

My working definition:

Hydrophilanthropy: altruistic concern for the water, sanitation, hygiene, and related needs of humankind, usually manifested by donations of money, property, equipment, information, education, training, or labor.

I do not view hydrophilanthropy as necessarily different from 'other' water work, except for the philanthropic aspect.

1. With the increasing pressure on water resources in developing countries, can hydrophilanthropy engineering solutions ever be enough on their own?

I do not view hydrophilanthropy as necessarily being 'engineering solutions'; not all water resources issues are engineering in nature. Hydrophilanthropy alone cannot solve the developing world's water problems; neither can non-hydrophilanthropic water work. When I first started doing this work in the late 1990s, my mentors told me not to agonize over the entire developing world's water, sanitation and hygiene (WaSH) problems. To do so would paralyze and discourage me. They told me to focus on one village/project at a time; that's how you get things done. I espouse the 'think globally, act locally' approach. We must also remember that it is important to empower people and obtain buy-in from them so that they can solve their own WaSH problems.

2. How can hydrophilanthropy make a real impact on WaSH (clean water, sanitation and hygiene) issues in the context of continued exponential growth in populations in the majority of developing countries?

This is an excellent question; WaSH issues are definitely related to population increases. This connection is all too often ignored. My answer to (1) above is relevant here as well. We must continue to do what we are doing – concentrating on building capacity in developing countries so that people can solve their own problems. If we just go in and build things, then leave, we fail because we are making people dependent upon those of us in the developed world. That's degrading to those in developing regions.

3. Do hydrophilanthropic actions by third parties let governments off the hook from more seriously tackling their citizens' water supply services provision issues?

There is a danger that this can happen, but so can it happen with non-hydrophilanthropic actions. What hydrophilanthropies must do is work with governments and the people to solve problems and stipulate that governments and those benefiting provide in-kind or financial support, even if quite limited. We must be careful not to be enablers.

4. Do practitioners of hydrophilanthropy from different subject areas/specialities do enough to coordinate their actions with one another / take into account each others' complementary expertise?

There is a great need for better coordination and cooperation among hydrophilanthropic organizations. For example, in the USA, a lot of this work is done by small organizations who fund

and undertake their own projects. They often are focused on one village or one region and are unaware of others doing work in the same area.

I have been involved in a few attempts to develop coordination networks with little success so far. It is a slow process because many organizations have different missions and answer to different masters. But the increased use of social media is bridging this coordination and cooperation divide. Just in the past few years I have seen more communication and among donor groups. And yes, there are 'turf' issues.

5. With ever greater pressure on water resources in much of the developing world, and increasingly in First World countries, are hydrophilanthropy actions to tackle immediate WaSH issues contributing to longer term problems such as aquifer depletion? If so, what can be done about this?

No more so than non-hydrophilanthropic actions. I do not see this as an issue as long as we adhere to the principles of sustainability and integrated water resources management. Hydrophilanthropic work is not exempt from promoting the stewardship of water and related resources. And any work we do must also involve education and training – capacity building,

6. What role do you see for the input of legal experts in hydrophilanthropy? And for scientists?

I see roles for individuals from all disciplines. I do not view hydrophilanthropy as the domain of engineering or any particular discipline. The world's water problems are not just technical ones, but involve cultural, scientific, social, political, psychological, spiritual, economic, entrepreneurial, management, and legal issues. We need all kinds of disciplines, working together, to address WaSH issues. I might add that one of the first water problems I encountered in a developing country was not a technical one but a water rights issue. As a hydrogeologist, I was virtually useless.

7. How do we involve non-water people and broaden out our dialogue on the global water challenge to new audiences, as yet hardly engaged?

I understand what you mean by 'non-water people' but let's remember that all people need water. All people also need land, food, energy, and healthy ecosystems and each of these is related to each other and to water. We must show people how water flows throughout their lives and impacts virtually all they do. Education is important, especially among the young people who are generally more receptive than adults. It is also important to use examples close to home. Few people may respond to a water crisis or issue halfway around the world, but if you can provide an example that *impacts them* it's far more effective. Social media and short videos are also effective. Care must be taken to adapt these techniques to socio-cultural norms. What works in one country may not in another country.

I have found that people are intrigued by and respond to the concepts of virtual water and water footprints. They are usually astounded to learn how much water it takes to produce a cup of coffee or a pair of jeans or how much water they use to live each day. It's important to get people to realize that when you touch water, you touch everything.

8. Water security: what does it mean to you?; what do you see the main challenges to be?; and how are they best tackled?

Water security is the capacity of a population to access sufficient water to meet all its needs and to limit the destructive aspects of water. It involves both the productivity and destructivity of water.

The main challenges are population growth, climate change, and poverty. Population growth generally requires more water and sanitary facilities. People may tend to settle on floodplains, hillsides, and near coastlines and become more susceptible to water-generated catastrophes. Climate change (global warming) will change the hydrologic cycle in as-yet uncertain ways. Some regions may desiccate, placing more stress on diminishing water, energy, and food supplies and perhaps fomenting conflict, either internally or externally. Nonrenewable groundwater sources may be tapped. Regions that become wetter may be subject to flooding and other water disasters that were unknown, infrequent, or of lesser intensity. Even in places where the total amount of water does not change, the character of the water may change – perhaps more rain and less snow, which could lead to storage problems, flooding, waste dilution problems, inadequate environmental flows, or water rights issues. In western Oregon, USA, where I live, we have melting glaciers and diminished snowpack so our natural storage is declining even though many climate projections show our annual precipitation remaining about the same. The character and the spatial and temporal distributions of precipitation are changing.

Poverty will remain a problem, just as it is today, because it will limit a country's ability to cope with change and the problems that accompany it.

These problems are best tackled by good planning and implementing flexible policies to cope with change. Developed countries must set good examples for developing countries in terms of water-food-energy-land planning and management. We must strive for sustainable approaches. Aid must be more effective: tailored to local conditions and needs and not given primarily to provide large contracts to firms from the donor countries. Capacity-building and local involvement are critical.

Unfortunately, as the Dutch say, "No policy without a calamity." I hope they are wrong in this case.