



Water supply and treatment in the UK

Background to the case studies

I'm Suresh Nesaratnam and I'm a Senior Lecturer in Environmental Engineering at the Open University. At the moment I'm the presentation Chair of Course T210 which is Environmental Control and Public Health. I was the production Chair as well. Water management is one of four main topics that we cover in T210, the others being air pollution, noise pollution and waste pollution. Now water is really crucial because water is critical to life and, more importantly, they estimate that something like half the hospital beds in the developing world are filled by people who suffer from waterborne disease, and when somebody is in hospital they can't work so there's no productivity, the GNP of the country goes down, people get ill, you're a burden to the family, so it's really important that we understand water pollution, and learn the techniques whereby we can clean up water and produce good quality water for drinking and other purposes. The water video comprises a panel of experts. The idea was that we would cover the whole process from drawing the water from its source, treating it and then delivering it to people in their homes. So the panel had many experts, all sitting round the table, and this was a very effective way of getting a lot of good information in a very short space of time. Now within the panel we had the Chair of the Ofwat committee, Catherine Harvey, so she has represented the public perception of water and water conservation; we also had the Environment Agency whose job is to protect the environment and to manage water resources, they were there; we had the Drinking Water Inspectorate whose job is to make sure that the water we get in our homes and in industry is safe; we had the water company there, Essex and Suffolk Water, and we specifically chose them because they look after the water resources and water supply in East Anglia, in a part of East Anglia which is facing water shortage, so they're really in the forefront of water conservation, and they were ideal people to bring to this discussion. East Anglia is a very interesting case because we have an area where the population is increasing and with that, water demand going up, and is also the part of England which has the least amount of rain, so we're faced with a situation where water demand is going up and you have limited water supplies, and because of climate change we don't get as much rainfall as we did, so it's a crisis situation. People are having to think of new ways of conserving water, or of minimising water use, so it was really an excellent case study to work with. The reason why we looked at Hanningfield as a case study was because that reservoir is in an area of water stress and at one time they did put treated effluent into the reservoir, albeit a very small concentration, and this created a lot of hoo-hah in the press, so we thought that'll be an interesting case study to look at. Now the treated effluent that they put into the reservoir was really very, very clean but people couldn't sort of accept that it was safe to drink. It happened at a time when the water crisis was really very severe, and this was really an exceptional case so the agency, Environment Agency, gave permission for Essex and Suffolk Water to do that, to put a little bit of treated effluent straight in, but it was really very, very clean effluent, in fact the quality was even better than the river water into which it was actually put. The Hanningfield treatment plant is state-of-the-art and in the video you'll see different processes, some of them we have to show graphically because you can't actually see things that happen underwater, but it's a very up-to-date plant producing very clean water, safe for all of us to drink, and none of us should actually drink bottled water, certainly in countries where the EU regs are applied and water quality is maintained. From this video people will appreciate that it's very important to get the public on side. Whenever you do anything that looks a bit different you want to get the public to be with you, to understand why you did it, and to be convinced of the technology that goes behind it to make sure that everything is safe. It's always important to consult the public because they're often blinded by the technology and they fear change so as engineers we should always try to explain to the public what's happening, answer all their queries openly, and give them the facts because you only need one or two people to start spreading rumours and the whole town will be against you, so it's important as scientists and engineers that we have good public relation skills. Since the film was made many more plants have had to put

membranes in because they've found themselves facing pollution due to cryptosporidium, which is a parasite, which is sometimes found in rivers which adjoins farmland where there's cattle and sheep. In several places they've had to resort to desalination where they take water from the sea, for instance in England this is going to happen near Dagenham in Essex, but in countries like Australia, in Perth they're putting in desalination plants. In terms of water reuse, in Singapore they use membranes to treat sewage, and it really produces very clean water which they sell to industry at a very subsidised cost, so water reuse is happening much more in many more countries of the world. In terms of our responsibilities as members of the public, you know, as responsible citizens we all have to think of other people and the environment in general, and we really have to take steps ourselves to reduce our consumption of water, wherever we are in the world, because water is not exactly free. It falls as rain, sure, it falls as rain but to treat it, to make it safe for us to drink, we need chemicals, we need energy, we need pumps, it costs money to get it from the reservoir to your home, and we can save a lot of resources by consuming less. I guess that's the message of this programme - to look at water treatment, water consumption, and think of ways where we can reduce our consumption, not that we put ourselves in an unsafe situation but where we're not.....