

A close-up photograph of water with several droplets and concentric ripples. The water is a deep blue color, and the droplets are bright and reflective. The ripples create a sense of movement and depth.

**Think** before you  
agree to **drink**

**IS SEWAGE A SOURCE OF DRINKING WATER?**

**“The World’s Scientific Community does not and will not know all the toxic agents and carcinogens that may be able to make it through the indirect reclaimed water process to drinking water. Also, there is simply no technology to detect them.”**

***Professor Steven Oppenheimer,***

*Director of the Centre of Cancer and Development Biology*

*California State Northridge University*

***This book has been compiled with all Australian citizens in mind, in particular those who may face the prospect of having to drink recycled sewage water added to their domestic supply. It alerts people to worldwide scientific studies, findings and opinions which would not be told to them by their state or local authorities during “education compaigns” to convince people to accept recycled sewage water in their water supply for drinking.***

***It is because of this threat, the idea for this book was born.***



## Introduction

Why has this book been produced?

The possibility of Australian cities running out of water has focused everyone's attention on recycling. **There would be few, if any, Australians who would oppose recycling every drop of water from sewage treatment plants for industrial and agricultural purposes.** But passions run high when it comes to putting recycled sewage water into drinking supplies. There are those who say it is safe and that to suggest otherwise is to be unintelligent and motivated by fear. This book has been produced to challenge those assumptions.

Many who promote recycling sewage water for drinking cite global warming and the environment as the moral force behind their push. However, it is this publication's contention that they have failed to give any firm assurances as to the safety of the idea and its long term effects on humans.

**Many who support and promote recycling of sewage water for drinking, including scientific people, appear not to mention drugs and more particularly chemicals that are and maybe in sewage water.**

After reading this book you are invited to ask yourself, **why is this?**

***Turning a blind eye must surely be a terribly dangerous action.***

**This book seeks to present an opposing view based on reputable scientific opinion.**



## Water Quality Rating of Sewage Water

The book, *'From Waste-d-Water to Pure Water—Water Quality Star Rating'*, was launched at the Australian Water Association presentation in Toowoomba. Some people feel it presents erroneous and misleading information to support an AWA 'Six Star Rating System'. **This was criticised in the Toowoomba debate because it was presented to the public as an official water rating system when in fact it was not recognised by any regulatory body. There are no guidelines worldwide for the process of reclaiming drinking water from sewage beyond Hazard Analysis Critical Control Point (HACCP)' controls.**

**A major concern of opponents in Toowoomba was that no tests for chemicals was mandatory in sewage water beyond those known to be chemicals of concern. Furthermore, tests for all known chemicals did not exist and new man-made chemicals and drugs are continually emerging.**

It is on this point regarding minute traces of chemicals that the book *'From Waste-d-Water to Pure Water—Water Quality Star Rating'*<sup>2</sup> is claimed to be inaccurate and misleading.

In the early part of the Toowoomba debate a 'Pure H<sub>2</sub>O' campaign was mounted with the claim that reverse osmosis technology allowed only water molecules to pass through the treatment machinery. Some Toowoomba City Council literature was published supporting this erroneous notion. It was later changed to show 'small organic molecules' passing through barrier membranes. Opponents maintained that small amounts of anything contained in the source sewage water could pass through the system. Proponents retreated to the position that you would have to drink unrealistically huge amounts of the water for any significant accumulation of chemicals of concern to occur in the body.

The 'Six Star Rating System', and the assertion that renal units used water reclaimed from sewage for kidney dialysis are the extreme end of the proponents campaign for the acceptance of drinking sewage water.



## IT'S DONE ALL OVER THE WORLD—OR IS IT?

It is important to define the process of treating sewage water before talking about where else that process is already being used. **'Indirect Potable Reuse' (IPR)** is where there is a deliberate intent to introduce recycled sewage water into an urban water supply using a specifically defined process. Toowoomba proposed such a process.

**'Unplanned Potable Reuse' (UPR)** is where an urban water supply is drawn from a source of river water, bore water or dam water that contains sewage water in an unplanned way. London is an often quoted example because of the high number of sewage treatment plant outflows into the catchment of the Thames River from which London's water supply is sourced.

The statement that ***'there is no community on this planet that deliberately sources any significant proportion of its urban water supply from a sewage treatment plant'*** is true.

Singapore is an often quoted planned potable reuse example with a modern plant constructed at Bedok reclaiming 90 megalitres of water per day. Ninety-four percent of that water is sold at low rates for industrial purposes using a dual reticulation system. The balance is added to a reservoir. The total content of recycled water in urban supplies is limited to a maximum of 1%. This is a token amount by any standard and difficult to view as a precedent for other communities planning to rely on sewage water as a significant water supply<sup>3</sup>. Small promotional bottles of 100% treated sewage water from Singapore have been made available in Australia for promotional taste testing usually with maximum media coverage. This promotion is a "Red Herring" because taste is irrelevant in the scientific debate.

Windhoek in Namibia and Orange County in California are also examples where sewage water is used in a planned way.

Windhoek has ongoing issues with water quality and with the operation of its plant.<sup>4</sup> It is not a credible precedent.

When Australians travel to overseas countries, authorities and travel companies appear to go to great lengths to warn them not to drink the water.





**Orange County takes treated water and injects it into aquifers as a seawater barrier. The water then percolates over a number of years back towards bores used for urban supplies. <sup>5</sup> Even this conservative practice must be considered in the light of remarks made by eminent American cancer research scientist Professor Oppenheimer, referred to a little later.**

Ron Wildemuth, Communications officer for Orange County Water district said,

**“No one knew what it was at the time or cared. It was launched under much different circumstances than today” <sup>6</sup>**

Using examples of **‘Unplanned Potable Reuse’ (UPR)** to **‘Indirect Potable Reuse’ (IPR)** is not valid. For example the possibility that some of Esk and Kilcoy effluent may find its way into Wivenhoe Dam supplying Brisbane is not argued. Those towns are not large or industrialised and their contribution of faecal matter to the water is undoubtedly small by comparison to cows and kangaroos in the Wivenhoe catchment. The real issue acknowledged by scientists is possible chemical content of effluent. In the case of the Wivenhoe Dam catchment, agricultural chemicals, herbicides and pesticides are far more likely to be of concern than faecal coli forms.

Urban water quality has always emphasised the removal of waterborne pathogens. Typhus, cholera and dysentery are obviously well under control in Australian urban water supplies. Cryptosporidium, Giardia, E-coli and other protozoa or bacteria are monitored and killed by water treatment processes and colony regrowth prevented by chlorination in the water mains. The use of sewage water is highly unlikely to cause infectious disease outbreaks because those issues have been addressed over the past one hundred years.

**Modern chemicals and drugs are the real concern. Any effluent from small villages and rural communities in dam catchments is unlikely to contain the complexity of the chemical cocktail of big city sewage.**

About 87,000 chemicals with potential long term effects and potential endocrine disrupting effect on future generations have been identified by the United States Environment Protection Agency and are potentially present in sewage water.<sup>7</sup> Tests for these chemicals are yet to be developed and the long term effect on humans of minute doses is not known.



**That London is erroneously used as an example of planned potable reuse. Traces of chemicals can pass through modern sewage water treatment processes and the information in the following section adds weight to the idea that long term testing should be mandatory before anyone is required to drink recycled sewage water. Consumers should demand incontestable evidence of the long term safety of sourcing urban water supplies from sewage water.**

## CHEMICAL CONCERNS

**Australian Professor John Aitken** is recognised as an international expert on reproductive health, particularly in the male. He has worked for the World Health Organisation (WHO) and the Medical Research Council of the UK on male infertility. He has developed research programs with the Rockefeller Foundation. He is Head of the School of Biological and Chemical Science and Mathematics, University of Newcastle, Co-Ordinator of Mother's and Babies Research Centre, a unit of the Hunter Medical Research Institute.

**His research suggests that phenolic oestrogenic by-products that are often in reused drinking water could damage the male sperm line with resultant cancers. He says testing should be done for the removal of these products from drinking water, especially from recycled water.** <sup>8</sup>

**In Brisbane, Professor Peter Koopman**, Professor of Developmental Biology at the University of Queensland said,

***“In the last 50 years rates of fertility measured as sperm counts have dropped by an alarming 50 per cent.”*** <sup>9</sup>

He blames ***“industrial chemicals, solvents, cleaning products, that sort of thing”*** (Source ABC Online, The World Today. 14 May 2004.)



**In Australia, Dr. Long Duc Nghiem**, lecturer in Environmental Engineering at the University of Wollongong who is an authority on the latest technology in cleaning wastewater does not recommend recycled water for drinking. Dr. Long Duc Nghiem recently completed his Ph.D on “Removal of trace contaminants using membrane technology” which included one year at Yale University. Dr Nghiem has said:

***“Driven by a desire for a better water quality and the need for augmentation of water supplies with wastewater reuse trace contaminant removal has become an important feature of nanofiltration and reverse osmosis membrane filtration processes. The list for further research is not exhaustive and a lot more research will be needed at both fundamental as well as practical levels. New contributions to this progress for the betterment of our water supply and the environment will be warmly welcomed..”***<sup>10</sup>

**In Australia, Colin Creighton**, CSIRO scientist, who is in favour of recycling, admits that as new pharmaceuticals are being developed, devising tests for them was a challenge in reuse.<sup>11</sup>

**In Australia, Dr. Sophia Dimitriadis** in a 2005 research brief, from Science, Technology and Resources Section of the Parliamentary Library for the Parliament of Australia, entitled **“Issues encountered in advancing Australia’s water recycling schemes”** said,

***“Australia takes the position of using the best source of water possible and using recycling to free up drinking water in preference to directly replenishing water supplies. Reasons for this approach include the unknown long-term outcomes from ingesting recycled water and the expense involved in programs that monitor the quality of treatment to avoid the possibility of adverse effects.”***

***“A conclusion from a recent conference of the Australian Water Association exploring the topic, ‘Contaminants of Concern’ was that it would be prudent to wait before producing recycled water for direct drinking use.”***





***“At present, experts are rarely able to agree on risk levels. More research is required about the way in which contaminants operate.”***<sup>12</sup>

**Draft National Guidelines for Water Recycling 2005** included the following,

***“Drinking water reuse is not considered in these guidelines.” - “Endocrine disrupting chemicals have been detected in recycled waters and in water bodies receiving recycled water discharges and have been shown to affect aquatic biota. At this stage, there is no evidence that environmental exposure to low levels of potential endocrine disrupting chemicals affects human health. However, more research is needed on potential human health impacts of endocrine disrupting chemicals, their distribution in reclaimed waters and their removal by treatment process.”***<sup>13</sup>

**In Australia, a study of the Hawkesbury-Nepean River** system by Batty, J and Lim, Richard found,

***“The potential effects of exposure of fish to reproductive endocrine disruptors (REDs) are of major concern. This study reports of the effects of sewage effluent exposure on morphology of male mosquito-fish in a tributary of the Hawkesbury –Nepean River system in NSW.”***<sup>14</sup>

**(Source: Archives of Environmental Contamination and Toxicology)** It found that the anal fin, a secondary sexual characteristic in males, was reduced in size in mosquito fish downstream of a sewage treatment plant.

**During the Toowoomba debate, the Prime Minister’s Parliamentary Secretary for water, Malcolm Turnbull, said communities on the Hawkesbury such as Richmond were drinking high levels of recycled sewage in an unplanned manner. He used this example to try to justify that Toowoomba people should drink sewage water as well.**



**Australian Academy of Science** news release 7 April 1998. “Is there something in our water?”,

***“there are significant levels of the female hormone, estrogen in some sewage outfalls. In inland Australia, this water is returned to water for irrigation, stock and drinking.” “The health risk of these very low levels of hormone is still a matter of heated scientific debate.”*** <sup>15</sup>

**The book, “Our Stolen Future” by Sheldon Krinsky, Professor, Department of Urban and Environmental Policy & Planning, Tufts, University U.S.A., 1996.**

***“Laboratory experiments show that exposures have impacts at levels far lower than had been considered possible in traditional toxicology.”*** <sup>16</sup>

Proponents of recycling sewage water for drinking constantly use London and Europe as examples of unplanned use of sewage water for drinking as if it justified deliberate use of sewage water. For example there are a large number of sewage treatment plant outfalls into the catchment of the Thames River from which London sources its water. **The following six studies suggest some serious concerns and doubts from respected scientific people, agencies and research Councils.**

**In London in 1994, Dr. Jean Ginsberg** from Royal Free Hospital School of Medicine in London headed a scientific research project that linked decreasing sperm counts to men living in the Thames water supply area. The research investigated,

***“the disturbing trend in the past 50 years of decreasing sperm count and seminal volume and the concomitant increase in cryptorchidism (undescended testes) and testicular cancer which have been attributed to oestrogenic environmental pollution.”*** <sup>17</sup>

A letter to the editor by Dr Jean Ginsberg et al “The Lancet”. p230 Vol 343 Jan 22 1994 “Residents in the London area and sperm density”



**UK 1998, Environmental agency and scientists from Brunel University** found that a large proportion of male fish in some British rivers were changing sex through exposure to pollutants. Chemicals from sewage treatment plants and factories were causing male fish to produce eggs. (Source BBC news. Jan 22, 1998 “Pollution causing sex change.”)


**In 2004, in the UK, research into UK rivers showed that,**

***“riverine sediments are a major sink and a potential source of persistent estrogenic contaminants.”***<sup>18</sup>

(Authors, Peck, Mika; Gibson, Richard W; Kortenkamp, Andreas; Hill, Elizabeth M. Source: Environmental Toxicology and Chemistry.)

**In 2004, in the UK, The Environmental Agency** reported that a third of male fish in English rivers were changing sex due to ‘gender bending’ pollution and called for urgent action to ensure that sewage and waste water are disposed of safely. One in 6 British couples now have trouble conceiving- an increase of 55% in the past 5 years.<sup>19</sup>

In a study of European rivers in 2000, the **UK Natural Environment Research Council’s Centre for Ecology and Hydrology** found that freshwater fish in 5 out of 7 northern European countries surveyed showed signs of exposure to endocrine disrupting chemicals, which mimic female hormones and are present in sewage effluents. The effects on the fish ranged from relatively minor changes, to fish developing both male and female reproductive organs.<sup>20</sup> Source – News in Science – Feminised fish throughout Europe 8.9.00.



In Scotland, November 2004, scientists at the government's **Macaulay Land Use Research Institute in Aberdeen** discovered that male lambs exposed to low level environmental contamination start behaving like females, (5 year study feeding sewage sludge pellets which contained low levels of thousands of contaminants).

***“These results combined with many other studies, suggest that exposure to low levels of a mixture of pollutants could result in subtle alterations to human and animal behaviour, immune and reproductive function.” ... “Even extremely low levels of contamination by a range of chemicals, which individually should give no cause for concern, adds up to a real effect in these sheep”*** <sup>21</sup>

**U.S., Dr. Dan Okun**- retired University of North Carolina environmental engineer, says recycling for water consumption is an unnecessary risk. <sup>22</sup> He has served as a consultant on reuse projects throughout California since the 1970's. He opposes reuse for human consumption. (Source: 'Use of recycled water for drinking questioned' June 2000 U.S. Water News Online.)

**U.S. National Research Council report said,**

***“conventional toxicology tests developed by the food and drug industries are not appropriate for evaluating the risks from complex chemical mixtures than can be found in reclaimed water.”*** <sup>23</sup>

It suggests using new alternatives such as growing fish in reclaimed water to study long-term effects. Source: Issues in Potable Reuse: The Viability of Augmenting Drinking Water Supplies with Reclaimed Water Committee to Evaluate the Viability of Augmenting Potable Water Supplies with Reclaimed Water, National Research Council ISBN: 0309064163.



**Salk Institute Researcher in the U.S.** fears pollutants could survive water treatment in sewage treated for drinking water.

***Biochemist and Alzheimer's researcher at The Salk Institute, Dave Schubert, said a plan to add purified wastewater to tap water could fail to detect dozens of compounds toxic medical waste, such as neurotoxins and radioactive isotopes. He warned the long term health effects could be quite significant regarding a plan for purified wastewater to be mixed with Colorado River water in the San Vicente Reservoir.<sup>24</sup> Source. AAP 10/10.98.***

**The Hon Greg Hunt MP, Parliamentary secretary to the Minister for the Environment and Heritage**, on 12.10.05 said in a letter to the editor in the *Brisbane Courier Mail* 1.8.05,

***“ I nor the Federal Government wants Australians to drink treated sewage effluent. Our objective is to recycle this water for use in industry and agriculture.”<sup>25</sup>***

Again in a letter to Rosemary Morley of Toowoomba,

***“As water is a limited resource, the Australian Government support the recycling of this valuable commodity. Our priority however is for recycled water to be used in industry and agriculture.”<sup>26</sup>***

**John Poon – Bachelor of Engineering (Hons) Monash University, Manager of Strategy and Planning in Water Recycling, Melbourne Water** worked in Singapore for CH2M Hill, a US based global full-service engineering, consulting, construction and operations firm on the NEWater scheme and is cautious about recycling for potable use because of contaminants.





The following is from “The Source” –a magazine by Melbourne Water March 2006 Issue 37.

*In Singapore, John Poon oversaw a 3 year study of human health risks and chemical and microbial risks.*

***He said no single technology is foolproof, and potable reuse is not a silver bullet. It should be considered alongside other water conservation measures and alternative measures.***

***“When we begin to think about using recycled water for drinking, questions are raised about the longer-term health impacts from unknown contaminants at such extremely low concentrations that we are unaware of them”*** <sup>27</sup>

He said Singapore had gone to great lengths to try to address these problems.

***“New compounds are being invented and discovered every day and understanding the health implications of thousands of chemicals and emerging pathogens is an enormous and ongoing scientific challenge”*** <sup>27</sup>

**A U.S. cancer expert, Professor Steven B. Oppenheimer Ph.D., has warned that drinking recycled water was like playing Russian roulette as there was no way to test if it was safe.**

**Professor Steven B. Oppenheimer**, Director of the Centre for Cancer and Developmental Biology at California State Northridge University at Los Angeles said,

***“It may be fine for years until an unknown agent makes it through the process and kills people. Anytime one deals with medical and industrial wastes in such large quantities, it is likely that such a scenario will eventually materialize.”***



Professor Oppenheimer has a long list of awards for his cancer research, had numerous papers published on cancer and was instrumental in stopping a project for the city of Los Angeles to top up an aquifer with recycled wastewater.

**Professor Oppenheimer** said,

***“The fact that some communities in the U.S and elsewhere have been drinking reclaimed water does not make it safe. It often takes decades to detect the damage done by such projects that tinker with public health and welfare.”***

He said it had taken decades to prove that smoking caused lung cancer and smoking was now regarded as the number one cause of cancer. He said this situation with recycled water was much worse in that many people did not have a choice.

Professor Oppenheimer said while there was probably no solid documented evidence to prove that ingesting recycled water harmed health, one of the most respected research groups in the world, the U.S. National Research Council, which is a branch of the National Academy of Science, had warned against it in its study. Professor Oppenheimer said this was the most definitive report of this subject ever done.

He said,

***“The study found that it was highly likely that some compounds would get through, highly likely that those compounds would be toxic and highly likely that nobody would know about it because there were no tests available.”***

The National Research Council also warned that just because indirect potable water reuse had been around for decades and studies had been done,

***“Negative results from such studies do not prove the safety of the water in question.”***



As there are currently no guidelines for drinking recycled water, federal guidelines are currently being fast tracked. Professor Oppenheimer said,

***“The world’s scientific community does not and will not know all the toxic agents and carcinogens that may be able to make it through the indirect reclaimed water process to drinking water. Also, there is simply no technology to detect them.”***

and

**In 1996, a Rand Corporation study found that there was an almost 100% (average of 73%) increase in rates of liver cancer in areas using reclaimed water. The authors, however, down play the finding by stating there is no evidence to associate liver cancer with reclaimed water; therefore the liver cancer is most likely explained by other factors. In my opinion, and in the opinion of others who read this statement, it is flawed reasoning.** <sup>28</sup>

Dr. Steven Oppenheimer, Augmenting Drinking Water with Reclaimed Water, <http://www.beachwoodvoice.com/WaterIssue/augmentingdrinking.htm>

**Because regulations for safe drinking water were not developed with reclaimed water in mind, they may not be the best standard for testing its quality, the committee said. Reclaimed water may contain sources of contamination that cannot be determined through current testing or treatment processes.**

**After reviewing the few studies that have examined the health implications of drinking reclaimed water, the committee said that different approaches are needed to test the safety of reclaimed water. Conventional toxicology tests developed by the food and drug industries are not appropriate for evaluating the risks from complex chemical mixtures that can be found in reclaimed water. Alternative studies, such as tests using fish in source water, should be undertaken to provide a broader range of data about possible harmful**



**effects to living organisms. Research also is needed on the level of viruses and parasites in all waters and the effectiveness of both conventional and advanced water treatment processes in removing these pathogens. The federal government should undertake population studies that compare the disease rates over time among individuals exposed to reclaimed water to the disease rates among individuals who use a different water source.**<sup>29</sup>

Ref: <http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=6022>

**The Prague Declaration on Endocrine Disruption (<http://www.edenresearch.info/declaration.html>) arose from a European conference of scientists in 2005 and has been reaffirmed in May 2006.**

It is a key document for scientists concerned about **Endocrine Disruption Compounds** in the human environment.

It is not solely concerned with water supplies although considerable input has been made by scientists concerned with the reuse of sewage water. **194 scientists, however, have signed off on this paragraph: (see appendix A.)**

“Considerable progress has been made in identifying new endocrine active chemicals. These include chemicals used as UV filters and antioxidants in cosmetics and chemicals used as preservatives in food. It is clear that European citizens are simultaneously exposed to large numbers of endocrine disruptors. **However, we do not know the full range that we are exposed to through our diets, drinking water, air and consumer products. This lack of knowledge severely hampers efforts to explore a link between exposure and resultant effects in humans.**”



**This begs the question if there is such a lack of knowledge about endocrine disruptors, why would any community go to the most concentrated source of Endocrine Disrupting Compounds (eg, the sewage treatment works) to source part of that communities drinking water?**





## 22 ISSUES AND QUESTIONS

1. We should remind ourselves about what goes into a sewer. Domestic, commercial and industrial toxic chemicals together with both prescription and illicit drugs from human waste or from dumping unwanted or out of date drugs down toilets, tubs and kitchen sinks. This joins liquid waste from morgues, hospitals and any other place connected to a sewer as well as paints, solvents and acids. Sewers are used to dispose of all manner of substances which arrive at the city's sewage treatment plant as one massive, horrendous toxic cocktail.
2. The Federal Government is presently financing an advertising campaign to convince people not to smoke cigarettes, part of which is a statement that cigarettes contain a large number of chemicals. It is strange, at a time when the Queensland Government is advocating the recycling of sewage water for drinking in South East Queensland, that the community in general is not receiving the same amount of concern as is being afforded to smokers, by alerting them to the 100,000 chemicals and drugs potentially present in sewage and that tests do not exist to detect if most of them have or have not been removed during the recycling process. Why is this? Surely there is no fundamental difference between the two? After all the U.S. Environment Protection Agency has identified 87,000 chemicals that are potentially in sewage water<sup>7</sup>. [p.4]
3. If recycled sewage water is added to the water supply what will be the consequences of such an action to the food processing and manufacturing industries that use water for and in the manufacture of their products? Many, if not all, strive to export a significant amount of the product. Businesses such as poultry, meat and smallgoods manufacturers, fruit and vegetable canneries, ice cream, soft confectionary and soft drinks, the list would be almost endless and the consequences could be of inconceivable magnitude.
4. Associate Professor Greg Leslie from the University of N.S.W., was the only scientific person who publicly supported Toowoomba City Council's Water Futures Brochure which was their single most important document in their failed campaign to convince the community to support recycling of sewage to drinking water, was quoted in this brochure as saying, "Waste water [sewage water] that is purified through ultrafiltration, reverse osmosis and ultraviolet disinfection is very safe to drink". He now supports the Queensland Government's proposal to recycle sewage water for drinking in South East Queensland.
5. How does he know it's "very safe to drink"? Why does he say this? Does he have access to tests eminent and famous scientists and The U.S. National Research Council, [a branch of the U.S. National Academy of Science] say do not exist? Is there a non scientific reason he says this?



6. There will always be educated supporters of radical proposals such as drinking recycled sewage water. We should be mindful that when cigarette manufacturers disagreed with the early suspicions and fear that smoking could harm your health, they produced expert opinion that it did not. The world knows differently now.
7. Many high profile environmentalists, journalists, television presenters and politicians appear to be the main people that promote the '*absolutely safe*' theory when it is simply not proven. Why do they do this? How do they know?
8. How can any 'genuine' person, scientist, medical practitioner, politician, celebrity or just an ordinary citizen claim drinking recycled sewage water is safe when the technology is not available for proper testing? See page 20.
9. As we drink only around 1% of our reticulated water why is the State Government so 'hell bent' on having the community drink recycled sewage water? Why not for other purposes other than drinking, with exemptions for relevant food manufacturing and processing industries? Any response is predictable; 'too expensive, no time to put in dual reticulation pipe lines'. 'Armageddon is upon us'. The usual 'snow job'. Why 'penny pinch' when the job can be done properly in the first place and please all sections of the community?
10. Isn't it time the State Government stopped being selective in listening to advice, eliminate the risk of unknown long term health consequences, by not forcing people to consume recycled sewage water in various ways and spend money on Queensland infrastructure for the benefit of all Queenslanders for a change. In any event, the time that giant recycling plants take to construct, plus the time taken for testing, regardless of health and scientific authorities' inability to test for all the chemicals and drugs known to be in big city sewage, will be many, many years, probably up to a decade. It will not solve the present water crisis.
11. Are the risks of using recycled sewage water for drinking really worth the possible consequences that may not be known for decades?
12. If scientific warnings on drinking recycled sewage water prove to be true over decades, would the Government of the day accept responsibility? Would it claim the community is responsible, because it was their decision when they voted yes in 2007? Would it be a politically sensitive issue to be covered up and denied, leaving the responsibility of proof on the victims?
13. If we feel inclined to drink samples of recycled sewage water at a promotional tasting we should remember that even though it looks clear and doesn't taste unpleasant it certainly does not mean it is pure or free from drug or chemical contamination.



14. Federal Parliamentary Secretary for Water, Malcolm Turnbull, while in Toowoomba prior to the Toowoomba water poll was reported to affirm the need to trust science on health risks of drinking recycled sewage (*Toowoomba Chronicle* April, 2006). Mr Turnbull appears to be an avid supporter of recycled sewage water for drinking. After reading the scientific comments in this book, a reader may be excused for asking what scientists are briefing Mr Turnbull to cause him to make the statements he does on drinking recycled sewage water.
15. Why can't the relevant politicians focus on recycling for uses other than drinking? Is the real agenda to sell off Queensland's water utilities to private enterprise? It would certainly remove any responsibility from authorities and return enormous cash windfalls to government. With recycled sewage water added to existing pipelines, the government saves on constructing expensive dual pipeline infrastructure one for recycled sewage water and one for normal water. After the construction of giant sewage recycling plants, has the Government set up Queensland's major water utilities at the cheapest cost, to sell to the highest multinational bidder? Private water corporations would have a licence to print money. Imagine being able to sell the same water, over and over again? Would communities be given guarantees on health concerns, water quality, safety and cost to consumers? If it was, who would do this? Could they be believed?
16. Are politicians considering the full range of scientific opinion on drinking recycled sewage water? Some statements like: "It is safe to drink", indicate they are not.
17. Is cheaper better? Or are pipelines from areas in the north of the country - where massive surpluses go out to sea each year - and new dams not politically advantageous to pursue? It would appear so.
18. Could it be that advice is being accepted that suits a politically expedient agenda while scientific warnings to the contrary are being ignored for political expediency?
19. How can the word 'purified' be used to describe recycled water when tests for all the chemicals and drugs known to be in sewage are not available? The same applies to those chemicals and drugs that can potentially be in sewage.

**21. Beware the question we are asked to vote on. All things are not always what they seem to be.**

**22. Shouldn't we think very carefully before we agree to drink?**



**“The World’s Scientific Community does not and will not know all the toxic agents and carcinogens that may be able to make it through the indirect reclaimed water process to drinking water. Also, there is simply no technology to detect them.”**

***Professor Steven Oppenheimer,***

*Director of the Centre of Cancer and Development Biology*


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## REFERENCES

- <sup>1</sup> HACCP 2006. Retrieved October 6, 2006, from <http://www.haccp.com.au/>
- <sup>2</sup> Simpson, Jenifer 'From Waste-d-Water to Pure Water-Water Quality Star Rating'
- <sup>3</sup> Singapore NEWater [http://www.pub.gov.sg/NEWater\\_files/faq/index.html](http://www.pub.gov.sg/NEWater_files/faq/index.html) Last accessed November 30, 2006.
- <sup>4</sup> Windhoek problems Vonhoff, R 2006, 'H2O upset-Namibian city plant flawed', Toowoomba's Mail, 11 May, p.1.
- <sup>5</sup> Orange County Groundwater Replenishment Sytem <http://www.gwrsystem.com/about/overview.html> Last accessed November 30, 2006.
- <sup>6</sup> Email from the Toowoomba City Council Director of Engineering Services
- <sup>7</sup> United States Environmental Protection Agency 2006. Retrieved October6, 2006, from <http://www.epa.gov/scipoly/oscpendo/pubs/edspoverview/primer.htm>
- <sup>8</sup> Reynolds, M 2006, "Gender bender water warnings", Australian Financial Review, 2 May, p.61
- <sup>9</sup> Men inherit sperm damage: reports',2004, ABC Online, The World Today, 14 May. Retrieved October 6, 2006, from <http://www.abc.net.au/worldtoday/content/2004/s1108469.htm>
- <sup>10</sup> Ngheim,L.D., Schafer, A.I. 2004, 'Trace contaminant removal with nanofiltration' in A.I. Schafer, A. Fane, and D Waite, (eds) Nanofiltration – Principals and Applications, Elsevier Science, Sydney, pp. 479-520.
- <sup>11</sup> Reynolds, M 2006, 'Recycling receives a Spray', The Australian, 24 Feb. Retrieved October 6, 2006 from <http://waterfutures.blogspot.com/2006/02/australasian-friday-feb-24-2006.html>
- <sup>12</sup> Dimitridiadis, Dr S 2005, 'Issues encountered in advancing Australia's water recycling schemes', Parliament of Australia–Parliamentary Library. Retrieved October 2, 2006, from <http://www.aph.gov.au/LIBRARY/Pubs/rb/2005-06/06rb02.htm>
- <sup>13</sup> Draft National Guidelines for Water Recycling 2005, Environment Protection and Heritage Council. Retrieved October 6, 2006 from [http://www.ephc.gov.au/ephc/water\\_recycling.html](http://www.ephc.gov.au/ephc/water_recycling.html)
- <sup>14</sup> Batty, J. Lim, R. Morphological and Reproductive Characteristics of Male Mosquitofish (*Gambusia affinis holbrooki*) Inhabiting Sewage-Contaminated Waters in New South Wales, Australia Journal Archives of Environmental Contamination and Toxicology Publisher Springer New York ISSN 0090-4341 (Print) 1432-0703 (Online) Issue Volume 36, Number 3 / April, 1999 Pages 301-307
- <sup>15</sup> Australian Academy of Science 1998, 'Is there something in our water?'. Retrieved October 6, 2006, from <http://www.science.org.au/media/endopr.htm>
- <sup>16</sup> Krimsky authored Hormonal Chaos "Our Stolen Future" by Sheldon Krimsky 1996
- <sup>17</sup> A letter to the editor by Dr Jean Ginsberg et al "The Lancet". p230 Vol 343 Jan 22 1994 "Residents in the London area and sperm density"



- 
- <sup>18</sup> Mika Peck, Richard W. Gibson, Andreas Kortenkamp and Elizabeth M. Hill. 2004. 'Sediments are major sinks of steroidal estrogens in two United Kingdom rivers', *Environmental Toxicology and Chemistry*, Vol.23, No. 4, pp. 945-952
- <sup>19</sup> UK Environment Agency
- <sup>20</sup> Feminised fish throughout Europe' 2000, *News in Science*, 8 September. Retrieved October 9 from <http://www.abc.net.au/science/news/stories/s173226.htm>
- <sup>21</sup> Edwards, Rob Environment Editor 'Alert as gender bending sewage alters lambs' sex' *Sunday Herald* 21 November 2004 Retrieved October 17 2006 <http://www.sundayherald.com/46214>
- <sup>22</sup> U.S. Water News Online 'Use of recycled water for drinking questioned' June 2000 Retrieved October 10 <http://www.uswaternews.com/archives/arconserv/tuseof6.html>
- <sup>23</sup> *Issues in Potable Reuse: The Viability of Augmenting Drinking Water Supplies with Reclaimed Water* Committee to Evaluate the Viability of Augmenting Potable Water Supplies with Reclaimed Water, National Research Council ISBN: 0309064163
- <sup>24</sup> *San Diego Union Tribune*. October 18, 1998. Toilet-To-Tap Plan Worries Salk Researcher.
- <sup>25</sup> 12.10.05 said in a letter to the editor in the *Courier Mail* 1.8.05
- <sup>26</sup> In a letter to Rosemary Morley of Toowoomba
- <sup>27</sup> Young, Leith 2006, 'Drastic Action' , *The Source* – a magazine by Melbourne Water, Issue 37, March 2006, p.4. Retrieved October 10 from [http://library.melbournewater.com.au/content/publications/the\\_source/the\\_source\\_issue\\_37.pdf](http://library.melbournewater.com.au/content/publications/the_source/the_source_issue_37.pdf)
- <sup>28</sup> Dr. Steven Oppenheimer, *Augmenting Drinking Water with Reclaimed Water*, <http://www.beachwoodvoice.com/WaterIssue/augmentingdrinking.htm>
- <sup>29</sup> [Ref://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=6022](http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=6022)



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***The scientific statements, studies, findings and opinions in this publication are freely available to anyone who wishes to research.***

***It must be assumed an elected body like the Toowoomba City Council would conduct the most comprehensive, extensive and intensive investigation possible before proposing such a radical scheme to deliver a domestic water supply, part of which was to be recycled sewage water.***

***With the resources available to them, it beggers belief that the Toowoomba mayor, councillors and senior officers involved did not know about the scientific statements, findings and opinions mentioned in this book, or did not want to tell the community.***

***The community was told the water from this process would be safe to drink. How could this honestly be stated? Will other authorities do the same to other communities or perhaps the whole of South East Queensland?***

***It is therefore vital for all people to “Think before you agree to drink”.***





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