



Every 20 seconds, a person in the developing world – usually a child – dies from diseases caused by polluted drinking water. But this heart-breaking issue extends even to rich countries like Canada, where water contaminated by animal waste has been a problem.

Through basic information and challenging activities, these junior high (grade 7-9) science resources are intended to teach students principles around water stewardship and water treatment, while adhering to government education guidelines. Learn about Samaritan's Purse's work helping families get safe water and involve your students in thinking about world water issues and how to solve them.

TREATMENT OPTIONS:

4. PUR

PUR water packets, used in emergency water response by Samaritan's Purse and some other international relief organizations, contain a powdered mixture that removes two major sources of contamination: micro-organisms and suspended matter (mud and organic matter).

PUR renders previously contaminated water safe to drink, with a quality that meets World Health Organization Guidelines for Drinking Water, and Sphere Guidelines for Water Quality in an emergency.

Each PUR Household Kit provides a multiple-barrier approach to purifying water: filtration, followed by disinfection.

PUR comes in a four-gram sachet, and each sachet treats 10 liters of water. It contains a chlorine disinfectant for killing bacteria and an iron salt coagulant for removing sediment, protozoa (parasites), and viruses. It can even remove poisonous arsenic.

PUR was developed by Procter and Gamble in collaboration with the U.S. Centers for Disease Control and Prevention, and requires only a few simple tools (which Samaritan's Purse provides in its emergency water filtration kits).

The PUR Household Kit includes enough PUR sachets to sustain a five-person household for two weeks, as well as a bucket and lid, filter cloth, stirring utensil, scissors, hard soap, and user instruction card diagram in the local language.

PUR was awarded the 2005 Stockholm Industry Water Award, recognizing innovative development of water and wastewater process technologies.

PUR costs about 10 cents to treat the drinking water for a family of five for one day, and reduces the incidence of diarrhea in young children by about 50 per cent.

Benefits, drawbacks and appropriateness

The benefits of PUR are:

- Effective against bacteria, viruses, parasites, and arsenic.
- Clears up muddy, silty water.
- Simple to use; requires no technology or power source.
- Appropriate in emergency situations.



The drawbacks of PUR:

- Ongoing cost, so potential affordability issue.
- Potential availability issues.
- Not appropriate for long-term safe water needs.

Suggested activities:

- Have students research which approach is better in emergency situations, from effectiveness, availability and cost perspectives: PUR or chlorine?
- Are there places and situations where PUR could have been used in Canada? Have students research the question and present their answers and explanations.

Sources: Samaritan's Purse Canada, www.samaritanspurse.ca
Proctor & Gamble