

Water Purification Technology Based on Natural Inspiration

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Keywords: Element; Energy; Life

Abstract: Water pollution and purification is a historically emerging topic. It is essential to clarify the process, distinguish concepts, maintain objectivity and fairness, adhere to natural laws, simplify technology, and promote positive evolution. Pollution causes human discomfort, while purification helps adapt to this discomfort. Purification is an active adaptation, a self-regulation of human response to the environment, and a balanced evolution after economic evaluation. The focus on water purification technology should be in two directions: one is emulating biology, optimizing comprehensively, achieving minimal harmony, and survival of the fittest. The other is full-cycle assessment, addressing pollution at its source to minimize contamination as much as possible.

1. Introduction

The water content in the human body accounts for about 60-70% of body weight. The water content varies with age and gender, gradually decreasing as one ages. For example, a fetus at three months has a water content of 98%, newborns have a water content of 75-80%, adult males have a water content of about 60%, adult females have a water content of about 55%, and elderly individuals have a water content of about 50%. Water is an essential substance in the body, necessary for maintaining normal metabolism. It promotes the metabolism of substances within the body, helps maintain a constant body temperature, and provides lubrication.

The human body is a group of differentiated and cooperative cells wrapped in skin, immersed in a small amount of special seawater (body fluid), forming an integrated consciousness and independent biological complex.

Water serves as the medium, with Earth's elements forming the human body, where matter and energy manifest self-awareness and wisdom. The internal cellular environment requires clean drinking water for stability; the overall human environment needs clean domestic water; and in group settings like cities, larger reservoirs are needed to supply clean water. The water discharged after application, along with industrial and agricultural wastewater from mining, is polluted and purified based on human self-centered judgments.

Learning nature and applying water purification technology in accordance with natural laws are conducive to the good evolution of human individuals and groups.

2. Principle

Man is a product of nature, all his activities are in nature and feed back to himself.

H₂O Water molecules consist of two hydrogen atoms and one oxygen atom along with related electrons. Oxygen forms hydrogen bonds with hydrogen, but not as isolated molecules; instead, they form hydrogen bonds between nearby molecules, dynamically linking them into small clusters and larger systems^[1]. There are bound molecules and dissociated atoms, thus displaying pH values. Electrons are not entirely fixed within the molecular hydrogen bond cloud; there is mutual exchange and free movement, hence conductivity is exhibited. Due to different isotopes of hydrogen and oxygen, water can be complex and varied, showing significant differences in storage under different conditions. Differences in internal energy exist due to photothermal evaporation and lightning effects. Water is full of life differences through capillary action, osmosis, transpiration, and reproduction. The water from lava eruptions, ancient geological deposits, and current surface biosphere also show clear temporal differences^[2].

Nature is vast and subtle, embracing all things. The nature and distribution of water are normal. The essence of pollution and purification is the process of human exploration, development and expansion and new adaptation.

Geothermal springs dissolve metal elements, which migrate and deposit to form ores, such as certain copper and iron mines. Dry seas form salt lakes, and rock salt mines^[3]. Freshwater and seawater each have their suitable organisms; changes in water or species migration are not suitable. Plants absorb light water and repel heavy water. In the human food chain, plants prefer potassium, while humans supplement sodium in their diet, maintaining the balance of sodium and potassium in body fluids.

On the surface of the earth, there is a water cycle balance in the biosphere related to human beings. Evaporation, clouds, rain, glaciers, rivers, lakes and oceans, minerals are washed and dissolved, transported and gathered. If it is habitable, it will form villages and cities; if not, it will be evacuated and blank, natural wilderness^[4].

There is no single simple standard to solidify the cognition of nature, learning from nature removes human blind self-centeredness, and applying nature reduces mutual harm and harmonious evolution.

3. Method

3.1 Define pollution and purification

Pollution and purification are concepts set by human beings, starting from whether they are beneficial to people. Commonly used detailed indicators include SS, COD, BOD, ammonia nitrogen, etc., but should be analyzed in detail.

In ancient times, manure water was used to fertilize fields without being considered pollution. Modern biogas slurry can also be used as agricultural fertilizer. During the Ming and Qing dynasties, urban sewage from Beijing flowed into Tianjin, where large areas of reed beds grew in the coastal marshes. This sewage served as a nutrient-rich water for the reeds. In winter, when it was cold, the reeds were harvested en masse and transported back to Beijing, where they were used as fuel for daily life, releasing energy and returning ash to the farmland, thus supporting urban civilization as a whole.

In North China, rain and heat occur at the same time, and summer rains are concentrated. Baiyangdian is a gathering place for many waters. Human activities on the surface discharge domestic pollution, which enters the river with rain and into the lake with the river. Baiyangdian is rich in reed beds, lotus ponds, fish and ducks.

Similar to the south, where rivers converge, downstream pollution leads to species proliferation, and sufficient biological production supports a large population. Water and nutrients form karst deserts, while lakes and marshes become fertile lands for fish and rice. Yunmeng Marsh vanished into history, Poyang Lake turned into grassland, Hangzhou's current surface is about 4 meters higher than in the Song Dynasty, Zhenhai became Zhenjiang, and downstream of Nanjing added Shanghai, which further expanded to include Chongming. Rivers flowing into the sea carry turbid substances that nurture marine fisheries, while ancient sediments yield coal and oil.

In modern times, villages in plain areas often have trenches and ponds for the discharge of domestic sewage and the storage of rainwater. In dry days, water is lifted to irrigate farmland so that fertilizer and water do not flow out.

In the long history, human waste is just what microorganisms, animals and plants need. It is only a return to nature and a positive cycle. The topic of pollution and purification has not been popular for a long time, and the concept of turning fertilizer into wastewater is also a recent one.

Analyzing this change reveals issues of technological abuse and human greed. Excessive use of pesticides and fertilizers poisons water bodies, exceeding the environment's self-purification capacity, leading to a new equilibrium phase where humans are forced to readjust. The West has stolen China's Han Dynasty Five-Stone Powder, which was used for dehumidification and sterilization, with some arsenic elements now used in body cleansers, degrading the toxicity of urban drainage. Some profit-driven individuals use arsenic to enhance the luster of pig hides, causing market fluctuations that lead to delayed pig market releases, accumulating poisoning effects, thus the Yangtze River carries pigs downstream. New technologies and equipment are used for mining and processing, rapidly increasing production in the short term but also quickly leading to mineral depletion and ecological collapse. Tailings and mine water rapidly enter the surrounding natural environment, causing short-term impacts ^[5].

It can be defined that pollution causes human inadaptation, and purification is needed to tame this inadaptation.

From a broader perspective, pollution is only a small regional disturbance that feeds back to human beings. From a long-term perspective, pollution is only a temporary maladjustment, and then becomes the normal state, no longer regarded as pollution.

Purification is an active adaptation, a self-restraint of human beings' feedback to the environment, and an evolutionary balance after economic evaluation.

3.2 Breaking the human ego

At present, the conventional pollution and water purification technology focuses on using more chemicals for water, huge sewage plants, investing a lot of energy, occupying economy and management. For mining production, pollution discharge restrictions are used and follow-up penalties are imposed.

Pollution arises from the self-feedback of human evolution on the environment. Viewing pollution and purification technologies as a manifestation of human egocentrism is misguided. After the expansion and insatiable greed of the human species, they are forced to limit their actions without voluntarily restraining themselves or reducing harm to nature. Instead, they continuously develop new technologies to mask previous damage, completely disregarding the potential for even greater harm. However, if humans were to make just a small concession, nature would dynamically recover over time.

Human self-centeredness is essentially the differentiation within a group. When the core of decision-making benefits is protected from external harm, it remains unnoticed or even manipulated and driven away by peripheral groups to continue harming nature for its own gain. The peripheral

groups that face nature directly are deprived and restricted by knowledge and economy, isolated and scattered, forced to comply for survival, and subsequently bear all the costs. The deception and ignorance both internally and externally lead to internal centralization, which in turn manifests human self-centeredness. Losing reverence for heaven and love for humanity, the concept of unity between heaven and man, the internal differentiation of humans leads to the massive consumption of peripheral groups to support the evolution of the core group. Over time, the core culture is recorded, while the cost groups are increasingly ignored and gradually forgotten. Evolution is an instinctive pursuit of life, evolving like bees or ants, where the consumption of some groups is the price paid for purifying pollution.

As the Internet, artificial intelligence, and big data form a smart urban brain, decision-making feedback becomes increasingly transparent. This helps break the knowledge monopoly of core groups over peripheral groups, fostering an overall public mindset that aligns with natural laws. With intelligent robots, smart mines, and smart manufacturing, intelligent machinery is essentially replacing frontline peripheral workers. Humans no longer excessively differentiate internally but re-emerge as a collective, with mechanical labor serving humanity. This evolution will also promote humans to transcend self-centeredness and small-group centralism, adopting a natural perspective for optimal whole-body harmony with nature. It represents a higher level of unity between heaven and humanity, following the way of nature.

Environmental constraints and resource scarcity intensify internal human competition and exploitation. If the environment is more expansive and resources abundant, humans will unite, individuals will be protected and respected, and intraspecies cooperation will outweigh competition. Ultimately, humanity will venture into the cosmos, with heliocentric theory replacing geocentric theory. Humans will transcend their self-centered arrogance, shifting from greedy exploitation to harmonious evolution.

Some ways to break the human self-centeredness include evaluating the abolition of some unrealistic standard constraints, simplifying the complex technology that is not worth it, and making small collective interests conform to the interests of the larger collective or even the whole of humanity, and developing in a positive direction.

The only criterion for science and technology is nature, which should not be overly rigidly bound by dogma. It should be dynamically optimized to guide the benign interaction between human beings and nature.

3.3 Water purification technology in line with natural laws

The existing technology has specialized technologies for all kinds of sewage, mature general technologies and huge equipment and talent reserves. A large number of applications also solve or improve the corresponding specific problems. New technology research and development emerge in an endless stream, forming a specialized technology history.

The selection of water purification technology should focus on two directions: one is to imitate biology, optimize comprehensively, be simple and harmonious, and adapt to the survival of the fittest. The other is to evaluate the whole cycle, treat pollution from the source, and try not to pollute.

A land nurtures its people; suitability is the best. In places with good natural water, the ecology is beautiful and livable. Natural water purification is essentially through clouds, rain, streams, and rivers, where mountains and rivers naturally purify themselves, nourishing the land and its inhabitants. The closer water purification technology is to nature, the better it performs. Reverse osmosis produces a large number of spent filter cartridges, chemicals complicate the elements in the water, and a significant amount of harmful sludge further pollutes. Harmful sludge must be

incinerated at power plants or mixed into cement production, leading to increasing complexity. Initially, the production that comes with pollution benefits, but ultimately, the environmental damage is reclaimed, sometimes even at a loss, as the beneficiaries and those who bear the cost are not the same group.

Stop pollution, and the natural cycle of heaven and earth will clean itself. From the perspective of geological time, human history is a short moment, and the excessive worship and application of technology is also a cognitive bias phenomenon.

Not occupying all space, but reserving some areas for natural purification, pollution will not affect human life, and people can coexist harmoniously with nature. The wastewater treatment plant should be as large as possible, removing walls, omitting pipelines and electrical systems, and reducing energy consumption. Located away from the city, time slows down, allowing natural clarification and purification, much like a vast natural lake or sea. Today's pollutants may become minerals in another era, akin to sedimentary coal seams.

Comprehensive lifecycle assessment focuses on the ethical constraints of technology. For example, restrictions on the use of arsenic, lead, and mercury prevent their entry into human life, avoiding cumulative toxicity and layer-by-layer harm. Using safe and reliable detergents ensures that urban drainage remains as it was in previous eras, serving as essential nourishment for reed forests and allowing for paper recycling. This is even cleaner than manure from past times, safe for fertilizing fields. Proper fertilization conserves chemical fertilizers and pesticides, protecting soil and groundwater, thus positively reinforcing human self-preservation. In mining production, technological optimization eliminates selfishness, ensuring orderly extraction without over-exploitation, preventing rapid depletion.

The technology that must be adopted focuses on energy usage, reducing or avoiding the use of chemical substances. Energy is also wasted when not used, and purity does not occupy space, but the complex use of chemical substances becomes even more complicated. Moreover, the production process of chemicals is a complex system that generates additional pollution. Instead of amplifying complexity layer by layer, it is better to simplify purely to energy ^[6].

Magma can reduce the earth's elements to their original state, and the sun can burn all the matter in the solar system without the concept of pollution and purification. Water is purified, water is soluble, and fire is molten. As long as it is stable and does not interfere with human beings, there is no pollution.

In line with natural laws, transcending the interests of small groups and breaking free from the misleading authority of a few individuals and conceptual obfuscation, much pollution is no longer considered pollution. Even when necessary purification is required, it will not be overly complicated or overdrawn on the periphery, resulting in minimal gains ^[7]. Ultimately, the optimal collective benefit for humanity, by reducing internal friction, can accelerate positive evolution.

4. Conclusion

Water purification, from the perspective of nature, can be extremely simplified. The core key is to break the self-centered thinking of human beings and choose water purification technology in line with natural laws.

Nature's revelation: After the sewage evaporates, it is transformed into soil and white clouds. Through the ozonation induced by light and cosmic rays, as well as the catalysis of lightning, it is re-purified and then absorbed by the biosphere again to maintain the prosperity of ecological cycle.

Drawing on the natural inspiration, reducing excessive disturbance to elements and using energy to strengthen this purification process can not only improve efficiency, but also reduce the risk of abnormal deviation in the later stage. At the same time, this measure can reduce the ineffective

dissipation of energy and promote the harmonious and healthy development of social economy.

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