

BASICS OF SOURCE WATER PROTECTION AND FUTURE

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ABSTRACT

Water sources are everyone. Water is shared resources. Source water protection including our action and activities aimed at safeguarding, maintaining, or improving the quality and / or quantity of sources of drinking water and their contributing areas. These activities may depend on the type of source being protected such as river, groundwater, pond, reservoir etc. We can do work within your community, watershed, or neighborhood to protect your drinking water. The first step of assessing the protection area for all public water systems. Then work with your water utility, and advocating for source water protection. You can work within your community, watershed, or neighborhood to protect your source water.

Scarcity of water Can cause tensions between people communities and countries told a meeting of the water scarcity is the lack of sufficient available water resources to meet the demands of water usage within a region.... Water shortage may be caused by climate change, such as altered weather patterns including droughts or floods, increased pollution and population, and increased human demand and overuse of water. It is important that quality of the source water can be influenced by both natural and human activities. The concept of basics of source water (SWP). Protection is to manage the areas through which water travels and the activities that occur on the land. These protects efforts save the community money through improved water quality requiring less treatment, longer life cycle for a well, and less likelihood of having to seek an alternate source.

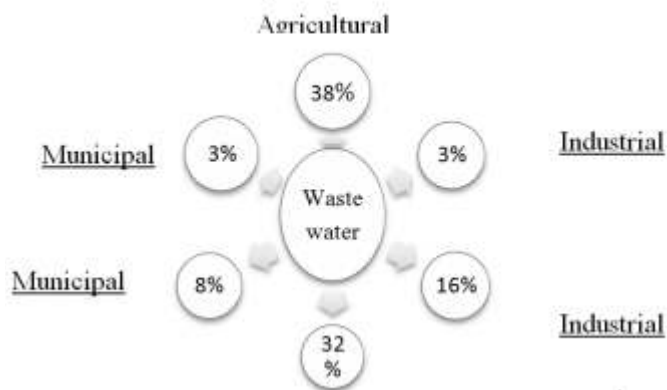
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Introduction- Clean drinking water is critical. The SWP works at grassroots level to educate and inform rural residents about steps they can take to prevent water pollution and improve water quality. Source water refers to sources of water such as rivers, streams, lakes, reservoirs, springs, and groundwater. Most importantly, it is the local community that helps create the water protection plan for protection and is invested in its success. Source water protection safeguards public health by ensuring the quality and quantity of source water used by drinking water. Protecting water source can reduce health factors associated with hazardous agents, particularly for those agents that cannot be effectively removed by conventional water treatment. Water is a valuable natural resource that is found in different forms in the environment. It is important to understand how water moves through the environment so that we can understand how to manage it successfully.

BASICS OF SOURCE WATER PROTECTION

Water shortages are becoming a global issue, due to an increasing population, economic growth and climate change. A lack of cleanliness, drinking water can hinder the efforts to reduce poverty and progress national development, resulting in poor health, low productivity, food insecurity and restricted economic development. The basics of water sources the people use and how important it is to select suitable water sources. Water cycle is continuous circulation of water between oceans, atmosphere and land. The water vapor moves high above the Earth's surface on rising currents of air through the atmosphere.

Global Water consumption and Waterwaste Production



Agricultural Drainages

Rivers, streams and lakes might be contaminated with livestock waste, human sewage, chemicals and other contaminants which can lead to illness when used for drinking, bathing and other hygiene activities. During flood events, well water might be contaminated as well.

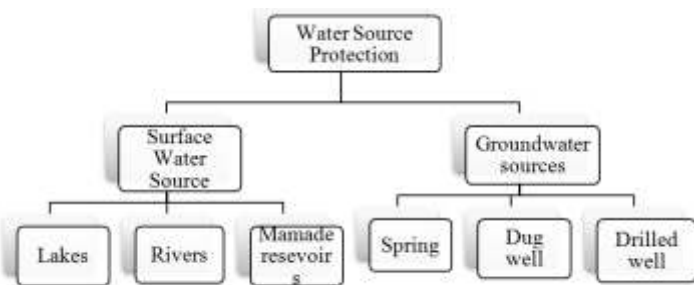
Here are our actions you can take to help keep drinking water sources clean in your community for SWP:-

1. Handle and dispose of waste properly- like reduce your waste water production.
2. Inspect your well at least once a year and keep potential pollutants away from your well.
3. Practice smart agriculture.
4. Maintain and use septic system properly.

5. Maintain healing oil tanks and fill lines.
6. Hire a licensed well contractor to upgrade your well or properly plug unused wells.
7. Use green products for personal care.
8. Work together to find opportunities in your community to better protect water.
9. Avoid or limit use of rock salt.
10. Practice water conservation.

Protecting our water brings a wealth of benefits for future-

The journey of our water from source to tap is long, and not one we think much about. But we can better protect our water and generate additional benefits for people and nature. A new report released by the Nature Conservancy. Beyond the source-The Environment economic and community benefits of source water protection, shows that forest protection, reforestation and the use of cover crops can help four out of five of the 4,000 cities analyzed reduce sediment and nutrient pollution in waterways by a meaningful amount. Water source protection involves the protection of surface water sources and groundwater sources to avoid water pollution.



In the past, the need for source water protection has often been neglected. Our thinking about source water protection as a key to improve water quality and lowering water purification costs focusing on the protection of drinking water sources in order to reduce for purification is a more sustainable approach than cleaning the water once it is polluted.

Three main types of impaired waters are potentially available for ground water recharge treated municipal wastewater, stormwater runoff and irrigation return flow. Of these, treated municipal wastewater is usually the most consistent in terms of quality and availability, storm water runoff from residential areas generally is of acceptable quality for most rechargeable activities but at some times and places it may be heavily contaminated and its availability is variable and unpredictable. Certain impaired quality waters, such as irrigation return flow, industrial wastewater and storm water runoff from industrial areas.

Exceptions might be identified, but only after careful characterization of source. Water quality on case by case basis for example- dry weather storm drainage flow, salt laden, snowmelt flows, certain commercial facilities, such as vehicle service areas.

Promote good hygiene habits through education. Proper hand washing with soap and water can reduce up to 35%. Implement rainwater harvesting systems to collect and store rainwater for drinking or recharging underground aquifers. Build wells to extract groundwater aquifers.

Total Anticipated Demand	(In Billion Cubic Meter)	
In 2010	813	710*
In 2025	1093	843*
In 2050	1447	1180*
Total utilizable water	1122	(690+432)

*With improved management (Surface water + Ground water)

Groundwater Source Protection Measures

- Step 1: Location / Site Selection of the Water Source - Never Close to Pollutant Sources.
- Step 2: Construction of Spring- and Well Protection.
- Step 3: Fencing.
- Step 4: Set up Rules for all Community Members.
- Step 5: Management of Operation and Maintenance.

Some important reasons for protecting drinking water sources:

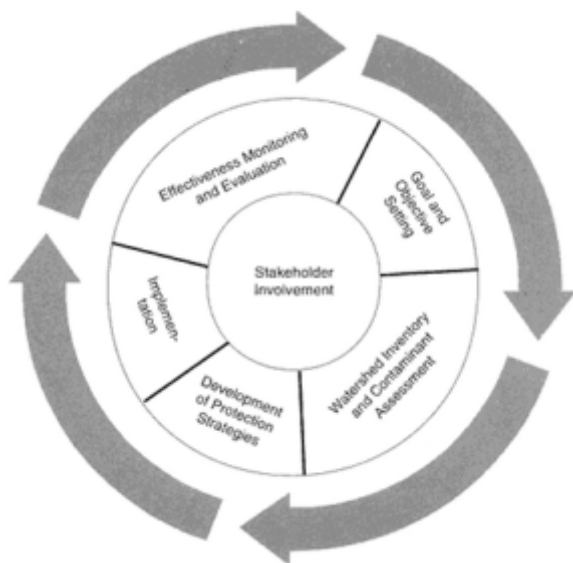
- Water treatment isn't always enough: water treatment systems cannot always remove all contaminants (including chemicals such as liquid fuels and solvents).
- Prevention saves money: it is much easier and cheaper to keep water clean than it is to try and clean it up after it has been polluted. Contamination can ruin a water source forever. If it is not possible to clean up the water after it has been contaminated, water supplies will have to be shut down. In the 1990's the a new drinking water supply had to be found for the community of Manotick because the groundwater was polluted by a chemical spill from a dry cleaning business. Safe drinking water had to be piped from the City of Ottawa at a significant cost.
- Source water protection has other benefits: keeping sources of drinking water clean and plentiful supports tourism and recreation, and provides good fish and wildlife habitat.

Source Water Protection Goals

Source water protection goals generally reflect the specific needs and conditions of the watershed and the entity implementing the program. Beyond providing high-quality source water, such programs may strive to (1) reduce or limit sources of contamination, (2) minimize the risk of hazardous chemicals entering the water supply, (3) mitigate the effects of natural disasters, (4) provide flexibility within water system operations, (5) minimize treatment costs, and (6) comply with regulatory requirements. Realistic goals must recognize the need for balance and compromise among

competing and often conflicting demands for various uses within the watershed (AWWARF, 1991), such as protection of aquatic life, recreation, water supply, agriculture, forestry, and urban development. This need for compromise is particularly pressing in water supply watersheds that are not substantially or wholly owned and managed by the water supplier. In addition, the limitations of regulatory authorities that implement and enforce program goals must be acknowledged. Goals must have the necessary supporting legal and regulatory authority to ensure effective implementation.

One example of a goal is "to protect the water quality and supply reliability by seeking to balance the watershed uses such as the rights of private property owners and public recreational activities with the protection and management of natural resources" (Santa Clara Valley Water District, 1995). The Santa Clara Valley Water District goal recognizes the need for public support and for cooperation from other stakeholders to ensure a successful source water protection program. The Upper South Platte Watershed Protection Association (1998) in Colorado has established a similar goal that reflects a desire to balance activities and effectively engage stakeholders. The Salt Lake City Watershed Management Plan is more strongly focused on maintenance of water quality over other factors: "[Watershed] management emphasis prioritizes water quality first and multiple use of the watershed second. The Wasatch Canyons are protected to maintain a healthy ecological balance with stable environmental conditions, healthy streams and riparian areas, and minimal sources of pollution" (Salt Lake City Department of Public Utilities, 1998).



Components of source water protection.
Adapted from EPA (1994) and Clements et al. (1996).

Conclusion

This paper highlights the current preventative, risk-based approach should continue to be implemented in order to ensure safe, good quality drinking water for Perth now and into the future. If water sources transfers are to be used to facilitate more responsive water management, the equity issues related to area of origin impacts will require continued attention. In fact, support for source protection is growing at all levels, from the passage of safe drinking water amendments at the federal level that promote source water protection to state programs that encourage funding for non point source protection projects, including conservation. Public health and the cleanliness, safe drinking water are ultimately local responsibilities that demand a committed, comprehensive, and sustainable response from water supplies and local government.

Final step in the source water protection process for future is to establish a framework for measuring the effectiveness of management strategies and achieving established goals. Periodic or continuous program evaluation allows for the source water protection vision goals, source characterization and implementation tasks. This will improve overall efficiency and quality of the program. So, effective water resource management and policy must be implemented on both local and international levels.

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