drawings and other documents; for following procurement packages, separately for Wahalkada WSS

| Package | Component | Procurement |
| :---: | :--- | :---: |
| Package A | Intake, Water Treatment Plants, Ground Sumps, Pumping <br> Stations and Elevated Tanks, Civil, Mechanical Electrical <br> works and Building works | ICB with PQ |
| Package B | Procurement and installation of Transmission/ Distribution <br> Mains HDPE) | ICB with PQ |
| Package C | Procurement and Installation of Distribution System for <br> 63mm to 225mm, uPVC pipes | LCB |
| Package D | Procurement of Vehicles | LCB |
| Package E | Procurement of Heavy Duty Machines | LCB |

* ICB -International competitive bidding
*LCB -Local competitive bidding
*PQ-Pre- Qualification
*HDPE- high density Polyethylene
(c) Sign all detailed designs, drawings and calculations where the Consultant shall ensure and be responsible for the satisfactory structural and functional requirements of the scheme components.
(c) Carry out Cost estimation including Engineer's estimate. The Engineer's estimate shall be prepared using NWSDB Rate Book and other appropriate rates if NWSDB rates are not available for such items.

The Consultant shall prepare the detailed designs of the Project in sufficient detail to ensure clarity and understanding by NWSDB, contractors and other relevant stakeholders. All the designs should be in conformity with the Sri Lankan Standards (SLS) if available, or with the appropriate international standards subject to the approval of the Engineer.

The detailed designs will, as a minimum, include construction drawings, detailed cost estimates, necessary calculations, associated contract documentation to including detailed specifications, bill of quantities (BOQ), and the implementation schedule for the Project.

Such detailed specifications will contain those in relation to
i. Quality assurance and control of plant, materials and workmanship,
ii. Safety
iii. Protection of the environment,
iv. Other stake holder's requirements such as RDA, CEB, Pradeshiya Saba etc.,

The detailed design shall be prepared in close consultation with, and to meet the requirements of NWSDB and the consultants shall make every effort to incorporate the comments made by NWSDB into the detailed designs prior to submission for approval. The consultant's staff shall make presentations to the relevant NWSDB staff on detailed design prior to finalization, on agreed intervals during the designs.

### 2.3.3 Procurement Process Assistance Stage

### 2.3.3.1 Assistance in Pre-Qualification (PQ)

The Consultants shall:
a) Define technical and financial requirements, capacity and/or experience for PQ criteria taking into consideration technical features of the project;
b) Prepare PQ documents in accordance with the latest version of Standard Prequalification Documents under Japanese ODA Loans;
c) Assist NWSDB in PQ announcement, addendum/corrigendum, and clarifications to the applicants' queries;
d) Assist to evaluate PQ applications in accordance with the criteria set forth in PQ documents; and
e) Assist to prepare a PQ evaluation report for approval of the PQ evaluation committee.

### 2.3.3.2 Assistance during the Bidding

The Consultants shall:
a) Assist NWSDB in issuing bid invitation, conducting pre-bid conferences, issuing addendum/corrigendum, and clarifications to bidders' queries.
b) Assist for the technical clarification during bid evaluation in accordance with the criteria set forth in the bidding documents. In such evaluation assistance, the Consultant shall carefully confirm that bidders' submissions in their technical proposal including, but not limited to, site organization, mobilization schedule, method statement, construction schedule, safety plan,
have . been prepared in harmony each either and will meet such requirements set forth in applicable laws and regulations, specifications and other parts of the bidding documents;
c) Assist Technical Evaluation Committees (TECs) in preparation of bid evaluation reports for approval of the procurement committees and to submit an independent report to JICA.
d) Assist NWSDB in contract negotiations by preparing agenda and facilitating negotiations including preparation of minutes of negotiation meetings;
e) Assist to prepare a draft and final contract agreement.
f) Assist in tender awards and signing the contract agreements.
2.4. Facilitation of implementation of Environmental Management Plan (EMP), Environmental Monitoring Plan (EMoP) and Resettlement Action Plan (RAP)

The Consultant shall:
a) Update EMP, as appropriate; incorporate necessary technical specifications with design and contract documentation;
b) During the preparation of bidding documents, clearly identify environmental responsibilities as explained in the Environmental Impact Assessment/Initial Environmental Examination report and Environmental Monitoring Plan;
c) Update and/or prepare RAP as necessary based on detailed design in accordance with the agreed resettlement framework, including entitlement matrix and compensation plan, coordinate with various agencies in preparing the procedures for timely land acquisition and disbursement of compensation to affected persons;
d) Assess the social impact and prepare necessary social development plans. The plan should be based on indigenous people development framework, as required;
e) Monitor land acquisition and compensation activities being undertaken by NWSDB and district authorities, and report the activities in monthly progress reports;
f) Assist NWSDB in the capacity building of NWSDB staff on environmental management through on-the-job training on environmental assessment techniques, mitigation measure planning, supervision and monitoring, and reporting.

### 2.5 Technology Transfer

The Consultant shall carry out the technology transfer as an important aspect in design works. The Consultant shall provide the opportunity to NWSDB officers and staffs to be involved in the working team of the Consultant during the design and pre-contract administration works for their capacity building wherever possible. If requested by NWSDB, the Consultant shall brief and demonstrate the survey and design procedure and pre-contract management process and procedures. The consultant shall assist NWSDB and its staff to build their capacity as a part of on-the-job-training under the Project.

### 2.6 Guidance for Public Awareness Campaign

The purpose of public awareness campaign is to inform and educate the general public of the present situation of health damage in the project area caused by the use of
groundwater, the objectives of the proposed project, the importance of connection to a proposed water supply system under the project and payment of water tariff for sustainable operation and management of water supply facilities.

The Consultant shall:
a) Arrange the data on health damage in the project area focusing on dental and skeletal fluorosis and Chronic Kidney Diseases. (CKD)
b) Analyse the demographic characteristics of the project area such as sex, age, ethnic, religion, occupation, income, coverage by water supply, sanitation and power supply, etc.,
c) Develop the strategy including approach and methodology to extend the Public Awareness Campaign.
d) Organize the public information and education campaign teams by selecting the staff mainly from NWSDB and being reinforced by the use of external resources as required.
e) Decide the assignment of respective staff in the public information and education campaign.
f) Unify the campaign team through trial practice and brainstorming
g) Hold the seminar/ public information campaign on the date and at places as scheduled at least twelve (12) times.
h) Improve \& adjust the content of the seminar according to the people's response at the previous seminar.
i) Prepare the report summarizing the public information and education campaign including the evaluation of the effect and recommendation for future extension of publi9 awareness campaign.
j) Awareness of farmers on water management.

### 2.7 Nature of and limit to the responsibilities, which the Consultant is to undergo.

The Consultant shall perform the Services and carry out their obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted professional techniques and practices, and shall observe sound management practices, and deploy appropriate advance technology and safe and effective equipment, machinery, materials, computer software and methods. The Consultants shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers to the Employer, and shall at all times support and safeguard the Employer's legitimate interests in any dealings with sub consultants or third parties.

The Consultants shall obtain the Employer's prior approval in writing before taking any of the following actions.
a) Appointing such members of the personnel as is listed in Section 2.9 merely by title but not by name;
b) Entering into a sub contract for the performance of any part of the services, it being understood (a) that the selection of sub consultant and the terms and conditions of the sub contract shall have been approved in writing by the Employer prior to the execution of the sub contract, and (b) that the consultants shall remain fully liable for the performance of the services by the sub consultant and its personnel pursuant to this contract.
c) Any variation of the scope of the Consultancy Service.
d) Any variation orders to the Contractor during Contract execution

### 2.8 The Man Month Schedule and Expected Time Schedule

The team shall comprise Professional international consultants having allocated 65 person-months and Professional local consultants and technical administrative support staff having allocated 120 and 199 person-months maximum. The consultants will be engaged over 21 months duration of consulting services. Refer to Annex 4 for proposed Implementation Schedule.

All necessary Technical and Administrative supporting staff (having allocated 384 PM) should be provided by the consultant by referring Annex 5.

It is the Consultant's responsibility to select the optimum team and to propose the professionals whom he believes will best meet the needs of NWSDB without exceeding total person months proposed for each category

### 2.9 The qualification and Expertise required and Detailed Scope of Works for Experts

## Key Experts (International)

| Position | Qualification | Experience |
| :---: | :---: | :---: |
| Team Leader | Professionally Qualified Civil Engineer and Graduate (B.Sc.) in Civil Engineering/ contract management and Masters/or PE Qualification in a relevant field and Should be a member of recognized professional Institution. | Total Experience <br> At least 20 years after graduation experience <br> Project Related Experience <br> - At least 15 years experience out of which 10 years experience in Water Supply projects including; <br> a) Design <br> b) Project Management <br> c) Contract Management of major projects with ICB contracts <br> - At least ten years experience in similar water supply Projects as a Team Leader of a project more than 25 million US\$ . |
| Water <br> Treatment Expert | Professionally Qualified Civil Engineer and Graduate (B.Sc.) in Civil Engineering and Masters/or PE Qualification in a relevant field and Should be a member of recognized professional Institution. | Total Experience <br> At least 15 years after graduation experience Project Related Experience <br> - At least 8 years experience in designs of water treatment plants and at least 3 years experience in Operation and Maintenance of Water Supply Facilities <br> - Experience as a water treatment specialist in at least two urban water supply projects of which each having water treatment plants of capacity at least $20,000 \mathrm{~m}^{3} /$ day . |
| Civil Engineer (Water Treatment Plant) | Professionally Qualified Civil Engineer Graduate (B.Sc.) in Water Supply/ Civil Engineering and Should be a member of recognized professional Institution. | Total Experience <br> At least 15 years after graduation experience <br> Project Related Experience <br> - At least 10 years experience in Design/ Operation and Maintenance of Water Supply Facilities <br> - Experience as a Civil Engineer in at least two urban water supply projects of which each having WTP of capacity at least $20,000 \mathrm{~m} 3 / \mathrm{d}$ and contract amount is more than 5 million US\$. <br> - Experience in ICB contract is desirable. |


| Position | Qualification | Experience |
| :---: | :---: | :---: |
| Civil Engineer (Water Transmission) | Professionally Qualified Civil Engineer and Graduate (B.Sc.) in Water Supply/ Sanitation /Civil Engineering and related field and Should be a member of recognized professional Institution. | Total Experience <br> At least 15 years experience <br> Project Related Experience <br> - At least 10 years experience in design/ operation and maintenance of Water Supply transmission Facilities including minimum 8 years experience in water supply design. <br> - Experience as a Civil Engineer in at least two urban water supply projects of which each having more than 200 km transmission/distribution system. <br> - Experience in ICB contract is desirable. |
| Mechanical Engineer | Professionally Qualified Mechanical <br> Engineer Graduate (B.Sc.) in Mechanical Engineering and related field Should be a member of recognized professional Institution. | Total Experience <br> At least 15 years <br> Project Related Experience <br> - At least 7 years experience in design/ operation and maintenance of Water Supply Facilities and related field <br> - Experience as a Mechanical Engineer in four urban water supply projects of which each contract amount is more than 5 million US\$. <br> - Experience in ICB contract is desirable -two urban water supply projects |
| Electrical Engineer | Professionally .Qualified Electrical <br> Engineer Graduate <br> (B.Sc,) in <br> Electrical <br> Engineering and related field and Should be a member of recognized professional Institution. | Total Experience <br> At least 15 years <br> Project Related Experience <br> - At least 7 years experience in design/ operation and maintenance of Water Supply Facilities and related field <br> - Experience as an Electrical Engineer in four urban water supply projects of which each contract amount is 5 million US\$. <br> - Experience in ICB contract -two urban water supply projects |
| Hydrologist | Professionally Qualified Hydrologist and Graduate (B.Sc.) in Hydrology and Should be a member of recognized professional Institution. | Total Experience <br> At least 15 years experience <br> Project Related Experience <br> - At least 7 years experience in four urban water supply projects of which each contract amount is 5 million US\$. <br> - Experience in ICB contract -two urban water supply projects |

Key Experts (Local)

| Position | Qualification | Experience |
| :---: | :---: | :---: |
| Deputy <br> Team Leader | Chartered Civil Engineer and Graduate (B.Sc.) or equivalent in Civil <br> Engineering/ and Masters Qualification in a relevant field. | Total Experience <br> At least 20 years after graduation experience <br> Project Related Experience <br> - At least fifteen years experience combined experience in Water Supply projects including; <br> (i) Design <br> (ii) Project Management <br> (iii) Contract Management of major projects with ICB contracts <br> - At least five years experience in similar water supply Projects as a CoTeam Leader or Deputy Team Leader of a project more than 15 million US\$ |
| Structural Specialist | Chartered Civil Engineer and Graduate (B.Sc.) or equivalent in <br> Civil Engineering and Masters Qualification in Structural Engineering | Total Experience <br> At least 15 years after graduation experience <br> Project Related Experience <br> - At least 10 years experience in design/ operation and maintenance of Water Supply Facilities <br> - Experience as a structural specialist in at least two urban water supply projects of which each contract amount is more than 10 million US\$ |
| Civil <br> Engineer <br>  <br> Water <br> Treatment <br> Plant) | Chartered Civil Engineer and Graduate (B.Sc.) or equivalent in and Masters Qualification in Water Supply Engineering /Environmental Engineering | Total Experience <br> At least 15 years after graduation experience <br> Project Related Experience <br> - At least 10 years experience in design/ operation and maintenance of Water Supply Facilities <br> - Experience as a Civil Engineer in two urban water supply projects of which each contract amount is more than 5 million US\$. <br> - Experience in ICB contract is desirable |


| Position | Qualification | Experience |
| :--- | :--- | :--- |
| $\begin{array}{l}\text { Civil Engineer } \\ \text { (Reservoirs, } \\ \text { Pumping } \\ \text { Stations, Towers, } \\ \text { Transmission } \\ \text { \& Distribution) }\end{array}$ | $\begin{array}{l}\text { Chartered Civil Engineer and } \\ \text { Graduate (B.Sc.) or } \\ \text { equivalent in Water Supply/ } \\ \text { Sanitation } \\ \text { /Civil Engineering and } \\ \text { related field }\end{array}$ | $\begin{array}{l}\text { Total Experience } \\ \text { Atleast 15years after graduation experience } \\ \text { Project Related Experience }\end{array}$ |
| • At least 10 years experience in design/ |  |  |
| operation and maintenance of Water |  |  |
| Supply transmission Facilities, |  |  |
| reservoirs, pumping stations and |  |  |
| towers |  |  |$]$| •Experience as a civil Engineer intwo |
| :--- |
| urban water supplyprojects of which |
| eachcontract amount is morethan5 |
| million US\$. |


| Position | Qualification | Experience |
| :---: | :---: | :---: |
| Electrical Engineer | Electrical Engineer Graduate (B.Sc.) or equivalent in Electrical Engineering and related field | Total Experience <br> Atleast 15years after graduation experience Project Related Experience <br> - Atleast 7 years experience in design/ operation and maintenance of Water Supply Facilities and related field <br> - Experienceas anElectricalEngineer in foururban watersupply projects of which each contract amount is 5 million US\$. <br> - Experience in ICB contract-two urban water supply projects |
| Instrumentation Specialist | Electrical Engineer Graduate (B.Sc.) or equivalent in Electrical Engineering and related field | Total Experience <br> At least 15 years after graduation experience Project Related Experience <br> - Atleast 7 years experience in design/ operation and maintenance of Water Supply Facilities and related field <br> - Experience as anElectrical Engineer in foururban watersupplyprojects of which each contract amount is 5 million US\$. <br> - Experience in ICB contract-two urban water supply projects |

Other Experts (Local)

| Position | Qualification | Experience |
| :--- | :--- | :--- |
| Procurement <br> Specialist | Graduate in Civil <br> Engineering (B.Sc.) or <br> equivalent and Masters <br> Qualification inproject <br> management and Diploma <br> in Procurement and <br> construction claims | Total Experience <br> At least 15 years after graduation <br> experience <br> Project Related Experience |
|  | At least 7 years experience as a <br> Procurement Specialist <br> Experience in two urban water <br> supply projects of which each having <br> ICB contract more than 10 million <br> US\$. <br> - Experience in JICA projects is |  |
| Specialist |  |  |


| Position | Qualification | Experience |
| :--- | :--- | :--- |
| $\begin{array}{l}\text { Quantity } \\ \text { Surveyor }\end{array}$ | $\begin{array}{l}\text { Professionally qualified } \\ \text { Quantity Surveyor with } \\ \text { Bachelor degree or } \\ \text { equivalent in Quantity } \\ \text { surveyingand should be a } \\ \text { member of recognized } \\ \text { professional institution }\end{array}$ | $\begin{array}{l}\text { TotalExperience: } \\ \text { At least 10years after graduation } \\ \text { experience } \\ \text { Project Related Experience: } \\ \text { - At least two years experience in water } \\ \text { treatment plant estimates with a } \\ \text { recognized consulting firm//National } \\ \text { water utility Organization } \\ \text { Note: }\end{array}$ |
| An input of 8 man months of a Quantity |  |  |
| Surveyor (local) shall be allocated |  |  |
|  |  |  |
| Design Section in Head Office. |  |  |$\}$

### 2.10 Task of the Experts

### 2.10.1 The Tasks of the Key Experts

## International Experts

The specific tasks include, but not limited to;

| Position | Main Tasks |
| :---: | :---: |
| Team Leader | 1. Shall bear the overall responsibility and shall represents the project Consultant's Team in all matters relating to the performance of services, coordinating with all other consultant's staff to deliver excellent product during the stipulated time schedule. <br> 2. Shall oversee and Supervise the Consultant's services <br> 3. Assume direct responsibility for day-to-day consulting services including day to day management of all consultants' staff and coordination among and with them. <br> 4. Review existing studies/documents and other resources available and formulate a best implementation approach including programmatic project schedule; <br> 5. Prepare PQ and bid evaluation report for JICA, <br> 6. Coordinate interfaces between Consultancies (Phase $1 \&$ Phase 2) <br> 7. Check the bidding documents prepared by the local consultants and ensure all bidding documents are complete in every respect; <br> 8. Assist PD to conduct pre-bid conferences, issuing addendum/corrigendum, and classifications to bidders' queries. <br> 9. Assist in PQ, evaluation of bids; <br> 10. Assist NWSDB in contract negotiations; <br> 11. Assist to prepare a draft and final contract agreement. <br> 12. Assist tender awards and signing the contract agreements |
| Water <br> Treatment Expert | 1. Carry out bench scale testing and pilot testing for average and critical conditions of raw water quality <br> 2. Decide the required water treatment process and to review the Intake, WTP components proposed by the preparatory survey studies <br> 3. Prepare the preliminary (basic) designs of the Intake and WTP. <br> 4. Prepare WTP detailed Process Diagrams <br> 5. Assure resource optimization including the treatment plant waste treatment and re-cycling <br> 6. Advise on the degree of Automation and controlling required for the optimum performance of the WTPs and distribution systems in collaborations with Electrical and Mechanical Engineers <br> 7. Advise on preparation of Sequence of Operation (SOO) for the treatment plants |
| Civil Engineer <br> (Intake <br>  <br> Water <br> Treatment <br> Plant) | 1. Assist the Water Treatment expert in preparing the basic design of the water treatment plant including water intake facilities <br> 2. Direct the local Consulting Engineers attending the detailed designs of the water treatment plant including water intake facilities and check the detailed designs done by the local Consulting engineers <br> 3. Prepare Technical Specifications <br> 4. Check and certify the drawings and BOQs |


| Civil Engineer (Water Transmission) | 1. Assist the water treatment expert in preparing the basic design of the water supply transmission and distribution systems including storage reservoirs and towers <br> 2. Direct the local Engineers attending the detailed designs including network models of the water Transmission and Distribution systems <br> 3. Select appropriate modelling software with the consultation of PD <br> 4. Check Network models <br> 5. Prepare Technical Specifications <br> 6. Check and certify the drawings and BOQs <br> 7. Develop course module on network installation and maintenance training and Conduct 3 days Water Distribution and Network Installation and Maintenance Training Course for NWSDB RSC-NC \& P\&D staff |
| :---: | :---: |
| Mechanical Engineer | 1. Design of the mechanical equipment <br> 2. Prepare specifications, Mechanical layouts and drawings; <br> 3. Assist during commissioning of project components <br> 4. Assist Team Leader for preparation of O\&M manuals <br> 5. Direct the local Mechanical Engineers for mechanical designs and check the designs <br> 6. Direct the local Mechanical Engineers in their day-to-day activities <br> 7. Support the O\&M training |
| Electrical Engineer | 1. Designs of the electrical equipment <br> 2. Prepare specifications, electrical layouts and drawings; <br> 3. Assessment of the power requirements and establish power availability and assist NWSDB staff obtaining the requirement from CEB; <br> 4. Assist Team Leader for preparation of the O\&M manuals <br> 5. Direct the local Electrical Engineers for electrical designs and check the designs <br> 6. Direct the local Electrical Engineers in their day-to-day activities <br> 7. Check the performance of an instrumentation system |
| Hydrologist | 1. Carry out suitable hydrological investigations for proposed water resources and review the extraction methodology; <br> 2. Prepare detailed Engineering designs for extraction; <br> 3. Recommend and find the solutions for protection of water resources and their catchments prepare cost estimation; <br> 4. Analyzing the effect of environmental changes on water flow, <br> 5. Planning of water resource development by forecasting and monitoring water usage and rainfall, <br> 6. Assessing the relationship between rainfall \& run off of tank catchment |

## Local Experts

| Position | Main Tasks |
| :---: | :---: |
| Deputy Team Leader | 1. Shall assist the Team Leader in all matters relating to the performance of services. <br> 2. Shall assist the Team Leader to oversee and supervise the Consultant's services <br> 3. Assumes direct responsibility for day-to-day consulting services including day to day management of all consultants' staff during the absence of the team leader <br> 4. Prepare of basic designs <br> 5. Prepare detailed designs including the specifications, drawings and BOQs etc., for all the project components <br> 6. Develop bidding documents, including bill of quantities and specifications for the water treatment plant following JICA guidelines <br> 7. Conduct topographical, geotechnical and other surveys; <br> 8. Formulate and use GIS base for details design works; <br> 9. Liaise with others to ensure adequate site investigations carried out for the design of the water supply and distribution systems and for the contractor's bidding requirements <br> 10. Liaise with other specialists to ensure a consistent philosophy and integrated approach to the design and operation of the distribution system; <br> 11. Advise on O\&M requirements such as training, human resources, etc. <br> 12. Assist to prepare a draft and final contract agreement |
| Structural Specialist | 1. Carry out all structural designs and necessary structural drawings and specifications including BOQs for the entire project; <br> 2. Identify the necessary soil investigations required for the structural designs and administer that work <br> 3. Liaise with other specialists to ensure consistent philosophy and integrated approach to the design |
| Civil Engineer <br> (Intake <br> Water <br> Treatment <br> Plant) | 1. Review structural designs <br> 2. Assist the water supply experts in preparing the basic design of the water treatment plant including water intake facilities <br> 3. Carry out detailed designs of the Intakes, Raw water mains, water treatment plants <br> 4. Prepare Technical Specifications <br> 5. Check Drawings and Bill of Quantities <br> 6. Assist the Deputy Team Leader |
| Civil Engineer <br> (Reservoirs, <br> Pumping <br> Stations, <br> Towers, <br> Transmission <br>  <br> Distribution) | 1. Review structural designs <br> 2. Assist the water supply expert in preparing the basic design of the water treatment plant including reservoirs, pumping stations, towers transmission and distribution lines. <br> 3. Carry out detailed designs of the Water storage reservoirs, pumping stations, Elevated towers, Transmission \& distribution networks <br> 4. Prepare Technical Specifications <br> 5. Check Drawings and Bill of Quantities |
| Mechanical Engineer | 1. Attend to the detailed design of mechanical equipment <br> 2. Prepare specifications, mechanical layouts and drawings; |
| Electrical <br> Engineer | 1. Attend detailed Designs of Electrical equipment <br> 2. Design associated PLC control system/SCADA systems <br> 3. Prepare specifications, electrical layouts and drawings; <br> 4. Assessment of the power requirements and establish power availability and assist NWSDB staff obtaining the requirement from CEB; |

### 2.10.2 The Tasks of the other Experts

| Environmental Specialist | 1. Update Environmental management Plan (EMP) <br> 2. Prepare programs and strategies to improve / protect these catchments with short term / long term perspectives in consultation with other experts |
| :---: | :---: |
| Procurement Specialist | 1. Prepare pre-qualification requirements and evaluation; <br> 2. Prepare bidding documents compliant with JICA's latest standard bidding requirements <br> 3. Design post-qualification criteria which should comply with JICA's guidelines <br> 4. Organize and identify with NWSDB staff in contract packaging and preparing procurement time schedules for each contract package in consultation with project staff <br> 5. Prepare sample Evaluation Reports to ensure JICA's and GOSL requirements are satisfied <br> 6. Assist the TEC members during evaluation |
| Architect | 1. Design environmental friendly and energy efficient building designs, for water treatment plants, waste water treatment plants, pump houses and intakes, landscaping treatment plants, towers and intake facilities <br> 2. Provide design, specification for interior decorations including interior lighting, selecting furniture for plant offices, colour coding and painting of structures, exterior lighting etc. <br> 3. Design necessary buffer zones and other architectural features for noise and odour control |
| Quantity Surveyor | 1. Prepare BOQs, according to CESSM code for water supply systems and SLS code for buildings <br> 2. Prepare rated BOQs <br> 3. Prepare work norms and material/day work schedules <br> 4. Prepare cost estimates |
| Public Awareness <br> Campaign <br> Specialist | 1. Analyse the demographic characteristics of the project area such as sex, age, ethnic, occupation, income, coverage by water supply, sanitation and power supply, etc. <br> 2. Arrange the data on health damage in the project area focusing on dental and skeletal fluorosis and chronic kidney diseases (CKD) <br> 3. Develop the strategy including approach and methodology to extend the public awareness campaign <br> 4. Organize the public information and education campaign teams through selecting the staff mainly from NWSDB and being reinforced by the use of external resources as required <br> 5. Decide the assignment of respective staff in the public information and education campaign <br> 6. Unify the campaign team through trial practice and brainstorming <br> 7. Design, implement, and monitor the public awareness campaigns for farmers and arrange site visits to farmer organizations leaders and other relevant stake holders for inspection of water treatment plants. <br> 8. Develop methods of mobilizing community participation in the design, management, construction, and O\&M of community water supply and sanitation; <br> 9. Conduct public awareness campaigns / seminar at the date and places as scheduled at least eight (8) times on issues related to water conservation, reduction of NRW, efficient irrigation water management practices for farmers, importance of pipe born water, water related diseases, catchment protection, preventing water pollution and sanitation in household level. <br> 10. Improve and adjust the content of the seminar according to the people's response at the previous seminar. |


|  | 11. Prepare the report summarizing the public information and education <br> campaign including the evaluation of the effect and recommendation for <br> future extension of public awareness campaign. |
| :--- | :--- |
| Micro- | 1.Test and recommend relevant parameters of raw water; especially with <br> respect to the fresh water Algae/Cyanobacteria and Nutrients. |
| 2. Advise the process design of water treatment plants during designing stage to |  |
| suit the raw water qualities and to assure resource optimization including the |  |
| treatment plant |  |$|$| 3. Advise the pilot water quality testing |
| :--- |
| 4. Advise preparation of sequence of operation (SOO) for the treatment plants |
| 5. Assist in adjusting water quality and treated effluent of water treatment plants |
| during commissioning |$\quad$| 6. Advise on chemical dosing during commissioning stage |
| :--- |
| 7. Identify and recommend the list of requirements for the Laboratory to |
| procurement officer. |

### 2.11 The Reports and Documents

Within the scope of consulting services, the Consultant shall prepare and submit reports and documents to Project Director / Project manager in charge in NWSDB as shown in Table 2.13. The Consultant shall provide electronic copy of each of these reports.

Table 2.13

| Stage | Type of Report | Timing | No. of <br> Copies |
| :--- | :--- | :--- | :---: |
| Consultancy <br> Services | Monthly Progress Report | Every month (by the 10 <br> each month | 10 |
|  | Quarterly Progress Report | Every quarter (at every three <br> months) | 10 |
|  | Inception Report | Within 1 month after <br> commencement of the services | 10 |
|  | Project Definition Report | Within 3 months after <br> commencement of the services | 10 |
| Detailed <br> Design | Draft Design Report | Within 8 months after <br> commencement of the services | 10 |
|  | Tender <br> Assistance <br> drawings \& Cost Estimates | Pre-Qualification Document <br> Report | Within 10 months after <br> commencement of the services <br> commencement of the services |
|  | Bidding Documents each <br> (Draft) | At appropriate timing | 10 |
|  | Bidding Documents each <br> (Final) | At appropriate timing | 15 |
|  | Pre-qualification Evaluation <br> Report | At appropriate timing | 10 |
|  | Technical Evaluation Report | At appropriate timing | 10 |
|  | Tender Evaluation Report | At appropriate timing | 10 |
| Assistance in <br> Environment | Environmental Monitoring <br> Report | At appropriate timing | 10 |


| and <br> Resettlement <br> Monitoring | Land Acquisition and <br> Resettlement Monitoring <br> Report | During land acquisition and <br> resettlement implementation <br> period | 10 |
| :--- | :--- | :--- | :---: |
|  | Environmental and Social <br> Plan Report | At the end of the services | 10 |

Contents to be included in each report are as follows:

## a) Monthly Progress Report:

Shall briefly describe all the activities carried out and progress for the previous month. Problems encountered or anticipated will be clearly stated, together with actions to be taken or recommendations on remedial measures for correction. Also indicates the work to be performed during the coming month.
b) Quarterly Progress Report

Shall present the progress status of the Project.
c) Inception Report:

Shall present the methodologies, schedule, organizations, etc.;
d) Project Definition Report

Shall present the design criteria, Design Concepts, Key plans, Preliminary Designs, Lay outs and standards use by the consultant in detailed designs. Also indicate the Network modelling software, Surge analysis software, Structural modelling software etc.;
e) Draft Design Report

Shall present the detailed engineering design including draft detailed designs, cost estimates, procurement plan etc.; incorporating the NWSDB comments on Project Definition Report.

## f) Final Design Report

Shall present the final detailed designs, final cost estimates and finalized procurement plan incorporating the NWSDB comments on Draft Design Report, provided by and the Consultant
g) Pre-qualification Document Report

Shall present the pre-qualification documents and its evaluation criteria.
h) Bidding Document Report

Shall present bidding documents and bid evaluation criteria.
i) Pre-qualification Evaluation Report

Shall present the results of the evaluation and the criteria to select the qualified applicants

## j) Technical Evaluation Report

Shall present the results of technical evaluation and the criteria to recommend the qualified applicants.

## k) Tender Evaluation Report

Shall present the results of the tenders and the criteria to select the most responsible contractors.

## l) Environmental Monitoring Report

Shall present the environmental impacts and implementation of environmental mitigation measures during and after the construction stage. Environmental monitoring forms attached as Appendix will be filled and attached to the Report.
m) Land Acquisition and Resettlement Monitoring Report

Shall present the progress of land acquisition and resettlement implementation. RAP monitoring form attached as Appendix shall be filled and attached the Report.
n) Environmental and Social Plan Report

Shall present the EMP, EMoP and RAP prepared by the consultants.

## 2. Client's input and Counterpart Personnel

A certain range of arrangements and services will be provided by NWSDB to the Consultant for smooth implementation of the Consulting Services. In this context, NWSDB will:
(1) Report and data

Make available to the Consultant existing reports and data available with NWSDB related to the Projects as required.
(2) Office Space

During the pre-Design, Design and procurement assistance stages and consultants shall have their own offices with necessary equipment, furniture and utility and shall accommodate the office space for NWSDB project staff and counterpart officials. The Consultant's requirement for office space, office rental including necessary equipment, furniture and utilities, should be clearly stated in the proposal with cost for providing such facilities. Such equipment and furniture shall be handed over to employer after completion of the project.
(3) Cooperation and counterpart staff

The Client shall provide the following counterpart officials for effective implementation of the Consulting Services;

01 No. Engineer (civil)
0201 No. Engineering Assistant (civil)
(4) Assistance and exemption

Use its best efforts to ensure that the assistance and exemption, as described in the Standard Request for Proposal issued by JICA, will be provided to the Consultant, in relation to

- Work permit and such other documents;
- Entry and exit visas, residence permits, exchange permits and such other documents
- Clearance through customs;
- Instruction and information to officials, agent and representatives of the Sri Lankan Government;
- Exemption from any requirement for registration to practice their profession;
- Privilege pursuant to the applicable law in Sri Lanka.

ANNEX 1. LOCATION MAP


## ANNEX 2. PROJECT COMPONENTS

| COMPONENT ITEMS |  | QUANTITY |
| :---: | :---: | :---: |
| <<Lot A>> Intake, WTP, Reservoirs |  |  |
| Intake | Capacity: | 28,800m ${ }^{3} / \mathrm{d}$ |
| WTP | Capacity: | $15,000 \mathrm{~m}^{3} / \mathrm{d}$ |
| Elevated Tanks and Ground Sumps |  |  |
| Elevated Tanks and reservoirs |  | 16 nos. |
| same for ex-Bowser Area |  | 5 nos. |
| <<Lot B>>Transmission and Distribution Pipe |  |  |
| Pipe Works |  |  |
| Transmission Main |  | 126,100 m |
| Transmission Sub-main |  | 24,300 m |
| Distribution Main |  | $326,700 \mathrm{~m}$ |
| Bridges |  | $1,955 \mathrm{~m}$ |
| Flowmeters |  | 35 nos. |
| <<Lot C>> Distribution Sub-System |  |  |
| Pipe Works |  |  |
| Distribution Sub-system |  | 330,000 m |
| Distribution Sub-system in ex-Bowser Area |  | 390,740 m |
| <<Lot D>> Vehicles |  |  |
| Vehicles |  | 7 types 16 nos. |
| <<Lot E>> Heavy Duty Machines |  |  |
| Heavy Duty Machines |  | 7 types 13 nos. |

ANNEX 3.1. ORGANIZATION CHART OF NWSDB


ANNEX 3.2. ORGANIZATION CHART OF PMU

Terms of Reference
ANNEX 3. IMPLEMENTATION SCHEDULE
The TOR shall cover Phase 2 D/D and T/A of the schedule below:

|  | 2015 |  |  |  |  |  | 2016 |  |  |  |  |  |  |  | 2017 |  |  |  |  |  |  |  | 2018 |  |  |  |  |  |  | 2019 |  |  |  |  |  |  | 2020 |  |  |  |  |  | Month |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $88^{81} 10{ }^{11} 112$ |  |  |  | $2{ }^{2} 3.4$ | $56$ |  |  |  |  |  |  |  |  | $\begin{array}{l\|l\|l\|l\|l\|} \hline 7 & 8 & 9 & 10 & 11 \\ \hline & 12 \\ \hline \end{array}$ |  |  | $12$ |  | 27 3 4 | $55^{6}$ |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <<Phase 2 D/D \& T/A for Wahalkada System>> |  |  |  |  |  |  |  |  |  |  | . | , |  |  |  | , | - |  | , |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Selection of Consultant (3) |  |  |  |  |  |  |  | 1. | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 3 |
| Execution of Consulting Services |  |  |  |  |  |  |  |  | 11 | 111 | 1111 | 111 | 11 | 11 | 11 | 11 | 1111 | 111 | 11 | 111 | 111 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 21 |
| Preparation of Detailed Design including prepara | ding | docu | en | nts (1 | (10) |  |  |  | 1. | 111 | 111 | 111 | 11 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 10 |
| Preparation of Prequalification Documents (2) |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2 |
| Prequalification (2) (Lot A and Lot B) |  |  |  |  |  |  |  |  |  |  |  |  |  | 11 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2 |
| Bidding (3) (Lot A) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 3 |
| Technical Evaluation (1) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |
| Financial Evaluation (1) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <<Phase 2 C/S for Wahalkada System>> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Selection of Consultant for C/S (20) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1. | 1.11 | 1.1 | 11 |  | 1. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 12 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 111 | 111 |  |  |
| Execution of Consulting Services (35) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 | 1.1 |  |  | 14. | 111 |  | 11 | 11.1 |  |  | 1.1 | 1.1 | 1.1 | - | 35 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Construction Schedule | 2015 |  |  |  |  |  | 2016 |  |  |  |  |  |  |  | 2017 |  |  |  |  |  |  | 2018 |  |  |  |  |  |  |  | 2019 |  |  |  |  |  |  | 2020 |  |  |  |  |  |  |
| Lot A: Intake, WTP, and Reservoirs |  |  |  |  |  |  | 0 |  |  |  |  |  |  |  | 0 |  |  |  |  |  |  |  | 9 |  |  |  |  |  |  | 11. | 12 |  |  |  |  |  | $9$ |  |  |  |  |  | 30 |
| Lot B: Transmission and Distribution Main |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |  |  | 10 |  |  |  |  |  |  |  | 12 |  |  |  |  |  |  | $11$ |  |  |  |  | 33 |
| Lot C: Distribution Sub-system |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $0$ |  |  |  |  |  |  |  | 10 |  |  |  |  |  | 1) 11 |  |  |  |  |  |  |  | $11$ |  |  |  |  |  | 33 |
| Lot D: Vehicles |  |  |  |  |  |  | $0$ |  |  |  |  |  |  |  | $0$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $111$ | 11 | $0$ | $11$ | $111$ | 6 |
| Lot E: Heavy Duty Machines |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\begin{array}{l\|l\|l\|lll}  & & & \\ \hline 1 & 1 & 1 & 1 & 1 & 1 \\ \hline \end{array}$ |  |  |  |  |  |  |  | $\qquad$ |  |  |  |  |  |  | $\qquad$ |  |  |  |  |  | 6 |

ANNEX5. ESTIMATED PERSON-MONTHS FOR CONSULTING SERVICES

|  | Position | PM |
| :---: | :---: | :---: |
| Pro-A Foreign Staff |  |  |
|  | Team Leader | 18.0 |
| 2 | Water Treatment Specialist | 3.0 |
| 3 | Civil Engineer - WTP | 10.0 |
| 4 | Civil Engineer - Pipelines 1 | 10.0 |
| 5 | Civil Engineer - Pipelines 2 | 7.0 |
| 6 | Mechanical Engineer | 6.0 |
|  | Electrical Engineer | 6.0 |
| 8 | Contract Specialist | 3.0 |
| 9 | Hydrologist | 2.0 |
|  | Sub-Total A | 65.0 |
| Pro-B Local Staff |  |  |
| 1 | Deputy Team Leader | 22.0 |
| 2 | Environmental Specialist | 1.5 |
| 3 | Geo-technical Engineer | 1.5 |
| 4 | Civil Engineer-1 for WTP1 | 10.0 |
| 5 | Civil Engineer-2 for Reservoirs \& Towers | 10.0 |
| 6 | Civil Engineer-3 for Pipelines1 | 10.0 |
|  | Civil Engineer-4 for Pipelines2 | 10.0 |
| 8 | Civil Engineer-5 for Pipelines3 | 8.0 |
| 9 | Civil Engineer-6 for Pipelines4 | 8.0 |
| 10 | Mechanical Engineer | 2.0 |
| 11 | Electrical Engineer | 2.0 |
| 12 | Instrumentation Engineer | 3.0 |
| 13 | Structural Engineer | 7.0 |
| 14 | Architect | 7.0 |
| 15 | Building Utilities Engineer | 3.0 |
| 16 | Chemist | 2.0 |
| 17 | Quantity Surveyor1 | 5.0 |
| 18 | Procurement Specialist | 5.0 |
| 19 | Public Awareness campaign Expert | 1.0 |
| 20 | IEC Specialist | 2.0 |
|  | Sub-Total B | 120.0 |
| Staff C. Project Office Support |  |  |
| 1 | Assistant Engineer | 20.0 |
| 2 | Inspector/Surveyor | 20.0 |
| 3 | CAD Operator | 68.0 |
| 4 | GIS Specialist | 3.0 |
| 5 | Office Manager | 22.0 |
| 6 | Accountant | 22.0 |
|  | Clerk | 22.0 |
| 8 | Office Aid | 22.0 |
|  | Sub-Total C | 199.0 |
|  | Total | 384.0 |

# Terms of Reference (TOR) 

## Construction Supervisory Services <br> for

Anuradhapura North Water Supply Project Phase 2

## 1. The Background including the Project Summary

### 1.1 Background

The Government of Sri Lanka will undertake the Anuradhapura North Water Supply Project Phase 2 (the ANWSP2) with financial assistance from the Japan International Cooperation Agency (hereinafter referred to as "JICA"). Anuradhapura is located about 250 km away from Colombo. The project area of ANWSP2 covers the six (6) Divisional Secretariat Divisions (DSDs) namely Kebithigollewa, Kahatagasdigiliya, Horowpothana and Padaviya for the Wahalkada Water Supply System, and Rambewa and Medawachchiya Anuradhapura District. The location map is attached as Annex 1. The objective of the Project is to provide safe drinking water to the area which does not have access to water supply system and to increase water supply coverage by constructing surface water systems in Anuradhapura North area where the people depend on unsafe ground water which causes dental and skeletal fluorosis, Chronic Kidney Diseases (CKD) and thereby contributing to improved hygienic status and health condition in the area.

### 1.2 Project Summary

The Project comprises the following sub scheme:
Wahalkada Water Supply Scheme which provides drinking water supply to the four (4) Divisional Secretariat Divisions (DSDs) namely Kebithigollewa, Kahatagasdigiliya, Horowpothana and Padaviya.

A part of Mahakanadarawa Water Supply Scheme which provides drinking water supply to the three (3) Divisional Secretariat Divisions (DSDs) namely Rambewa, a small part of Mihinthale, and Medawachchiya. Main part of Mahakanadarawa Water Supply Scheme will be constructed in the Anuradhapura North water Supply Project Phase 1 (ANWSP1). Distribution sub-systems in isolated areas in Rambewa and Medawachchiya will be included in ANWSP2.

The detail components of the Project are attached as Annex 2.

### 1.3 Project Implementation Arrangement

The National Water Supply and Drainage Board (NWSDB) will be the Project's Implementing Agency. The Executing Agency will be the Ministry of City Planning and Water Supply.

Project Management Unit (PMU) has been set up in NWSDB for project implementation. The PMU is headed by the Project Director who is reporting to the Additional General manager of Water Supply Project [Addl. GM WSP] of NWSDB.

## 2. The Consulting Services

The consulting services shall be provided by an international consulting firm (hereinafter referred to as "The Consultant") in association with national consultants in compliance with the Guidelines for the Employment of Consultants under Japanese ODA Loans (April 2012).

The Anuradhapura North Water Supply Project plans to be implemented under Japanese ODA loan and the Consulting Services consists of the following parts:

Construction Supervision, Safety Matter, Environmental Matters, Technology Transfer and Awareness Programmes of Wahalkada Water Supply System.

### 2.1 The Objectives of the Consultancy Assignment

The objective of the consulting services assignment is to achieve and ensure the quality and efficiency of the project implementation through the proper Construction supervision, Contract administration, Public awareness campaigns, and environmental matters of Wahalkada Water Supply System and the technology transfer and training for capacity building of NWSDB staff.

### 2.2 Funding Source for Consultancy Services

The Government of Sri Lanka intends to use part of the proceeds of the Japanese ODA Loan No. $\qquad$ for eligible payments for consulting services for which this TOR is issued.

### 2.3 The Scope of the Consulting Services

The Consultant shall perform his duties during the construction period in accordance with the contracts to be executed between NWSDB and the contractors (Packages A, B, C, D and E). FIDIC MDB Harmonized Edition (2010) complemented with the Specific Provisions as included in the Standard Bidding Documents under Japanese ODA Loans for Procurement of Works will be applied to the civil works of the Project. The Consultant shall function with the authorities and responsibilities of the role of Engineer's representative in case it is provided in the Contract Documents of this Project. In this context, the Consultant shall:
a) Act as the Engineer's Representative to execute construction supervision and contract administration services in accordance with the power and authority delegated by NWSDB
b) Review, analyse and make recommendations to the Employer concerning variations and claims which are to be ordered/issued by NWSDB;
c) Provide recommendation to NWSDB for acceptance of the Contractor's Performance security, advance payment security and required insurances.
d) Review and recommend for approval the proposal submitted by the contractors which include work program, method statements, material sources, manpower and equipment deployment. In light of Section 3.03 of Guidelines for the Employment of Consultants under Japanese ODA Loans (April 2012), the Consultant shall pay attention, in particular, to whether such proposals will meet the safety requirements set forth in the applicable laws and regulations, the specifications or other parts of the contract;
e) Make no design change at site unless any unforeseen situation.
f) Provide guidance for unforeseen matters.
g) Review, verify and further detail the design of the works, recommend to approve the Contractor's working drawings and if necessary, issue further drawings and/or give instructions to the Contractor;
h) Ensure that all the affected utility services are promptly relocated by the contractors.
i) Carry out field inspections on the contractor's setting out to ensure that the works are carried out in accordance with drawings and other design details and approve the same.
j) Direct and guide the supervising Engineering staff of the contractor to ensure adequate rate of progress and quality in the field.
k) Regularly monitor physical and financial progress against the milestones as per the contract so as to ensure completion of contract in time;
l) Supervise the works so that all the contractual requirements will be met by the contractors, including those in relation to i) quality of the works, ii) safety and iii) protection of the
environment. In light of Section 3.03 of Guidelines for the Employment of Consultants under Japanese ODA Loans (April 2012), the Consultant shall confirm that the accident prevention officer proposed by the contractor is duly assigned at the project site and that construction works are carried out according to the requirements set forth in the applicable laws and regulations, the specifications or other parts of the contract;
$\mathrm{m})$ Inspect all construction materials at site, check and verify quality test reports.
n) Supervise field tests, sampling and laboratory tests to be carried out by the contractors;
o) Develop checklist and other formats for the supervisory staff.
p) Review and approve the bar schedules submitted by the contractors.
q) Inspect the construction method, equipment to be used, workmanship and quality of work at the site.
r) Survey and measure the work output performed by the contractors and recommend to issue payment certificates such as interim payment certificates and final payment certificate as specified in the contract;
s) Coordinate the works among different contractors employed for the Project;
t) Assist NWSDB in coordinating with the external agencies including preparation of minutes of all meetings. It is very essential to have smooth continued coordination meetings with Road Authorities, Local Authorities, Utility Agencies such as Ceylon Electricity Board and Sri Lanka Telecom Ltd., NWSDB Operation and Maintenance (O\&M) Section, etc.
u) Conduct weekly progress meeting, preparation of minutes and reporting. This shall include critical review and advise on timely execution of Contractor's detail work programmes, machinery and manpower inputs, etc., and identification and advising on removal of hindrances and obstacles to smooth execution of the programmes.
v) Carry out timely reporting to NWSDB for any inconsistency in executing the works and suggest appropriate corrective measures to be applied;
w) Inspect, verify and determine claims issued by NWSDB in accordance with the civil works contract;
x) Perform the inspection of the works and recommend to issue certificates such as the Taking-Over Certificates, Performance Certificate as specified in the civil works and contract;
y) Supervise commissioning and carry out testing during commissioning;
z) Provide periodic and/or continuous inspection services during defects liability period and if any defects are noted, recommend to instruct the contractor to rectify;
aa) Check and recommend to certify as-built drawings for the parts of the works designed by the contractors, if any: Prepare and submit an operation and maintenance manual for the facilities constructed in the Project; and Prepare and submit reports to NWSDB, which are detailed in Clause 2.13 of the TOR in relation to the implementation of the Project.
bb) Prepare an efficient and effective strategy to provide water service connections to individual consumers during the construction period itself;
cc) Ensure a set up for better NRW management and maintenance;
dd) Conduct training program for O\&M staff during WTP commissioning;
ee) Prepare an asset registry,
ff) Assist to obtain approval from other organizations such as RDA, PRDA, Pradeshiya Saba, etc.,
gg) Evaluation and recommendation for approval of time extension claims, etc.,
hh) Coordination of works among the contractors engaged in the project including organizing, conducting and preparation of minutes for progress meetings, design review meetings and preparation of progress reports.
ii) Assist the Engineer in preparation of cash flow statements \& disbursement schedules
jj) All possible claims that may arise, for which notices given or not, should be identified in advance and action shall be taken to maintain detail contemporary records, as are reasonable and may be material to the claim, with the Consultant and the Contractor together with necessary signatures, etc.

### 2.4 Safety Measures

## The Consultant shall;

a) Review the safety plans submitted by the bidders from the point of view of securing the safety during the construction (Refer to Paragraph (2), Section 4.02 Scope of the Project and of the Consulting Services of the Guidelines for the Employment of Consultants under Japanese ODA Loans, April 2012).
b) Review the Programme submitted by the contractors from the point of view of securing the safety during the construction and requires them to submit further details, if necessary.
c) Confirm that an accident prevention officer proposed by the contractor is duly assigned at the project site during the supervision of the construction works and ensure the work is carried out according to the safety plan as well as the safety measures prescribed in the Programme. If consultants recognize any questions regarding the safety measures in general including the ones mentioned above, the consultants shall require the contractors to make appropriate improvements.
d) Supervise the contractor to implement an HIV-AIDS awareness programme of the contractor certainly.

### 2.5 Facilitation of Implementation of Environmental Monitoring Plan (EMoP) and Resettlement Action Plan (RAP)

The Consultant shall;
a) Supervise EMP implementation and undertake regular compliance monitoring to ensure that the civil works are implemented in accordance with the EMP; and
b) Assist NWSDB staff on environmental management through on-the-job training on environmental assessment techniques, mitigation measure planning, supervision and monitoring and reporting.
c) Further, when it becomes necessary, update and/or prepare RAP in accordance with the related JICA's guidelines as necessary based on detailed design in accordance with the agreed resettlement framework, including entitlement matrix and compensation plan, coordinate with various agencies in preparing the procedures for timely land acquisition and disbursement of compensation to affected persons; and
d) Update EMP and EMoP with the related JICA's guidelines, when it becomes necessary.

### 2.6 Technology Transfer

The Consultant shall carry out the technology transfer as an important aspect in design, construction supervision and O\&M works. The Consultant shall provide the opportunity to NWSDB offices and staffs to be involved in the working team of the Consultant during the supervision works for their capacity building wherever possible. If requested by NWSDB, the Consultant shall brief and demonstrate the construction supervision and contract management process and procedures. The consultant shall assist NWSDB and its staff to build their capacity as part of on-the-job training under the Project.

### 2.7 Training for Capacity Development of NWSDB's Staff

The objectives of capacity building and development are twofold. First is to enhance the capacity/ability of the RSC ( $\mathrm{NC} \mathrm{)} \mathrm{to} \mathrm{perform} \mathrm{the} \mathrm{activities} \mathrm{related} \mathrm{to} \mathrm{the} \mathrm{operation} \mathrm{and}$ maintenance of the newly constructed facilities. Second is to enhance the existing skills of key staff, as well as identified group(s) of personnel with the competencies required to manage, operate and maintain the new facilities/system thereby transforming organizational and individual potentials into actuality.

The Consultant shall:
a) Conceptualize and develop the five-year RSC(NC) Training Plan for implementation by the proposed Training Unit of the regional support centre;
b) Develop the training modules, materials and manuals for the following training programme/courses:

- The technical courses:
i) Project management;
ii) Water Treatment Plant Operations and Maintenance;
iii) Network Designs
- The non-technical courses:
i) Human Resources Management (focus on Training and Development);
ii) Public Information, Education and Communication;
iii) Trainer's Training
c) Use new technical software for design and construction of water supply systems and train the NWSDB staff for the above and all software should be handed over to NWSDB; and
d) Conduct the actual training for the identified training programmes (as enumerated) for the concerned / identified personnel of the RSC (NC) of NWSDB following the training needs analysis.


### 2.8 Guidance for Public Awareness Campaign

The purpose of public awareness campaign is to inform and educate the general public of the present situation of health damage in the project area caused by use of groundwater, the objectives of the proposed project, the importance of connection to a proposed water supply system under the project and payment of water tariff for sustainable operation and management of water supply facilities.

The Consultant shall:
a) Arrange the data on health damage in the project area focusing on dental and skeletal fluorosis and Chronic Kidney Diseases (CKD),
b) Analyse the demographic characteristics of the project area such as sex, age, ethnic, religion, occupation, income, coverage by water supply, sanitation and power supply, etc.,
c) Develop the strategy including approach and methodology to extend the Public Awareness Campaign which shall be prepared with considerations on gender and poverty to attain the well attendance of them.
d) Organize the public information and education campaign teams through selecting the staff mainly from NWSDB and being reinforced by the use of external resources as required,
e) Decide the assignment of respective staff in the public information and educational campaign,
f) Unify the campaign team through trial practice and brainstorming,
g) Hold the seminar/public information campaign at the date and place as scheduled at least twelve (12) times,
h) Improve \& adjust the content of the seminar according to the people's response at the previous seminar,
i) Prepare the report summarizing the public information and education campaign including the evaluation of the effect and recommendation for future extension of public awareness campaign, and
j) Raise awareness of farmers on water management.

### 2.9 Nature of and limit to the responsibilities, which the Consultant is to undergo

The Consultant shall perform the Services and carry out their obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted professional techniques and practices, and shall observe sound management practices, and deploy appropriate advance technology and safe and affectivity equipment, machinery, materials, computer software and methods. The Consultants shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers to the Employer, and shall at all times support and safeguard the Employer's legitimate interests in any dealings with sub consultants or third parties.

The Consultants shall obtain the Employer's prior approval in writing before taking any of the following actions:
a) Appointing such members of the personnel as listed in Section $\mathbf{2 . 1 1}$ merely by title but not by name;
b) Entering into a sub contract for the performance of any part of services, it being understood (a) that the selection of sub consultant and the terms and conditions of the sub contract shall have been approved in writing by the Employer prior to the execution of the sub contract, and (b) that the consultants shall remain fully liable for the performance of the services by the sub consultants and its personnel pursuant to this contract.
c) Any variation of the scope of the Consultancy Service
d) Any variation orders to the Contractor during Contract execution

In the process, it is necessary that detail diary extracts (including those of expatriate staff) are submitted to the Project Management Unit (PMU). Also during the construction stage, it is necessary that the Consultant's staff is available for supervision during Saturdays.

### 2.10 The Man Month Schedule and Expected Time Schedule

The team shall comprise Professional international consultants having allocated 42.5 personmonths and Professional local consultants having allocated 256.0 person-months maximum. The consultants will be engaged over 47 months duration of consulting services, including Defect Liability Period. Refer to Annex 3 for proposed Implementation Schedule.

All necessary Technical and Administrative supporting staff (having allocated 357.0 personmonths) should be provided by the consultant by referring to Annex 4.

It is the Consultant's responsibility to select the optimum team and to propose the professionals which he believes best meets the needs of NWSDB without exceeding total person months proposed for each category.

### 2.11 Qualification and Expertise Required and Detailed Scope of Works for Experts

Key Experts (International)

| Position | Qualification | Experience |
| :---: | :---: | :---: |
| Team Leader | Professionally Qualified Civil Engineer and Graduate (B.Sc.) in Civil Engineering/ construction or PE management and Masters/or PE Qualification in a relevant field and Should be a member of recognized professional Institution. | Total Experience <br> At least 20 years after graduation experience Project Related Experience <br> - At least 15 years' experience out of which 10 years' experience in Water Supply projects including; <br> a) Design <br> b) Project Management <br> c) Contract Management of major projects with ICB contracts <br> - At least ten years' experience in similar water supply Projects as a Team Leader of a project more than 25 million US\$ . |
| Water <br> Treatment Expert | Professionally Qualified Civil Engineer and Graduate (B.Sc.) in Civil Engineering and Masters/or PE Qualification in a relevant field and Should be a member of recognized professional Institution. | Total Experience <br> At least 15 years after graduation experience Project Related Experience <br> - At least 8 years' experience in design of water treatment plants and at least 3 years' experience in Operation and Maintenance of Water Supply Facilities <br> - Experience as a water treatment specialist in at least two urban water supply projects of which each having water treatment plants of capacity at least $20,000 \mathrm{~m}^{3} /$ day. |
| Civil Engineer (Water Transmission) | Professionally Qualified Civil Engineer and Graduate (B.Sc.) in Water Supply/ Sanitation/Civil Engineering and related field and Should be a member of recognized professional Institution. | Total Experience <br> At least 15 years' experience <br> Project Related Experience <br> - At least 10 years' experience in design/ operation and maintenance of Water Supply transmission Facilities including minimum 8 years' experience in water supply design. <br> - Experience as a Civil Engineer in at least two urban water supply projects of which each having more than 200 km transmission/distribution system. <br> - Experience in ICB contract is desirable. |


| Position | Qualification | Experience |
| :---: | :---: | :---: |
| Mechanical Engineer | Professionally Qualified Mechanical Engineer Graduate (B.Sc.) in Mechanical Engineering and related field Should be a member of recognized professional Institution. | Total Experience <br> At least 15 years <br> Project Related Experience <br> - At least 7 years' experience in design/ operation and maintenance of Water Supply Facilities and related field <br> -Experience as a Mechanical Engineer in four urban water supply projects of which each contract amount is more than 5 million US\$. <br> -Experience in ICB contract is desirable -two urban water supply projects |
| Electrical Engineer | Professionally .Qualified Electrical Engineer Graduate (B.Sc,) in Electrical Engineering and related field and Should be a member of recognized professional Institution. | Total Experience <br> At least 15 years <br> Project Related Experience <br> - At least 7 years’ experience in design/ operation and maintenance of Water Supply Facilities and related field <br> - Experience as an Electrical Engineer in four urban water supply projects of which each contract amount is 5 million US\$. <br> - Experience in ICB contract -two urban water supply projects |

Key Experts (Local)

| Position | Qualification | Experience |
| :--- | :--- | :--- |
| Deputy Team <br> Leader | Chartered Civil Engineer <br> and Graduate (B.Sc.) or <br> equivalent in Civil <br> Engineering/ and Masters <br> Qualification <br> in a relevant field. | Total Experience <br> At least 20 years after graduation <br> experience <br> Project Related Experience <br> -At least 15 years’ experience <br> combined experience in Water Supply <br> projects including; <br> (i) Design <br> (ii) Project Management <br> (iii) Contract Management of major <br> projects with ICB contracts <br> - At least 5 years' experience in similar <br> water supply Projects as a Deputy Team <br> Leader of a project more than 15 |
| million US\$ |  |  |


| Position | Qualification | Experience |
| :---: | :---: | :---: |
| Civil Engineer (Reservoirs, Pumping Stations, Towers, Transmission \& Distribution) | CharteredCivil Engineer and Graduate (B.Sc.) or equivalent in Water Supply/ Sanitation/Civil Engineering and related field | Total Experience <br> At least 15 years aftergraduation experience <br> Project Related Experience <br> - At least 10 years' experience in design/ operation and maintenance of Water Supply transmission Facilities <br> - Experience as a civil Engineer in two urban water supply projects of which each contract amount is more than 5 million US\$. <br> - Experience in ICB contract is desirable. |
| Mechanical Engineer | Mechanical Engineer Graduate (B.Sc.) or equivalent in Mechanical Engineering and related field | Total Experience <br> Atleast 15years after graduation experience <br> Project Related Experience <br> - At least 7years' experience in design/ operation and maintenance of Water Supply Facilities and related field <br> - Experience as a Mechanical Engineer in four urban water supplyprojects of which each contract amount is more than 5 million US\$ <br> - Experience in ICB contract is desirable -two urban water supply projects |
| Electrical Engineer | Electrical Engineer Graduate (B.Sc.) or equivalent in Electrical Engineering and related field | Total Experience <br> Atleast 15years aftergraduation experience <br> Project Related Experience <br> - At least 7 years'experience in design/ operation and maintenance of Water Supply Facilities and related field <br> - Experience as an Electrical Engineer in foururban watersupplyprojects of which each contractamount is 5 million US\$. <br> - Experience in ICB contract -two urban water supply projects |

Other Experts (Local)

| Position | Qualification | Experience |
| :---: | :---: | :---: |
| Procurement Specialist | Graduate in Civil Engineering (B.Sc.) or equivalent and Masters Qualification inproject management and Diploma in Procurement and construction claims | Total Experience <br> At least 15 years after graduation experience <br> Project Related Experience <br> - At least 7 years' experience as a Procurement Specialist <br> - Experience in two urban water supply projects of which each having ICB contract more than 10 million US\$. <br> - Experience in JICA projects is |
| Environmental Specialist | Bachelor degree in <br> Engineering/environmental science/Agriculture | Total Experience <br> At least 15 years after graduation experience <br> Project Related Experience <br> - Not less than 6 years’ experience in environmental Assessments with reference to water pollution, waste water, sanitation, and the impact of construction works and at least two years' experience with a recognized consulting firm/National water utility Organization |
| Public <br> Awareness <br> Campaign <br> Specialist | Bachelor degree in Social Science | Total Experience <br> At least 10 years after graduation experience <br> Project Related Experience <br> - At least 2 years’ experience with a recognized consulting firm /National water utility Organization <br> - Having experience in conducting Public awareness campaigns |
| IEC Specialist | Bachelor degree in Social Science | Total Experience <br> At least 10 years after graduation experience <br> Project Related Experience <br> - At least 2 years' experience with a recognized consulting firm /National water utility Organization <br> - Having experience in conducting Public awareness campaigns |


| Architect | Professionally qualified graduate Architect and should be a member of recognized professional institution | Total Experience <br> - At least 10 years after graduation experience <br> Project Related Experience <br> - Not less than 5 years' experience in architectural buildings and industrial/ water or wastewater treatment plant plans, familiar with green building techniques \& practice on energy efficient buildings and at least 2 years' experience with a recognized consulting firm |
| :---: | :---: | :---: |
| Quantity Surveyor | Professionally qualified Quantity Surveyor with Bachelor degree or equivalent in Quantity surveyingand should be a member of recognized professional institution | Total Experience: <br> At least 10 years after graduation experience <br> Project Related Experience: <br> - At least 2 years' experience in water treatment plant estimates with a recognized consulting firm//National water utility Organization <br> Note: <br> An input of 8 man months of a Quantity Surveyor (local) shall be allocated exclusively for the use of Planning \& Design Section in Head Office. |
| MicroBiologist Chemist | A graduate in the relevant field with a Master Degree in Micro- Biology/ Chemistry/ Limnology | TotalExperience: <br> At least 10 years after graduation experience <br> Project Related Experience <br> - Not less than 10 years' experience in the drinking water sector specially in enumeration of Algae and other constituents/species in impounded water bodies with emphasis on Algae \& Cynobacteria control and at least five years in recognized consulting firm |

### 2.12 Task of the Experts

### 2.12.1 The Tasks of the Key Experts

## International Experts

The specific tasks include, but not limited to;

Position<br>Team Leader

1. Shall bear the overall responsibility and shall represents the project Consultant's Team in all matters relating to the performance of services, coordinating with all other consultant's staff to deliver excellent product during the stipulated time schedule.
2. Shall oversee and Supervise the Consultant's services
3. Assume direct responsibility for day-to-day consulting services including day to day management of all consultants' staff and coordination among and with them.
4. Review existing studies/documents and other resources available and formulate a best implementation approach including programmatic project schedule;
5. Contract management and administration;
6. Develop and implement quality assurance programme;
7. Recommend contract payments;
8. Review, analyse and make recommendations to the Employer concerning variations and claims which are to be ordered/issued by NWSDB;
9. Recommend to issue the commencement order to the Contractors;
10. Evaluation of time extension claims and make recommendations
11. Provide recommendation to NWSDB for acceptance of the Contractor's Performance security, advance payment security and required insurances.
12. Explain and/or adjust ambiguities and/or discrepancies in the Contract Documents and recommend to issue any necessary clarifications or instructions;
13. Review, verify and further detail the design of the works, recommend to approve the Contractors' working drawings and if necessary, issue further drawings and/or give instructions to the Contractor;
14. Review and recommend to approve the proposals submitted by the contractors
15. Make necessary design changes and amendments at site
16. Provide guidance for unforeseen matters.
17. Progress reporting
18. Prepare necessary documentation to obtain approval from all concerned authorities such as local authorities, Provincial Road Authority, Road Development Authority, Ceylon Electricity Board, Central Environmental Authority, Telecom, Police or any other related institutions for laying pipes and construction of other structures;
19. Present designs, Progress of works at agreed time schedules and milestones to NWSDB staff and other stakeholders including arranging of field trips if necessary
20. Briefly present and demonstrate the studies, surveys, design procedures, treatment process, conceptual designs, detailed designs, and contract management process and procedures to NWSDB staff
21. Prepare Asset registry;
22. Prepare institutional arrangement for $\mathrm{O} \& \mathrm{M}$;
23. Prepare training programmes for NWSDB designs, construction supervision and O\&M staff and organize and conduct the training.
24. Certify all the drawings, BOQs, Cost Estimates and specifications
25. Ensure the safety conditions at work sites
26. Supervise commissioning and carry out testing during commissioning;
27. Review O\&M manuals
28. Develop a course module on project management including project coordination, contract administration, over-all supervision over the implementation of the project and conduct 3 days Project Management Training Course for the NWSDB project staff
29. Conduct training needs analysis for RSC-NC as the basis for the training plan and arrange to conduct the identified training programmes (as enumerated) for the concerned/identified personnel of the RSC-NC of NWSDB following the training needs analysis.
Water
Treatment
Expert

Mechanical 1. Check the shop drawings submitted by the contractors Engineer
2. Assess the substitution of products proposed by the contracts

Electrical 1. Assess the power requirements and establish power availability and assist
3. Assist during the commissioning of project components
4. Assist Team Leader for preparation of O\&M manuals
5. Direct the local Mechanical Engineers in their day-to-day activities
6. Supervise the installation works of mechanical equipment
7. Attend the trial operation of mechanical equipment
8. Check the performance of an instrumentation system.
9. Support the O\&M training NWSDB staff obtaining the requirement from CEB;
2. Assist during commission of project components
3. Assist Team Leader for preparation of O\&M manuals
4. Direct the local Electrical Engineers in their day to day activities
5. Check the shop drawings submitted by the contractors
6. Assess the substitution of products proposed by the contractors
7. Supervise the installation work of Electrical equipment
8. Attend the trial operations of Electro-mechanical equipment
9. Check all the performance of an instrumentation system
10. Support the O\&M training

Position

Structural
Specialist

Main Tasks

1. Shall assist the Team Leader in all matters relating to the performance of services.
2. Shall assist the Team Leader to oversee and supervise the Consultant's services
3. Assumes direct responsibility for day-to-day consulting services including day to day management of all consultants’ staff during the absence of the team leader
4. Ensure site safety requirements
5. Conduct weekly progress meetings at sites, preparation of minutes and reporting. This shall include critical review and advice on timely execution of Contractor's detail work programmes, machinery and manpower inputs etc., and identification and advising on removal of hindrances and obstacles to smooth execution of the programmes.
6. Inspect all construction material at site, check and verify quality test reports.
7. Supervise field test, sampling and laboratory test to be carried out by the contractors;
8. Develop checklist \& other formats for the supervisory staff (NWSDB staff)
9. Review and approve the bas schedules submitted by the contractors.
10. Inspect the construction method, equipment to be used workmanship at the sites
11. Ensure Quality assurance and control of plant, materials and workmanships at the sites.
12. Supervise the commissioning and carry out testing during commission;
13. Prepare O\&M manuals and construction record drawings (As Built Drawings)
14. Prepare an efficient and effective strategy to provide water service connections to individual consumers during the construction period itself
15. Ensure a set up for better NRW management and maintenance
16. Provide periodic and/or continuous inspection of services during defects liability period and if any defects are noted, recommend to instruct to contractor to rectify;
17. Identify the necessary soil investigations required for the structural designs and administer such work
18. Liaise with other specialists to ensure consistent philosophy and integrated approach to the design
19. Provide necessary advises to carry out all construction works in order to comply with the design codes

Position Civil Engineer (Intake \& Water Treatment Plant)

Civil Engineer
(Reservoirs, Pumping Stations, Towers, Transmission \& Distribution)

Mechanical
Engineer

Electrical
Engineer

Main Tasks

1. Assist the Deputy Team Leader in contract supervision of the water treatment plants including water intake facilities
2. Assist the Deputy Team Leader in inspection all construction materials at site, check and verify quality test reports of the water treatment including water intake facilities.
3. Assist the Deputy team leader in supervise field tests, sampling and laboratory test to be carried out by the contractors of the water treatment plant including water intake facilities;
4. Assist the Deputy Team Leader in developing a checklist \& other formats for the supervisory staff. (NWSDB Staff) of the water treatment plant including water intake facilities;
5. Assist the Deputy Team Leader in reviewing and approving the bar schedules submitted by the contractors of the water treatment plant including water intake facilities;
6. Assist the Deputy Team Leader in inspecting the construction method, equipment to be used, workmanship at the sites of the water treatment plant including water intake facilities;
7. Assist the Deputy Team Leader in quality assurance and control of plant, materials and workmanship at sites of the water treatment plant including water intake facilities;
8. Assist the Deputy Team Leader in supervising the commissioning and carrying out of testing during commissioning of the water treatment plant including water intake facilities;
9. Assist the Deputy Team Leader in contract supervision of the Reservoirs, PS, Towers Transmission \& Distribution System;
10. Assist the Deputy Team Leader in inspecting all construction materials, at site; check and verify quality test reports of Reservoirs, PS, Towers Transmission \& Distribution System;
11. Assist the Deputy Team Leader in supervising field tests, sampling and laboratory test to be carried out by the contractors of the Reservoirs, PS, Tower Transmission \& Distribution System;
12. Assist the Deputy Team Leader in developing a checklist \& other formats for the supervisory staff (NWSDB staff) of the Reservoirs, PS, Tower Transmission \& Distribution System;
13. Assist the Deputy Team Leader in reviewing and approving the bar schedules submitted by the contractors of Reservoirs, PS, Tower Transmission \& Distribution System;
14. Assist the Deputy Team Leader in inspecting the construction method, equipment to be used, workmanship at the sites of the Reservoirs, PS, Tower Transmission \& Distribution System;
15. Assist the Deputy Team Leader in quality assurance and control of plant, materials and workmanship at sites of the Reservoirs, PS, Tower Transmission \& Distribution System;
16. Assist the Deputy Team Leader in supervising the commissioning and carry out testing during commissioning of the Reservoirs, PS, Tower Transmission \& Distribution System;
17. Check the shop drawings submitted by the contractors
18. Assess the substitution of products proposed by the contractors
19. Supervisethe installation work of mechanical equipment
20. Attend the trial operations and testing's of mechanical equipment
21. Supportthe O\&Mtraining
22. Check the shop drawings submitted by the contractors
23. Assessment of the power requirements and establish power availability and assist NWSDB staff obtaining the requirement from CEB;
24. Assist during commissioning of project components

Main Tasks
4. Assist Team Leader for preparation of O\&M manuals
5. Assess the substitution of products proposed by the contractors
6. Supervise the installation work of Electrical equipment
7. Attend the trial operation of Electro-mechanical equipment
8. Check the performance of a instrumentation system
9. Support the O\&M training

### 2.12.2 The Tasks of the other Experts

Position
Environmental
Specialist
Procurement
Specialist

1. Update Environmental management Plan (EMP)
2. Prepare programs and strategies to improve/protect these catchments with short term/long term perspectives in consultation with other experts
3. Prepare pre-qualification requirements and evaluation;
4. Prepare bidding documents compliant with JICA's latest standard bidding requirements
5. Design post-qualification criteria which should comply with JICA's guidelines
6. Organize and identify with NWSDB staff in contract packaging and preparing procurement time schedules for each contract package in consultation with project staff
7. Prepare sample Evaluation Reports to ensure JICA's and GOSL requirements are satisfied
8. Assist the TEC members during evaluation

Architect 1. Supervise and confirm that all water treatment plants, waste water treatment plants, pump houses and intakes, landscaping treatment plants, towers and intake facilities shall be constructed as per specifications.
2. Supervise the contractor to follow the specification for interior decorations including interior lighting, selecting furniture for plant offices, colour coding and painting of structures, exterior lighting etc.
3. Design necessary buffer zones and other architectural features for noise and odour control
Quantity

1. Confirmation of work norms and material/day work schedule

Surveyor
Public
Awareness
Campaign
Specialist
2. Checking relevant documents for contractors' claims and variations
3. Prepare of cost estimates

1. Analyse the demographic characteristics of the project area such as sex, age, ethnic, occupation, income, coverage by water supply, sanitation and power supply, etc.
2. Arrange the data on health damage in the project area focusing on dental and skeletal fluorosis and chronic kidney diseases (CKD)
3. Develop the strategy including approach and methodology to extend the public awareness campaign
4. Organize the public information and education campaign teams through selecting the staff mainly from NWSB and being reinforced by the use of external resources as required
5. Decide the assignment of respective staff in the public information and education campaign
6. Unify the campaign team through trial practice and brainstorming
7. Design, implement, and monitor the public awareness campaigns for farmers and arrange site visits to farmer organizations leaders and other relevant stake holders for inspection of water treatment plants.
8. Develop methods of mobilizing community participation in the design, management, construction, and O\&M of community water supply and sanitation;
9. Conduct public awareness campaigns / seminar at the date and places as scheduled at least twelve (12) times on issues related to water conservation,

| Position Main Tasks |  |
| :--- | :--- |
|  | reduction of NRW, efficient irrigation water management practices for farmers, <br> importance of pipe born water, water related diseases, catchment protection, <br> preventing water pollution and sanitation in household level. |
| 10. Improve and adjust the content of the seminar according to the people’s response |  |
| at the previous seminar. |  |

### 2.13 The Reports and Documents

Within the scope of consulting supervisory services, the Consultant shall prepare and submit reports and documents to Project Director/Project Manager in charge in NWSDB as shown in Table 2.13. The Consultant shall provide electronic copy of each of these reports.

Table 2.13 Reports and Documents

| Stage | Type of Report | Timing | No. of |
| :---: | :---: | :---: | :---: |
| Consultancy Services | Monthly Progress Report | Every month (by the $10^{\text {th }}$ day of next month | Copies <br> 10 |
| Construction Supervision | Operation and maintenance | One month after the | 10 |
|  | Manual | commissioning of the plant |  |
|  | Construction Completion <br> Report ( and As-Built <br> drawing, if any) | Within 1 month after completion of Commissioning | 10 |
|  | Project Completion Report (for submission to JICA) | At the end of the services | 10 |
| Training | Training Plan | At appropriate timing in accordance with the Inception Report | 10 |
|  | Training Execution and Evaluation Report | Within 1 month after training | 10 |
| Other Report | Technical Report | As required or upon request | As |

Contents to be included in each report are as follows:
a) Monthly Progress Report:

Shall briefly describe all the activities carried out and progress for the previous month. Problems encountered or anticipated will be clearly stated, together with actions to be taken or recommendations on remedial measures for correction. Also indicates the work to be performed during the coming month.
b) Operation and Maintenance Manual:

Shall contain technical procedures for the appropriate operation and maintenance of all project facilities
c) Construction CompletionReport:

Shall comprise full size As-Built drawings for all the structures and facilities completed in a format appropriate to the Employer, and the final details of the construction completed together with all data, records material tests results, field books
d) Project Completion Report (for Submission to JICA):

Shall comprise a full report of the project according to JICA requirements

## 3. Client's input and Counterpart Personnel

A certain range of arrangements and services will be provided by NWSDB to the Consultant for smooth implementation of the Consulting Services. In this context, NWSDB will:

## (1) Report and data

Make available to the Consultant existing reports and data available with NWSDB related to the Project as required.
(2) Office Space

During the construction stage, the consultants shall have their own offices with necessary equipment, furniture and utility and shall accommodate the office space for NWSDB project staff and counterpart officials. The Consultant's requirement for
office space, office rental including necessary equipment, furniture and utilities, should be clearly stated in the proposal with cost for providing such facilities. Such equipment and furniture shall be handed over to employer after completion of the project.
(3) Cooperation and counterpart staff

The Client shall provide the following counterpart officials for effective implementation of the Consulting Services:

01 No. Engineer (civil)
01 No. Engineering Assistant (civil)
(4) Assistance and exemption

Use its best efforts to ensure that the assistance and exemption, as described in the Standard Request for Proposal issued by JICA, will be provided to the Consultant, in relation to

- Work permit and such other documents;
- Entry and exit visas, residence permits, exchange permits and such other documents
- Clearance through customs;
- Instruction and information to officials, agent and representatives of the Sri Lankan Government;
- Exemption from any requirement for registration to practice their profession;
- Privilege pursuant to the applicable law in Sri Lanka.

ANNEX 1. LOCATION MAP


## ANNEX 2. PROJECT COMPONENTS

| COMPONENT ITEMS |  | QUANTITY |
| :---: | :---: | :---: |
| <<Lot A>> Intake, WTP, Reservoirs |  |  |
| Intake | Capacity: | 28,800m ${ }^{3} / \mathrm{d}$ |
| WTP | Capacity: | $15,000 \mathrm{~m}^{3} / \mathrm{d}$ |
| Elevated Tanks and Ground Sumps |  |  |
| Elevated Tanks and Reservoirs |  | 16 nos. |
| same for Isolated Area |  | 5 nos. |
| <<Lot B>> Transmission and Distribution Pipe |  |  |
| Pipe Works |  |  |
| Transmission Main |  | 126,100 m |
| Transmission Sub-main |  | 24,300 m |
| Distribution Main |  | 326,700 m |
| Pipe Bridges |  | $1,955 \mathrm{~m}$ |
| Flowmeters |  | 35 nos. |
| <<Lot C>> Distribution Sub-System |  |  |
| Pipe Works |  |  |
| Distribution Sub-systems |  | 330,000 m |
| Distribution Sub-systems in Isolated Areas |  | $390,740 \mathrm{~m}$ |
| <<Lot D>> Vehicles |  |  |
| Vehicles |  | 7 types 16 nos. |
| <<Lot E>> Heavy Duty Machines |  |  |
| Heavy Duty Machines |  | 7 types 13 nos. |

The TOR shall cover Phase $2 \mathrm{C} / \mathrm{S}$ of the schedule below:

|  |  | 2015 |  |  |  |  | 201 | 16 |  |  |  |  | 201 |  |  |  |  |  | 2018 |  |  |  |  | 2019 |  |  |  |  | 2020 | Month |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 12345 | 667 | $1 \cdot$ | 9101112 |  | 234 | 56 | 78 | 4.10 | 101112 |  | 234 | 56 | 78 | 410 | 1112 |  | $23 \cdot 46$ | 567 | 18. | $910111{ }^{12}$ | 121 | 2 3145 | 56 | 78 | [10 11112 |  | 23145 |  |  |
|  | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | , |  |
| <<Phase 2 D/D \& T/A for Wahalkada System>> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Selection of Consultant (3) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 3 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Execution of Consulting Services |  |  |  |  |  |  |  |  |  | 111 | 1. | 14 | 41 | $\underline{1+}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 21 |
| Preparation of Detailed Design including preparation | bdding docu | ments | s (10) |  |  |  | 11 | 11 | 111 | 111 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 10 |
| Preparation of Prequalification Documents ( 2) | $\square$ |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2 |
| Prequalification (2) (Lot A and Lot B) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2 |
| Bidding (3) (Lot A) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 3 |
| Technical Evaluation (1) |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |
| Financial Evaluation (1) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <<Phase 2 C/S for Wahalkada System>> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Selection of Consultant for C/S (20) |  |  |  |  |  |  |  |  |  |  |  | 111 | 11 | 11 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 12 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 111111 |  |
| Execution of Consulting Services (35) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 35 |
| Construction Schedule |  | 2015 |  |  |  |  | 201 | 16 |  |  |  |  | 201 |  |  |  |  |  | 2018 |  |  |  |  | 2019 |  |  |  |  | 2020 |  |
| Lot A: Intake, WTP, and Reservoirs | 111 |  |  | 11 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1911 |  |  |  | 1111 | 12 12 |  |  |  | 1.111 | $\begin{gathered} 9 \\ \|1\| 1 \mid \end{gathered}$ | 30 |
| Lot B: Transmission and Distribution Main | $11$ |  |  | $11$ |  |  |  |  |  |  |  | $11$ |  |  |  |  |  | $111$ | 10 |  | $1111$ |  | $\begin{array}{\|l\|l\|l\|} \hline 1 & 1 & 1 \\ \hline \end{array}$ | 12 $1: 1 \mid 1$ |  | 1\| 1 |: 1 |  |  | $11$ $\begin{array}{l\|l\|l\|l\|l\|} \hline 11 & \\ \hline 1 & 1 & 1 & 1 & 1 \\ \hline \end{array}$ | 33 |
| Lot C: Distribution Sub-system | 111 |  |  | $111$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 10 |  |  |  |  | 12 |  |  |  |  | $11$ | 33 |
| Lot D: Vehicles | $114$ |  |  |  |  |  |  |  |  |  |  | $11$ |  |  |  |  |  | $1111$ | $\begin{gathered} 6 \\ 111 \\ \hline \end{gathered}$ |  | $111$ |  | $11$ |  |  | $111$ |  | $111$ | $0$ | 6 |
| Lot E: Heavy Duty Machines | 1H1 |  |  | 1 |  |  |  |  |  |  |  | $11$ |  |  |  |  |  | $1\|\|1\| 1$ | $\begin{array}{r} 6 \\ 11 \\ \hline \end{array}$ | $1$ | $11$ |  | $11$ |  | $11$ | $11$ |  |  |  | 6 |

ANNEX 4. ESTIMATED PERSON-MONTHS FOR CONSULTING SERVICES

|  | Position | PM |
| :---: | :---: | :---: |
| Pro-A Foreign Staff |  |  |
| 1 | Team Leader | 33.0 |
| 2 | Water Treatment Specialist | 2.5 |
| 3 | Civil Engineer - WTP | 0.0 |
| 4 | Civil Engineer - Pipelines 1 | 0.0 |
| 5 | Civil Engineer - Pipelines 2 | 0.0 |
| 6 | Mechanical Engineer | 3.5 |
| 7 | Electrical Engineer | 3.5 |
| 8 | Contract Specialist | 0.0 |
| 9 | Hydrologist | 0.0 |
|  | Sub-Total A | 42.5 |
| Pro-B Local Staff |  |  |
| 1 | Deputy Team Leader | 36.0 |
| 2 | Environmental Specialist | 3.5 |
| 3 | Geo-technical Engineer | 0.0 |
| 4 | Civil Engineer-1 for WTP1 | 30.0 |
| 5 | Civil Engineer-2 for Reservoirs \& Towers | 30.0 |
| 6 | Civil Engineer-3 for Pipelines1 | 35.0 |
| 7 | Civil Engineer-4 for Pipelines2 | 30.0 |
| 8 | Civil Engineer-5 for Pipelines3 | 0.0 |
| 9 | Civil Engineer-6 for Pipelines4 | 0.0 |
| 10 | Mechanical Engineer | 4.5 |
| 11 | Electrical Engineer | 4.5 |
| 12 | Instrumentation Engineer | 1.5 |
| 13 | Structural Engineer | 2.0 |
| 14 | Architect | 4.0 |
| 15 | Building Utilities Engineer | 1.0 |
| 16 | Chemist | 2.0 |
| 17 | Quantity Surveyor1 | 35.0 |
| 18 | Quantity Surveyor2 | 29.0 |
| 19 | Procurement Specialist | 1.0 |
| 20 | Training Expert | 1.0 |
| 21 | Public Awareness campaign Expert | 3.0 |
| 22 | IEC Specialist | 3.0 |
|  | Sub-Total B | 256.0 |
| Staff C. Project Office Support |  |  |
| 1 | Assistant Engineer | 35.0 |
| 2 | Inspector/Surveyor | 147.0 |
| 3 | CAD Operator | 35.0 |
| 4 | GIS Specialist | 0.0 |
| 5 | Office Manager | 35.0 |
| 6 | Accountant | 35.0 |
| 7 | Clerk | 35.0 |
| 8 | Office Aid | 35.0 |
|  | Sub-Total C | 357.0 |
|  | Total | 655.5 |

Manning Schedule of the Consulting Services for Phase 2


## Appendix 4.3-1

\section*{Base Cost of Cpnstruction Work of Phase 2 Wahalkada Water Supply System <br> | 1 USD $=$ | 120.1 | JPY |
| :--- | :--- | :--- |
| 1 USD $=$ | 139.0 | LKR |
| 1 LKR $=$ | 0.864 | JPY |}


| $\begin{array}{\|l\|} \hline \text { Packag } \\ \mathrm{e} \\ \hline \end{array}$ | Item | Specifications | Amount |  |  | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | JPY | LKR | Total JPY |  |
| Grand Total |  |  | 5,817,879,000 | 9,586,664,000 | 14,100,755,000 |  |
| A | Lot A: Intake, WTP, Reservoirs |  | 1,371,127,000 | 3,979,613,000 | 4,809,512,000 |  |
| B | Lot B: Transmission and Distribution Pipe |  | 4,109,327,000 | 3,061,695,000 | 6,754,631,000 |  |
| C | Lot C: Distribution Sub-system |  | 337,425,000 | 2,466,266,000 | 2,468,278,000 |  |
| D | Lot D: Vehicles |  | 0 | 63,440,000 | 54,812,000 |  |
| E | Lot E: Heavy Duty Machines |  | 0 | 15,650,000 | 13,522,000 |  |
|  |  |  |  |  |  |  |
| A | <<Lot A>> Intake, WTP, Reservoirs |  | 1,371,127,000 | 3,979,613,000 | 4,809,512,000 |  |
| A-1 | Intake |  | 79,025,000 | 208,104,000 | 258,827,000 |  |
| A-2 | WTP |  | 782,331,000 | 1,370,674,000 | 1,966,593,000 |  |
| A-3 | Elevated Tanks and Ground Sumps |  | 509,771,000 | 2,400,835,000 | 2,584,092,000 |  |
|  |  |  |  |  |  |  |
| B | <<Lot B>>Transmission and Distribution Pipe |  | 4,109,327,000 | 3,061,695,000 | 6,754,631,000 |  |
| B-1 | Transmission Sub-main |  | 2,478,743,000 | 1,207,722,000 | 3,522,215,000 |  |
| B-2 |  |  | 63,894,000 | 91,625,000 | 143,058,000 |  |
| B-3 | Distribution Main |  | 1,563,998,000 | 1,662,969,000 | 3,000,803,000 |  |
| B-4 | Miscellaneous works |  | 2,692,000 | 99,379,000 | 88,555,000 |  |
|  |  |  |  |  |  |  |
| C | <<Lot C>>Distribution Sub-System |  | 337,425,000 | 2,466,266,000 | 2,468,278,000 |  |
| C-1 | Distribution Sub-system |  | 135,116,000 | 954,706,000 | 959,982,000 |  |
| C-2 | Miscellaneous Works |  | 1,795,000 | 90,668,000 | 80,132,000 |  |
| C-3 | ex-Bowser Area in Phase1 |  | 73,743,000 | 489,792,000 | 496,923,000 |  |
| C-4 | ex-Bowser Area in Phase2 |  | 126,771,000 | 931,100,000 | 931,241,000 |  |
|  |  |  |  |  |  |  |
| D | <<Lot D>> Vehicles |  | 0 | 63,440,000 | 54,812,000 |  |
| D-1 | Vehicles | 7 types 16nos. | 0 | 63,440,000 | 54,812,000 |  |
|  |  |  |  |  |  |  |
| E | <<Lot E>> Heavy Duty Machines |  | 0 | 15,650,000 | 13,522,000 |  |
| E-1 | Heavy Duty Machines | 7 types 13 nos. | 0 | 15,650,000 | 13,522,000 |  |



Lot A-1
Lot A-1

| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| A-1 | Intake |  |  |  |  |  | 79,025,000 | 208,104,000 | 258,827,000 |  |
| A-1-1 | Civil Works for Intake |  | LS | 1 |  |  | 1,681,000 | 173,441,000 | 151,534,000 |  |
| A-1-2 | Mechanical Works for Intake |  | LS | 1 |  |  | 52,844,000 | 20,636,000 | 70,674,000 |  |
| A-1-3 | Electrical Works for Intake |  | LS | 1 |  |  | 24,500,000 | 14,027,000 | 36,619,000 |  |
| A-1-1 | Civil Works for Intake |  |  |  |  |  | 1,681,000 | 173,441,000 | 151,534,000 |  |
| A-1-1 | Civil Works for Intake |  | Ls | 1 |  |  | 1,681,000 | 173,441,000 | 151,534,000 |  |
| A-1-2 | Mechanical Works for Intake |  |  |  |  |  | 52,844,000 | 20,636,000 | 70,674,000 |  |
| A-1-2 | Mechanical Works for Intake |  | Ls | 1 |  |  | 52,844,000 | 20,636,000 | 70,674,000 |  |
| A-1-3 | Electrical Works for Intake |  |  |  |  |  | 24,500,000 | 14,027,000 | 36,619,000 |  |
| A-1-3 | Electrical Works for Intake |  | Ls | 1 |  |  | 24,500,000 | 14,027,000 | 36,619,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |

Lot A-2

|  |  | Specifications |  |  | Unit Price |  | Amount |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Code | Item | Specifications | Unit | Quantiy | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| A-2 | WTP |  |  |  |  |  | 782,331,000 | 1,370,674,000 | 1,966,593,000 |  |
| A-2-1 | Civil Works for WTP |  | Ls | 1 |  |  | 62,932,000 | 1,031,550,000 | 954,191,000 |  |
| A-2-2 | Mechanical Works for WTP |  | Ls | 1 |  |  | 490,488,000 | 179,566,000 | 645,633,000 |  |
| A-2-3 | Electrical Works for WTP |  | Ls | 1 |  |  | 228,911,000 | 159,558,000 | 366,769,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| A-2-1 | Civil Works for WTP |  |  |  |  |  | 62,932,000 | 1,031,550,000 | 954,192,000 |  |
| A-2-1-1 | Site Work (including Intake Site) |  | Ls | 1 |  |  | 0 | 278,863,000 | 240,938,000 |  |
| A-2-1-2 | Receiving Well/Distribution Chamb |  | Ls | 1 |  |  | 0 | 15,112,000 | 13,057,000 |  |
| A-2-1-3 | Flocculation and DAF |  | Ls | 1 |  |  | 0 | 65,657.000 | 56,728,000 |  |
| A-2-1-4 | Rapid Sand Filter |  | Ls | 1 |  |  | 0 | 76,800,000 | 66,355,000 |  |
| A-2-1-5 | Granual Activated Carbon (GAC) F |  | Ls | 1 |  |  | 0 | 109,162,000 | 94,316,000 |  |
| A-2-1-6 | Clear Water Tank and Pump House |  | Ls | 1 |  |  | 0 | 140,837,000 | 121,683,000 |  |
| A-2-1-7 | Backwash Recycling Tank and Slud | Tank | Ls | 1 |  |  | 0 | 41,760,000 | 36,081,000 |  |
| A-2-1-8 | Sludge Thickener and Pump House |  | Ls | 1 |  |  | 0 | 20,947.000 | 18,098,000 |  |
| A-2-1-9 | Sludge Drying Bed |  | LS | 1 |  |  | 0 | 47,352,000 | 40,912,000 |  |
| A-2-1-10 | Lagoon |  | Ls | 1 |  |  | 0 | 13,830,000 | 11,949,000 |  |
| A-2-1-11 | Inplant Building Works |  | Ls | 1 |  |  | 0 | 180,391,000 | 155,858,000 |  |
| A-2-1-12 | Inplant Pipe Works |  | Ls | 1 |  |  | 62,932,000 | 40,839,000 | 98,217,000 |  |
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Lot A-2

Lot A-3, Lot A-3-1

| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| A-3 | Elevated Tanks and Ground Sumps |  |  |  |  |  | 509,771,000 | 2,400,835,000 | 2,584,093,000 |  |
| A-3-1 | Elevated Tanks and Ground Sumps |  |  |  |  |  | 479,394,000 | 2,029,433,000 | 2,232,824,000 |  |
| A-3-2 | Additional Elevated Tank for Phase 1 |  |  |  |  |  | 17,357,000 | 179,849,000 | 172,747,000 |  |
| A-3-3 | Additional Elevated Tank for Phase 2 |  |  |  |  |  | 13,020,000 | 191,553,000 | 178,522,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| A-3-1 | Elevated Tanks and Ground Sumps |  |  |  |  |  | 479,394,000 | 2,029,433,000 | 2,232,824,000 |  |
| A-3-1-1 | Reservoir Construction |  | Ls | 1 | 0 |  | 0 | 1,178,512,000 | 1,018,234,000 |  |
| A-3-1-2 | Site Work |  | Ls | 1 | 0 |  | 0 | 122,630,000 | 105,952,000 |  |
| A-3-1-3 | Internal Building Work |  | Ls | 1 | 0 |  | 0 | 474,200,000 | 409,709,000 |  |
| A-3-1-4 | Internal Pipe Works |  | Ls | 1 | 0 |  | 39,457,000 | 24,639,000 | 60,745,000 |  |
| A-3-1-5 | Yard Pipe Works |  | Ls | 1 | 0 |  | 26,049,000 | 24,141,000 | 46,907,000 |  |
| A-3-1-6 | Mechanical and Electrical Work |  | Ls | 1 | 0 |  | 413,888,000 | 205,311,000 | 591,277,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| A-3-1-1 | Reservoir Construction |  |  |  |  |  | 0 | 1,178,512,000 | 1,018,232,000 |  |
| A-3-1-1-1 | Kabithigollewa | $\begin{aligned} & \hline \text { Ground } \\ & \mathrm{V}=500 \mathrm{~m} 3 \\ & \hline \end{aligned}$ | Ls | 1 | 0 | 42,879,553 | 0 | 42,880,000 | 37,048,000 |  |
| A-3-1-1-2 | Kahatagollewa | $\begin{aligned} & \begin{array}{l} \text { Ground } \\ \mathrm{V}=1,000 \mathrm{~m} 3 \end{array} \end{aligned}$ | Ls | 1 | 0 | 65,184,312 | 0 | 65,184,000 | 56,319,000 |  |
| A-3-1-1-3 | Weerasole | $\begin{aligned} & \text { Ground } \\ & \mathrm{V}=1,500 \mathrm{~m} 3 \end{aligned}$ | Ls | 1 | 0 | 76,996,839 | 0 | 76,997,000 | 66,525,000 |  |
| A-3-1-1-4 | Horowpothana | Ground $\mathrm{V}=1,000 \mathrm{~m} 3$ | Ls | 1 | 0 | 65,184,312 | 0 | 65,184,000 | 56,319,000 |  |
| A-3-1-1-5 | Kahatagasdigiliya | $\begin{aligned} & \text { Ground } \\ & \mathrm{V}=500 \mathrm{~m} 3 \end{aligned}$ | Ls | 1 | 0 | 42,879,553 | 0 | 42,880,000 | 37,048,000 |  |
| A-3-1-1-6 | Wahalkada | $\begin{aligned} & \text { Elevated } \\ & \mathrm{V}=500 \mathrm{~m} 3 \end{aligned}$ | Ls | 1 | 0 | 71,792,683 | 0 | 71,793,000 | 62,029,000 |  |
| A-3-1-1-7 | Kebithigollewa | $\begin{array}{\|l\|} \hline \text { Elevated } \\ \mathrm{V}=750 \mathrm{~m} 3 \end{array}$ | Ls | 1 | 0 | 93,050,393 | 0 | 93,050,000 | 80,395,000 |  |
| A-3-1-1-8 | Keb-Kah | Elevated $\mathrm{V}=250 \mathrm{~m} 3$ | Ls | 1 | 0 | 50,534,972 | 0 | 50,535,000 | 43,662,000 |  |

Lot A-3-1

Lot A-3-1

| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| A-3-1-2-11 | Hamillewa | Elevated only 1250m3 | m3 | 1,250 | 0 | 9,433 | 0 | 11,791,000 | 10,187,000 |  |
| A-3-1-2-12 | Rathmalgahawewa | Elevated only 500m3 | m3 | 500 | 0 | 9,433 | 0 | 4,717,000 | 4,075,000 |  |
| A-3-1-3 | Internal Building Work |  |  |  |  |  | 0 | 474,200,000 | 409,709,000 |  |
| A-3-1-3-1 | Kabithigollewa |  | LS | 1 |  |  | 0 | 62,400,000 | 53,914,000 |  |
| A-3-1-3-2 | Kahatagollewa |  | LS | 1 |  |  | 0 | 37,100,000 | 32,054,000 |  |
| A-3-1-3-3 | Horowpothana |  | LS | 1 |  |  | 0 | 79,720,000 | 68,878,000 |  |
| A-3-1-3-4 | Kahatagasdigiliya |  | LS | 1 |  |  | 0 | 41,200,000 | 35,597,000 |  |
| A-3-1-3-5 | Weerasole |  | LS | 1 |  |  | 0 | 33,580,000 | 29,013,000 |  |
| A-3-1-3-6 | Wahalkada |  | LS | 1 |  |  | 0 | 144,400,000 | 124,762,000 |  |
| A-3-1-3-7 | Keb-Kah |  | LS | 1 |  |  | 0 | 8,500,000 | 7,344,000 |  |
| A-3-1-3-8 | Bogahawewa |  | Ls | 1 |  |  | 0 | 33,300,000 | 28,771,000 |  |
| A-3-1-3-9 | Horowpothana North |  | LS | 1 |  |  | 0 | 8,500,000 | 7,344,000 |  |
| A-3-1-3-10 | Horowpothana West |  | LS | 1 |  |  | 0 | 8,500,000 | 7,344,000 |  |
| A-3-1-3-11 | Hamillewa |  | LS | 1 |  |  | 0 | 8,500,000 | 7,344,000 |  |
| A-3-1-3-12 | Rathmalgahawewa |  | LS | 1 |  |  | 0 | 8,500,000 | 7,344,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| A-3-1-4 | Internal Pipe Works |  |  |  |  |  | 39,457,000 | 24,639,000 | 60,745,000 |  |
| A-3-1-4-1 | Kabithigollewa | Ground $V=500 \mathrm{~m} 3$ | m3 | 500 | 2,302 | 3,061 | 1,151,000 | 1,531,000 | 2,474,000 |  |
| A-3-1-4-2 | Kahatagollewa | $\begin{aligned} & \hline \text { Ground } \\ & \mathrm{V}=1,000 \mathrm{~m} 3 \\ & \hline \end{aligned}$ | m3 | 1,000 | 2,302 | 3,061 | 2,302,000 | 3,061,000 | 4,947,000 |  |
| A-3-1-4-3 | Weerasole | $\begin{aligned} & \hline \begin{array}{l} \text { Ground } \\ \mathrm{V}=1,500 \mathrm{~m} 3 \end{array} \\ & \hline \end{aligned}$ | m3 | 1,500 | 2,302 | 3,061 | 3,453,000 | 4,592,000 | 7,420,000 |  |

Lot A-3-1

Lot A-3-1

Lot A-3-1

| Code | Item |  | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | FC(JPY) |  |  | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| A-3-1-6-13 | Keb-Kah | Mechanical |  | Elevated only 250m3 | m3 | 250 | 5,367 | 3,130 | 1,342,000 | 783,000 | 2,019,000 |  |
| A-3-1-6-14 | Keb-Kah | Electrical | Elevated only 250m3 | m3 | 250 | 6,526 | 2,978 | 1,632,000 | 745,000 | 2,276,000 |  |
| A-3-1-6-15 | Bogahawewa | Mechanical | $\begin{array}{\|l} \hline \text { Elevated only } \\ 2,000 \mathrm{~m} 3 \\ \hline \end{array}$ | m3 | 2,000 | 5,367 | 3,130 | 10,734,000 | 6,260,000 | 16,143,000 |  |
| A-3-1-6-16 | Bogahawewa | Electrical | $\begin{array}{\|l} \hline \text { Elevated only } \\ 2,000 \mathrm{~m} 3 \\ \hline \end{array}$ | m3 | 2,000 | 6,526 | 2,978 | 13,052,000 | 5,956,000 | 18,198,000 |  |
| A-3-1-6-17 | Horowpothana North | Mechanical | Elevated only 250m3 | m3 | 250 | 5,367 | 3,130 | 1,342,000 | 783,000 | 2,019,000 |  |
| A-3-1-6-18 | Horowpothana North | Electrical | Elevated only 250m3 | m3 | 250 | 6,526 | 2,978 | 1,632,000 | 745,000 | 2,276,000 |  |
| A-3-1-6-19 | Horowpothana West | Mechanical | Elevated only 750m3 | m3 | 750 | 5,367 | 3,130 | 4,025,000 | 2,348,000 | 6,054,000 |  |
| A-3-1-6-20 | Horowpothana West | Electrical | Elevated only 750m3 | m3 | 750 | 6,526 | 2,978 | 4,895,000 | 2,234,000 | 6,825,000 |  |
| A-3-1-6-21 | Hamillewa | Mechanical | Elevated only 1250m3 | m3 | 1,250 | 5,367 | 3,130 | 6,709,000 | 3,913,000 | 10,090,000 |  |
| A-3-1-6-22 | Hamillewa | Electrical | Elevated only 1250m3 | m3 | 1,250 | 6,526 | 2,978 | 8,158,000 | 3,723,000 | 11,375,000 |  |
| A-3-1-6-23 | Rathmalgahawewa | Mechanical | Elevated only 500m3 | m3 | 500 | 5,367 | 3,130 | 2,684,000 | 1,565,000 | 4,036,000 |  |
| A-3-1-6-24 | Rathmalgahawewa | Electrical | Elevated only 500m3 | m3 | 500 | 6,526 | 2,978 | 3,263,000 | 1,489,000 | 4,549,000 |  |
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Lot A-3-1-3 Internal buiding work

| Code | Item |  |  | Quantity | Unit Price |  | Amount |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Code | Item | Specifications | Unit | Quantiy | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) | Remarks |
| A-3-1-3-1 | Kebithigollewa |  | Ls | 1 |  |  | 0 | 62,400,000 | 53,914,000 |  |
| 1) | Guard House |  | Ls | 1 | 0 | 2100000 | 0 | 2100000 | 1814000 |  |
| 2) | AE Office |  | Ls | 1 | 0 | 13000000 | 0 | 1300000 | 1232000 |  |
| 3) | Pump House | $17 \times 6.0 \mathrm{~m}$ |  |  |  |  |  |  |  |  |
| 3) |  |  | m2 | 102 | 0 | 100,000 | 0 | 10,200,000 | 8,813,000 |  |
| 4) | Generator Building |  | 15 | 1 | 0 | 7400000 | 0 | 7400000 | 6.394000 |  |
|  | Workshop |  |  |  |  |  |  |  |  |  |
| $5)$ |  |  | Ls | 1 | 0 | 11,500,000 | 0 | 11,500,000 | 9,936,000 |  |
| 6) | Chlorination Building |  | Ls | 1 | 0 | 2,200,000 | 0 | 2,200,000 | 1,901,000 |  |
| 7) | Caretaker Quarters |  |  |  |  |  |  |  |  |  |
| 7 |  |  | Ls | 1 | 0 | 6,300,000 | 0 | 6,300,000 | 5,443,000 |  |
| 8) | Staff Quarters |  | Ls | 1 | 0 | 9,700,000 | 0 | 9,700,000 | 8,381,000 |  |
| A-3-1-3-2 | Kahatagollewa |  | Is | 1 |  |  | 0 | 37100,000 | 32054000 |  |
|  | Generator Building |  |  |  |  |  |  |  |  |  |
| 1) |  |  | Ls | 1 | 0 | 7,400,000 | 0 | 7,400,000 | 6,394,000 |  |
| 2) | Chlorination Building |  | Ls | 1 | 0 | 2,200,000 | 0 | 2,200,000 | 1,901,000 |  |
| 3) | Pump House | 26.5x8.0m |  |  |  |  |  |  |  |  |
|  |  |  | m2 | 212 | 0 | 100,000 | 0 | 21,200,000 | 18,317,000 |  |
| 4) | Caretaker Quarters |  | Ls | 1 | 0 | 6,300,000 | 0 | 6,300,000 | 5,443,000 |  |
| A-3-1-3-3 | Horowpothana |  | Ls | 1 |  |  | 0 | $79,720,000$ | 68878000 |  |
|  | Guard House |  |  |  |  |  |  |  |  |  |
| 1) |  |  | Ls | 1 | 0 | 2,100,000 | 0 | 2,100,000 | 1,814,000 |  |
| 2) | AE Office |  | Ls | 1 | 0 | 13,000,000 | 0 | 13,000,000 | 11,232,000 |  |
| 3) | Pump House | $34.4 \times 8.0 \mathrm{~m}$ | m2 | 275 |  |  |  | 27.52000 |  |  |
|  |  |  | m2 | 275 |  | 100,000 | 0 | 27,520,000 | 23,777,000 |  |
| 4) | Generator Building |  | Ls | 1 | 0 | 7,400,000 | 0 | 7,400,000 | 6,394,000 |  |
| 5) | Chlorination Building |  | Ls | 1 | 0 | 2,200,000 | 0 | 2,200,000 | 1,901,000 |  |
|  | Workshop |  |  |  |  |  |  |  |  |  |
|  |  |  | Ls | 1 | 0 | 11,500,000 | 0 | 11,500,000 | 9,936,000 |  |
| 7) | Caretaker Quarters |  | Ls | 1 | 0 | 6,300,000 | 0 | 6,300,000 | 5,443,000 |  |

Lot A-3-1-3 Internal buiding work

| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remark |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| 8) | Staff Quarters |  | Ls | 1 | 0 | 9,700,000 | 0 | 9,700,000 | 8,381,000 |  |
| A-3-1-3-4 | Kahatagasdigiliya |  | Ls | 1 |  |  | 0 | 41,200,000 | 35,597,000 |  |
| 1) | Guard House |  | Ls | 1 | 0 | 2,100,000 | 0 | 2,100,000 | 1,814,000 |  |
| 2) | OIC Office |  | Ls | 1 | 0 | 13,000,000 | 0 | 13,000,000 | 11,232,000 |  |
| 3) | Caretaker Quarters |  | Ls | 1 | 0 | 6,300,000 | 0 | 6,300,000 | 5,443,000 |  |
| 4) | Chlorination Building |  | Ls | 1 | 0 | 2,200,000 | 0 | 2,200,000 | 1,901,000 |  |
| 5) | Generator Building |  | Ls | 1 | 0 | 7,400,000 | 0 | 7,400,000 | 6,394,000 |  |
| 6) | Pump House | $17 \times 6 \mathrm{~m}$ | m2 | 102 | 0 | 100,000 | 0 | 10,200,000 | 8,813,000 |  |
| A-3-1-3-5 | Weerasole |  | Ls |  |  |  | 0 | 33,580,000 | 29,013,000 |  |
| 1) | Pump House | $22.1 \times 8 \mathrm{~m}$ | m2 | 177 | 0 | 100,000 | 0 | 17,680,000 | 15,276,000 |  |
| 2) | Generator Building |  | Ls | 1 | 0 | 7,400,000 | 0 | 7,400,000 | 6,394,000 |  |
| 3) | Chlorination Building |  | Ls | 1 | 0 | 2,200,000 | 0 | 2,200,000 | 1,901,000 |  |
| 4) | Caretaker Quarters |  | Ls | 1 | 0 | 6,300,000 | 0 | 6,300,000 | 5,443,000 |  |
| A-3-1-3-6 | Wahalkada |  | Ls | 1 |  |  | 0 | 144,400,000 | 124,762,000 |  |
| 1) | Guard House |  | Ls | 1 | 0 | 2,100,000 | 0 | 2,100,000 | 1,814,000 |  |
| 2) | Caretaker Quarters |  | Ls | 4 | 0 | 6,300,000 | 0 | 25,200,000 | 21,773,000 |  |
| 3) | Warehouse |  | Ls | 1 | 0 | 10,900,000 | 0 | 10,900,000 | 9,418,000 |  |
| 4) | Chlorination Building |  | Ls | 1 | 0 | 8,400,000 | 0 | 8,400,000 | 7,258,000 |  |
| 5) | Chemical Building |  | Ls | 1 | 0 | 22,600,000 | 0 | 22,600,000 | 19,526,000 |  |
| 6) | Pump Station | $33.5 \times 8 \mathrm{~m}$ | m2 | 268 | 0 | 100,000 | 0 | 26,800,000 | 23,155,000 |  |
| 7) | Generator Building |  | Ls | 1 | 0 | 7,400,000 | 0 | 7,400,000 | 6,394,000 |  |
| 8) | Administration Building |  | Ls | 1 | 0 | 41,000,000 | 0 | 41,000,000 | 35,424,000 |  |

Lot A－3－1－3 Internal buiding work

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | $\begin{aligned} & \mathrm{O} \\ & 0 \\ & 0 \\ & \mathrm{H}^{-} \\ & \mathrm{N} \end{aligned}$ | 8 8 8 -1 8 -1 | 8 <br> 8 <br> 0 <br> 7 <br> 7 <br> 7 | O O - N N N N | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & \mathrm{H}_{1} \\ & 0 \\ & -i \end{aligned}$ | O O N N N $\underset{\sim}{-1}$ | 8 <br> 8 <br> 0 <br> $-i$ <br> - <br> $-i$ |  | 8 8 0 -1 0 0 $\infty$ 0 | O $\mathrm{O}^{2}$ $\mathrm{H}^{-}$ N N | 8 0 $-i$ -8 $-i$ |  |  | $\begin{aligned} & \mathrm{O}_{1} \\ & 0 \\ & -i \\ & 0 \\ & -i \end{aligned}$ |  | 8 <br> 0 <br> + <br>  <br>  <br>  | $\begin{aligned} & 8 \\ & 0 \\ & 0 \\ & 8 \\ & 8 \\ & -i \end{aligned}$ |  |  | 8 8 0 -1 8 $-i$ |  |  |
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|  |  | $\bigcirc$ | $\bigcirc$ |  | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |  | $\bigcirc$ | $\bigcirc$ |  | $\bigcirc$ | $\bigcirc$ |  | $\bigcirc$ | $\bigcirc$ |  | $\bigcirc$ | $\bigcirc$ |  |
|  | $\cdots$ | $\checkmark$ | $\checkmark$ | $\cdots$ | $\checkmark$ | $\cdots$ | $\checkmark$ | $\cdots$ | $\checkmark$ | $\neg$ | $\neg$ | $\checkmark$ | $\cdots$ | $\checkmark$ | $\cdots$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\neg$ | $\checkmark$ |  |
| $\stackrel{\#}{5}$ | 0 | $\sim$ | 0 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 0 | 9 | 0 | 9 | 9 | 9 | 9 | 9 | 0 | 0 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $\begin{aligned} & \underset{ভ}{\Xi} \\ & \pm= \end{aligned}$ |  |  |  |  |  |  |  |  | $\begin{aligned} & \frac{\pi}{0} \\ & \frac{\pi}{0} \\ & \frac{\pi}{3} \\ & \frac{\pi}{\sigma} \\ & \stackrel{\pi}{\omega} \end{aligned}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $\frac{0}{0}$ | $\begin{aligned} & \stackrel{\rightharpoonup}{\dot{\prime}} \\ & \stackrel{1}{1} \\ & \underset{\sim}{4} \\ & \hline \end{aligned}$ | $\stackrel{\sim}{\sim}$ | ล | $\begin{aligned} & \infty \\ & \stackrel{\infty}{\dot{1}} \\ & \stackrel{1}{1} \\ & \dot{\mu} \\ & \hline \end{aligned}$ | $\stackrel{\sim}{\sim}$ | ล | ल | چ | $\stackrel{1}{6}$ |  | $\stackrel{\sim}{\sim}$ | へ | $\begin{aligned} & \text { O-1 } \\ & \text { ले } \\ & \underset{\text { M }}{4} \end{aligned}$ | $\stackrel{\sim}{\sim}$ | へ |  | $\stackrel{\sim}{\sim}$ | へ | $\begin{aligned} & \text { N} \\ & \text { M} \\ & \underset{\sim}{c} \\ & \text { M} \end{aligned}$ | $\stackrel{\sim}{\sim}$ | ล |  |

Lot A-3-2

| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remark |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| A-3-2 | Additional Elevated Tank for Phase 1 |  |  |  |  |  | 17,357,000 | 179,849,000 | 172,746,000 |  |
| A-3-2-1 | Reservoir Construction |  | Ls | 1 |  |  | 0 | 143,585,000 | 124,057,000 |  |
| A-3-2-2 | Site Work |  | Ls | 1 |  |  | 0 | 9,433,000 | 8,150,000 |  |
| A-3-2-3 | Internal Building Work |  | Ls | 1 |  |  | 0 | 17,000,000 | 14,688,000 |  |
| A-3-2-4 | Internal Pipe Works |  | Ls | 1 |  |  | 3,423,000 | 1,279,000 | 4,528,000 |  |
| A-3-2-5 | Yard Pipe Works |  | Ls | 1 |  |  | 2,040,000 | 2,444,000 | 4,152,000 |  |
| A-3-2-6 | Mechanical and Electrical Work |  | Ls | 1 |  |  | 11,894,000 | 6,108,000 | 17,171,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| A-3-2-1 | Reservoir Construction |  |  |  |  |  | 0 | 143,585,000 | 124,057,000 |  |
|  | Kallanchiya | $\begin{array}{\|l\|} \hline \text { Elevated } \\ \mathrm{V}=750 \mathrm{~m} 3 \end{array}$ | Ls | 1 | 0 | 93,050,393 | 0 | 93,050,000 | 80,395,000 |  |
|  | Konakumbukwewa | $\begin{aligned} & \text { Elevated } \\ & \mathrm{V}=250 \mathrm{~m} 3 \end{aligned}$ | Ls | 1 | 0 | 50,534,972 | 0 | 50,535,000 | 43,662,000 |  |
| A-3-2-2 | Site Work |  |  |  |  |  | 0 | 9,433,000 | 8,150,000 |  |
|  | Kallanchiya | $\begin{array}{\|l\|} \hline \text { Elevated } \\ \mathrm{V}=750 \mathrm{~m} 3 \end{array}$ | m3 | 750 | 0 | 9,433 | 0 | 7,075,000 | 6,113,000 |  |
|  | Konakumbukwewa | $\begin{array}{\|l\|} \hline \text { Elevated } \\ \mathrm{V}=250 \mathrm{~m} 3 \\ \hline \end{array}$ | m3 | 250 | 0 | 9,433 | 0 | 2,358,000 | 2,037,000 |  |
| A-3-2-3 | Internal Building Work |  |  |  |  |  | 0 | 17,000,000 | 14,688,000 |  |
| A-3-2-3-1 | Kallanchiya |  |  |  |  |  | 0 | 8,500,000 | 7,344,000 |  |
| 1) | Chlorination Building |  | Ls | 1 | 0 | 2,200,000 | 0 | 2,200,000 | 1,901,000 |  |
| 2) | Caretaker Quarters |  | Ls | 1 | 0 | 6,300,000 | 0 | 6,300,000 | 5,443,000 |  |
| A-3-2-3-2 | Konakumbukwewa |  |  |  |  |  | 0 | 8,500,000 | 7,344,000 |  |
| 1) | Chlorination Building |  | Ls | 1 | 0 | 2,200,000 | 0 | 2,200,000 | 1,901,000 |  |
| 2) | Caretaker Quarters |  | Ls | 1 | 0 | 6,300,000 | 0 | 6,300,000 | 5,443,000 |  |

Lot A-3-2

Lot A-3-3

| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| A-3-3 | Additional Reservoir for Phase 2 |  |  |  |  |  | 13,020,000 | 191,553,000 | 178,522,000 |  |
| A-3-3-1 | Reservoir Construction |  |  |  |  |  | 0 | 151,605,000 | 130,987,000 |  |
| A-3-3-2 | Site Work |  |  |  |  |  | 0 | 7,074,000 | 6,112,000 |  |
| A-3-3-3 | Internal Building Work |  |  |  |  |  | 0 | 25,500,000 | 22,032,000 |  |
| A-3-3-4 | Internal Pipe Works |  |  |  |  |  | 2,568,000 | 960,000 | 3,397,000 |  |
| A-3-3-5 | Yard Pipe Works |  |  |  |  |  | 1,530,000 | 1,833,000 | 3,114,000 |  |
| A-3-3-6 | Mechanical and Electrical Work |  |  |  |  |  | 8,922,000 | 4,581,000 | 12,880,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| A-3-3-1 | Reservoir Construction |  |  |  |  |  | 0 | 151,605,000 | 130,986,000 |  |
| A-3-3-1-1 | North Area | $\begin{array}{\|l\|} \hline \text { Elevated } \\ \mathrm{V}=250 \mathrm{~m} 3 \end{array}$ | Ls | 1 | 0 | 50,534,972 | 0 | 50,535,000 | 43,662,000 |  |
| A-3-3-1-2 | Central Area | $\begin{array}{\|l\|} \hline \text { Elevated } \\ \mathrm{V}=250 \mathrm{~m} 3 \end{array}$ | Ls | 1 | 0 | 50,534,972 | 0 | 50,535,000 | 43,662,000 |  |
| A-3-3-1-3 | South Area | $\begin{aligned} & \text { Elevated } \\ & \mathrm{V}=250 \mathrm{~m} 3 \end{aligned}$ | Ls | 1 | 0 | 50,534,972 | 0 | 50,535,000 | 43,662,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| A-3-3-2 | Site Work |  |  |  |  |  | 0 | 7,074,000 | 6,111,000 |  |
| A-3-3-2-1 | North Area | Elevated $\mathrm{V}=250 \mathrm{~m} 3$ | m3 | 250 | 0 | 9,433 | 0 | 2,358,000 | 2,037,000 |  |
| A-3-3-2-2 | Central Area | $\begin{array}{\|l\|} \hline \text { Elevated } \\ \mathrm{V}=250 \mathrm{~m} 3 \\ \hline \end{array}$ | m3 | 250 | 0 | 9,433 | 0 | 2,358,000 | 2,037,000 |  |
| A-3-3-2-3 | South Area | $\begin{aligned} & \text { Elevated } \\ & \mathrm{V}=250 \mathrm{~m} 3 \\ & \hline \end{aligned}$ | m3 | 250 | 0 | 9,433 | 0 | 2,358,000 | 2,037,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |

Lot A-3-3

| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| A-3-3-3 | Internal Building Work |  |  |  |  |  | 0 | 25,500,000 | 22,032,000 |  |
| A-3-3-3-1 | North Area |  |  |  |  |  | 0 | 8,500,000 | 7,344,000 |  |
| 1) | Chlorination Building |  | LS | 1 | 0 | 2,200,000 | 0 | 2,200,000 | 1,901,000 |  |
| 2) | Caretaker Quarters |  | LS | 1 | 0 | 6,300,000 | 0 | 6,300,000 | 5,443,000 |  |
| A-3-3-3-2 | Central Area |  |  |  |  |  | 0 | 8,500,000 | 7,344,000 |  |
| 1) | Chlorination Building |  | LS | 1 | 0 | 2,200,000 | 0 | 2,200,000 | 1,901,000 |  |
| 2) | Caretaker Quarters |  | LS | 1 | 0 | 6,300,000 | 0 | 6,300,000 | 5,443,000 |  |
| A-3-3-3-3 | South Area |  |  |  |  |  | 0 | 8,500,000 | 7,344,000 |  |
| 1) | Chlorination Building |  | LS | 1 | 0 | 2,200,000 | 0 | 2,200,000 | 1,901,000 |  |
| 2) | Caretaker Quarters |  | Ls | 1 | 0 | 6,300,000 | 0 | 6,300,000 | 5,443,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| A-3-3-4 | Internal Pipe Works |  |  |  |  |  | 2,568,000 | 960,000 | 3,396,000 |  |
| A-3-3-4-1 | North Area | Elevated $\mathrm{V}=250 \mathrm{~m} 3$ | m3 | 250 | 3,423 | 1,278 | 856,000 | 320,000 | 1,132,000 |  |
| A-3-3-4-2 | Central Area | Elevated $\mathrm{V}=250 \mathrm{~m} 3$ | m3 | 250 | 3,423 | 1,278 | 856,000 | 320,000 | 1,132,000 |  |
| A-3-3-4-3 | South Area | Elevated $\mathrm{V}=250 \mathrm{~m} 3$ | m3 | 250 | 3,423 | 1,278 | 856,000 | 320,000 | 1,132,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

Lot A-3-3


| Lot B |  |  |  |  |  |  | $\begin{aligned} & 1 \text { USD= } \\ & 1 \text { USD= } \\ & 1 \text { LKR= } \end{aligned}$ | $\begin{aligned} & 120.1 \\ & 139.0 \\ & 0.864 \end{aligned}$ | JPY LKR JPY |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remark |
| Code | Hem | Specifications | Unit | Quantity | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| B | <<Lot B>> Transmission and Distribution Main |  |  |  |  |  | 4,109,327,000 | 3,061,695,000 | 6,754,631,000 |  |
| B-1 | Transmission Main |  |  |  |  |  | 2,478,743,000 | 1,207,722,000 | 3,522,215,000 |  |
| B-2 | Transmission Sub-main |  |  |  |  |  | 63,894,000 | 91,625,000 | 143,058,000 |  |
| B-3 | Distribution Main |  |  |  |  |  | 1,563,998,000 | 1,662,969,000 | 3,000,803,000 |  |
| B-4 | Miscellaneous works |  |  |  |  |  | 2,692,000 | 99,379,000 | 88,555,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| B-1 | Transmission Main |  |  |  |  |  | 2,478,742,542 | 1,207,722,048 | 3,522,214,000 |  |
| B-1(A) | Transmission Main A |  |  |  |  |  | 683,474,000 | 365,837,969 | 999,558,000 |  |
| B-1(B) | Transmission Main B |  |  |  |  |  | 1,795,268,542 | 841,884,079 | 2,522,656,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| B-2 | Transmission Sub Main |  |  |  |  |  | 63,894,000 | 91,625,062 | 143,058,000 |  |
| B-2(A) | Transmission Sub-Main A |  |  |  |  |  | 367,000 | 691,510 | 964,000 |  |
| B-2(B) | Transmission Sub-Main B |  |  |  |  |  | 63,527,000 | 90,933,552 | 142,094,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |

Lot B

| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remark |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| B-3 | Distribution Main |  |  |  |  |  | 1,563,998,000 | 1,662,969,388 | 3,000,803,000 |  |
| B-3(A) | Distribution Main A |  |  |  |  |  | 454,633,000 | 587,465,720 | 962,203,000 |  |
| B-3(B) | Distribution Main B |  |  |  |  |  | 1,109,365,000 | 1,075,503,668 | 2,038,600,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| B-4 | Miscellaneous works |  |  |  |  |  | 2,692,000 | 99,379,000 | 88,556,000 |  |
| B-4-1 | Provision of Bonds and Insurances |  |  |  |  |  | 0 | 10,084,000 | 8,713,000 |  |
| B-4-2 | Provision and maintenance of site o |  |  |  |  |  | 0 | 12,160,000 | 10,506,000 |  |
| B-4-3 | Provision of pipe stores |  |  |  |  |  | 0 | 16,807,000 | 14,521,000 |  |
| B-4-4 | Provision of site safety |  |  |  |  |  | 0 | 38,929,000 | 33,635,000 |  |
| B-4-5 | Quality assurance and material test |  |  |  |  |  | 2,692,000 | 2,584,000 | 4,925,000 |  |
| B-4-6 | Progress documents and drawings |  |  |  |  |  | 0 | 2,597,000 | 2,244,000 |  |
| B-4-7 | Miscellaneous |  |  |  |  |  | 0 | 16,218,000 | 14,012,000 |  |

Lot B-1

${ }^{\text {meas }}$

Lot B-2

Lot B-2

Lot B-3

Lot B-3

Lot B-3


Lot C-1(A)

| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| C-1 | Distribution Sub System |  |  |  |  |  | 135,116,000 | 954,705,640 | 959,981,000 |  |
| C-1(A) | Distribution Sub System (A) |  | Ls | 1 |  |  | 47,535,000 | 335,933,096 | 337,781,000 |  |
| C-1(B) | Distribution Sub System (B) |  | LS | 1 |  |  | 87,581,000 | 618,772,544 | 622,200,000 |  |
| C-1(A) | Distribution Sub System (A) |  |  |  |  |  | 47,535,000 | 335,933,096 | 337,781,000 |  |
| C-1(A)1 | Distribution Sub-main (A) | NWSDB | m | 85,700 |  |  | 31,592,000 | 220,980,000 | 222,519,000 |  |
| C-1(A)2 | Road Reinstatement (A) | NWSDB | Ls | 1 |  |  | 3,254,000 | 25,325,784 | 25,135,000 |  |
| C-1(A)3 | Distribution Sub-main (A) | CBO | m | 31,300 |  |  | 11,501,000 | 80,381,000 | 80,950,000 |  |
| C-1(A)4 | Road Reinstatement (A) | CBO | Ls | 1 |  |  | 1,188,000 | 9,246,312 | 9,177,000 |  |
| C-1(A)1 | Distribution Sub-main (A) | NWSDB | m | 85,700 |  |  | 31,592,000 | 220,980,000 | 222,520,000 |  |
| C-1(A)1-1 | PVC ND200/OD225 |  | m | 0 | 917.00 | 7,044.00 | 0 | 0 | 0 |  |
| C-1(A)1-2 | PVC ND150/OD 160 |  | m | 1,100 | 618.00 | 4,596.00 | 680,000 | 5,055,600 | 5,048,000 |  |
| C-1(A)1-3 | PVC ND100/OD 110 |  | m | 13,100 | 430.00 | 3,059.00 | 5,633,000 | 40,072,900 | 40,256,000 |  |
| C-1(A)1-4 | PVC ND 75/ OD 90 |  | m | 19,900 | 396.00 | 2,782.00 | 7,880,000 | 55,361,800 | 55,713,000 |  |
| C-1(A)1-5 | PVC ND 50/ OD 63 |  | m | 22,200 | 303.00 | 2,088.00 | 6,727,000 | 46,353,600 | 46,777,000 |  |
| C-1(A)1-6 | PVC ND200/OD225 T600 |  | m | 0 | 738.00 | 5,474.00 | 0 | 0 | 0 |  |
| C-1(A)1-7 | PVC ND150/OD 160 T600 |  | m | 0 | 521.00 | 3,749.00 | 0 | 0 | 0 |  |
| C-1(A)1-8 | PVC ND100/OD 110 T600 |  | m | 13,100 | 408.00 | 2,873.00 | 5,345,000 | 37,636,300 | 37,863,000 |  |
| C-1(A)1-9 | PVC ND 75/ OD 90 T600 |  | m | 8,100 | 366.00 | 2,526.00 | 2,965,000 | 20,460,600 | 20,643,000 |  |
| C-1(A)1-10 | PVC ND 50/ OD 63 T600 |  | m | 8,200 | 288.00 | 1,956.00 | 2,362,000 | 16,039,200 | 16,220,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |

Lot C-1(A)

| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| $\mathrm{C}-1(\mathrm{~A}) 2$ | Restoration of Road Pavement | NWSDB |  |  |  |  | 3,254,000 | 25,325,784 | 25,135,000 |  |
| C-1(A)2-1 | Restoration of Pavement (carriageway) RDA/PRDA |  | m2 | 4,114 | 568 | 4,419 | 2,337,000 | 18,179,766 | 18,044,000 |  |
| C-1(A)2-2 | Restoration of Pavement (Car | $\begin{array}{\|l} \text { JC/PS } \\ 4 \% \text { of pipeline } \\ \hline \end{array}$ | m2 | 4,114 | 223 | 1,737 | 917,000 | 7,146,018 | 7,091,000 |  |
| C-1(A)3 | Distribution Sub-main (A) | CBO | m | 31,300 |  |  | 11,501,000 | 80,381,000 | 80,950,000 |  |
| C-1(A)3-1 | PVC ND200/OD22 |  | m | 0 | 917.00 | 7,044.00 | 0 | 0 | 0 |  |
| C-1(A)3-2 | PVC ND150/OD 160 |  | m | 600 | 618.00 | 4,596.00 | 371,000 | 2,757,600 | 2,754,000 |  |
| C-1(A)3-3 | PVC ND100/OD 110 |  | m | 2,800 | 430.00 | 3,059.00 | 1,204,000 | 8,565,200 | 8,604,000 |  |
| C-1(A)3-4 | PVC ND 75/ OD 90 |  | m | 10,300 | 396.00 | 2,782.00 | 4,079,000 | 28,654,600 | 28,837,000 |  |
| C-1(A)3-5 | PVC ND 50/ OD 63 |  | m | 7,700 | 303.00 | 2,088.00 | 2,333,000 | 16,077,600 | 16,224,000 |  |
| C-1(A)3-6 | PVC ND200/OD225 T600 |  | m | 0 | 738.00 | 5,474.00 | 0 | 0 | 0 |  |
| C-1(A)3-7 | PVC ND150/OD 160 T600 |  | m | 0 | 521.00 | 3,749.00 | 0 | 0 | 0 |  |
| C-1(A)3-8 | PVC ND100/OD 110 T600 |  | m | 2,800 | 408.00 | 2,873.00 | 1,142,000 | 8,044,400 | 8,092,000 |  |
| C-1(A)3-9 | PVC ND 75/ OD 90 T600 |  | m | 4,200 | 366.00 | 2,526.00 | 1,537,000 | 10,609,200 | 10,703,000 |  |
| C-1(A)3-10 | PVC ND 50/ OD 63 T600 |  | m | 2,900 | 288.00 | 1,956.00 | 835,000 | 5,672,400 | 5,736,000 |  |
| C-1(A)4 | Restoration of Road Pavement | CBO |  |  |  |  | 1,188,000 | 9,246,312 | 9,177,000 |  |
| C-1(A)4-1 | Restoration of Pavement (carriageway) RDA/PRDA |  | m2 | 1,502 | 568 | 4,419 | 853,000 | 6,637,338 | 6,588,000 |  |
| $\mathrm{C}-1(\mathrm{~A}) 4-2$ | Restoration of Pavement (Carriageway) UC/PS |  | m2 | 1,502 | 223 | 1,737 | 335,000 | 2,608,974 | 2,589,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

Lot C-1 (B)

Lot C-1 (B)


Lot C-3

Lot C-3

Lot C-4

Lot C-4

Lot C-4

Lot C-4


| Lot D: Vehicles |  |  |  |  |  |  | $\begin{aligned} & 1 \text { USD= } \\ & 1 \text { USD= } \\ & 1 \text { LKR= } \end{aligned}$ | 120.1 JPY <br> 139.0 LKR <br> 0.864 JPY |  | $\begin{gathered} \text { Remark } \\ \mathrm{s} \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Code | Item | Specifications | Unit | Quantity | Unit Price |  | Amount |  |  |  |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| D-1 | Vehicles |  |  |  |  |  | 0 | 63,440,000 | 54,812,000 |  |
| D-1-1 | Crew Cab |  | Nr. | 2 | 0 | 6,630,000 | 0 | 13,260,000 | 11,457,000 |  |
| D-1-2 | Single Cab |  | Nr . | 1 | 0 | 3,320,000 | 0 | 3,320,000 | 2,868,000 |  |
| D-1-3 | Double Cab |  | Nr. | 2 | 0 | 6,630,000 | 0 | 13,260,000 | 11,457,000 |  |
| D-1-4 | Water Bowser |  | Nr. | 2 | 0 | 7,030,000 | 0 | 14,060,000 | 12,148,000 |  |
| D-1-5 | Motor Cycles |  | Nr. | 7 | 0 | 220,000 | 0 | 1,540,000 | 1,331,000 |  |
| D-1-6 | Lorry with Jib Crane | capacity: 5 ton | Nr . | 1 | 0 | 8,000,000 | 0 | 8,000,000 | 6,912,000 |  |
| D-1-7 | Lorry | with enclosed cargo bed |  | 1 | 0 | 10,000,000 | 0 | 10,000,000 | 8,640,000 |  |
|  |  |  |  |  |  |  |  |  |  |  |
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| Lot E: Heavy Duty Machines |  |  |  |  |  |  | $\begin{aligned} & 1 \text { USD= } \\ & 1 \text { USD= } \\ & 1 \text { LKR= } \end{aligned}$ | $\begin{array}{ll} 120.1 & \text { JPY } \\ 139.0 & \text { LKR } \\ 0.864 & \text { JPY } \end{array}$ |  | $\begin{gathered} \text { Remark } \\ \mathrm{s} \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Code | Item | Specifications | Unit | Quantity | Unit | rice |  | Amount |  |  |
|  |  |  |  |  | FC(JPY) | LC(LKR) | FC(JPY) | LC(LKR) | Total (JPY) |  |
| E-1 | Heavy Duty Machines |  |  |  |  |  | 0 | 15,650,000 | 13,522,000 |  |
| E-1-1 | Asphalt Cutters |  | Nr. | 2 | 0 | 630,000 | 0 | 1,260,000 | 1,089,000 |  |
| E-1-2 | Tapping Machines |  | Nr. | 2 | 0 | 80,000 | 0 | 160,000 | 138,000 |  |
| E-1-3 | Compactors |  | Nr. | 2 | 0 | 330,000 | 0 | 660,000 | 570,000 |  |
| E-1-4 | Vibrating Hammers |  | Nr. | 2 | 0 | 330,000 | 0 | 660,000 | 570,000 |  |
| E-1-5 | Portable Generators |  | Nr. | 3 | 0 | 800,000 | 0 | 2,400,000 | 2,074,000 |  |
| E-1-6 | Water Meter Test Bench |  | Nr. | 1 | 0 | 3,320,000 | 0 | 3,320,000 | 2,868,000 |  |
| E-1-7 | Mini-Backhoe |  | Nr . | 1 | 0 | 7,190,000 | 0 | 7,190,000 | 6,212,000 |  |
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Non-Eligible Work by NWSDB

Non-Eligible Wahalkada - 1


Summary

| coiliom | ${ }_{\text {Fsispl }}^{\text {sipy } \text { Cost }}$ |  | ${ }_{\text {F/S }}^{\text {Laymg Cost }}$ Sts |  | Fs | ${ }_{\text {Tosal }}^{\text {Tsis }}$ | Rato |
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|  |  |  |  |  |  |  | 1.701.70 <br> and <br> and <br> 3.55 <br> 3.55$\|$ |
|  |  |  | $\begin{gathered} 1.989 \\ \hline 1.355 \\ \hline 135 \end{gathered}$ | $\begin{gathered} 7,569 \\ \hline 6.859 \\ \hline, 6759 \end{gathered}$ | $\begin{aligned} & 26,453 \\ & 20,873 \\ & 16,709 \end{aligned}$ |  | ${ }_{1}^{1.58}$ |


| ${ }^{\text {lem }} 0$ | ${ }_{\text {Fsis }}{ }^{\text {suppy Cost }}$ Sts |  | $\mathrm{Fs}^{\text {Laxing Cost }}$ Sts |  | FIS | ${ }_{\text {Tolal }}^{\text {Sos }}$ | Rato |
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Transmission Line

| Item | Supply Cost |  |  |  |  |  |  |  |  | Laying Cost |  |  |  |  |  |  |  |  |  | $\begin{aligned} & \text { 1RS= } \\ & \hline \begin{array}{c} \text { TOTAL } \\ \text { PRTICE } \\ \text { (LKR) } \end{array} \\ & \hline \end{aligned}$ | 0.61 JPY |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID OD | CIF Price | 10\% | Conv LKR | Filting \&Val | Inland Trans | Supply Price | Contractor ОН (7\%) | Total Supoly | NWSDB | Laying | Fittings | Exc. | Earth work | Dewatering | Bedding \& | Rock Allm | total | $\underset{\text { Contractor }}{\text { OH }}$ | Total |  | Unit Price |  |
|  | US\$ | Discount | 130.00 |  |  | Suppraice |  |  |  |  |  | omn |  |  |  | 50\% | Laying |  |  |  | Yen | LKR |
| HDPE 50050 |  |  |  |  |  |  |  |  |  |  | ${ }^{30 \%}{ }_{869}$ |  |  |  |  |  |  |  |  |  |  |  |
| $500 \quad 560$ | 52.71 | 137.44 | 17,867 | 4,467 | 1,340 | 23,674 | 1,657 | 25,331 | 22,176 |  | 869 | 697 |  |  |  | 349 | 1,915 | 517 | 2,431 | 27,762 | 14,552 | 3,907 |
| 450 | 121.91 | 109.72 | 14263 | 3,566 | 1,070 | ${ }^{18,898}$ | 1,323 | 20,221 | 16,632 |  | 848 | 581 |  |  |  | 291 214 | 1,720 1,250 1 | 464 340 | 2,184 | 22,405 | 11,639 | 3,325 <br> 263 |
| $400 \quad 450$ | 99.90 | 89.91 | 11687 | 2,922 | ${ }^{877}$ | 15,485 | 1,084 | 16,569 | 9,519 |  | 618 59 | ${ }_{413}^{427}$ |  |  |  | 214 <br> 207 | 1,259 1,179 | 340 | +1,598 | 18,168 | 9,519 | 2,563 |
| 350  <br> 300 400 <br> 355  | 77.88 | 70.09 5547 | 7111 | 2,278 1803 18 | 683 541 | $\begin{array}{r}12,072 \\ 9,555 \\ \hline\end{array}$ | 845 | 12,917 10,223 | ¢,774 |  | 559 481 | 413 401 |  |  |  | 201 | $1,1,083$ | 292 | ${ }_{1}^{1,375}$ | +11.598 | 7,444 5,909 | 2,211 <br> 1,911 |
| $250 \quad 280$ | 38.23 | 34.40 | 4472 | 1,118 | 335 | 5,925 | 415 | 6,340 | 3,514 |  | 364 | 324 |  |  |  | 162 | 850 | 230 | 1,080 | 7,420 | 3,685 | 1,379 |
| 200250 | 30.45 | 27.40 | 3562 | 891 | 267 | 4,720 | 330 | 5,050 | 3,306 |  | 296 | 264 |  |  |  | 132 | 692 | 187 | 879 | 5,929 | 2,937 | 1,114 |
| $150 \quad 180$ | 15.87 | 14.29 | 1857 | 464 | 139 | 2,461 | 172 | 2,633 | 1,788 |  | 227 | 224 |  |  |  | 112 | 563 | 152 | 715 | 3,348 | 1,554 | 800 |
| $100 \quad 110$ | 7.68 | 6.91 |  |  |  | 1,190 |  | 1,273 |  |  | 182 | 190 |  |  |  |  |  |  |  | 1,866 |  | 597 |
| $75 \quad 90$ | 4.05 | 3.64 | 473 | 118 | 35 | 627 | 44 | 671 | 527 |  | 180 | 130 |  |  |  | 65 | 375 | 101 | 476 | 1,147 | 423 | 453 |
| PVC Pipe |  |  |  | 20\% |  |  |  |  |  |  | 30\% |  |  |  |  |  |  |  |  |  |  |  |
| $250 \quad 280$ |  |  | 4140 | 828 |  | 4,968 | 348 | 5,316 | 4140 |  | 219.7 | 338 |  |  |  | 169 | 726.7 | 196 | 923 | 6,239 | 232 | 5,859 |
| 200 225 <br> 150  <br> 160  |  |  | 3462 <br> 1254 <br> 1 | ${ }_{6}^{692}$ |  | 4,154 | 291 | 4,445 | $\begin{array}{r}3462 \\ \hline 125 \\ \hline 1\end{array}$ |  | 170.3 | 338 |  |  |  | 169 | ${ }_{59}^{677.3}$ | 183 | 860 753 | 5,305 | 202 113 | 4,974 |
| $150 \quad 160$ |  |  | 1254 | 251 |  | 1,505 | 105 | 1,610 | 1254 |  | 124.8 | 312 |  |  |  | 156 | 592.8 | 160 | 753 | 2,363 | 113 | 2,178 |
| $100 \quad 110$ |  |  | 601 | 120 |  | 721 | 50 | 772 | 601 |  | 96.2 | 234 |  |  |  | 117 | 447.2 | 121 | 568 | 1,340 | 73 | 1,220 |
| $75 \quad 90$ |  |  | 396 | 79 |  | 475 | 33 | 508 | 336 |  | 80.6 | 215 |  |  |  | 107.5 | 403.1 | 109 | 512 | 1,020 | 61 |  |
| $50 \quad 63$ |  |  | 265 | 53 |  | 318 | 22 | 340 | 265 |  | 78 | 117 |  |  |  | 58.5 | 253.5 | 68 | 322 | 662 | 39 | 598 |
| ${ }_{400}{ }^{\text {N16 HDPE }}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $350 \quad 400$ | 116.82 | 105.14 | 13667 | 3,417 | 1,025 | 18,109 | 1,268 | 19,376 | 9,519 |  | 559 | 413 |  |  |  | 207 | +1,179 | 318 | ${ }_{1}^{1,497}$ | 20,873 | 11,098 | 3,163 <br> 2,680 |
| $300 \quad 355$ | 92.45 | 83.20 | 10816 | 2,704 | 811 | 14,331 | 1,003 | 15,334 | 6,774 |  | 481 | 401 |  |  |  | 201 | 1,083 | 292 | 1,375 | 16,709 | 8,800 | 2,283 |


| ltem |  |  |  | Supply Co |  |  |  |  |  |  |  |  | Laying Cos |  |  |  |  |  | 1RS= | 0.904 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | CIF Price |  |  |  | upply \& layng |  |  |  |  |  |  |  |  |  | total |  |  |  | Unit Price |  |
| ID | OD |  | Fittings \&Valves | Clearance \& Trans 5\% | Supply Price | transport,loadin g,unloading,inve stment cost .storage.protec | $\begin{gathered} \text { Total } \\ \text { Supply } \end{gathered}$ | NWSDB <br> Rate (re | Laying | Fittings \&Valves $35 \%$ | Excavation Comn | Earth work supports | Dewatering | Bedding \& surrounding | Rock allowanc e $50 \%$ | Laying | Contractor OH (27\%) | Total Install | PRICE Supply \& Install(LKR | Yen | LKR |
| HDPE Pipe |  |  | 35\% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 500 | 560 | 20,178 | 7,062 | 1,362 | 28,602 | 5,720 | 34,322 |  | 1,690 | 591.5 | 2,177 | 480.80 | 155.00 | 1,792 | 1,089 | 7,975 | 2,153 | 10,128 | 44,450 | 29,607 | 11,699 |
| 450 |  | ${ }^{16,112}$ | 5,639 | 1,088 | 22,839 |  | 27,406 |  | 1,514 | 529.9 | 2,090 | ${ }^{442.80}$ | 148.80 | 1,709 | 1,045 | 7,480 | 2,019 | 9,499 |  | 23,831 |  |
| 400 | 450 | ${ }^{13,026}$ | 4,559 | 879 | 18,464 | 3,693 | 22,157 |  | 1,281 | 448.35 | 1,233 | 428.00 | 137.80 | 1,607 | 617 | 5,752 | 1,553 | 7,305 | 29,462 | 19,216 | 8,205 |
| 350 | 400 | 10,497 | 3,674 | 709 | 14,880 | 2,976 | 17,855 |  | 1,106 | 387.1 | 1,109 | 413.40 | 124.00 | 1,583 | 555 | 5,277 | 1,425 | 6,702 | 24,557 | 15,595 | 7,306 |
| 300 | 355 | 8,154 | 2,854 | 550 | 11,558 | 2,312 | 13,870 |  | 1,034 | 361.9 | 1,109 | 401.60 | 124.00 | 1,349 | 555 | 4,934 | 1,332 | 6,266 | 20,136 | 12,257 | 6,578 |
|  | 315 | 6,403 | 2,241 | 432 | 9,076 | 1,815 | 10,891 |  | 849 | 297.15 | 924 | 390.00 | 103.40 | 1,237 | 462 | 4,263 | 1,151 | 5,413 | ${ }^{16,305}$ | 9,691 | 5,585 |
| 250 | 280 | 5,053 | 1,769 | 341 | 7,163 | 1,433 | 8,596 |  | 804 | 281.4 | 924 | 378.20 | 103.40 | 1,174 | 462 | 4,127 | 1,114 | 5,241 | ${ }^{13,837}$ | 7,779 | 5,232 |
| 200 | 250 | 4,010 | 1,404 | 271 | 5,685 | 1,137 | 6,822 |  | 722 | 252.7 | 853 | 369.40 | 95.40 | 1,157 | 427 | 3,876 | 1,047 | 4,923 | 11,744 | 6,276 | 4,802 |
|  | 225 | 3,251 | 1,138 | 219 | 4,608 | ${ }^{922}$ | 5,530 |  | 697 | 243.95 | 853 | ${ }^{363.60}$ | 95.40 | 948 | ${ }^{427}$ | 3,627 | 979 | 4,607 | 10,137 | 5,171 | 4,417 |
| 150 | 180 | 2,087 | 730 | 141 | 2,958 | 592 | 3,549 |  | 616 | 215.6 | 792 | 348.80 | 88.60 | 831 | 396 | 3,288 | 888 | 4,176 | 7,725 | 3,483 | 3,872 |
|  | 160 | 1,642 | 575 | 111 | 2,328 | 466 | 2,793 |  | 601 | 210.35 | 792 | 343.00 | 88.60 | 794 | 396 | 3,225 | 871 | 4,096 | 6,889 | 2,850 | 3,736 |
| 100 | 125 | 1,006 | 352 | 68 | 1,426 | 285 | 1,711 |  | 458 | 160.3 | 616 | 328.40 | 68.80 | 785 | 308 | 2,725 | 736 | 3,460 | 5,171 | 1,874 | 3,098 |
|  | 110 | 787 | 275 | 53 | 1,115 | 223 | 1,338 |  | 450 | 157.5 | 616 | 328.40 | 68.80 | 785 | 308 | 2,714 | 733 | 3,446 | 4,785 | 1,565 | 3,053 |
| 75 | 90 | 528 | 185 | 36 | 749 | 150 | 898 |  | 366 | 128.1 | 504 | 386.00 | 56.40 | 771 | 252 | 2,464 | 665 | 3,129 | 4,027 | 1,160 | 2,744 |
| PVC Pipe |  |  | 25\% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 250 | 280 225 | 4175 | 1,044 |  | 5,219 | 1,044 | 6,263 <br> 3888 |  | 517 387 | 180.95 | 760 | 381.20 | ${ }_{5}^{67.60}$ | $\begin{array}{r}1174 \\ 948 \\ \hline 18\end{array}$ | 380 | 3,461 | 934 749 | 4,395 3 3 | 10,658 | 5,970 | 4,054 |
| 200 150 | 225 160 | 2592 1350 | 648 3 |  | 3,240 | 648 <br> 338 | 3,888 <br> 2,026 |  | 387 299 | 135.45 104.65 | 580 464 | 381.20 351.80 | 51.60 41.40 | 948 794 | 290 | $\begin{array}{r}2,773 \\ \hline\end{array}$ | 749 | 3,522 | 7,410 | 3,813 | 3,192 <br> 2.574 |
| 100 | 110 110 | 573 | 143 148 |  | +1,686 | 143 | -859 |  | 217 | 75.95 | 348 | ${ }_{351.80}$ | 31.00 | 785 | 174 | 1,983 | 535 | 2,518 | 3,377 | ${ }_{1,077}$ | ${ }_{2,186}^{2,574}$ |
| 75 | 90 | 432 | 108 |  | 540 | 108 | 648 |  | 209 | 73.15 | 348 | 322.40 | 31.00 | 771 | 174 | 1,929 | 521 | 2,449 | 3,097 | 886 | 2,117 |
| 50 | 63 | 219 | 55 |  | 274 | 55 | 329 |  | 177 | 61.95 | 299 | 347.40 | 26.60 | 532 | 150 | 1,593 | 430 | 2,024 | 2,352 | 555 | 1,739 |
| HDPE PIPE | PE100 | SDR11 PN | 35\% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 400 | 450 | 19991 | 6,997 |  |  |  |  |  |  | 473.9 | 1233 | 428.00 | 137.80 | 1709 |  |  | 1,607 |  | 41,564 | 29,001 | 9,483 |
| 350 300 | 400 355 | 15431 11995 | 5,401 4,198 | 1,042 810 | 21,874 17003 | 4,375 3,401 | 26,248 20.403 |  | 1172 1100 | 410.2 385 | 1109 1109 | 413.40 401.60 | 124.00 124.00 | 1583 1349 | 555 555 | 5,366 | 1,449 1 1356 | 6,815 | 33,063 36783 | 22,517 | 8,155 |
|  | 355 | 1995 | 4,198 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 7,259 |

## Distribution Line




Supply
Asian countries with out Malaysia
2015 NWSDB Rate Book
PVC type 1000
HDPE
For Transmission $30 \%$ of rate book allowcation was added additiona $5 \%$ to cater the Chambers.(DI)(pipe laying away from the
shorder) Fistribution $40 \%$ of rate book allowcation was added additiona $10 \%$ to cater the Chambers.(DI)(pipe laying away from the shoulder)
prc
For Transmission $20 \%$ of rate book allowcation was added additiona $5 \%$ to cater the Chambers.(DI)(pipe laying away from the sholder)
For Distribution 35\% of rate book allowcation was added additiona $10 \%$ to cater the Chambers.(DI)(pipe laying away from the shoulder)

material,ramming,(98\% compaction) and disposal of surplus excavated material
Earth work supports \& dewatering considered $20 \%$ according to site survey.
Bedding \& surrounding rate anaylized
$\underset{\text { HDP }}{\substack{\text { H I rans }}}$
he shoulder \% of rate book allowcation was added adationa $5 \%$ to cater the Chambers.( For Ul pipes )Hipe laying away from
For Distribution $40 \%$ of rate book allowcation was added additiona $10 \%$ to cater the Chambers.(DI)(pipe laying away from the
shoulder)

the shoulder
For Distribution $40 \%$ of rate book allowcation was added additiona $10 \%$ to cater the Chambers.(DI)(pipe laying away from the

CHAPTER 6

FINANCIAL AND ECONOMIC CONSIDERATIONS

## STATEMENT OF COMPREHENSIVE INCOME

Year ended 31 December 2014

|  |  | Budget 2014 | $\begin{gathered} \text { Actual } \\ 2014 \end{gathered}$ | $\begin{gathered} \text { Actual } \\ 2013 \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |
|  | Note | Rs. | Rs. | Rs. |
| Revenue | 7 | 18,733,888,000 | 18,710,049,680 | 17,074,986,476 |
| Cost of Sales | 8 | $(10,993,514,984)$ | $(11,325,829,471)$ | $(10,015,137,052)$ |
| Gross Profit |  | 7,740,373,016 | 7,384,220,209 | 7,059,849,424 |
| Other Operating Income and Gains | 9 | 2,475,745,000 | 1,443,777,097 | 1,195,405,502 |
| Administrative Expenses | 10 | $(6,311,835,016)$ | $(5,985,331,888)$ | (5,831,427,723) |
| Other Operating Expenses | 11 | $(490,000,000)$ | $(334,370,432)$ | (559,425,320) |
| Operating Profit / (Loss) |  | 3,414,283,000 | 2,508,294,987 | 1,864,401,883 |
| Finance Income | 12 | 145,000,000 | 213,239,303 | 225,687,464 |
| Finance Cost | 13 | (1,237,834,000) | $(1,242,530,161)$ | $(1,039,762,873)$ |
| Profit / (Loss) before Tax |  | 2,321,449,000 | 1,479,004,129 | 1,050,326,475 |
| Provision for Income Taxation | 14 | $(60,000,000)$ | $(53,113,301)$ | $(47,466,069)$ |
| Profit / (Loss) for the Year |  | 2,261,449,000 | 1,425,890,828 | 1,002,860,406 |

Other Comprehensive Income for the Year, Net of Tax $\qquad$
$\qquad$
$\qquad$
Total Comprehensive Income for the Year
$\underline{\underline{2,261,449,000} \xlongequal{\mathbf{1 , 4 2 5 , 8 9 0 , 8 2 8}} \xlongequal{1,002,860,406}}$

Accounting Policies \& Notes from pages 6 to 27 form an integral part of these Financial Statements.

## STATEMENT OF COMPREHENSIVE INCOME

## Year ended 31 December 2012

|  |  | Budget 2012 | $\begin{gathered} \text { Actual } \\ 2012 \end{gathered}$ | Actual $2011$ |
| :---: | :---: | :---: | :---: | :---: |
|  | Notes | Rs. | Rs. | Rs. |
| Revenue | 8 | 14,759,465,860 | 14,344,205,499 | 12,609,703,240 |
| Cost of Sales | 9 | (10,224,592,139) | (8,821,797,602) | (7,470,490,082) |
| Gross Profit |  | 4,534,873,721 | 5,522,407,897 | 5,139,213,158 |
| Other Operating Income and Gains | 10 | 1,384,558,140 | 1,586,511,700 | 1,318,540,370 |
| Administrative Expenses | 11 | $(5,126,575,861)$ | $(5,848,136,492)$ | $(4,680,820,504)$ |
| Other Operating Expenses | 12 | $(432,894,000)$ | $(54,474,810)$ | (227,425,798) |
| Operating Profit / (Loss) |  | 359,962,000 | 1,206,308,295 | 1,549,507,226 |
| Finance Income | 14 | 100,000,000 | 213,955,983 | 131,257,102 |
| Finance Cost | 13 | $(2,100,000,000)$ | (1,013,244,742) | $(943,355,146)$ |
| Profit / (Loss) before tax |  | $(1,640,038,000)$ | 407,019,536 | 737,409,181 |
| Taxation | 15 | $(38,000,000)$ | $(40,217,024)$ | (53,055,544) |
| Profit / (Loss) for the Year |  | (1,678,038,000) | 366,802,512 | 684,353,637 |

Other Comprehensive Income for the Year, Net of Taxes
Total Comprehensive Income for the Year

| - | - | - |
| :---: | :---: | :---: |
| $(1,678,038,000)$ | 366,802,512 | 684,353,637 |

Accounting Policies \& Notes from pages 6 to 31 form an integral part of these Financial Statements.

## STATEMENT OF FINANCIAL POSITION

As at 31 December 2014


## D. Thotawatte

Addl.G.M.(Finance)
The Board of Directors is responsible for the preparation and presentation of these Financial Statements

| K. A. Ansar | B.W.R.Balasuriya |
| :--- | :---: |
| Chairman | General Manager |
| Accounting Policies \& Notes from pages 6 to 27 form an integral part of these Financial Statements. |  |
| Colombo |  |
| 20th March 2015 |  |

As at 31 December 2012

|  |  | $\underset{\text { Rs. }}{2012}$ | $\begin{gathered} 2011 \\ \text { Rs. } \end{gathered}$ | $\begin{gathered} 2010 \\ \text { Rs. } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |
| Assets |  |  |  |  |
| Non- Current Assets | Notes |  |  |  |
| Property , Plant \& Equipments | 31 | 104,138,121,929 | 84,358,595,809 | 73,488,501,348 |
| Intangible Assets | 17 | 153,038,825 | 204,051,766 | 255,064,708 |
| Capital Work in Progress | 16 | 103,647,170,880 | 93,616,616,133 | 75,122,041,709 |
| Other Financial assets | 18 | 37,818,865 | 47,021,257 | 65,483,233 |
| Total Non-Current Assets |  | 207,976,150,498 | 178,226,284,966 | 148,931,090,998 |
| Current Assets |  |  |  |  |
| Non Operating Assets |  | 117,763,828 | 129,519,607 | 186,528,287 |
| Inventories | 19 | 3,193,201,350 | 2,942,958,858 | 2,888,139,263 |
| Trade \& Other Receivables | 20 | 4,930,179,819 | 4,442,510,374 | 3,953,334,109 |
| Deposits \& Advances | 21 | 3,496,450,351 | 4,456,408,204 | 5,573,160,188 |
| Investments | 22 | 12,341,312 | 892,090,141 | 357,413,810 |
| Cash \& Cash Equivalents | 23 | 1,874,266,329 | 810,401,456 | 1,415,660,310 |
| Total Current Assets |  | 13,624,202,989 | 13,673,888,639 | 14,374,235,967 |
| Total Assets |  | 221,600,353,487 | 191,900,173,605 | 163,305,326,963 |
| Equity and Liabilities |  |  |  |  |
| Equity |  |  |  |  |
| Assets taken over from Government Dept. | 24 | 185,480,387 | 185,480,387 | 185,480,387 |
| Government Grants | 25 | 77,931,820,155 | 69,440,023,265 | 62,617,514,691 |
| Capital Grants | 26 | 116,361,732,845 | 94,049,872,568 | 78,517,957,742 |
| Staff Welfare Fund | 27 | 14,415,579 | 13,935,577 | 13,468,272 |
| Retained Earnings |  | (15,412,753,303) | (12,733,326,604) | (12,920,392,765) |
| Total Equity |  | 179,080,695,663 | 150,955,985,193 | 128,414,028,327 |
| Non-Current Liabilities |  |  |  |  |
| Loan Payable | 28 | 29,011,510,716 | 27,838,903,108 | 23,070,625,176 |
| Other Deferred Liabilities | 29 | 2,152,080,886 | 2,528,998,643 | 2,485,297,289 |
| Total Non-Current Liabilities |  | 31,163,591,602 | 30,367,901,751 | 25,555,922,465 |
| Current Liabilities |  |  |  |  |
| Trade \& Other Payables | 30 | 4,923,021,889 | 5,290,853,161 | 3,654,779,563 |
| Loan Capital Payable |  | 3,592,784,161 | 2,687,799,521 | 2,362,323,996 |
| Loan Interest Payable |  | 2,768,276,863 | 2,464,625,111 | 3,157,126,784 |
| Non Operating Liabilities |  | 71,983,310 | 133,008,868 | 161,145,829 |
| Total Current Liabilities |  | 11,356,066,223 | 10,576,286,661 | 9,335,376,172 |
| Total Equity and Liabilities |  | 221,600,353,487 | 191,900,173,605 | 163,305,326,963 |

## D. Thotawatte

## Addl.G.M.(Finance \& Commercial)

The Board of Directors is responsible for the preparation and presentation of these financial statements

$$
\begin{aligned}
& \begin{array}{l}
\text { K. Hettiarachchi } \\
\text { Chairman }
\end{array} \begin{array}{c}
\text { B.W.R.Balasuriya } \\
\text { General Manager }
\end{array} \\
& \text { Accounting Policies \& Notes from pages } 6 \text { to } 31 \text { form an integral part of these Financial Statements. } \\
& \text { Colombo } \\
& \text { 5th of February } 2014
\end{aligned}
$$

## STATEMENT OF CASH FLOW

Year ended 31 December 2014

|  | Note | $\begin{gathered} 2014 \\ \text { Rs. } \\ \hline \end{gathered}$ | $\begin{gathered} 2013 \\ \text { Rs. } \\ \hline \end{gathered}$ |
| :---: | :---: | :---: | :---: |
| Cash Flows From / (Used in) Operating Activities |  |  |  |
| Net Profit/(Loss) before Tax |  | 1,479,004,129 | 1,050,326,475 |
| Adjustments for |  |  |  |
| Interest Income | 13 | $(213,239,303)$ | $(225,687,464)$ |
| (Profit)/Loss on disposal of Fixed Assets |  | $(1,540,413)$ | $(14,647)$ |
| Depreciation | 10.2 | 2,730,436,009 | 2,586,090,059 |
| Amortization of Intangible Assets | 10.2 | 293,841 | - |
| Grant amortization against depreciation | 10.2 | $(699,693,512)$ | $(590,253,350)$ |
| Revaluation surplus | 35 | $(53,710,538)$ |  |
| Retiring gratuity provision | 29.1 | 227,136,696 | 241,659,234 |
| Opening Balance Adjustments |  | 25,126.00 | - |
| Interest Expense | 13 | 1,242,530,161 | 1,039,762,873 |
| Operating Profit before Working Capital Changes |  | 4,711,242,197 | 4,101,883,179 |
| (Increase)/Decrease in Inventories |  | (1,874,070,539) | $(607,663,128)$ |
| (Increase)/Decrease in Debtors, Rece'bles \& Deposits |  | $(5,402,599,585)$ | (1,264,090,309) |
| Increase/(Decrease) in Creditors \& Provisions |  | 1,756,947,297 | 335,176,667 |
| Cash Generated from Operations |  | (808,480,630) | 2,565,306,409 |
| Tax Paid | 14 | $(53,113,301)$ | $(47,466,069)$ |
| Gratuity Paid | 11 | $(227,136,696)$ | (241,659,234) |
| Net Cash from Operating Activities |  | (1,088,730,627) | 2,276,181,106 |
| Cash Flows from/(used) in Investing Activities |  |  |  |
| Investments in Fixed Assets \& Work-In-Progress |  | (31,492,384,463) | $(21,594,999,438)$ |
| Withdrawal of other financial assets |  | 8,197,324 | 6,810,864 |
| Sale proceeds for disposal assets |  | 5,613,335 | 51,000 |
| Investment Income Received |  | 216,449,698 | 240,834,475 |
| (Investment) / Withdrawl of Investments |  | 96,707,679 | $(328,628,877)$ |
| Net Cash Flows used in Investing Activities |  | (31,165,416,426) | $(21,675,931,977)$ |
| Cash Flows from/(used in) Financing Activities |  |  |  |
| Government Grant during the Period |  | 7,768,323,405 | 5,147,344,801 |
| Capital Grant during the period |  | 23,177,800,978 | 13,530,554,067 |
| New Loans |  | 5,569,216,314 | 4,213,780,952 |
| Loan Repayments |  | (1,030,498,375) | $(200,741,478)$ |
| Interest Paid |  | $(1,871,942,868)$ | (1,376,381,658) |
| VAT payments through treasury funds |  | $(482,110,508)$ | (1,909,195,386) |
|  |  | 33,130,788,946 | 19,405,361,298 |
| Net Increase in Cash \& Cash Equivalents |  | 876,641,892 | 5,610,428 |
| Cash \& Cash Equivalents at the begining of the year |  | 1,879,876,757 | 1,874,266,329 |
| Cash \& Cash Equivalents at the end of the year |  | 2,756,518,649 | 1,879,876,757 |

[^1]
## CASH FLOW STATEMENT

Year ended 31 December 2012

|  | $\begin{gathered} 2012 \\ \text { Rs. } \end{gathered}$ | $\begin{gathered} 2011 \\ \text { Rs. } \end{gathered}$ |
| :---: | :---: | :---: |
| Cash Flows From / (Used in) Operating Activities |  |  |
| Net Profit/(Loss) before Tax | 407,019,536 | 737,409,181 |
| Adjustments for |  |  |
| Interest Income | $(213,955,983)$ | $(131,257,102)$ |
| Profit/Loss on disposal of Fixed Assets | 3,689,147 | 1,010,820 |
| Depreciation | 2,026,525,175 | 1,997,682,527 |
| Revaluation loss | 776,836,147 | 474,261,491 |
| Grant amortization against depreciation | $(336,788,311)$ | $(277,796,256)$ |
| Retiring gratuity provision | $(146,349,076)$ | 216,756,879 |
| Prior Year Adjustments | $(76,516,584)$ | $(496,354,003)$ |
| Non conversion adjustment | 534,440,243 | $(466,168)$ |
| Interest Expense | 1,013,244,742 | 943,355,146 |
| Operating Profit before Working Capital Changes | 3,988,145,035 | 3,464,602,516 |
| (Increase)/Decrease in Inventories | $(250,242,493)$ | $(54,819,595)$ |
| (Increase)/Decrease in Debtors, Rece'bles \& Deposits | 509,984,138 | 685,915,163 |
| Increase/(Decrease) in Creditors \& Provisions | $(463,739,399)$ | 1,615,810,241 |
| Cash Generated from Operations | 3,784,147,282 | 5,711,508,326 |
| Tax Paid | $(40,217,024)$ | $(53,055,544)$ |
| Gratuity Paid | $(195,686,112)$ | $(180,929,130)$ |
| Net Cash from Operating Activities | 3,548,244,145 | 5,477,523,652 |
| Cash Flows from/(used) in Investing Activities |  |  |
| Investments in Fixed Assets | $(26,099,213,596)$ | $(13,347,264,249)$ |
| Investments in Work-In-Progress | $(10,030,554,746)$ | $(18,494,574,425)$ |
| Withdrawal of other financial assets | 9,202,392 | 18,461,976 |
| Sale proceeds for disposal assets | 8,964,140 | 4,214,950 |
| Investment Income Received | 188,016,031 | 129,926,338 |
| (Investment) / Withdrawl of Investments | 879,748,829 | $(534,676,331)$ |
| Net Cash Flows used in Investing Activities | $(35,043,836,950)$ | $(32,223,911,741)$ |
| Cash Flows from/(used in) Financing Activities |  |  |
| Government Grant during the Period | 9,906,397,371 | 8,193,233,405 |
| Capital Grant during the period | 22,623,615,804 | 15,786,177,156 |
| New Loans | 2,665,416,044 | 4,768,277,932 |
| Loan Repayments | $(610,990,948)$ | 325,475,525 |
| Interest Paid | $(686,425,837)$ | $(1,635,856,820)$ |
| VAT payments through treasury funds | $(1,338,554,755)$ | $(1,296,177,963)$ |
|  | 32,559,457,678 | 26,141,129,236 |
| Net Increase in Cash \& Cash Equivalents | 1,063,864,873 | $(605,258,854)$ |
| Cash \& Cash Equivalents at the begining of the year | 810,401,456 | 1,415,660,310 |
| Cash \& Cash Equivalents at the end of the period | 1,874,266,329 | 810,401,456 |

Accounting Policies \& Notes from pages 6 to 31 form an integral part of these Financial Statements.
National Water Supply And Drainage Board

| STATEMENT OF CHANGES IN EQUITY |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Year ended 31 December 2013 |  |  |  |  |

Accounting Policies \& Notes from pages 6 to 28 form an integral part of these Financial Statements.
National Water Supply And Drainage Board
STATEMENT OF CHANGES IN EQUITY
Year ended 31 December 2012
Balance as at 1 January 2011
Net profit for the year
Receipts / Transfers during the year
Transfers to Staff welfare fund
Prior Year Adjustments (Salary arreas 2009)
Prior Year Adjustments (Ministry Advance write off)
Disposal Adjustment
Balance as at 31 December 2011
Net profit for the year
Receipts / Transfers during the year
Transfers to Staff welfare fund
Prior Year Adjustments (Salary arreas 2009) Prior year adj. (GL code 680 error correction) Prior year adjustment (Sewerage)
Revaluation Deficit
Disposal Adjustment
Non conversion adjustments
Balances as at 31 December 2012

[^2]
#   The Gazette of the Democratic Scialisis Republic of SriL Lanka EXTRAORDINARY 

<br>No. 1776/13-TUESDAY SEPTEMBER 18, 2012

(Published by Authority)

## PART I : SECTION (I) — GENERAL Government Notifications

NATIONAL WATER SUPPLY AND DRAINAGE BOARD LAW, No. 2 OF 1974

## Notice under Section 84

NOTICE is hereby given in terms of Section 84 of the National Water Supply and Drainage Board Law No. 02 of 1974 that the following tariffs will be charged with effect from the 01 st day of October 2012, from all the consumers supplied with water from the water supply schemes of the National Water Supply and Drainage Board.

This notice replaces with effect from the 01st day of October 2012, the notice appearing in the Gazette Extraordinary No. 1588/26 dated 13th February, 2009 in respect of the water tariff applicable to all consumers who are supplied with water by the National Water Supply and Drainage Board.

Karunasena Hettiarachchi,
Chairman.

National Water Supply and Drainage Board,
Ratmalana,
18th September 2012.

TARIFF 01

Domestic - SAmurdhi Receipients
(i) This tariff shall apply to water provided to households of Samurdhi recipients for domestic purposes.
(ii) The monthly charges for supply under this tariff shall be as given in the table below :-
 Part I : Sec. (I) - GAZETTE EXTRAORDINARY OF THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA - 18.09.2012

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-05$ | 5.00 | 50.00 |
| $06-10$ | 10.00 | 50.00 |
| $11-15$ | 15.00 | 50.00 |
| $16-20$ | 40.00 | 80.00 |
| $21-25$ | 58.00 | 100.00 |
| $26-30$ | 88.00 | 200.00 |
| $31-40$ | 105.00 | 400.00 |
| $41-50$ | 120.00 | 650.00 |
| $51-75$ | 130.00 | $1,000.00$ |
| Over 75 | 140.00 | $1,600.00$ |

## TARIFF 02

## Domestic - Non Samurdhi Tenement Garden

(i) This tariff shall apply to supplies of water to households, other than those of Samurdhi recipients, residing in tenement gardens, for domestic purposes.
(ii) The monthly charges for supply under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-05$ | 8.00 | 50.00 |
| $06-10$ | 11.00 | 65.00 |
| $11-15$ | 20.00 | 70.00 |
| $16-20$ | 40.00 | 80.00 |
| $21-25$ | 58.00 | 100.00 |
| $26-30$ | 88.00 | 200.00 |
| $31-40$ | 105.00 | 400.00 |
| $41-50$ | 120.00 | 650.00 |
| $51-75$ | 130.00 | $1,000.00$ |
| Over 75 | 140.00 | $1,600.00$ |

## TARIFF 03

## Other than for Samurdhi Receipients and Tenement Garden

(i) This tariff shall apply to supplies of water to households, other than those of Samurdhi recipients and residing in tenement gardens, for domestic purposes.
(ii) The monthly charges for supply under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-05$ | 12.00 | 50.00 |
| $06-10$ | 16.00 | 65.00 |
| $11-15$ | 20.00 | 70.00 |
| $16-20$ | 40.00 | 80.00 |
| $21-25$ | 58.00 | 100.00 |
| $26-30$ | 88.00 | 200.00 |
| $31-40$ | 105.00 | 400.00 |
| $41-50$ | 120.00 | 650.00 |
| $51-75$ | 130.00 | $1,000.00$ |
| Over 75 | 140.00 | $1,600.00$ |

## TARIFF 04

Public stand Posts and Garden Taps
(i) This tariff shall apply for the supply of water through public Stand Posts and Garden Taps.
(ii) The monthly charges for supply of water under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-25$ | 10.00 | 250.00 |
| $26-50$ | 10.00 | 500.00 |
| $51-100$ | 10.00 | $1,000.00$ |
| $101-200$ | 10.00 | $1,600.00$ |
| Over 200 | 10.00 | $2,500.00$ |

 Part I : Sec. (I) - GAZETTE EXTRAORDINARY OF THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA - 18.09.2012

## TARIFF 05

## Schools and Religious Institutions

(i) This tariff shall apply for supply of water to Government Schools and Government Assisted Schools, Places of Worship in Religious Institutions and Government approved Charitable Institutions.
(ii) The monthly charges for supply of water under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-05$ | 6.00 | 50.00 |
| $06-10$ | 6.00 | 65.00 |
| $11-15$ | 6.00 | 70.00 |
| $16-20$ | 6.00 | 80.00 |
| $21-25$ | 6.00 | 100.00 |
| $26-30$ | 6.00 | 200.00 |
| $31-40$ | 6.00 | 400.00 |
| $41-50$ | 16.00 | 650.00 |
| $51-75$ | 16.00 | $1,000.00$ |
| Over 75 | 16.00 | $1,600.00$ |

TARIFF 06
Commercial
(i) This tariff shall apply for supply of water to Commercial Institutions, Private Hospitals, Non State Institutions, Tourist Hotels and Guest Houses.
(ii) The monthly charges for supply of water under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-25$ | 75.00 | 290.00 |
| $26-50$ | 75.00 | 575.00 |
| $51-75$ | 75.00 | $1,150.00$ |
| $76-100$ | 75.00 | $1,150.00$ |
| $101-200$ | 75.00 | $1,840.00$ |
| $201-500$ | 75.00 | $2,875.00$ |
| $501-1,000$ | 75.00 | $4,600.00$ |
| $1,001-2,000$ | 75.00 | $8,625.00$ |
| $2,001-4,000$ | 75.00 | $14,375.00$ |
| $4,001-10,000$ | 75.00 | $28,750.00$ |
| $10,001-20,000$ | 75.00 | $57,500.00$ |
| Over 20,000 | 75.00 | $115,000.00$ |

## TARIFF 07

## Government Hospitals

(i) This tariff shall apply for supply of water to Government Hospitals.
(ii) The monthly charges for supply of water under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-25$ | 53.00 | 250.00 |
| $26-50$ | 53.00 | 500.00 |
| $51-75$ | 53.00 | $1,000.00$ |
| $76-100$ | 53.00 | $1,000.00$ |
| $101-200$ | 53.00 | $1,600.00$ |
| $201-500$ | 53.00 | $2,500.00$ |
| $501-1,000$ | 53.00 | $4,000.00$ |
| $1,001-2,000$ | 53.00 | $7,500.00$ |
| $2,001-4,000$ | 53.00 | $12,500.00$ |
| $4,001-10,000$ | 53.00 | $25,000.00$ |
| $10,001-20,000$ | 53.00 | $50,000.00$ |
| Over 20,000 | 53.00 | $100,000.00$ |

TARIFF 08

Industries under Small and Medium Enterprises (SME)
(i) This tariff shall apply for supply of water to Industries under Small and Medium Enterprises (SME).
(ii) The monthly charges for supply of water under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-25$ | 56.00 | 265.00 |
| $26-50$ | 56.00 | 525.00 |
| $51-75$ | 56.00 | $1,050.00$ |
| $76-100$ | 56.00 | $1,050.00$ |
| $101-200$ | 56.00 | $1,680.00$ |
| $201-500$ | 56.00 | $2,625.00$ |
| $501-1,000$ | 56.00 | $4,200.00$ |
| $1,001-2,000$ | 56.00 | $7,875.00$ |
| $2,001-4,000$ | 56.00 | $13,125.00$ |
| $4,001-10,000$ | 56.00 | $26,250.00$ |
| $10,001-20,000$ | 56.00 | $52,500.00$ |
| Over 20,000 | 56.00 | $105,000.00$ |

## TARIFF 09

Industries other than Industries under Small and Medium Enterprises (SME) and Government Institutions
(i) This tariff shall apply for supply of water to Industries and Government Institutions.
(ii) The monthly charges for supply of water under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-25$ | 58.00 | 275.00 |
| $26-50$ | 58.00 | 550.00 |
| $51-75$ | 58.00 | $1,100.00$ |
| $76-100$ | 58.00 | $1,100.00$ |
| $101-200$ | 58.00 | $1,760.00$ |
| $201-500$ | 58.00 | $2,750.00$ |
| $501-1,000$ | 58.00 | $4,400.00$ |
| $1,001-2,000$ | 58.00 | $8,250.00$ |
| $2,001-4,000$ | 58.00 | $13,750.00$ |
| $4,001-10,000$ | 58.00 | $27,500.00$ |
| $10,001-20,000$ | 58.00 | $55,000.00$ |
| Over 20,000 | 58.00 | $110,000.00$ |

TARIFF 10

## Export Processing Zones of the Board of Investment

(i) This tariff shall apply for supply of water to Industries Export Processing Zones of the Board of Investment.
(ii) The monthly charges for supply of water under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-25$ | 61.00 | 290.00 |
| $26-50$ | 61.00 | 575.00 |
| $51-75$ | 61.00 | $1,150.00$ |
| $76-100$ | 61.00 | $1,150.00$ |
| $101-200$ | 61.00 | $1,840.00$ |
| $201-500$ | 61.00 | $2,875.00$ |
| $501-1,000$ | 61.00 | $4,600.00$ |
| $1,001-2,000$ | 61.00 | $8,625.00$ |
| $2,001-4,000$ | 61.00 | $14,375.00$ |
| $4,001-10,000$ | 61.00 | $28,750.00$ |
| $10,001-20,000$ | 61.00 | $57,500.00$ |
| Over 20,000 | 61.00 | $115,000.00$ |

TARIFF 11
Shipping
(i) The monthly charges for supply of water to Ships calling, over at Ports/Harbours shall be as given in the table below:
(ii) The monthly charges for supply of water under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-25$ | 480.00 | 300.00 |
| $26-50$ | 480.00 | 600.00 |
| $51-75$ | 480.00 | $1,200.00$ |
| $76-100$ | 480.00 | $1,200.00$ |
| $101-200$ | 480.00 | $1,920.00$ |
| $201-500$ | 480.00 | $3,000.00$ |
| $501-1,000$ | 480.00 | $4,800.00$ |
| $1,001-2,000$ | 480.00 | $9,000.00$ |
| $2,001-4,000$ | 480.00 | $15,000.00$ |
| $4,001-10,000$ | 480.00 | $30,000.00$ |
| $10,001-20,000$ | 480.00 | $60,000.00$ |
| Over 20,000 | 480.00 | $120,000.00$ |

## TARIFF 12

## Bulk Supply

(i) This tariff shall apply for the bulk supply of water to Local Authorities.
(ii) The monthly charges for supply of water under this tariff shall be as given in the table below :-

| No. of units | Usage Charge <br> Rs./Unit | Monthly Service <br> Charge <br> Rs. |
| :---: | :---: | :---: |
| $00-25$ | 18.00 | 275.00 |
| $26-50$ | 18.00 | 550.00 |
| $51-75$ | 18.00 | $1,100.00$ |
| $76-100$ | 18.00 | $1,100.00$ |
| $101-200$ | 18.00 | $1,760.00$ |
| $201-500$ | 18.00 | $2,750.00$ |
| $501-1,000$ | 18.00 | $4,400.00$ |
| $1,001-2,000$ | 18.00 | $8,250.00$ |
| $2,001-4,000$ | 18.00 | $13,750.00$ |
| $4,001-10,000$ | 18.00 | $27,500.00$ |
| $10,001-20,000$ | 18.00 | $55,000.00$ |
| Over 20,000 | 18.00 | $110,000.00$ |

TARIFF 13
Community based Organizations
(i) This tariff shall apply for the bulk supply of water to Rural Water Supply Schemes maintained by Community based Organization.
(ii) The monthly charges for supply of water under this tariff shall be as given in the table below :

| No. of units | Usage Charge <br> Rs./Unit |
| :---: | :---: |
| $01-999999999$ | 17.00 |

TARIFF 14
Bowser Supply
(i) This tariff for supply of water through Bowsers shall be at the rate of Rs. 72.00 per unit.
(ii) This charge excludes costs incurred for transport and other overheads, which would be recovered on the basis of actuals.

## Defective Meters

If a meter is found to be out of order or if it is removed for repairs or calibration, the consumption, of water during the time that the meter is not available to record consumption, shall be calculated according to the average rate of daily consumption obtained during any two successive readings immediately preceding the removal of meter or the meter becoming defective.

## Miscellaneous Charges and Conditions

(1) New Service Connections:

The cost of providing a new service connection will be levied from the consumer.
(2) Testing of water meters at the request of consumers :

The fee for testing of water meters at the request of the consumers, shall be determined by the General Manager of the National Water Supply and Drainage Board, based on costs incurred for the testing of such meter. If on testing such meter it is proved that the meter had been over/under registering by more than $2 \%$ of the correct consumption, this fee will be refunded.
(3) Incentive for prompt Payment :

Consumers paying their water bills within 14 working days from the date of issue of the bill will be given a rebate of $2 \%$ on the value of the bill. Arrangements are available for consumers to deposit money with the Board in advance to meet the cost of water bills.
(4) Surcharge for delay in Payment :

Consumers are expected to pay bills, within a period of 14 days. If consumers fail to settle the water bill within a period of 30 days from the date of issuing a bill, an additional charge of $2.5 \%$ per month on the balance outstanding shall be made from the date the bill was issued.
(5) Disconnection of Service Connections :

The General Manager of the National Water Supply and Drainage Board shall have the power to disconnect the service connection of consumers, whose bills are in arrears for a period of more than 30 days.
(6) Re-Connection Fee :

The fee for re-connecting the supply, after the service has been disconnected, shall be determined by the General Manager of the National Water Supply and Drainage Board, based on the costs incurred for such re-connection.
(7) Violation of Regulations :

If any regulation, under which the water supply has been provided, is violated by any consumer, action will be taken under the relevant provisions of the National Water Supply and Drainage Board Law No. 02 of 1974, the National Water Supply and Drainage Board (Amendment) Act, No. 13 of 1992 or any other subsequent amendment to the legislation.
(8) Prevailing taxes will be included when preparing Water Charges

Note :- One Unit shall be defined as one cubic meter. (1000 Liters)

CHAPTER 7

## OPERATION AND EFFECT INDICATORS

Appendix 7.2-1 Water Quality of CBO Water Supply Systems

|  |  |  | Water Quality |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S/N | Name of CBO | Water <br> Source | T. <br> Hardness <br> (CaCO3,mg/L) | $\begin{array}{\|c\|} \text { Iron } \\ (\mathrm{Fe}, \mathrm{mg} / \mathrm{L}) \end{array}$ | Manganese $(M g, m g / L)$ | Fluoride $\text { ( } \mathrm{F}-, \mathrm{mg} / \mathrm{L})$ | Odour | Color <br> (Hazen Unit) | Turbidity (NTU) | pH | $\begin{aligned} & \text { E. Condictivity } \\ & (\mu \mathrm{S} / \mathrm{cm}) \end{aligned}$ |
| Mahakanadarawa Water Supply System Area |  |  |  |  |  |  |  |  |  |  |  |
| 01 | Sw ashakthi CBO | S | - |  |  | 0.85 | None | Clear | 0.05 | 7.86 | 860 |
| 02 | Ikra CBO | D-1, S-1 | - | - | - | 0.83 | None | Clear | 0.06 | 7.72 | 950 |
| 03 | Arunalu CBO | S | - | - | - | 0.59 | Fishy | Clear | 0.1 | 7.93 | 940 |
| 04 | Samagi CBO | D | - |  |  | 1.01 | None | Clear | 0 | 7.76 | 930 |
| 05 | Ekamuthu CBO | S | - |  |  | 0.32 | None | Clear Clear | $\begin{aligned} & \hline 0.08 \\ & 0.03 \end{aligned}$ | $\begin{array}{\|l\|} \hline 7.74 \\ 7.77 \end{array}$ | $\begin{aligned} & 700 \\ & 880 \end{aligned}$ |
|  | Ekamuthu CBO - Katukaliyaw a |  |  |  |  | 1.19 |  |  |  |  |  |
| 06 | Rangiri CBO | D | - |  |  | 0.88 | None | Clear | 0.03 | 7.79 | 1080 |
| 07 | Nildiy adahara CBO | S | 360/280 | - | - | 0.72 | - | Clear | 0.15 | 7.77 | 740 |
| 08 | Eksath CBO | S | 340 | - | - | 0.4/0.78 | None | Clear |  |  |  |
| 09 | Mahasen CBO | S | 80 | - | - | 0.39 | - | clear | 0.08 | 7.6 | 730 |
| 10 | Dimuthu CBO | S | 312 | - | - | 0.57 | - | Clear | 0.12 | 7.91 | 610 |
| 11 | Pragathi CBO | S | 344 | - | - | 1.38 | - | Clear | 0.05 | 7.7 | 1450 |
| 12 | Jayashakthi CBO | D | - | - | - | 1.9 | None | Clear | 0.06 | 7.76 | 1570 |
| 13 | Samagi CBO | D | 332/270/330 | - | - | 1.08 | None | Clear | 0.07 | 7.8 | 1000 |
| 14 | Samagi CBO | S | - | - | - | 0.5 | - | <5 | 0.02 | - | 590 |
| 15 | Ekamuthu CBO | D | - | - | - | 0.81 | - | <5 | 0.03 | - | 650 |
| 16 | Ran Arulnalu CBO | D | 490/720/640 | 0.03/-/- | - | 1.55/1.1/0.36 |  |  |  |  |  |
| 17 | Isuru CBO | D | High | - | - | 0.98 | None | Clear | 0.05 | 7.84 | 1060 |
| 18 | Randiya Dhahara CBO | S | - | - | - | 1.15 | None | Clear | 0.09 | 7.76 | 840 |
| 19 | Nelum CBO | S | - | - | - | 1.11 | None | Clear | 0.05 | 7.86 | 970 |
| 20 | Diriy amatha CBO | S | 250/261/284 | - | - | 0.83 | - | Clear | 0.1 | 7.75 | 700 |
|  | Diriyamatha CBO - <br> Mahakubugollaw a | S | - | - | - | 0.69 | - | Clear | 0.12 | 7.79 | 870 |
| 21 | Gemunu CBO | S | - | - | - | 0.75 | - | <5 | 0.21 | - | 950 |
| 22 | Sisila Diyadahara CBO | S | - | - | - | 0.76 | None | Clear | 0.06 | 7.86 | 880 |
| 23 | Diriya Shakthi | S | 373/342 | - | - | 0.86 | None | Clear | 0.1 | 7.64 | 1220 |
| 24 | Ridi Nadee | S | - | - | - | 0.21 | None | Clear | 0.06 | 7.75 | 610 |
| Wahalkada Water Supply System Area |  |  |  |  |  |  |  |  |  |  |  |
| 25 | Shakthi CBO | D | 324 | 3.3 | - | 0.1 |  | N/A |  |  |  |
| 26 | Al-Naja | D | - | - | - | - |  |  |  |  |  |
| 27 | CBO not formed \& Scheme Not implemented |  |  | - | - | - |  |  |  |  |  |
| 28 | Parakum CBO | D | 108 | 0.14 | - | 1.04 | - | Clear | 0 | 7.76 | 740 |
| 29 | Suw asehana CBO | D | 1.13 | - | - | 1.13 |  | Clear | 0.07 | 7.76 | 740 |
| 30 | Suw asetha CBO | S | - | - | - | 0.96 |  | Clear | 0.04 | 7.63 | 740 |
| 31 | Vajira CBO | D | 262/204 | - | - | 1.5/1.54 |  |  |  |  |  |
| 32 | Pragathi CBO | D | - | - | - | 0.58 | None | Clear | 0.08 | 7.54 | 1430 |
| 33 | Janasetha CBO | S | - | - | - | 1.37 |  | Clear | 0.01 | 7.85 | 670 |
| 34 | Sobasisila CBO | S | - | - | - | 0.67 |  | Clear | 0.02 | 7.64 | 810 |
| 35 | Randiya | S-2 | - | - | - | 0.31 |  | Clear | 0.14 | 7.76 | 760 |
| 36 | Nilmini | D | - | - | - | - |  |  |  |  |  |
| 37 | Senath CBO | D | - | - | - | 1.9 | None | Clear | 0.02 | 7.75 | 1240 |
| 38 | Eksath CBO | S | 296 | - | - | 1.62 | None | Clear | 0.02 | 7.78 | 860 |
| 39 | Praja Shakthi | D | - | - | - | 0.42 | None | Clear | 0.01 | 7.85 | 520 |
| 40 | Apsara | S | - | - | - | 1.35 |  | Clear | 0.14 | 7.69 | 1380 |
| 41 | Pinibindu CBO | R | Rainw ater supply implmented in 60 Households. No Piped Water Supply |  |  |  |  |  |  |  |  |
| 42 | Sham Sham | - | - | - | - | - |  |  |  |  |  |
| 43 | Ekamuthu CBO | S | 264 | - | - | 0.14 |  | Clear | 0.05 | 7.6 | 640 |
| 44 | Pradeepa | D | 448 | - | - | 0.82 |  | Clear | 0.01 | 7.8 | 1150 |
| 45 | Upul CBO | D | 290 | - | - | 0.92 |  | Clear | 0 | 7.83 | 1000 |
| 46 | Jalasavi | D | - | - | - | 1.58 |  | Clear | 0.02 | 7.74 | 1330 |
| 47 | Tristar CBO | D | 300 | - | - | 0.001 |  | $2.5>$ | 4.1 | 8.3 |  |
| 48 | Alhidra CBO | D | 300 | - | - | 0.04 | N/A | 2.5 | 1.3 | 6.9 |  |
| 49 | Adhikw a CBO | D | 280 | - | - | 0.7 | N/A |  |  |  |  |
| 50 | Hansajala CBO | S | 442 | - | - | 1.8 | N/A | <5 | 1 | 7.6 |  |
|  | Lanka Standard SLS 614:2013 |  | 250 | 0.3 | 0.1 | 1 | \# | 15 | 2 | 6.5-8.5 | - |
|  | Lanka Standard SLS 614:1983 |  |  |  |  |  |  | Unobjectiona |  |  | 750/3500 |

S: Shallow Well, D: Deep Well, R: Rain water tank, Figures after "-" means number of water source.
Shaded figure exceeds standard value.

## Appendix 7.2-2 List of CBO Water Supply Systems

| S/N | Name of CBO | Location |  |  | Population of GND |  |  | Populationserved served |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | DS | GND | Village | No of Village Covered | No of Village Excluded | Population in Service GND |  |
| Mahakanadarawa Water Supply System Area |  |  |  |  |  |  |  |  |
| 01 | Swashakthi CBO | Rambewa | Kendewa (97), Galkandagama (85) | Kendewa | 3 | - | 3000 | 755 |
| 02 | Ikra CBO | Rambewa | Ikkirigollawa (102) | Ikkirigollawa | 3 | - | - | 3015 |
| 03 | Arunalu CBO | Rambewa | Sangilikandarawa (111) | Sangilikandarawa | 5 | - |  | 915 |
| 04 | Samagi CBO | Rambewa | Thalgahawewa (84) | Thalgahawewa | 2 | 0 |  | 660 |
| 05 | Ekamuthu CBO | Rambewa | Wahamalgollawa (109) | Wamalgollawe | 1 | - |  | 1220 |
| 06 | Rangiri CBO | Rambewa | Wewalkatiya (82) | Wewalkatiya | 2 | - |  | 590 |
| 07 | Nildiyadahara CBO | Rambewa | Maha Kandarawa yaya -01 (94) | Maha Kandarawa Yaya | 1 | - | 1080 | 715 |
| 08 | Eksath CBO | Rambewa | Katukeliya (106) | Katukeliya | 3 | - | 1080 | 575 |
| 09 | Mahasen CBO | Rambewa | Mahakandarayaya - 02 (93) | Weliwewa | 3 | - | - | 755 |
| 10 | Dimuthu CBO | Rambewa | Ihala Kolangaswewa (87) | Ihala Kolangaswewa | 3 | - | 1050 | 325 |
| 11 | Pragithi CBO | Rambewa | $\begin{array}{l}\text { Bala Honda Wewa(86), Ihala } \\ \text { olangaswewa (87) }\end{array}$ <br> Kat | Bala Hondawewa | 4 | - | 885 | 635 |
| 12 | Jayashakthi CBO | Medawachchiya | Katuwela (66) | Katuwela | 3 | 1 |  | 1090 |
| 13 | Samagi CBO | Medawachchiya | Halambagaswewa (70) | Halambagaswewa, Palukandawewa | 2 | - |  | 935 |
| 14 | Samagi CBO | Medawachchiya | Ataweeragollewa (56) | Pahala Thammannagama, Kubukkollawa, | 3 | - | 1580 | 540 |
| 15 | Ekamuthu CBO | Medawachchiya | Hirulugama (54) | Hirulugama | 1 | - |  | 855 |
| 16 | Ran Arulnalu CBO | Medawachchiya | Wiralmurippu (64) | Wiralmurippu, Kulikkada | 2 | - | 1375 | 945 |
| 17 | Isuru CBO | Medawachchiya | Kadawathgama (60) | Kadawathgama | 3 | - | 2640 | 895 |
| 18 | Randiya Dhahara CBO | Medawachchiya | Unagaswewa (75) | Unagaswewa | 3 | - |  | 520 |
| 19 | Nelum CBO | Medawachchiya | Kirigalwewa (72) | Kirigalwewa | 4 | - |  | 680 |
| 20 | Diriyamatha CBO | Medawachchiya | Maha Kumbugollawa (46) | Maha Kumbugollawa, Kuda Halmillawa | 3 | - |  | 890 |
| 21 | Gemunu CBO | Medawachchiya | Maha Divulwewa (57) | Maha Divulwewa | 1 | 2 |  | 345 |
| 22 | Sisila Diyadahara CBO | Medawachchiya | Kidawarankulama (42) | Kidawarankulama | 2 | - |  | 935 |
| 23 | Diriya Shakthi | Medawachchiya | Periyakulama (49), Yakkawewa (50) | Periyakulama | 3 | 1 |  | 675 |
| 24 | Ridi Nadi | Medawachchiya | Athakade (55) | Athakade | 2 | 1 |  | 600 |
| 25 | Shakthi CBO | Medawachchiya | Ayyatigewewa (24) | Ayyatigewewa | 1 | - | 2015 | 1165 |
| Wahalkada Water Supply System Area |  |  |  |  |  |  |  |  |
| 26 | Al-Naja | Kebitigollewa | Muslim Attaweerawewa (32) | Attaweerawewa (Paranagama, Aluthgama, Kurulugama) | 2 | - | 2050 | Connection <br> not given yet$\|$ |
| 27 | CBO not formed \& Scheme Not implemented | Kebitigollewa | Gonumariyaya (25) | Gonumariyaya | - | - | - | - |
| 28 | Parakum CBO | Padaviya | Parakramapura(06), Buddhangala(05), <br> Elikumbulagala (07) | Parakiramapura Town | 11 | 5 | - | 2820 |
| 29 | Suwasehana CBO | Padaviya | 18 Kanuwa (02) | 18 Kanuwa, Deewara Gammanan, Isipathana gama | 3 | - | 1750 | 945 |
| 30 | Suwasetha CBO | Padaviya | Bogahawewa (14) | Bogahawewa | 6 | - | 1750 | 910 |
| 31 | Vajira CBO | Kahadagasdigiliya | Maha Kumbukwewa (222) | Maha Kumbukwewa | 2 | - |  | 665 |
| 32 | Pragathi CBO | Kahadagasdigiliya | Moragahawela (202) | Moragahawela | 3 | 1 |  | 640 |
| 33 | Janasetha CBO | Kahadagasdigiliya | Ratmalgahawewa(225), <br> Paalishpothana(224), Kirigallawa (226) | Palispothana | 5 | 5 | 1500 | 920 |
| 34 | Sobasisila CBO | Kahadagasdigiliya | Pandarella(210), Panwella (211) | Kokabe, Panderellawewa, Panwella, Thimbiriwewa | 4 | 3 |  | 875 |
| 35 | Randiya | Kahadagasdigiliya | Ranpathwila (196) | Rotapukuna | 2 | - |  | 1130 |

## Appendix 7.2-2 List of CBO Water Supply Systems (cont'd)

| S/N | Name of CBO | Location |  |  | Population of GND |  |  | Populationserved |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | DS | GND | Village | No of Village Covered | No of Village Excluded | Population in Service GND |  |
| 36 | Nilmini | Kahadagasdigiliya | Kokmaduwa (201) | Kokmaduwa | 1 | 3 |  | 795 |
| 37 | Senath CBO | Kahadagasdigiliya | Gonamaruwewa (223) | Gonamaruwewa, Nelugolla Kade | 2 | 1 |  | 385 |
| 38 | Eksath CBO | Kahadagasdigiliya | Turukkuragama (234), Maha Kiri Ibbawa $(233)$ | Aluthwattha, Galwala, Hijra Mawatha, | 4 | 3 |  | 470 |
| 39 | Praja Shakthi CBO | Kahadagasdigiliya | Mahawewa (221) | Wirandagollawa, Mahawewa | 5 | 1 |  | 810 |
| 40 | Apsara | Kahadagasdigiliya | Meekumbukwewa (212) | Meeminnawala, Aluthwewa, Kumbukwewa | 3 | - |  | 1480 |
| 41 | Pinibindu CBO | Kahadagasdigiliya | Ambagahawewa (213) | Rainwater supply implmented in 60 Households. No Piped Water Supply |  |  |  |  |
| 42 | Sham Sham | Kahadagasdigiliya | Weligollawa (218), Kuncha Halmillawa (219) | Weligollawa, Kunchahalmillawa, Ihalamillawa | 3 | - |  | 210 |
| 43 | Ekamuthu CBO | Kahadagasdigiliya | Kumbukgollawa (209) | Kumbukgollawa | 1 | 2 |  | 380 |
| 44 | Pradeepa | Horowpothana | Wadigewewa (126) | Wadigewewa | 5 | 1 |  | 805 |
| 45 | Upul CBO | Horowpothana | Parangiwadiya (149) | Parangiwadiya | 2 | - |  | 905 |
| 46 | Jalasavi | Horowpothana | Kapugollewa (140) | Kapugollewa | 2 | 1 |  | 785 |
| 47 | Tristar CBO | Horowpothana | Agunuchchiya (119) | Parangiwadiya | 2 | 1 |  | 215 |
| 48 | Alhidra CBO | Horowpothana | Anolondawewa (138) | Alondawewa | 2 | 1 |  | 730 |
| 49 | Adhikwa CBO | Horowpothana | Weerasole (139) | Weerasole | 1 | 1 |  | - |
| 50 | Hansajala CBO | Horowpothana | Maradankadawala (133) | Maradankadawala | 3 | 2 |  | 565 |


[^0]:    Column (2) Basic Laying Cost includes placing, jointing, transporting from the site stores to site, pressure testing, cleaning \& disinfection and many risks.
    

    Column (4) includes additional $30 \%$ of the basic laying cost for transmission main and Column (6) includes additional $40 \%$ of basic laying cost for distribution systems to cover the laying cost of fittings, specials, accessories and miscellaneous items including other costs such as culvert crossings,

    Column (7) basic excavation cost includes excavation in 'normal' ground condition (firm sand), preparation of bottom of excavation, backfilling with selected excavated material, ramming (consider $98 \%$ compaction) and disposal of excavated material.

    Pipe bedding and surrounding, rock excavation, traffic management, dust controlling, maintenance of roads and preliminaries are not included in the basic cost.

    Add $40 \%$ to the total cost of laying and excavation to cover the additional cost for removing asphalt layer with base courses and other relevant
    additional cost for high ways.
    Contractor's $\mathrm{O} / \mathrm{H} \& P$ is not
    Contractor's $\mathrm{O} / \mathrm{H} \& \mathrm{P}$ is not included.
    Based on work study and established data from published books.

    Note:
    Source:

[^1]:    Accounting Policies \& Notes from pages 6 to 27 form an integral part of these Financial Statements.

[^2]:    Accounting Policies \& Notes from pages 6 to 31 form an integral part of these Financial Statements.

