

( Specific Objective - SO ) Improved access to drinking water, in quantity and quality , for 1.000 beneficiaries of the community of the mozambican village called Nalazi

## Technical Justification



| Water pump with photovoltaic solar panel , 85 watt |   | 2 manual Pumps AFRIDEV |   | 3 manual Pumps AFRIDEV |   | 1 submersible pump, with diesel generator |   |            |
|--|---|------------------------|---|------------------------|---|---|---|------------|
|  | Concept                                 | Cost                   | Concept                                 | Cost                   | Concept                                 | Cost                                      | Concept                                   | Cost       |
| Initial Investment                                 | Drill 1 Well (30 m.)                    | € 4.000                | Drill 2 Wells (30 m.)                   | € 8.000                | Drill 3 Wells (30 m.)                   | € 12.000                                  | Drill 1 Well (30 m.)                      | € 4.000    |
|  | 1 Water with solar panel                | € 12.000               | 2 manual Pumps AFRIDEV                  | € 5.000                | 3 manual Pumps AFRIDEV                  | € 7.500                                   | 1 submersible pump, with diesel generator | € 4.000    |
|  | Installation Cost of pump onto the well | € 500                  | Installation Cost of pump onto the well | € 500                  | Installation Cost of pump onto the well | € 750                                     | Installation Cost of pump onto the well   | € 500      |
| Operative Costs                                    | Yearly maintenance cost                 | € 400                  | Yearly maintenance cost                 | € 1.200                | Yearly maintenance cost                 | € 1.800                                   | Yearly maintenance cost                   | € 400      |
|  |   |                        |   |                        |   |   | 20 liter per day of diesel                | € 9.125    |
|  |   |                        |   |                        |   |   | 1 Liter = 1,25 €                          |            |
|  |   | cumulative             |   |                        | cumulative                              |   |   | cumulative |
| Year 01  | € 4.000<br>€ 12.000<br>€ 500            | € 16.500               | € 8.000<br>€ 5.000<br>€ 500             | € 13.500               | € 12.000<br>€ 7.500<br>€ 750            | € 20.250                                  | € 4.000<br>€ 4.000<br>€ 500<br>€ 4.563    | € 13.063   |
| Year 02  | € 400                                   | € 16.900               | € 1.200                                 | € 14.700               | € 1.800                                 | € 22.050                                  | € 400<br>€ 9.125                          | € 22.588   |
| Year 03  | € 400                                   | € 17.300               | € 1.200                                 | € 15.900               | € 1.800                                 | € 23.850                                  | € 400<br>€ 9.125                          | € 32.113   |
| Year 04  | € 400                                   | € 17.700               | € 1.200                                 | € 17.100               | € 1.800                                 | € 25.650                                  | € 400<br>€ 9.125                          | € 41.638   |
| Year 05  | € 400                                   | € 18.100               | € 1.200                                 | € 18.300               | € 1.800                                 | € 27.450                                  | € 400<br>€ 9.125                          | € 51.163   |

**Estimated minimum demand for the 1.000 Direct Beneficiaries =  $1.000 \times 15 \text{ L. / person / day} = 15.000 \text{ Liter / day}$**

at 30 meter deep,  
with flow rate = 20 Liter / min =  
1200 Liter / h

at 25 meter deep, with flow rate = 14 Liter / min or 840 Liter / Hour  

$$x 2 \text{ pumps} = \text{at 8 effective operative per pump} = 13.440 \text{ Liter / Hour}$$

a 25 meter deep, with flow rate =  
 14 Liter / min or 840 Liter / Hour x  
 3 pumps at 8 hours effective  
 operative per pump = 13.440 Liter  
 / Hour

at 30 meter deep,  
with flow rate = 20 Liter / min =  
1200 Liter / h

12,5 hour per day  
with sunlight,  
considered as  
effective

Se consideran 2 bombas manuales **13.440 Liter/**

Se consideran 3  
ombas manuales **20.160 Liter/**

### Demand is satisfied

Demand of 15 000 liter / day

### Demand is satisfied

### Demand is satisfied

