

# Water, the next real estate

There is a water crisis up ahead even without help from global warming, says S.Ananthanarayanan.

Two thirds of the earth's surface is covered by water, perhaps the most abundant resource there is and there should normally be no fear of its running out. The trouble is that all the water is not of the kind we can use, most is salt, sea water. Only 3.5 percent of all the water is fresh and potable, and again, most of it is locked in the polar ice caps as ice!

Only 0.01 per cent, or one part in 10,000, is in a form which people can use, in streams, rivers, lakes and groundwater aquifers. And then, well over half of this is out of reach, or lost as floodwater.

The spectre of global warming threatens to destroy the ice-locked store by melting glaciers and sending the water into the sea, even if it is through destructive floods in ice-fed rivers. Rising temperatures apart, some may argue that this does not directly affect water supplies as no accessible water is lost. But this is not true. Not only will the glacier-fed rivers soon dry up, the great threat is that the source for aquifers and ground-water would disappear.

## **Groundwater crisis**

Increased demands for industry and rising populations has been fast depleting groundwater sources. For all the water there may be at the surface, there is a limit to how fast underground storage can be replenished. Aquifers that filled with water over thousands of years are being drained in decades. The effects are both local as well as extended, with ground-water level dropping in general, the world over.

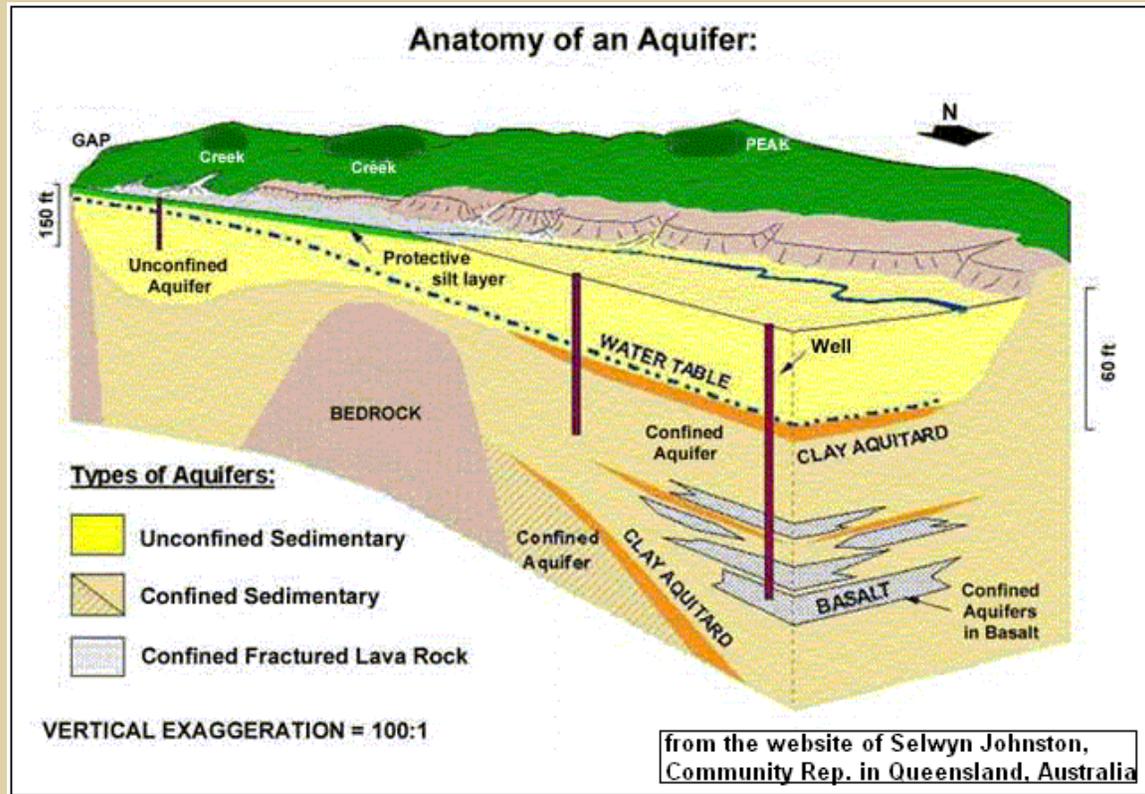
A major source of water for communities is from wells and lakes fed from groundwater sources. Rivers, of course, served for transport not only of people and merchandise but also of water and the large human settlements arose on river banks. But there are important centres of vital resources, and hence habitation, away from rivers too, and these grew thanks to ground-water, which gets there through an invisible yet efficient underground channel system.

It is this, underground source, whose depletion, as yet only because of over-exploitation, that would soon gain urgency and grab national and international attention.

## **Need for manage**

Ground-water, being out of sight, is usually taken for granted and it is only of late that communities are waking up to its running out. There have been major disputes over river

water flows and levels of lakes and reservoirs. There has also been the development of a legal framework, national and international, to regulate the use of such surface water.



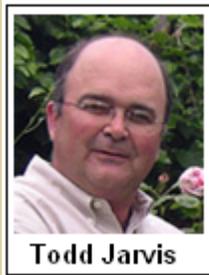
But in respect of groundwater, there has been neither perceived need for nor possibility of legislation. The legal principle has been resolutely that of 'ownership of land and everything that grows upon it and can be found within the land.' The English common law concept of 'rule of capture', which determines ownership of common resources, such as wild game, as belonging to the one who first 'captures', has been applied to oil and water resources. This is irrespective of whether it drains out the resource from the land of a neighbour – because she is considered to own the resource under her land only if she is the one who pumps it out! There is no clear rule to deal with an industry that pumps out ground-water and starves a farming neighbourhood and statute to control ecological damage caused by certain kinds of industry is being slowly erected.

But it is clear that there is great need for administrative and legal attention to this area which is soon to become the world's first battlefield.

### Lessons from oil

Researchers at Oregon State University have recently presented a paper dealing with the problem at a conference in Tokyo, Japan. "In the northern half of Oregon from Pendleton to the Willamette Valley, an aquifer that took 20,000 years to fill is going down fast," says Todd Jarvis, Associate Director of the Institute for Water and Watersheds at OSU.

"Some places near Hermiston have seen water levels drop as much as 500 feet in the past 50-60 years, one of the largest and fastest declines in the world." " In the process," Jarvis says, "underground aquifers can be irrevocably damaged – not unlike what happened to oil reservoirs when that industry pumped them too rapidly. Tiny fractures in rock that can store water sometimes collapse when it's rapidly withdrawn, and then even if the aquifer had water to recharge it, there's no place for it to go."



The OSU paper takes stock of the problem, worldwide and suggests that the legal framework that has been developed by the oil industry, the hard way, to manage oil exploration, could provide a starting point to control the use of water.

### **Unitization**

A key concept that Jarvis presented at the conference was the idea of “unitization”, which is built around people unifying their rights and their goals, and working cooperatively to make a resource last as long as possible and not damaging it. “Regardless of what else takes place,” Jarvis says, “groundwater users must embrace one concept the oil industry learned years ago – the "race to the pump" serves no one's best interest, whether the concern is depleted resources, rising costs of pumping or damaged aquifers.”

As with any resource that is scarce, it becomes important to reserve its use for where it has the best economic value. Doing this with water would call for a whole new way of looking at things, and property and civil rights, and a level of cooperation whose absence has been the hallmark of water disputes, local and international, through the ages.

Agriculture, which is at present the greatest consumer, would still be the priority area, but the methods used will have to change in many ways and traditional agriculture is notoriously wasteful. The arenas of agriculture would also shift to places which can control access and there would be a new industry of the ‘secondary’ water usage. With river resources shrinking or disappearing, regions where groundwater accumulates would become the new oilfields.