

Sustainable agriculture for the future

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Water

A Precious Resource

Designing efficient irrigation systems

Hydroponics vs Aquaponics

Reflections on World Water Day



Noord-Wes Jongboer van die Jaar

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Let us take a moment to reflect on World Water Day, which is celebrated annually worldwide...

Dr Kobus Anderson
ARC-Natural Resources and Engineering

World Water Day is an important day that reminds us of how crucial water is to our lives, ecosystems, and economies. The theme for 2024 is “Water for Peace” which highlights the vital role water plays in maintaining stability and prosperity in the world. It encourages us to ensure that everyone, especially marginalized communities who often suffer from water scarcity, has access to clean water.

World Water Day was established by the United Nations in 1992 as a response to the growing global water crisis. It is celebrated annually on March 22nd with a different theme and focus area each year. The main purpose of the day is to raise awareness of the 2.2 billion people who live without access to safe water and to highlight the importance of freshwater and sustainable management

practices.

Since its inception, **World Water Day** has helped generate political attention and action, inspiring individuals, and organizations worldwide to work towards a sustainable water future. In 2015, the world committed to Sustainable Development Goal 6 as part of the 2030 Agenda, which aims to ensure that everyone has access to safely managed water and sanitation by 2030. However, we are currently significantly off track to meet that goal.

Billions of people, as well as schools, businesses, healthcare centres, farms, and factories, still lack access to water and sanitation. Moreover, if we continue with the existing climate change scenario, it is estimated that over 5 billion people could be



Collecting rainwater from rooftops can be a great way to supplement household water use and irrigation needs



Furrow flood irrigation is a widely used farming method in rural areas that promotes sustainable crop production

living with water scarcity by 2050. Therefore, it is crucial to take action to promote sustainable water management practices to ensure a better future for all.

Access to water and its availability can either promote peace or trigger conflict. In situations where water is scarce or polluted, or where people struggle to access it, tensions can escalate. To balance everyone's water needs and help stabilize the world, cooperation on water is essential. Water is a crucial resource for prosperity and peace. With the increasing impact of climate change and population growth, it is urgent, both within and between countries, to unite around the protection and conservation of our most precious resource. Water can lead us out of crisis and foster harmony between communities and countries by promoting fair and sustainable use.

Water is an essential requirement for all forms of life on Earth. It is safe to say that water is the primary reason why our planet is the only one we know of that can support life. This versatile liquid is one of Earth's most valuable resources. Without water, life cannot exist. Therefore, it is crucial to conserve water as it is essential for our survival.

Although there have been advances in water management, millions of people across the world still do not have access to safe drinking water and sanitation. This crisis is worsened by rapid urbanization, climate change, pollution, and unsustainable water usage. Additionally, the problem of unequal access to water continues to persist, particularly affecting vulnerable communities such as women, children, and indigenous populations.

It is important to be aware of the issue of water conservation and take collective action to address it. Individuals can start by adopting water-saving habits at home, such as fixing leaks, using water-efficient appliances, and practising responsible irrigation. Communities can play a role by advocating for policies that prioritize water conservation, investing in infrastructure for clean water access, and promoting sustainable agricultural practices. By working together, we can make a positive impact and ensure that we have access to clean water for generations to come.

There are various ways to preserve water daily:

- Save water in obvious ways. For instance, take shorter showers and fewer baths, and turn off the tap when brushing your teeth or washing dishes. You can also install water-saving shower heads or flow restrictors.
- Check your toilet for leaks. If you have a leak, it may be wasting more than 300 litres of water a day.
- Do not run the hose while washing your car. Instead, soap down your car with a bucket of soapy water and use a hose only to rinse it off.
- Eat local. Shop locally for in-season ingredients and products since these are usually produced with less water.
- Do not waste food. Approximately one-third of all food produced on the planet is either lost or wasted. By eating only what is needed you will reduce the demand from agriculture, which is one of the biggest water consumers.
- Incorporate plant-based meals a few times a week. It typically takes between 790 and 1320 litres of water to produce 1 kg of rice, 528 litres for 1 kg of soya, 237 litres for 1 kg of wheat, and 132 litres for 1 kg of potatoes. Compare that to an estimated 70 000 litres of water to produce ½ kg of beef.
- Shop for sustainable clothes. Did you know that it takes 10 000 litres of water to produce just one pair of jeans? This equates to how much the average person drinks in 10 years!
- Keep pollutants out of your water. Do not pour obvious pollutants down the drain or into your toilet, such as oils, medicines, and chemicals.
- Protect nature. Use natural solutions that help to reduce flooding and store water for future use.
- Clean up the environment. Engage in local clean-ups of your community's rivers, lakes, wetlands, and beaches, or organize one yourself!
- Water your lawn only when it needs it. When you irrigate your lawn, make sure to do so long enough for the water to seep down to the roots where it is needed. A light sprinkling that sits on the surface will simply evaporate and be wasted. Also, water your lawn and garden during the cooler parts of the day.
- Use a garden fork to aerate your garden

periodically. Holes every 30 cm will allow water to reach the roots, rather than run off the surface.

- Plant drought-resistant trees and plants. Many beautiful trees and plants thrive without irrigation.
- Put a layer of mulch around trees and plants. Mulch slows the evaporation of moisture from the soil surface.
- Collect water from rooftops in tanks and drums to be used for supplemental irrigation during periods of drought and water stress.
- Greywater, which is wastewater from washing clothes and dishes, can be used for supplemental irrigation.
- Avoid over-watering your garden as this can diminish plant health and cause yellowing of the leaves.
- Keep the garden free of weeds as they compete with other plants for the available water and nutrients.
- Write to your legislators to ask for their support in providing clean water for all. Stress how off-track we are as a planet in our attempt to meet Sustainable Development Goal 6: Water and Sanitation for all by 2030.

Technology plays a vital role in monitoring the quality of water, optimizing its usage, and treating wastewater. Innovations such as smart irrigation systems, water recycling technologies and desalination plants offer sustainable solutions to water scarcity. However, it is crucial to ensure that these technologies are accessible and affordable for all communities, particularly those in developing regions.

All over the world, people must change how they use, consume, and manage water in their daily lives. Governments, companies, institutions, and coalitions must commit to spurring significant change on a larger scale. Personal commitments must be added to larger-scale promises. **World Water Day** provides an opportunity to unite in solving the world's water and sanitation crisis, which affects every living thing on our planet. We need to commit ourselves to water conservation, protection, and clean drinking water initiatives. Every drop counts when it comes to protecting our water. With **World Water Day 2024** fresh in our minds, let us renew our commitment to safeguarding this precious resource for future generations. Together, we can strive for equitable access to clean water, protect our rivers and oceans, and build resilient communities that thrive in harmony with nature.

The **Agricultural Research Council** is currently involved in various projects aimed at finding more efficient ways of utilizing our scarce water resources to achieve sustainable crop and livestock production. To combat the effects of climate change, the ARC places a high priority on developing and testing climate-smart agricultural technologies, as well as implementing mitigation strategies.

For more information:

Dr Kobus Anderson
ARC-Natural Resources and Engineering
E-mail: AndersonK@arc.agric.za



Uncontrolled irrigation from wetlands can have negative impacts on the ecosystem if not carefully managed