IRISH DRINKING WATER QUALITY

1 NOVEMBER, 2011

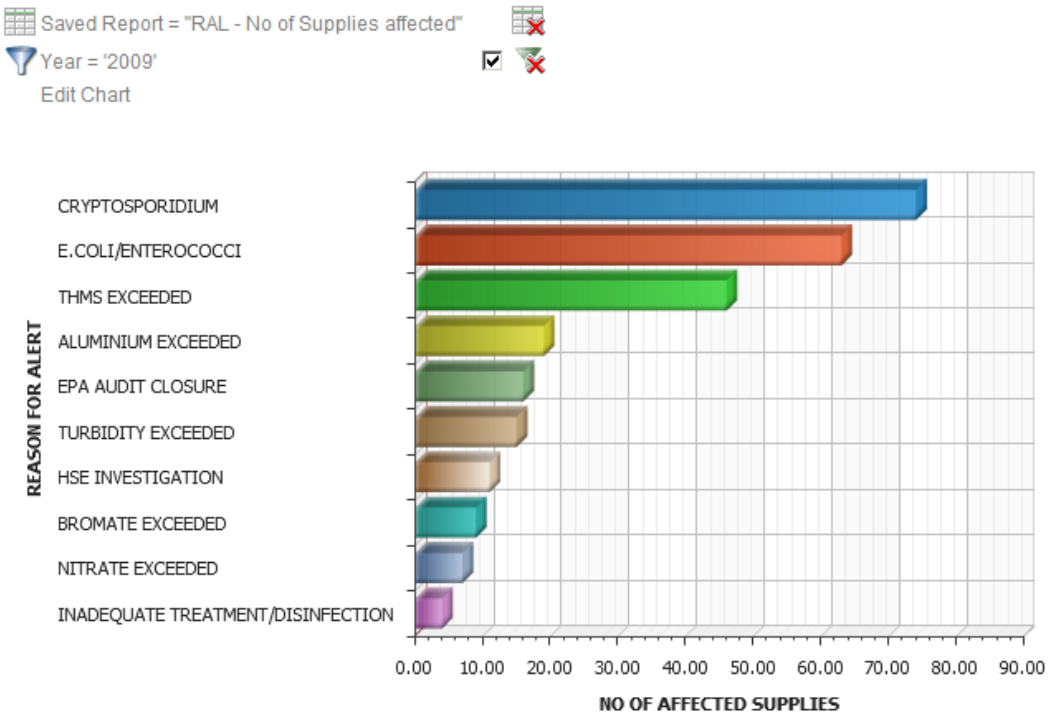
FAILURE TO NOTIFY THE PUBLIC AS REQUIRED BY LAW

The law says that when remedial action is to be taken and the issue is not trivial consumers must be notified. That is in the 1998 EU Directive and the Irish 2007 SI.

The EPA states that this is an issue for the Local Authorities. ["the responsibility of local authorities to advise consumers in the event of a public health issue", such as when e.coli is detected.] While that is true [after consultation with H&SA] of any exceedences spotted in individual monitoring, the EPA are the ones who compile a Remedial Acton List [RAL] quarterly based on monitoring reports from the Councils. As the supervisory body responsible for supervising the Councils/Sanitary Authorities they are **failing in their legal duty to ensure the local authorities notify the public of supplies placed on this list.**

> "Where remedial action is taken in relation to a water supply, the water supplier shall ensure that consumers are informed of such action, save where the supervisory authority considers the non-compliance with the parametric value to be trivial in nature or extent." [S.I. No. 278 of 2007, s10.9.]

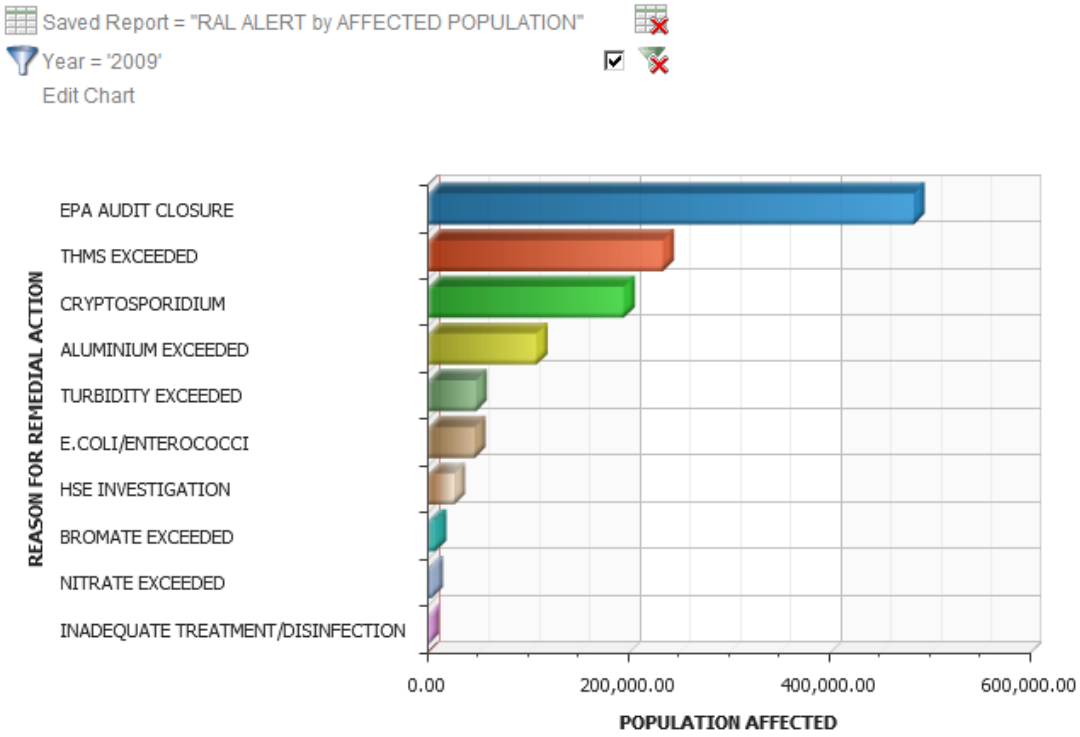
1,153,732 people were consuming water from the supplies on the last Remedial Action List with virtually no public notification whatsoever. And the Remedial Action List only reveals **public supplies** in need of urgent action. No mention is made of private or public group water schemes which cover a further 500,000 people and are generally poorer in quality.



2009: Number of Water Supplies sent for Remedial Action. Top three: Cryptosporidium, Ecoli and THMs

Unless the pubic knows they can not protect themselves. Examples include THM – trihalomethanes, the carcinogenic by product of chlorine disinfection - laden water for pregnant women and crypto vulnerable water supplies for the immune-suppressed. If the public don't know, the public won't ask.

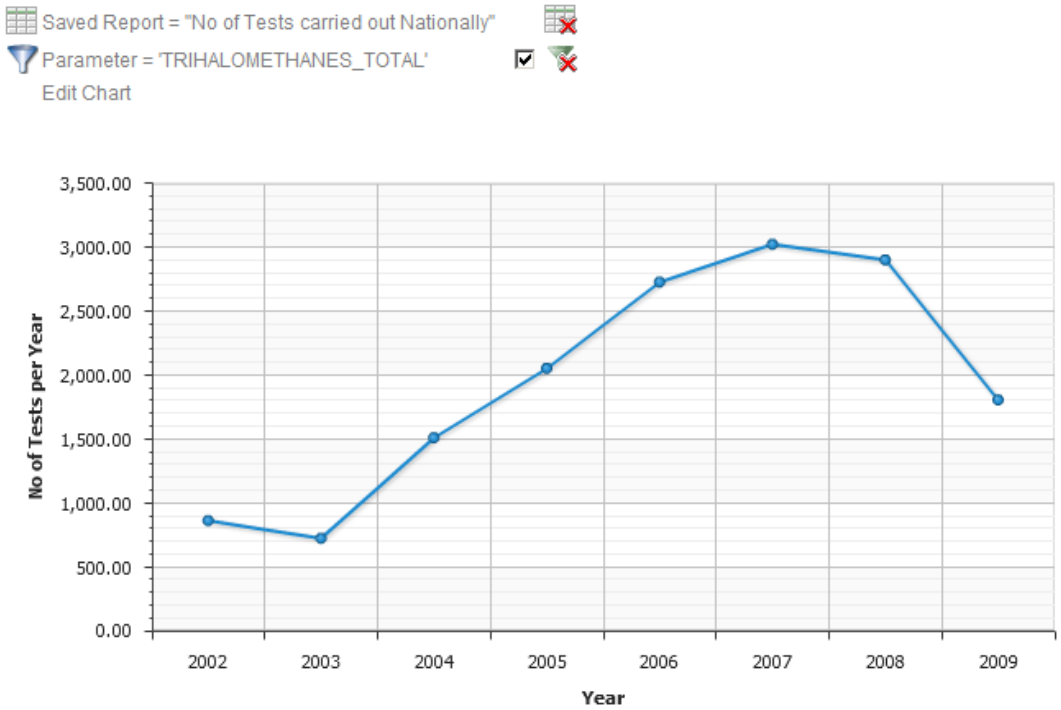
This is a KEY ISSUE because the Commission closed the water case against Ireland this year on the understanding that the public is being informed as per the Directive at a minimum through their websites when in fact only 3 Councils do so with **14 without any data whatsoever**.



2009: Populations affected by Supplies sent for the Remedial Action. Top three: "As a result of EPA Audit", THMs, and Cryptosporidium.

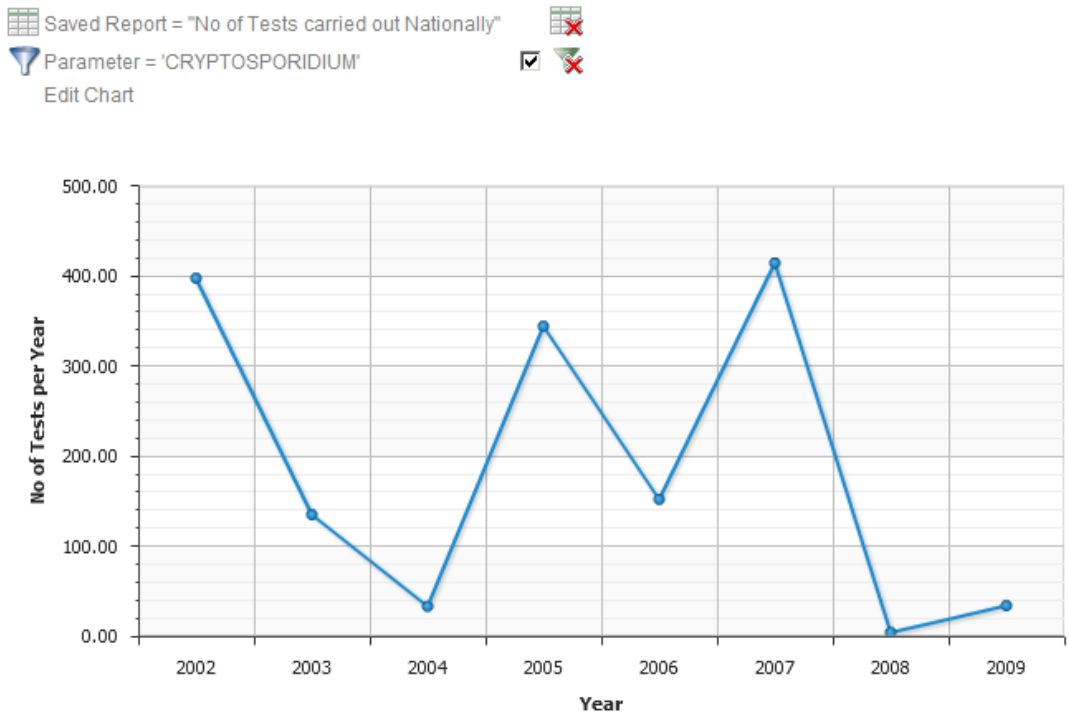
CUTBACK IN CRITICAL MONITORING

An analysis of the EPA water quality data shows a **40% reduction in THM testing over the last three years and virtual ending of testing for cryptosporidium. Testing for other parameters remains the same.**

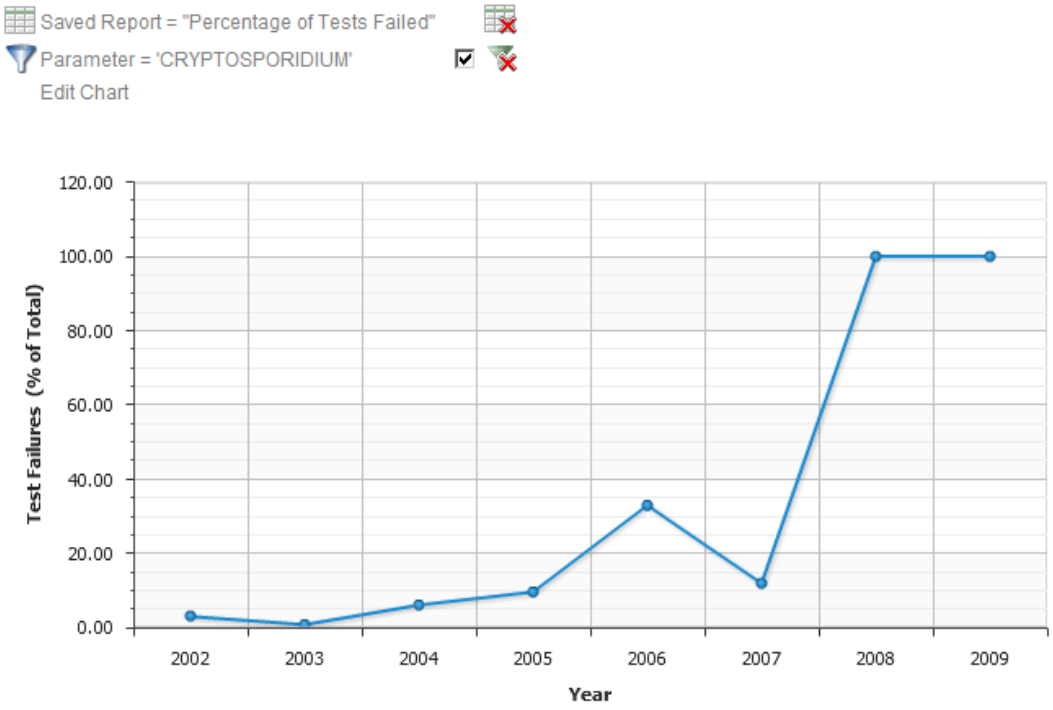


Total annual no of Tests per Year for THMs" showing a 40% decline since 2007 peak, and coinciding with the tightening of standards.

The analysis FIE has released to date covered only chemical by-products. We have since analysed the cryptosporidium situation and can show **that they have virtually stopped testing for this parasite**. While they do not have to test this parameter legally, the Risk Analysis Method they have adopted requires monitoring and they are not doing so.



Rate of Testing for Cryptosporidium declines to zero.



Rate of Failure for Cryptosporidium rises to 100%

New studies show how widespread crypto is in the aquatic environment with virtually every sample showing the presence of the parasite. [Lake Risk Assessment for Cryptosporidium and other Human Enteric Pathogens in Lough Arrow, Counties Sligo and Roscommon http://erc.epa.ie/safer/iso19115/display?isoID=158]. Another Galway type outbreak is inevitable.

The Annual epidemiological report on communicable diseases in Europe 2010 from the European Centre for Disease Prevention and Control shows that **Ireland's rate of cryptosporidiosis is 4 times the EU average and higher than any other member state.**
http://ecdc.europa.eu/en/publications/Publications/1011_SUR_Annual_Epidemiological_Report_on_Communicable_Diseases_in_Europe.pdf

MISPLACED INVESTMENT

Expenditure on drinking and waste water services fell from 2001's 500 million to 417 million in 2005, only recovering slowly to match the 2001 expenditure in 2010. **2011 investment figures have now reverted to 2000 figures** – €435m has been provided for the Programme in 2011. Only a quarter of this funding is for drinking water treatment.

The comments in the Comptroller and Auditor General Special Report 65 in 2009 remain true today:

> 'Notwithstanding the level of investment, the EPA results show little significant improvement over the period 2004-2007 with public water supplies static at 98% of the minimum standard, and private water scheme compliance improving by 2% to 95%. The reports also detail ongoing particular problems in areas such as E. coli contamination,

> cryptosporidium and some risk indicator parameter levels including aluminium and turbidity.'
>
> On review, it is clear that **a key requirement from the commencement of the drinking water supply investment programme was for an adequately empowered independent entity or separate departmental arm to exercise supervision and enforcement** and thereby to ensure that the benefits in water quality expected from the Exchequer investment were not negated by any subsequent failure in either scheme prioritisation or in the maintenance of the infrastructure at local authority level."

WHAT INVESTMENT IS NEEDED? SOURCE PROTECTION.
Which would be cheaper? A pipeline from the Shannon to Dublin or cleaning the Liffey and tributaries? Why do we not do this?

If a valuable resource (*eg.* water) is at risk of contamination then common sense demands that you protect the resource from the risk. All the urban centres in Ireland stand on rivers, with enormous flow rates (many thousands of times greater than the drinking water demands of their inhabitants). Why don't they use their own rivers to provide drinking water..... like the Liffey?

Is it because it is easier to compulsory purchase agricultural land for a pipeline from the Shannon to Dublin than to force developers and industries to cleanup their waste disposal acts**? The real reasons that water quality in Ireland is so low is because the government will not understand the relationship between land use and water.** They seemed to have missed the science lesson on the "water cycle" in nature.

They also don't have the courage to deal with the problems "at source," because large vested interests are involved (forestry, large scale agriculture, industrial turf, industrial development, urban developments etc**). Cutting testing and hiding the true situation from the public is a policy that simply will not work. The situation will get worse and the costs will continue to escalate. The government MUST now deal with the problem AT SOURCE!**

In Germany, most of the water catchments are protected zones; for example the banks of River Isar (a sizable river) which brings water from the Alps to some of Bavaria's big cities have been designated including the hinterland as state protected nature reserves with VERY strict rules about use and inflows. The State has subsidised local farmers with grants to turn their farms organic, and this has worked a treat.

In Ireland the IFA negotiated a decrease in setbacks with the National Parks and Wildlife Servicefrom designated rivers from 15 metres to 1.5 metres in 2004.

We need to ensure that its primary resource is protected at source by making sure that enough land is allowed to lie "idle" to guarantee this. We need really draconian source protection laws with custodial sentences for offences and we need to see some prosecutions.

Simultaneously, the people of Ireland should form community committees to manage water quality, especially in rural areas and small urban areas. They need to understand how to sample and get water tested (or test it themselves) and they need to understand how to take legal action if water fails to meet minimum standards.

APPENDIX I; Source Protection in other jurisdictions

The WHO says "The prevention of water contamination is always preferable to attempting to remove contamination once it has entered the aquatic environment. Whilst it is likely that some contamination events will always occur, a large proportion of drinking-water quality problems can be prevented through: adequate source protection and good water resource management; good design, operation and management of water supplies; and regular and thorough surveillance activities."
http://www.who.int/water_sanitation_health/dwq/S11.pdf

- If its a river, it **should not receive ANY effluent** (agricultural, industrial, forestry, extractive or domestic)..... This means a much more comprehensive and continuous level of surface water monitoring than that in place at the moment. In urban areas, all outflows to a river to be within strictly controlled limits.

- If it is a river or lake, or tributary to a river or lake these sources should be subject to **strictly enforced buffer zones** wherein no agricultural activity, domestic or industrial or extractive development is permitted. So, no grazing within a generous hinterland, ditto industrial forestry, turf extraction, septic tanks, land tillage / sillage making, muck spreading, or industrial activity within properly defined protected areas for the entire course of a particular river basin.

- If it is a groundwater source ditto the above buffer zone.

- Surface water sources must be **safe from fallout from airborne industrial effluent**. This is an area which is completely un-investigated at present. Given our prevailing South Westerly winds, do we, for example, know the destination of air-borne fallout from pharmaceutical industries operating in South County Cork etc etc.?

Water Source Protection is a "super winner" because, protected water sources mean protected environments..... islands of protected land, where no human activity is allowed. These "islands of inactivity" may well be the safe havens that Ireland's wildlife and birds are going to need to survive the rapid decline in general environmental quality in Ireland.

How does the rest of Europe and the World do source protection?

In Germany, most of the water catchments are protected zones, so, for example the banks of River Isar (a sizable river) which brings water from the Alps to some of Bavaria's big cities. The local government have been removing the concrete canalisation (that they installed in the 1960s) so as to recreate the flood plains for the river to flow naturally during winter ice-melts, and they have designated the river and its banks and hinterland as state protected nature reserves with VERY strict rules about use and inflows. They subsidised the local farmers with grants to turn their farms organic, and this has worked a treat.

The following cities draw some or all of their drinking water from protected areas: http://www.interenvironment.org/pa/dudley.htm)

- Mumbai (Bombay) India: Sanjay Gandhi National Park (Category II, 8,696 ha)
- Jakarta, Indonesia: Gunung Gede Pangrango (Category II, 15,000 ha) and Gunung Halimun (Category II, 40,000ha)
- Karachi, Pakistan: Kirthar National Park (Category II, 308,733 ha), Dureji Wildlife Sanctuary (Category IV, 178,259 ha), Surjan, Sumbak, Eri and Hothiano Game Reserve (40,632ha), Mahal Kohistan Wildlife Sanctuary (70,577ha), Hub Dam Wildlife Sanctuary (27,219ha) and Haleji Lake Wildlife Sanctuary (Category IV, 1,704ha
- Tokyo, Japan: Nikko National Park (Category V, 140,698 ha) and Chichibu-Tama National Park (Titibu-Tama) National Park (Category V, 121,600ha)
- Singapore: Bukit Timah (Bukit Timah and the Central Catchment Area, Category IV, 2,796 ha)
- New York, USA: Catskill State Park (Category V, 99,788 ha)
- Bogotá, Colombia: Chingaza National Park (Category II, 50,374 ha)
- Rio de Janeiro, Brazil: within the Rio metropolitan area there are several parks providing sources of water: Tijuca National Park (Category II, 3,200 ha), Tingua Biological Reserve, Pedra Branca State Park and Gericinó-Mendanha APA. In addition, the Atlantic Rainforest Biosphere Reserve and fourteen protected areas (covering a total area of 320,180 ha) also provide protection for the sources of the catchment areas supplying the city
- Los Angeles, USA: Angeles National Forest (Category VI, 265,354 ha)
- Cali, Colombia: Farallones de Cali National Park (Category II, 150,000 ha)
- Brasília, Brazil: Brasilia National Park (Category II, 28,000 ha)
- Santo Domingo, Dominican Republic: The Madre de las Aguas (Mother of the Waters) Conservation Area, Armando Bermúdez National Park (Category II, 76,600 ha), Juan B. Pérez Rancier (Valle Nuevo) National Park (Category Ia, 40,900 ha), José del Carmen Ramírez National Park (Category II, 73,784 ha), Nalga de Maco National Park and Ebano Verde Scientific Reserve (Category Ia, 2,310 ha)
- Medellín, Colombia: Alto de San Miguel Recreational Park and Wildlife Refuge (721 ha)
- Caracas, Venezuela: Guatopo National Park (122,464 ha, Category II), Macarao National Park (15,000 ha, Category II) and Avila National Park (85,192 ha, Category II)
- Maracaibo, Venezuela: Perijá National Park (Category II, 295,288 ha)
- São Paulo, Brazil: Cantareira State Park (Category II, 7,900 ha), Guarapiranga Ecological Park, Morro Grande State Reserve, Itapeti Ecological Station, Juquery and Alberto Loefgren State Parks
- Salvador, Brazil: Lago de Pedra do Cavalo Environmental Protection Area (Category V) and Joanes/Ipitinga Environmental Protection Area (Category V, 60,000 ha)
- Belo Horizonte, Brazil: Mutuca, Fechos, Rola-Moça, Tabões, Catarina, Bálsamo, Barreiro, Cercadinho, Rio Manso, and Serra Azul (17,000 ha)
- Madrid, Spain: Natural Park of Peñalara (15,000 ha) and Regional Park Cuenca Alta del Manzanares (Category V, 46,323 ha)
- Vienna, Austria: Donau-Auen National Park (Category II, 10,000 ha)
- Barcelona, Spain: Sierra del Cadí-Moixeró (Category V, 41,342 ha) and Paraje Natural de Pedraforca (Category V 1,671 ha)
- Sofija, Bulgaria: Rila National Park (Category II, 107,924 ha), Vitosha National Park (Category IV, 26,607ha) and Bistrishko Branishte Biosphere Reserve (Category Ia, 1,062 ha)

- Ibadan, Nigeria: Olokemeji Forest Reserve (7,100 ha) and Gambari Forest Reserve
- Abidjan, Cote d'Ivoire: Banco National Park (Category II, 3,000 ha)
- Cape Town, South Africa: Cape Peninsula National Park (29,000 ha) and Hottentots Holland Nature Reserve (Category IV, 24,569 ha)
- Nairobi, Kenya: Aberdares National Park (Category II, 76,619 ha)
- Dar es Salaam, Tanzania: Udzungwa Mountain National Park (Category II, 190,000 ha), Selous Game Reserve (Category IV, 5,000,000 ha and World Heritage site), Mikumi National Park (Category II, 323,000 ha) and Kilombero Game Controlled Area (Category VI, 650,000 ha)
- Durban, South Africa: Ukhlahlamba-Drakensberg Park, (Category I [48 per cent] and II [52 per cent], 242,813 ha, World Heritage Site, Ramsar site)
- Harare, Zimbabwe: Robert McIlwaine Recreational Park (Category V, 55,000 ha) and Lake Robertson Recreational Park (Category V, 8,100 ha)
- Johannesburg, South Africa: Maluti/Drakensberg Transfrontier Park: Ukhlahlamba-Drakensberg Park, (Category I [48 per cent] and II [51.5 per cent], 242,813 ha, World Heritage Site, Ramsar site)
- Sydney, Australia: Blue Mountains National Park (Category II, 247,021 ha), Kanangra-Boyd National Park (Category Ib, 65,280 ha), Dharawal Nature Reserve (Category Ia, 341 ha) and Dharawal State Recreation Area (5,650 ha)
- Melbourne, Australia: Kinglake National Park (Category II, 21,600 ha), Yarra Ranges National Park (Category II, 76,000 ha) and Baw Baw National Park (Category II, 13,300 ha)
- Perth, Australia: Yanchep National Park (Category Ia, 2,842 ha)

And the following cities cultivate forest areas especially for the for watershed protection:

- Seoul, Republic of Korea (South): Nakdong watershed, has government-established special protection zones including riparian buffer zones to restrict commercial activities around the river basins.
- Tokyo, Japan: Tokyo Metropolitan Government Bureau of Waterworks manages the forest at the source of drinking water in the upper reaches of the Tama River, to: increase capacity to recharge water resources; prevent sedimentation. in the Ogochi reservoir; increase water purification capacity; and conserve the natural environment.
- Beijing, China: Watersheds above the Miyun reservoir, the principal source of surface water for Beijing, are managed for water protection.
- Yangon (Rangoon), Myanmar: The forested watershed of the two dams, Gyobyu and Phugyi, which supply drinking water to Yangon, are managed by Forest Department of Myanmar who carry out forest conservation activities, i.e., restoration, in the watersheds.
- Santiago, Chile: The Santiago Foothills have been classified as an "Ecological Conservation Area,"to be "preserved in natural condition, in order to ensure and contribute to environmental balance and quality." The forests are the source of potable water for Empresa Metropolitana de Obras Sanitarias, which supplies potable water for part of the municipal district of La Reina – about 20 percent of potable water in requirements for Santiago.
- Stockholm, Sweden: Lake Mälaren and Lake Bornsjön, supply Stockholm's water. Stockholm Vatten controls most of the 5,543 ha watershed of Lake Bornsjön, of which 2,323 ha, or about 40 percent, is productive forestland certified by the Forest Stewardship Council. Management is focused on protecting water quality and areas are left for conservation and restoration.
- Munich, Germany: Since the foundation of the Munich waterworks in circa 1900, forest management has been focused on ensuring good water

quality. Currently an area of 2,900 ha is managed primarily to maintain water quality and an additional area of 1,900 ha is under long-term contracts with local farmers, who commit to certified ecological/organic agriculture.

- Minsk, Belarus: A green belt around the city of about 80 km and protective zone around the Minsk reservoir play an important role in ensuring water quality. The protective regime in these zones is quite strict, for example, logging is prohibited. Thanks to these restrictions, the forest around Minsk city has not been destroyed.
- Sydney, Australia: The Sydney Catchment Authority manages and protects Sydney's catchments. Around 25 percent of the catchment is managed within 'Special Areas', which act as a buffer zone to stop nutrients and other substances that could affect the quality of water entering the water storage areas
- Melbourne, Australia: Ninety per cent of Melbourne's water supply comes from uninhabited forested mountainous catchments to the north and east of Melbourne. The government owned company Melbourne Water manages the water collection from these forests and has some legislative backing to protect water resources. Fifty one percent of the water catchments are not within protected areas. Management priorities include to the protected forested catchments against the threat of bushfires.