DIRECTORATE OF RURAL WATER SUPPLY

REGIONAL WORKSHOPS CYCLE ON COST RECOVERY FOR RURAL WATER SUPPLY

COST OF WATER

(including piped water schemes)

Principle 1:

Beneficiaries will pay for the full O&M and replacement costs for the above the ground equipment of the water point.
The Government will provide and replace the underground equipment.
Shallow wells are considered to be above ground facilities.

Principle 2:

People must contribute for
a) an individual water point to:

from 0 to full O&M:	year 1 to 5
from full O&M to full replacement costs:	year 6 to 10

b) a water point on a piped scheme:

from 0 to full O&M for the individual water point:	year 1 to 2
from 0 to full O&M for the scheme (facilities between water points)	year 3
include water charge NAMWATER	year 4 to 5
include replacement cost	year 6 to 10

Principle 3:

Water Point Committees will collect and manage the funds for their individual water point. Only in the case of piped schemes, the charge of NAMWATER must be paid to that company by the Local Water Committee; in the interim period the DRWS will subsidise the LWC until it can raise its own funds from the beneficiaries in the 4th and 5th year after introduction.

Principle 4:

The Directorate of Rural Water Supply will provide technical assistance to the various Water Committees and will act as a facilitator only.
The Directorate will provide or repair underground facilities when requested through the Central Water Committees.

Principle 5:

The maintenance cost for solar installation is very low which makes it very attractive. To avoid a rush into this technology with the consequent enormous capital investment required by Government, some costs the installation will be charged to the users from the beginning. This charge will be 5% p.a. of the solar installation @ $ 40 000 i.e. half replacement cost.

BOREHOLES AND INSTALLATIONS

	Price per unit	Total price	Life span	O & M	Remarks
1. Handpump:					
1.1 handpump and d.t.h equipm.	14 000.00		10 years	5% p.a.	
1.2 cattle trough	3 000.00	17 000.00	10 years		
2. Diesel installation:					
2.1 diesel engine and d.t.h.equip.	35 000.00		20 years	30% p.a.	
2.2 trough,washbasin,storage	20 000.00	55 000.00	15 years		
3. Solar installation:					
3.1 solar pump and d.t.h equipm.	40 000.00		25 years	1% p.a.	
3.2 trough,washbasin,storage	20 000.00	60 000.00	15 years		
4. Windmill installation:					
4.1 windmill and d.t.h. equipm.	25 000.00		15 years	5% p.a.	
4.2 trough,washbasin,storage	20 000.00	45 000.00	15 years		
5. Boreholes drilling:					
5.1 boreholes <50m	40 000.00		25 years		
5.2 boreholes 50 - 100m	90 000.00		25 years		
5.3 boreholes >100m	120 000.00		25 years		

DUG WELLS AND INSTALLATIONS

1. Handpump:					
1.1 handpump and d.t.h.equipm.	5 000.00		10 years	5% p.a.	
1.2 trough	3 000.00		10 years		
1.3 dug well	4 000.00	12 000.00	20 years		

PIPED WATER SCHEME:

Cost based on the Ogongo-Oshakati and Endola West schemes

No of water points:	185
Total cost rws infrastructure:	$ 10.0 m
Total cost bulk water facilities:	$ 7.5 m
Cost for rws water point: 2 washbasins/taps, cattle trough, storage (WPC):	$ 50 000.--
Cost for scheme sections in between water points (LWC resp.):	$ 4 000.--
Cost for Bulk Water per water point:	$ 40 600.-
NAMWATER charge of water supplied to the scheme:	$ 1.43 /m^3
Cost of operation ad maintenance: per annum per capital cost:	0.5%

On average about 400 people use one water point with 2 taps; this represents 70 households.

Basic needs for water:	per capita 15 l per day:	per household 100 l/per day
	per head of cattle 45 l/day:	per household

Lifespan for installation on average: 35 years

Based on the above figures the following cost per household has to be paid per month:

Year 1 and 2:	0.5% of $ 50 000.- div. by 12 for 70 hh:	per hh:	$ 0.30
Year 3:	0.5% of $ 54 000.- div. by 12 for 70 hh:	per hh:	$ 0.32
Year 4 and 5:	add for people only: 100x30x $1.43/1000:	per hh:	$ 4.61
	add for one head of cattle: per month $ 1.95		.....
Year 6 to 10:	add replacement cost 100/35% x $ 54 000 div. by 12 for 70 hh:	per hh:	$ 6.45

Government contribution:

Government will contribute the difference between $ 6.50 per household and what the households actually increasingly pay during the first 10 years. After that no further contributions.

DUGG WELL WITH HANDPUMP:

Cost for rws water point (WPC responsibility):		$ 12 000.--
Cost of operation and maintenance: per annum per capital cost:		5% for h.p.
Lifespan for installation on average:		10 years
Number of households per water point:		5 or10
Basic needs for water:	per capita 15 l per day:	per household 100 l/per day
	per head of cattle 45 l/day:	per household

Based on the above figures the following cost per household has to be paid per month:

a) in case of 5 households per water point:

Year 1 to 5:	5% of $ 5 000.- div. by 12 and 5 households:	per hh: $ 4.20
Year 6 to 10:	add 100/10% of $ 7 000 div. by 12 and 5 hh:	per hh: $ 15.90

b) in case of 10 households per water point:

Year 1 to 5:	per hh: $ 2.10
Year 6 to 10:	per hh: $ 7.95

Government contribution:

Government will contribute the difference between $ 15.90 (or $ 7.95) per household and what the households actually increasingly pay during the first 10 years. After that no further contributions.

BOREHOLE WITH HANDPUMP:

Cost for rws water point (WPC responsibility above ground):	$ 17 000.--
Cost borehole > 50m (Gvt. responsibility):	$ 40 000.--
Cost of operation and maintenance: per annum per capital cost: (installation only)	5% for h.p.
Lifespan for installation on average:	10 years
Number of households per water point:	5 or10

Basic needs for water: per capita 15 l per day: per household 100 l/per day
per head of cattle 45 l/day: per household

Based on the above figures the following cost per household has to be paid per month:

a) in case of 5 households per water point:

Year 1 to 5:	5% of $ 14 000.- div. by 12 and 5 households:	per hh: $ 11.70
Year 6 to 10:	add 100/10% of $ 17 000 div. by 12 and 5 hh:	per hh: $ 40.00

b) in case of 10 households per water point:

Year 1 to 5:	per hh: $ 5.85
Year 6 to 10:	per hh: $ 20.00

BOREHOLE WITH DIESEL ENGINE:

Cost for rws water point (WPC responsibility above ground):	$ 55 000.--
Cost borehole (Gvt. responsibility):	$ 40 000 to $ 120 000.--
Cost of operation and maintenance: per annum per capital cost: (installation only)	30%
Lifespan for installation on average:	10 years
Number of households per water point:	5 or10

Basic needs for water: per capita 15 l per day: per household 100 l/per day
per head of cattle 45 l/day: per household

Based on the above figures the following cost per household has to be paid per month:

a) in case of 5 households per water point:

Year 1 to 5:	30% of $ 35 000.- div. by 12 and 5 households:	per hh: $ 175.00
Year 6 to 10:	add 100/10% of $ 55 000 div. by 12 and 5 hh:	per hh: $ 266.70

b) in case of 10 households per water point:

Year 1 to 5:	per hh: $ 87.50
Year 6 to 10:	per hh: $ 133.35

BOREHOLE WITH SOLAR PUMP:

Cost for rws water point (WPC responsibility above ground):	$ 60 000.--
Cost borehole (Gvt. responsibility):	$ 40 000 to $ 120 000.--
Cost of operation and maintenance: per annum per capital cost: (installation only)	1%
Lifespan for installation on average:	10 years
Number of households per water point:	5 or10

Basic needs for water: per capita 15 l per day: per household 100 l/per day
per head of cattle 45 l/day: per household

Note: The maintenance cost for this installation is very low which makes it very attractive. To avoid a rush into this technology with the consequent enormous capital investment required by Government, some costs the installation will be charged to the users from the beginning. This charge will be 5% p.a. of the solar installation @ $ 40 000 i.e. half replacement cost.

Based on the above figures the following cost per household has to be paid per month:

a) in case of 5 households per water point:

Year 1 to 5:	1% of $ 40 000.- div. by 12 and 5 households:	per hh: $ 6.70
	5% of $ 40 000.- div. by 12 and 5 households:	per hh: $ 33.30
	Total:	per hh: $ 40.00
Year 6 to 10:	add 100/10% of $ 20 000 div. by 12 and 5 hh and 50/10% of $ 40 000 div. by 12 and 5 hh:	per hh: $ 106.70

b) in case of 10 households per water point:

Year 1 to 5:	per hh: $ 20.00
Year 6 to 10:	per hh: $ 53.35

BOREHOLE WITH WINDMILL:

Cost for rws water point (WPC responsibility above ground):	$ 45 000.--
Cost borehole (Gvt. responsibility):	$ 40 000 to $ 120 000.--
Cost of operation and maintenance: per annum per capital cost: (installation only)	5%
Lifespan for installation on average:	10 years
Number of households per water point:	5 or10

Basic needs for water: per capita 15 l per day: per household 100 l/per day
per head of cattle 45 l/day: per household

Based on the above figures the following cost per household has to be paid per month:

a) in case of 5 households per water point:

Year 1 to 5:	5% of $ 25 000.- div. by 12 and 5 households:	per hh: $ 20.90
Year 6 to 10:	add 100/10% of $ 45 000 div. by 12 and 5 hh:	per hh: $ 95.90

b) in case of 10 households per water point:

Year 1 to 5:	per hh: $ 10.45
Year 6 to 10:	per hh: $ 47.95

COST OF WATER FOR INDIVIDUAL HOUSEHOLDS PER MONTH

	if used by 5 households per point		if used by10 households per point	
Payment Technology	Year 1 to 5	Year 6 to 10	Year 1 to 5	Year 6 to 10
1. Handpump on dug well	4.20	15.90	2.10	7.95
2. Handpump on borehole	11.70	40.00	5.85	20.00
3. Diesel eng. on borehole	175.00	266.70	87.50	133.35
4. Solar pump on borehole	40.00	106.70	20.00	53.35
5. Windmill on borehole	20.90	95.90	10.45	47.95
6. Piped water scheme	n.a	n.a	4.56	6.43