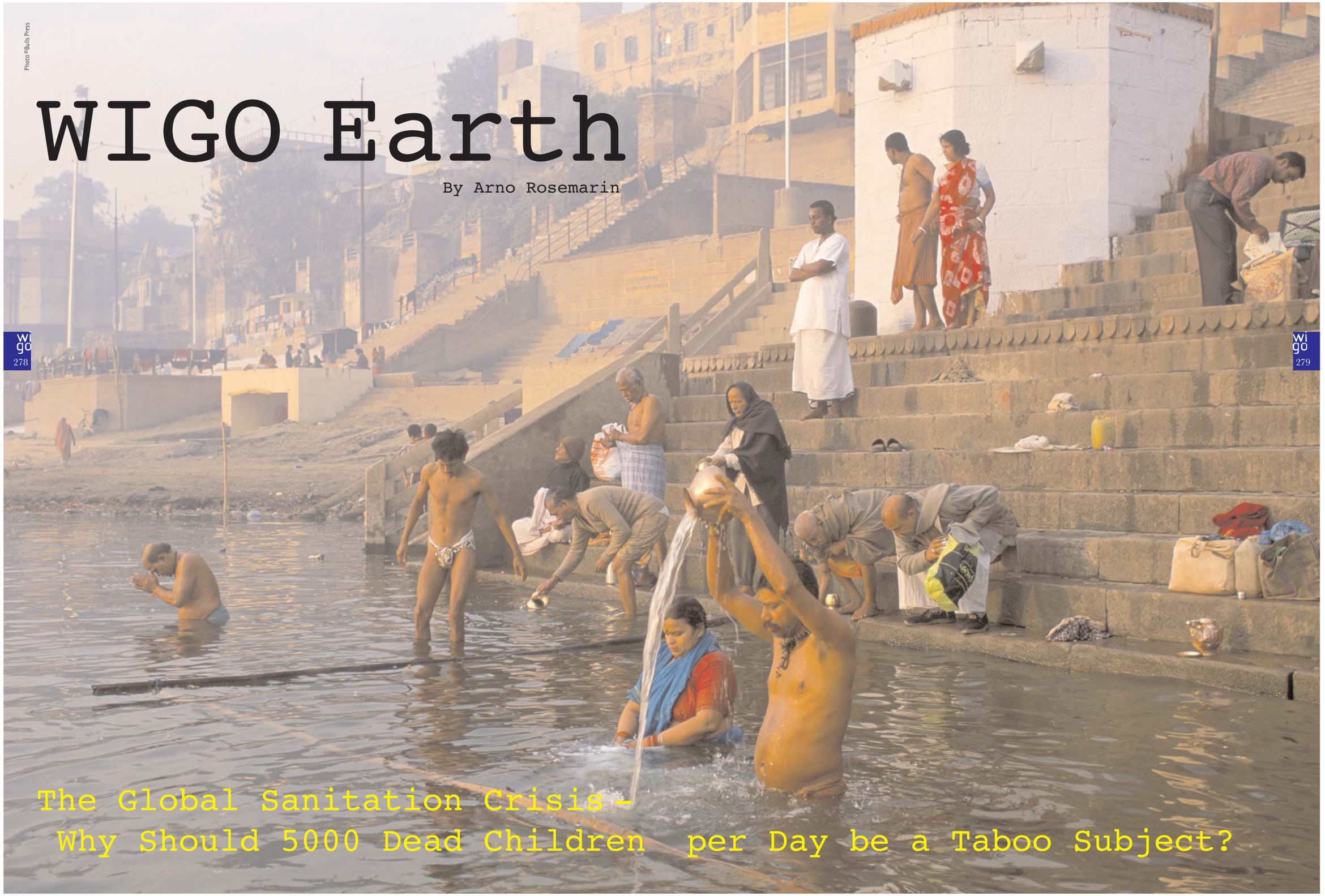

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WIGO Earth

By Arno Rosemarin

The Global Sanitation Crisis - Why Should 5000 Dead Children per Day be a Taboo Subject?

Why is sanitation an unending, last chapter in human development? Taboos are something of the past, one might say. With the power of the global media, nothing has managed to stay hidden in the hush-hush closets of the past – incest, homosexuality, pedophilia, alcoholism, drug abuse, mental illness, dyslexia and autism are all out in the open and humanity has attained new tools to cope. But the hyper taboo subject of human excreta is still hidden in the closet – and this mega secret is also causing great human suffering.

Humans and Their Connection with Nature

This question of sanitation really has to do with our link with nature. Urbanization has largely disconnected humans from natural cycles. Most urbanites know nothing about where their water supply comes from or where it goes after use. When we in the global North happen to suffer from "tourist diarrhea" while visiting exotic countries, there is basically no understanding of why. After all, we wouldn't want to return if the explanation was fecal contamination of water and food.

Let's face the facts – we are primate animals and if we expect to remain thriving on this planet for several generations in the future, we might as well acknowledge our vulnerable disposition as humans – and primates – now, before it's too late. But this developmental chapter on sanitation is far from being concluded – and there is no beacon yet to lead us through the darkness of ignorance and apathy.

Although all creatures excrete by-products as part of their natural cycles, humans have managed to turn this into a taboo subject. As a result, there is a serious lack of political, institutional and intellectual attention, and more than half the world is grossly suffering for this. Sanitation is first about human behavior. But people don't normally want to talk about toilets, excreta, urine, feces, etc. let alone hand-washing. The last meaningful discussion people had about this subject may have been during their last diaper change at 3 years old. And since then they're basically on their own.

The Hygiene-Sanitation Nexus

When you were taught about hygiene in school why didn't the word feces come into the picture? Why are facts about the epidemic diseases spread through fecal-oral contamination not properly explained? Without a dialogue on hygiene and sanitation, the world will remain in a fix.

The successful fight to eliminate polio was done through the wonders of modern medicine and vaccination. But did we actually learn anything from this? What child or parent was informed about preventing other serious viral diseases, through improved hygiene practices and properly working toilets? Did anyone learn more about these threatening diseases that follow the fecal-oral route: giardiasis, hepatitis A and E, bacillary dysentery, typhoid fever, vibrio parahaemolyticus infections, or cholera? Why are beaches closed for swimming in most cities of the world? What is tourist diarrhea anyway? How is avian influenza spread? Do our sanitation systems ensure containment and sanitization to reduce risk of disease?

Pathogens and parasites found in human excreta, if ingested, can result in a variety of illnesses, including diarrhea leading to malnutrition. If left untreated, these illnesses can result in poor growth, iron deficiency (anemia), vitamin A deficiency, and leave the body's immune system weakened and susceptible to more serious infections. Not all pathogens and parasites result in death, but the resulting malnutrition creates persistent poor health and a predisposition to other diseases and death from other causes. To function sustainably safe sanitation is an imperative for any society and its people.

The Suffering You Never Hear About

But the key facts are kept taboo, 5000-6000 children die every day in the world due to water-borne diseases linked to absence of basic sanitation. That 2.6 billion people lack basic sanitation – yes that's 2.6 billion people excreting about 4 million tons of urine and feces per day (90% of which is urine by the way) in the open. That 700 million people in 50 countries eat food from crops irrigated with untreated sewage[1], and that there are 60 million DALYs[2] lost from diarrhea every year. What about the fact that 3.5 billion people are infected with helminth worm parasites[3] – a well-kept and dangerous secret? This should be a big deal – at least as big as HIV/AIDS, TB or malaria. But the global sanitation crisis is not of general knowledge. There is no Al Gore here, no political leader has decided to take this one on. The crisis is handled on a piecemeal basis with limited public oversight. So where are Greenpeace and WWF? The welcome news that 2008 has been declared by the UN as International Year of Sanitation has yet to hit the streets.

When Sweden's King Carl XVI Gustav opened the Swedish parliament in September this year, he mentioned that there were only 7-8 years left to 2015 when the MDGs (Millennium Development Goals) should be met. The MDGs address the many problems linked to the world's poverty today from disease and malnutrition to lack of water and sanitation, illiteracy, and so on. But what most of the world doesn't know or remember is that the sanitation target – to reduce the Year 1990 proportion of people lacking sanitation by 50% by 2015 – was in fact forgotten when the MDGs were launched in 2000. An addendum was made in 2002 at the UN WSSD meetings in Johannesburg, very appropriately: this is the largest single MDG of all, dwarfing water scarcity and hunger by almost 3-fold.

Let's face the facts: many more children die from diarrhea caused by lack of sanitation and hygiene than from AIDS[4]. A whopping 25,000 persons attended the last AIDS conference in Toronto. Has there ever been a similar conference on the sanitation crisis? The sad answer is no. Sanitation conferences are not designed for general public awareness but for specialized engineers and most of these meetings deal with high-end technologies. Having access to a functional and safe toilet is still a luxury for about half the world today.

Some Basic Facts

Some more basic facts have to be considered. The average adult produces about 500 liters of urine and 50 liters of feces per year. Urine from healthy bodies is basically sterile. Feces, on the other hand, are a source of pathogens and require containment and treatment. With the advent of the flush toilet some 100 years ago, significant improvements in hygiene and health, odor control, collection and transport were achieved, and a new behavior called "flush and forget" was born. With water toilets the 550 liters became 15,000 to 20,000 liters per person per year. In addition, water used in kitchens and bathrooms and even storm water drainage were added into the same collector pipes. A sewage treatment plant today needs to treat anywhere from 50,000 to 100,000 liters per person per year. A sophisticated centralized sewage treatment plant like the one at Henriksdal in Stockholm handles around 3000 liters

Children from a grade school in Tepoztlan, Mexico (project managed by SARARTransformacion) where sustainable sanitation and urine reuse in gardens is being taught and practised. Source: Rosemarin.

Elderly farmer who uses a biogas-fermentor toilet to produce methan for heating and lighting and practises rain water-harvesting to provide drinking and irrigation water near Lanzhou, Gansu Province, China. An area of great water scarcity.
Source: Rosemarin.

Large-scale terracing of the landscape to manage the limited rainwater supply in Gansu Province, China. Source: Rosemarin.

a second. But this standard of sanitation collector and treatment system is a rarity in the world. Cities in developing countries cannot afford these order of investments. Even if the system is built with grants from donor countries, the maintenance and operational challenges are enormous, requiring capacities like expertise and equipment that are simply not yet available.

Only about 1.1 billion people in the world have access to conventional sewage systems. Of these about 30% receive advanced end-of-the-pipe treatment[5]. Some 3 billion people have access to other types of toilets like pit latrines ("hide and forget") and pour-flush/cess pits. So about 2.6 billion people today lack access to any basic sanitation services[6]. This group gets the classification "open defecators".

Dysfunctional and Non-Existent Sewage Treatment Systems and the Bottled Water Boom

Brussels only began treating all its sewage last year, while Athens began when they held the Olympics in 2004 after having built an offshore island, and Milan, after 40 years of discussion, got their final plant on line in 2006. Still, many countries in Europe lag behind in wastewater treatment with coverage in Belgium and Portugal at 40%, and Greece, Italy and Poland running at 60%.

Margot Wallström tried to expose this issue within the EU when she was Environment Commissioner at a "name-and-shame" seminar in Brussels. Lack of proper sewage treatment in southern European cities has never become a major issue. The media, the public and our politicians have not made it an issue. But London's sewage collector system, built in the mid-1800s for 3 to 4 million people, is grossly under-dimensioned, so raw sewage is bypassed into the Thames River every time there are heavy rains and that should be one of many loud alarm clocks for our aging cities.

Canada announced in September that it needs to upgrade its 4600 cities with proper sewage treatment. This will require added funds of C$ 33 billion dollars over the next 7 years[7]. If we want the convenience to flush and forget, it costs a lot of money for infrastructure, operations and maintenance. Public sewage treatment plants in Japan consume 6.3 billion kWh of electricity and annually produce 350 million tons of sludge[8]. Since 1972 Americans have spent US$70 billion on sewage treatment plants[9], but are today emitting nearly the same amount of organic waste openly into natural streams, because sewage creation has grown as fast as sewage treatment.

People will pay any price to avoid using tap water, and so the bottled water industry is booming, especially in North America, Europe, parts of Asia and Brazil. World consumption was 154 billion liters in 2004[10]. Our lack of confidence in drinking water may have something to do with the fact that only about 80 major European cities mainly in the north of Europe have advanced sewage treatment. Other cities have either less advanced or no treatment at all, and at least 35 major cities are still waiting for a system[11].

But the real insult is that the money people are spending on bottled water – about US$100 billion per year – is about three times the investment needed to meet the MDG targets on water and sanitation[6].

The bottled water boom is an indication of how far this problem has gone. Water is just not potable in and around the cities of world. And in order to make drinking water bacteriologically safe, high chlorination levels are used, often causing taste problems, and even the formation of carcinogenic[12] organochlorines. Advanced sewage treatment is not common in the developing world and is not a given priority in the industrial world. These systems are just too expensive for most municipal governments to afford; the issue is not visible to the public; and the enormous taboo surrounding human excreta keeps this out of the political and media arenas. The obvious question is: Why do we continue to spend billions of dollars on bottled water and not on sanitation systems?

What about the Booming Economies of China and India?

More than half of China's 1.3 billion population, including 278 cities, live without any form of sewage treatment, it was officially reported in August 2007. Eight of those cities have populations of more than 500,000. According to the work program of the Ministry of Construction and the National 11th five-year economic plan, the Chinese government will be investing 330 billion RMB (US$41.3 billion) in the construction of new sewage treatment and recycling facilities during the 2006-2010 period.

What about India where 67% of the total population, and 78% in rural areas, lacks access to basic sanitation[13]? In a country that has legislated against the act of "scavenging" or more specifically the manual emptying (and carrying, often atop one's head) of bucket latrines, one would think that hygiene awareness and sanitation would be a very high public priority. But access to toilets or pit latrines is very low, with an estimated 650 million open defecators[14]. For India to achieve the MDG target for sanitation would require an additional 6 billion dollars per year until 2015[15].

Sustainable Sanitation is an Absolutely Necessity

The era of sustainable development for the sanitation issue has yet to come. Because sanitation is the final chapter in human development, and the issue is characterized by a high level of dysfunction, we still have a long way to go to develop innovative, affordable and sustainable solutions. Some progress is being made at the pilot and demonstration level, however, like source-separating toilets that allow for true containment, sanitization and recycling of urine and composted feces. Strides are being made too in decentralized systems with artificial wetlands and root zones to treat wastewater. In 2006, new guidelines were released by WHO – World Health Organisation – dealing with the safe handling and reuse of human excreta and gray water (non-industrial wastewater[16]) in agriculture. In all, there some 200-300 projects around the world, so the critical mass is growing and the dialogue on sustainable sanitation has been initiated. In particular, major successes have been seen at a large-scale level in China, where in rural villages there are some 10 million biogas toilets and 1 million dry urine-diverting toilets. Even a new eco-town has been built to demonstrate the use of dry sanitation and onsite gray water treatment. New ideas about upgrading dysfunctional pit latrines with soil composting toilets are being tested in parts of Sub-Saharan Africa. Modern, source-separating toilets have been developed in Sweden and are becoming a low-cost alternative to expensive on-site septic tank installations. The re-use of urine and composted feces as fertilizer to grow nutritious staple crops, vegetables and fruits is being tested in several locations in Latin America, Africa and Asia.

2008 has been declared by the UN as the International Year of Sanitation. The Sustainable Sanitation Alliance (SuSanA) comprising some 100 international organizations has been formed to help inform the world about these issues. The final chapter in human development is being written.

For more reading please see www.ecosanres.org

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Community meeting to discuss plans for housing, livelihoods and sanitation among displaced Tsunami survivors in a temporary housing location near Ampara on the east coast of Sri Lanka.
Source: Rosemarin.