

# **The Use of Reverse Osmosis Methodology For Potable Water**

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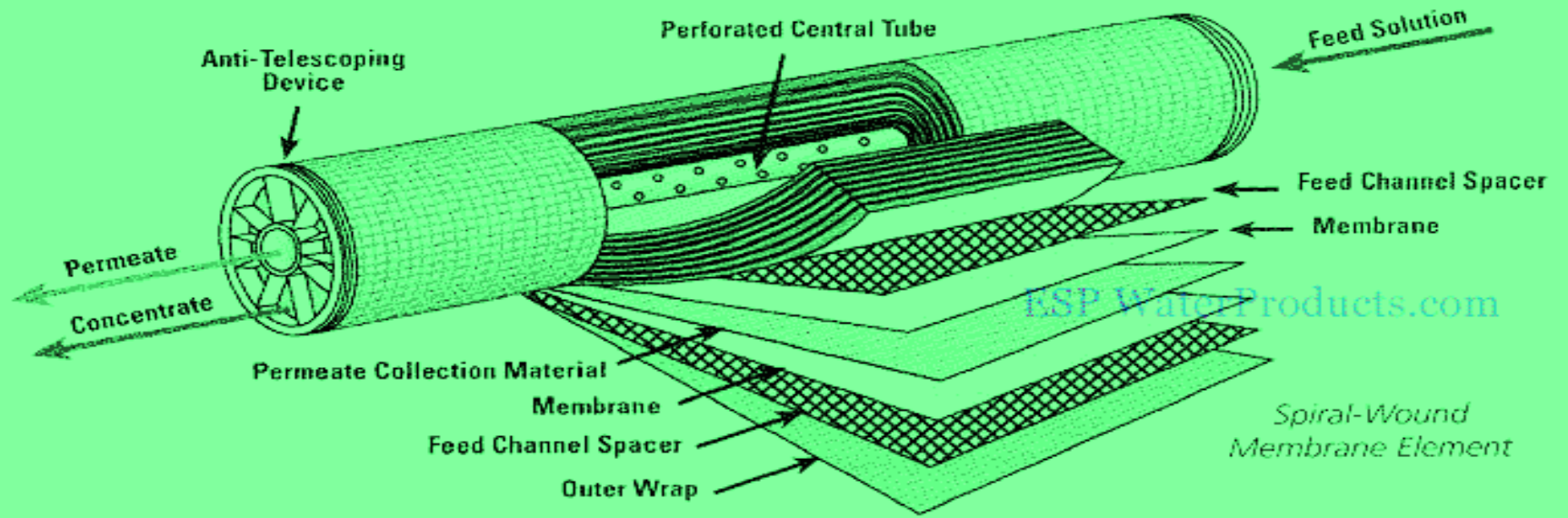
**Endocrinology Metabolism & Nutrition**

**New Jersey, USA**

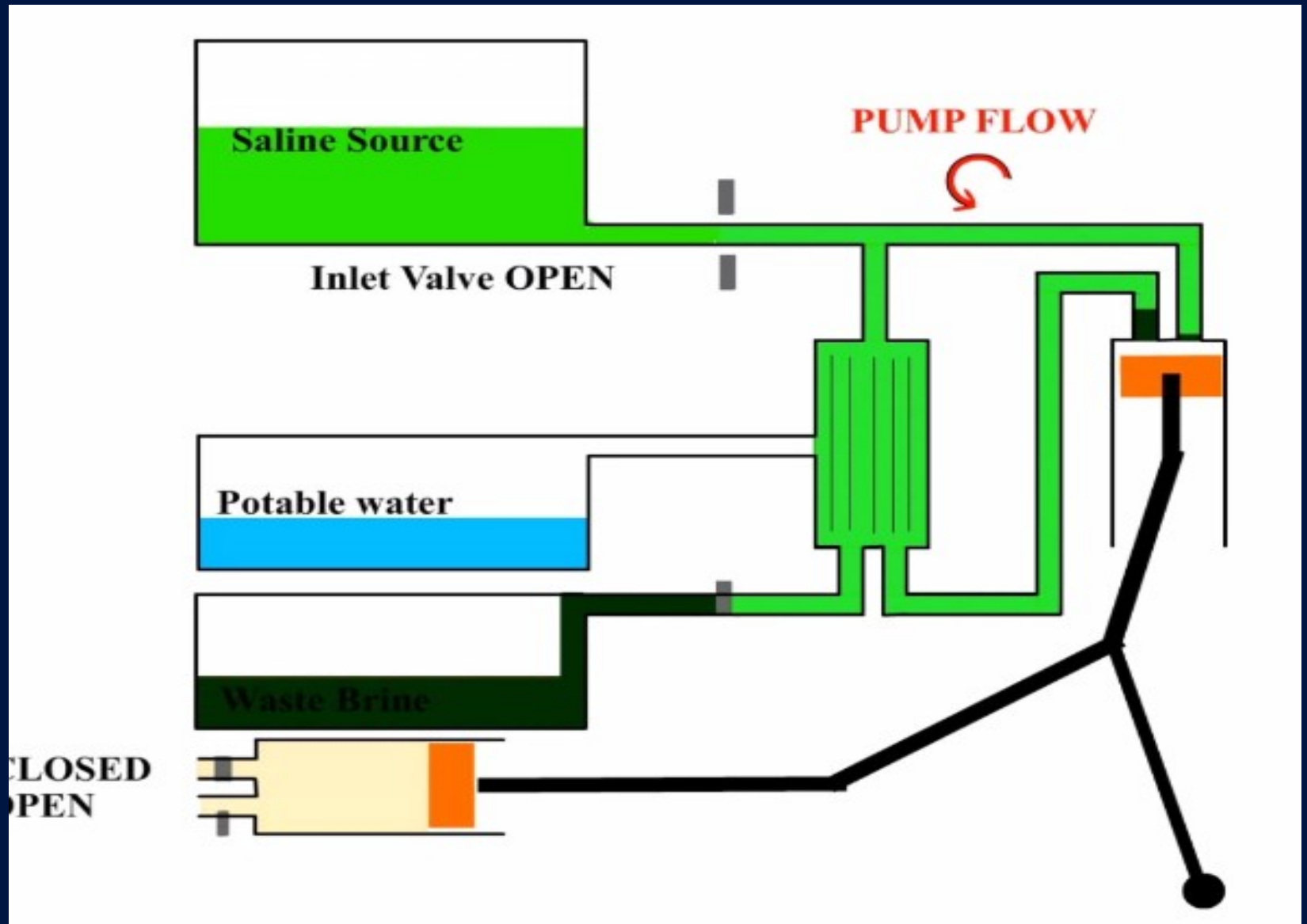
# **Reverse Osmosis Water Purification:**

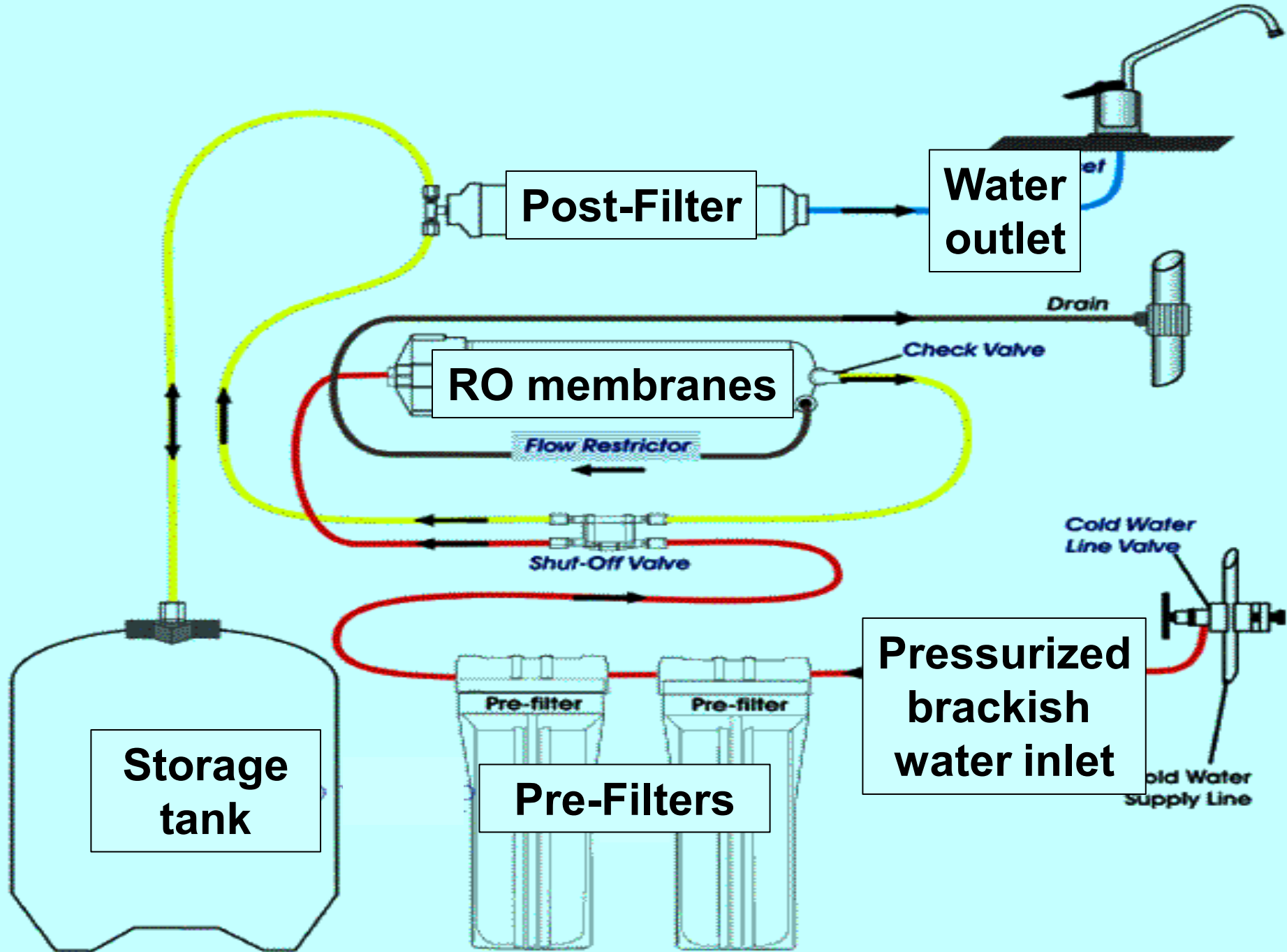
**The Most Effective and  
Longer-Term, Economical  
Way to Purify Water to  
Save Lives in the NCP**





# Mechanics of Reverse Osmosis





# Example of Reverse Osmosis Systems



# Example of Reverse Osmosis Systems

**Reverse Osmosis (RO) Units Cost  
Between US \$1,000 and \$25,000:  
Average, \$6500/unit**

**Not all RO Units are the Same.  
One Must Use the Right RO Plant  
for the Right Village.**



# Average Purification Efficiency - RO

<b>Component</b>	<b>%</b>	<b>Component</b>	<b>%</b>
<b>Sodium</b>	<b>95</b>	<b>Lead</b>	<b>98</b>
<b>Sulfate</b>	<b>98</b>	<b>Arsenic</b>	<b>97</b>
<b>Calcium</b>	<b>98</b>	<b>Magnesium</b>	<b>98</b>
<b>Potassium</b>	<b>95</b>	<b>Nickel</b>	<b>98</b>
<b>Nitrate</b>	<b>93</b>	<b>Fluoride</b>	<b>95</b>
<b>Iron</b>	<b>98</b>	<b>Manganese</b>	<b>98</b>
<b>Zinc</b>	<b>98</b>	<b>Cadmium</b>	<b>98</b>
<b>Mercury</b>	<b>98</b>	<b>Barium</b>	<b>98</b>
<b>Selenium</b>	<b>96</b>	<b>Cyanide</b>	<b>94</b>
<b>Phosphate</b>	<b>98</b>	<b>Chloride</b>	<b>94</b>

# Cost-Efficiency of R/O Units

- **Average R/O plants costs about US \$8,900, including installation**
- **The entire region requires approximately 380 RO plants; cost of US \$3.4 million (~Rs. 500 million Sri Lankan Rupees).**
- **This is little more than the taxpayers' money spent over last five-years to generate the 'NSF/WHO report', published in May 2013**

# Cost-efficiency of R/O Units

- Deaths due to CKD in the affected region approximates 5,000 per year (13 a day)!
- Thus, each \$650 spent on this project will prevent one CKD death per year.
- Over the expected life span of 30 years of an R/O pant, investment of US \$23 prevent one death

Cost of one restaurant meal !

# Cost-Efficiency of R/O Units

- Rate of 1% current estimate CKD deaths (which is increasing), each RO plant reduce ~10 deaths in an affected village, per year.
- Thus, over a 30-year period, EACH R/O plant at a capital cost of \$8,900, will save more than 300 lives.
- There is no better medical or any other intervention that anyone could offer to this region to reduce disease burden and premature deaths.



**Conserve Our Precious Water**

**Recycle All Material**

**Preserve Our Environment**