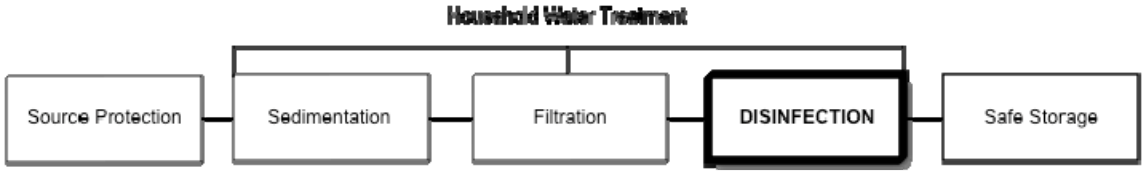
Centre for Affordable Water and Sanitation Technology

Household Water Treatment and Safe Storage Fact Sheet: Ultraviolet (UV) Disinfection

The Treatment Process



Effectiveness

Very Effective For:	Somewhat Effective For:	Not Effective For:
• Bacteria • Viruses • Protozoa • Helminths		• Turbidity • Chemicals • Taste, smell, colour

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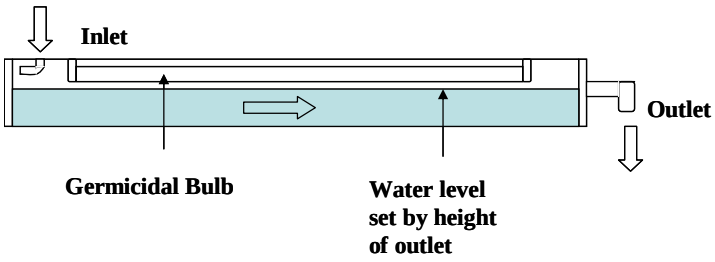
How Does it Work?

The household design uses a UV bulb suspended inside a larger tube or covered trough. The water enters the tube at one end, flows through the tube under the UV bulb, and through the outlet at the other end of the tube. The UV bulb emits UV-C light, which kills microorganisms by damaging their genetic material (DNA). This makes the pathogens unable to reproduce.

Effectiveness

- Quality: Very effective in removing all types of pathogens; not effective for turbidity, chemicals, taste, smell or colour
- Quantity: Approximately 2000 L/day; Flow and volume depends on system design
- Local water: Should only be used with clear water; may need to sediment and filter water before use



Appropriateness

- Local availability: Can be manufactured from local materials provided adequate knowledge and UV bulbs are available
- Time: 5 L/min
- Operation and maintenance: Safety precautions necessary; clean bulb as necessary
- Lifespan: System: 10+ years; UV Bulb: every 12 months

Acceptability

- Taste, smell, colour: No change from source water
- Ease of use: Once equipment is installed, plug it in and make sure the water flows though the system at the prescribed rate

Cost

- Initial purchase cost: US$60-150
- Operating cost: Depends on cost of electricity; Yearly bulb replacement US$10-25/year