

The Last Drop

The Last Drop

The Politics of Water

Mike Gonzalez and Marianella Yanes



PlutoPress
www.plutobooks.com

First published 2015 by Pluto Press
345 Archway Road, London N6 5AA

www.plutobooks.com

Copyright © Mike Gonzalez and Marianella Yanes 2015

The right of Mike Gonzalez and Marianella Yanes to be identified as the authors of this work has been asserted by them in accordance with the Copyright, Designs and Patents Act 1988.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

ISBN 978 0 7453 3492 9 Hardback
ISBN 978 0 7453 3491 2 Paperback
ISBN 978 1 7837 1520 6 PDF eBook
ISBN 978 1 7837 1522 0 Kindle eBook
ISBN 978 1 7837 1521 3 EPUB eBook

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources. Logging, pulping and manufacturing processes are expected to conform to the environmental standards of the country of origin.

Typeset by Stanford DTP Services, Northampton, England

Text design by Melanie Patrick

Simultaneously printed by CPI Antony Rowe, Chippenham, UK
and Edwards Bros in the United States of America

Contents

<i>List of Figures, Table and Boxes</i>	viii
<i>Preface</i>	ix
<i>Acknowledgements</i>	xii
Introduction	1
1. A Floating Planet	8
2. How Water was Privatised	26
3. Disasters, Natural and Otherwise	40
4. A Short Trip Through Amazonia	63
5. Bitter Harvests	72
6. Virtual Water	91
7. Water and Global Warming	109
8. Ya Basta! Enough is Enough!	122
9. What is to be Done?	138
10. A New World Water Order	157
<i>Notes</i>	172
<i>Index</i>	189

Introduction

Where there is water, there is life. Without it, there is nothing. Our collective nightmares about the future always seem to centre on worlds turned into deserts. Some 85 per cent of the planet's surface is water. And much of what is not, from the land to the people who inhabit it, is also largely water. It sustains the body, nourishes the land, drives the wheels of industry, and transforms itself in many unexpected ways.

So why is it that in recent decades, the talk of a water crisis has risen to a cacophony, when for so much of our history we have assumed its availability and its continuing flow? How can there be a shortage of something that is everywhere we look, and that regularly cascades over us. Why has the talk of crisis suddenly become so insistent?

The reality is that there is not one crisis but several, however, according to the World Water Report of 2014, 'the crisis is essentially a crisis of governance'. In other words, it is not a natural phenomenon we are discussing, not simply that there is so much water and the world's population is growing. The problem is one of the management and allocation of the water that exists on earth.

It is clear that climate change is happening; it is by now part of everyone's day-to-day experience. The rainfall patterns over centuries have changed, the seas have warmed and the ice caps and glaciers are shrinking. Most Europeans know that winters are colder and the summers growing hotter. Recent tragedies have brought home in dramatic ways the changes that are to come. Hurricane Katrina has left us with tragic and terrible images of not only the impact of the hurricane, but also more importantly of the cold cynicism of people in power, who abandoned the poor of New Orleans to their fate with so little scruples. The tsunami of 2004 killed hundreds of thousands in hours, and drove home both the unpredictability and the power of water. Yet for a long time after a group of concerned climate scientists from all over the world formed the IPCC (the Intergovernmental Panel on Climate Change) in 1989, there was an often vicious debate calling their carefully researched and reported conclusions into doubt.

The 'climate sceptics' who publicly questioned them were supported and financed by 'Big Oil' and 'Big Coal', whose influence and enormous wealth stemmed from industries that, according to the scientists, were significantly responsible for emitting the greenhouse gases that were leading to global warming and climate change.

The decade of 2005–2015 was declared to be the Decade of Action for Water and Life; the decade when the optimistic Millennium Goals would be fulfilled, among them the reduction by half of the 1.2 billion human beings¹ still without access to clean drinking water as the century began, and the 2 billion plus without sanitation (a figure much less quoted but in many ways far more significant).² The international community's decision to support these goals stemmed perhaps from the apocalyptic pronouncements that intensified as the twentieth century drew to its end, and perhaps most dramatically the much repeated prediction by a deputy director of the World Bank that where the twentieth had been a century of conflicts over oil, the twenty-first would be marked by water wars. The wreckage left by the competition for oil surrounds us still, from the systematic destruction of Iraq and Afghanistan, to the endless crises in the Middle East. There seem not yet to have been similar acts of wanton destruction in relation to water. Was the prediction wrong? Not at all, but there are many ways to wreak havoc, and many levels on which the water conflict will express itself. In fact, there are struggles everywhere over water, as significant and dangerous as the wars of position conducted between unarmed drones and rifles among ruins that we have become so accustomed to. The water wars, if they are allowed to happen, will be conflicts between desperate people facing 'a general degradation of their living standards.'³ The struggles are beginning, and they are not restricted to the poor regions of the world; there are mobilisations everywhere as the awareness of the importance of water grows. As we write, Ireland is living through a determined protest movement against water privatisation, great marches cross India again and again to demand democratic control of water, China faces water scarcity at a level so dramatic that massive tunnels are being built to carry water back to its northern regions, while in Brazil 100,000 indigenous families are being displaced by the Belo Monte dam which will flood their home territories to feed local metallurgical industries. There are insistent predictions of recurring drought in the United States and the implications of the shrinking ice cap for the planet's future are part of the daily diet of public anxieties.

For the most part, however, these conflicts are of a different order, where the opposing forces are deeply unequal. The rich world of the north is prolific in its use of water, and a good proportion of the world's fresh water is located in these regions; the water-poor live in the developing world where the public provision of water is a late development, and often unsystematic and subject to powerful external pressures. The increasingly common picture is, on the one hand, the control of water supplies by the huge multinational companies grown confident and powerful in a neo-liberal era, and on the other public enterprises under siege and local communities whose only weapons are resolution, mass organization and the combination of conviction and, in many cases, despair. The iconic struggle of the communities of Cochabamba in Bolivia in 2000⁴ against just such an enemy, the Bechtel Corporation, was the first concrete demonstration that even such unequal battles could be won.

As to the Millennium promises, they remain largely unfulfilled; indeed the battle to provide water to the poorest on earth – and they are not only to be found in desert regions or the communities of Central Africa – still has far to go. The *UN Water Development Report 2015* presents figures for progress towards the Millennium Development Goals (MDG) targets that show 69 countries 'seriously off target' – in other words unlikely to reach the sanitation targets by 2030 – and 53 countries that will not meet the objectives for access to safe drinking water.

Conflicts over water are about far more than the provision of water in itself. Water, after all, is part of that range of resources that should belong to all – the *commons* – that have been appropriated and privatised at an increasing pace, as their distribution too has grown increasingly unequal. The response from the global market has been to attack, directly and indirectly, the idea that the earth is 'a common treasury for everyone to share',⁵ and redefine water as 'an economic good' as opposed to a human right. In the slippery vocabulary of neo-liberalism that means that it should only be available to those who can pay. And what of the rest of humanity? What of those who were to be the beneficiaries of the Millennium goals conceived in an uncharacteristic moment of sentimental concern by the world's ruling classes as they faced the imminent collapse of the Millennium clock? They were easily forgotten in the brutal realism of the age of globalisation.

The explosion of writings about water⁶ reflect a real change in its use and distribution from the last two decades of the twentieth century onwards.

If for most of human history rain and rivers served human needs, in the industrial age rivers and lakes were sourced both for water for human use but also to drive the turbines of industry. The difficulty is that the discussion has centred on drinking water and, very much second, on sanitation and by extension on the individual and domestic uses of water. Perhaps this is the level at which we can grasp the significance of water in our lives. But the water use that is changing the face of the planet, with unanticipated and often hidden consequences, is not all visible to the naked eye. While just 10 per cent of the planet's water is dedicated to domestic consumption, the rest is divided between industry and agriculture, with the lion's share (around 65%) going to agriculture. The population of the planet is increasing and with it food production. But agricultural production embraces much more than food crops – maize and sugar are harvested to produce bio-ethanol, an alternative fuel for cars and machines, for example. But it is neither cheaper nor environmentally friendlier than the fossil fuels on which we have come to depend so heavily. Oil production involves huge quantities of water, and increasing amounts as other reserves are mobilised – tar sands, shale gas and fracking, for instance – which require even more water in the extraction process. But the decision to develop ethanol was not based on any considerations about the best use of water, or any other resource, but in anticipation of 'peak oil' – the point at which half of the total oil available on earth had been exhausted – a point which may already have been reached but which is anyway close. The arrival of that critical moment could have generated serious debates about rationalising, controlling and reducing our palpably wasteful use of oil – millions of private cars circulating with a single passenger while public transport is savaged everywhere, for example – as well as the huge proportion of other apparently unrelated goods which are by-products of oil – plastic in its million and one manifestations, nylon and many others.

In the late 1960s, as population growth became an issue of public debate, and amid dire predictions that current food production could not keep pace, a 'Green Revolution' was announced that would multiply the productivity of food crops. Not for the last time, the word 'green' laid a reassuring cover over large-scale genetic modification and the use of chemicals and pesticides, but also concealed a massive increase in water use in agriculture. This was not addressed at the time, nor for many years thereafter, because water was regarded as a virtually infinite resource. Rivers were there to be seen, the

exaggerated optimism of a dam-building age gave us huge man-made lakes. Industrialisation spread into the developing world, and its cities grew at an accelerated speed, partly at least as dams and an industrialised agriculture expelled growing numbers from the countryside. By the later 1980s it was also possible to speak of water *mining* on a large and growing scale. The world's rivers and lakes were insufficient to respond to society's water needs, and the underground aquifers that hold 30 per cent of all freshwater began to be mined – wells sunk deeper and deeper and human ingenuity placed at the service of finding ways to draw the underground water at a faster and faster rate, passing many times over the rate of recharge. Aquifers are recharged by the process whereby precipitation filters through or *infiltrates* the soil to replenish the aquifers, or flows into rivers and lakes as *run off* before they in their turn flow into the sea whose waters will evaporate at varying rates to become water vapour and in turn the rain that sustains the water cycle. A third source is *evapotranspiration* – the water caught within living beings that adds to the water in the atmosphere.⁷ This water cycle was the guarantee of the survival of the species – for we are ourselves 70 per cent water. Harnessing water has been a permanent feature of human societies – storing it and diverting it to the crops in the fields, to sustain life. The Roman engineers have left evidence of a new phase, the transporting of water, wherever their aqueducts are framed against the sky. Other ancient civilisations – Babylon, Athens, Ur – developed sophisticated means of transporting water too, controlling and to some extent taming nature. And as Wittfogel famously analysed, in such 'hydraulic societies' the control of water also brought with it power and inequality. But it is only with the industrial age that the power of water begins to be harnessed for commercial gain.

During the first three-quarters of the 20th century absolute and per capita demand for water increased throughout the world. Freshwater withdrawals increased from an estimated 500 cubic kilometres per year in 1900 to 3580 cubic kilometres per year in 1990.⁸

The calculation per capita does not provide us with a true picture. In some countries, the USA and Canada for example, individual water use is far above the world average; in other parts of the world, in particular Africa and the Middle East it is far below that per capita figure. But beyond the unequal

distribution of water, a critical issue as we address the likely shortfall of the Millennium Goals by 2025, the reality is that industry and agriculture are not only the direct users of the bulk of water, but they are also responsible for the shrinking availability of water overall. Industrial processes not only use water; they pollute and contaminate it, so that it will not and cannot be returned, but will reduce the overall amount of available water year on year.

The most significant change in the late twentieth century, however, was that the increasingly intense public discussion about water scarcity produced not only a debate about how best to use our water, what processes we could develop with our extraordinary technological ingenuity, what level of wastefulness characterised our production systems, but rather a new enthusiasm among those who controlled the global capitalist economy. A new and potentially immensely profitable commodity had appeared in the global market place – water. Bottled, channelled, transported towards the richer corners of the world, it could yield enormous profits. How ironic, then, that the possibility of water scarcity, or rather its likelihood, could be seen as an *opportunity* rather than a problem it was incumbent on the whole of humanity to resolve!

Our starting point is that water is a key component in the maintenance of a decent human existence. That much is obvious, though the fact that it has to be argued at all exposes the cruelty of the global system. Once it was sufficient to dip a hand in a nearby lake or river, or channel its flow to irrigate the crops. Wittfogel's definition of 'hydraulic societies' described how human civilisations have arisen (and fallen) around water through thousands of years. But those water sources have become contaminated, polluted by the poisons of human invention, or simply drained, their natural cycle of renewal interrupted and undermined. And that has happened not only because civilisations and their cities have grown well beyond the river banks, nor simply because industrialisation has accelerated the rhythm of change, but because it has happened in the framework of capitalism. Production may seem to be driven by techniques and machinery, but they in their turn are driven by values, purposes and the yearning for accumulation of those who own them. In that system of values water becomes a commodity,⁹ its use and allocation determined only by its market price. The sometimes abstruse arguments about use and exchange value become suddenly very clear when the subject is water. Water is life itself, as the cliché repeats in almost every language; yet today it is subject to the laws

of the market, and to its contempt for life. When neo-liberal theorists describe water as an 'economic good', it is placed in the same category as an automobile or a dress from Dior. It is available only to those who pay, and those who cannot will suffer the predictable consequences. It is not a question here of who should pay less or more. To ask it about water at all is to come face to face with the central contradiction of capitalism. Water is for the benefit of all, a common resource. How to ensure that it remains so is our central concern as authors and activists. But just as water flows into every crevice so its democratic control affects every single human activity; a new and just world water order is only imaginable in a world governed by different values and shared collective purposes. Just as most water wars have in fact been local confrontations, so a new world water order will begin with local collaborations multiplying on a global scale. But it is an urgent matter, as we will show, to ensure that we never have to contemplate the fate of the last drop.

1

A Floating Planet

The failure to provide drinking water and adequate sanitation services to all people is perhaps the greatest development failure of the 20th century.¹

The presence of water

Of all the water on earth, 97.5 per cent is too salty to drink. Two-thirds of the remaining 2.5 per cent is locked in the ice caps at the poles or in snow, though these areas are shrinking with the impact of global warming. There is water in the air – water vapour and then rain – and there is water held inside plants and other living beings, like ourselves. That leaves 16 million cubic kilometres, much of which is trapped in sedimentary rock too far underground to access. A further 90,000 cubic kilometres is in rivers and lakes. 500,000 cubic kilometres per year evaporate from the sea and from living plants, though about 60 per cent of that is returned in the form of snow or rain.² The water held underground in aquifers, *groundwater*, has taken millions of years to accumulate. So the main source of fresh water, other than aquifers, is ‘run-off’, the water that seeps through the soil into rivers and lakes from their banks. This represents something like 34,000 cubic kilometres,³ which is about twice what is currently used. Rainfall amounts to some 110,000 cubic kilometres of which half is trapped by vegetation and around 30 per cent falls into rivers and lakes.⁴

The problem is that the gross figures for rainfall and river flows do not show how unevenly distributed that rainfall is, nor the differing rates at which aquifers, lakes and rivers assimilate the run-off. The flow from river bank into rivers is visibly rapid, though the speed of flow will be affected by the condition of the river banks, the amount of vegetation and the number of trees. The recharging of water into the shallower aquifers through the soil takes longer, and is not to be hurried, but penetration into the deeper

water basins can take centuries, or never happen at all. Fred Pearce estimates that some 14,000 cubic kilometres are really accessible. Rivers, after all, flow through networks which when seen from the air resemble the jumble of veins in our hand; they are systems rather than single courses flowing neatly down a predetermined route. Indeed if the meandering of a river is disturbed, or the course of the river is straightened, and shortened, swamps will be drained and the run off will rush to the sea more quickly instead of penetrating the soil. In some seasons of the year their flow turns to flood, expanding across flood plains; at others it dries up. Rivers are by definition anarchic,⁵ and a great deal of human effort and resourcefulness over time has gone into attempting to control or direct their flow to guarantee stable supplies of water, especially for irrigation. One result has been the proliferation of dams across the world, built in the optimistic expectation that they would guarantee water supply and energy provision for generations; their unforeseen consequences are now emerging in the form of huge displaced populations, the accumulation of silt which would previously have flowed with the river and dispersed on deltas and flood plains, and which reduces the amount of water in reservoirs, the spread of poisonous algae as a result of inadequate oxygenation of the water, and the stagnant water and rotting materials expelling methane gas into the air from the surface of the reservoirs, among others. In the USA these monuments are now being rapidly dismantled; elsewhere, and particularly in China, they continue to be built on an increasingly massive scale, with accelerating negative consequences.

And the problem is even more complex than that. Humanity has controlled and contained rivers – it has also polluted them. The refusal of rivers to acknowledge national frontiers has produced other kinds of conflict, to which we shall return. The rain, while replenishing the planet's resources, falls unevenly – flooding here, while leaving deserts there. And the supply of water from rivers, even after the construction of dams, has proved inadequate for the needs of industry, agriculture and people, so attention has turned to the giant aquifers beneath the ground. The current statistics for the depletion of aquifers are truly alarming, especially in the knowledge that the deeper water basins are pretty much inaccessible.

It is easy to be blinded, or depressed, or confused (or all three) by statistics, especially with these astronomical numbers. What we need to know is how much water is available to us, where that water is, how it is

currently used, and how we can use it differently. It is more than an issue of conservation – though there is clearly an urgent need to husband, control and conserve our water supplies over time. Recent studies⁶ have begun to speak more and more insistently about ‘peak water’, drawing an analogy with the argument about ‘peak oil’. There is an undoubtedly catastrophist element to these discussions. We know that fossil fuels do have a tangible limit, although there are immense reserves still to be exploited – in Venezuela, Iran, Bolivia, Saudi Arabia for example; but the reality is that oil cannot be regenerated and that its available quantities are finite. Fracking has opened a new avenue of supply, but with consequences for the stability of the planet about which we still know very little, and with disastrous consequences for the water table which remain to be calculated, although a recent report in the United States indicates that the water used in the extraction process shows a level of benzene contamination that is ‘off the charts.’⁷ The analogy between oil and water, however, does not apply, for one very simple reason. Water is a renewable resource – though with humanity’s sometimes diabolical ingenuity, it is probably possible that it could be contaminated to such a degree that large numbers of people could be denied the most essential component of survival. One prediction has it, for example, that two-thirds of world’s population will live in water-stressed conditions by 2025, *if current consumption continues*.⁸ But that will occur only to the extent that we allow the current system of production, with its uncontrolled and unregulated use of water, to continue. ‘Peak water’ is not the consequence of limited supply but of a specific pattern of use – and that is what has to be urgently addressed.

Six countries have between them half of the world’s renewable fresh water: Brazil, Canada, Russia, Indonesia, China and Colombia. Some 14,000 cubic kilometres of water are in rivers; the Amazon, the Congo and the Orinoco hold 25 per cent of the total, but none of them are in areas that are easily accessible. River water that can easily be reached and used probably amounts to around 9,000 cubic kilometres. Boiled down to individual consumption that would represent about 1,400 cubic metres per person per year, though a typical individual consumer in the West could use between 1,500 and 2,000.⁹

Inevitably, the mention of consumption conjures up images of individuals and households using their water in tangible ways – to flush toilets, water lawns, wash clothes or dishes, clean the car and so on. The emphasis is on