

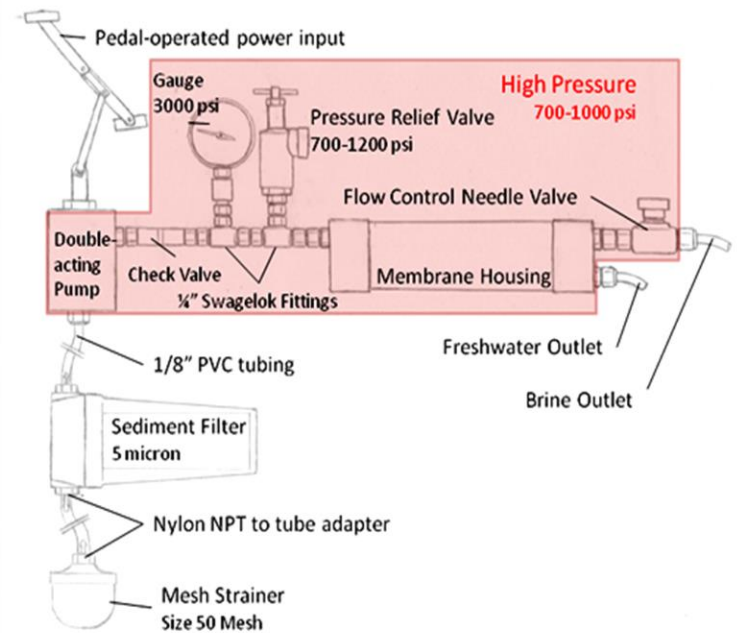
Bicycle-Operated Reverse Osmosis

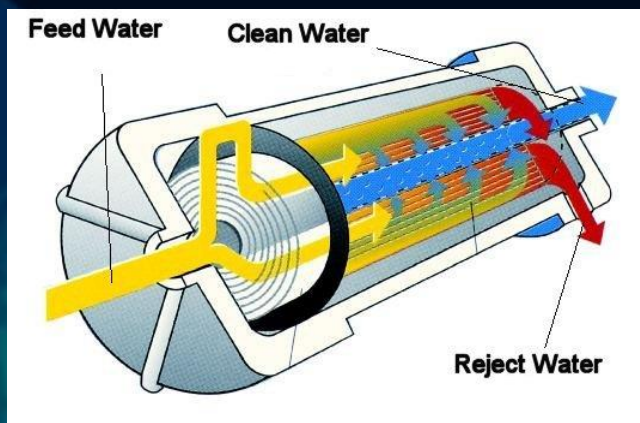
A manually operated reverse osmosis desalination system capable of providing daily water needs for 20 people in poverty stricken coastal areas

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Our reverse osmosis system contains features to prolong the life of the membrane, such as the mesh strainer and sediment filter to make the water as clean as possible before it passes into the membrane





Reverse Osmosis: High pressure forces saltwater into a semi-permeable membrane - salt won't pass through the membrane, but the high pressure pushes pure water through. In this system, the pressure is provided by a piston pump, which is in turn powered by a bicycle-style crank

Possible Improvements

- Custom Pump to allow for larger flow
- Additional disinfection step
- Further ergonomic and human factor considerations
- Additional support for shafts
- Stainless steel fittings to reduce corrosion
- Stronger steel for all of the moving parts to increase fatigue life
- Use a stamping process for frame material

Parameter	Target	Actual
Weight	30 lbs	46 lbs
Salt Rejection	99.4%	98.97%
Feed water	35,000 ppm	35,000 ppm
Product	<500 ppm	360 ppm
Output	100 L/day	216 L/day
Cost	\$500	\$1100

System Performance

