



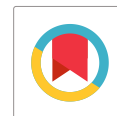
# Water Issues Related to Mankind and Utmost Urge of Wise Generation in Anthropocene

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## ABSTRACT

Recently we are living in the world in which so called sapiens are busted with all possible kind of information. The water quality is of vital concern for mankind as it is related to human health, protection of the environment and sustainable development. Water an essential ingredient and it is present in polluted form in most of the countries in Asia. The deterioration in all aspects of surface and sub-surface water is one of the outcomes of increasing population. All issues related to water from water security to geopolitics, management of water resources to water policies and intervention in natural flow of water to produce hydro-power are governed by the human beings only. The proclamation of Albert Schweitzer in his words “*Man has lost the capacity to foresee and to forestall. He will end by destroying the earth*” indicates the direction in which this world is heading to. Yuval Noah Harari indicates that “*the great discovery that launched the Scientific Revolution was the discovery that human do not know the answers to their most important questions*”. Therefore, to save the earth, man needs to rediscover himself. In Anthropocene, all linear anthropogenic activities must be rechecked to find out the missing element to close the loop naturally. This era demands the entire generation to be wise enough to hold and carry the legacy of caring stewardship towards the earth instead of being the brutal exploiter. The time has come to dust-off the concept of defying the nature and begin harmonious relationship to acquire happiness all around in life.

**Keywords:** Water issues; Energy; Urbanization; Anthropocene; Wise generation.

## 1. INTRODUCTION

Earth is the home of all creatures present in it and it follows the rule of change by its own accord but the humans have always interfered in this process of change. The beginning of the Anthropocene age is still a matter of debate as some scientists believe it should coincide with the start of the Industrial Revolution, whilst others suggest an Early Anthropocene may be beginning some thousands of years previously. Key factor is the energy for every existence. Water is an essential ingredient for life. Among all creatures present in the earth only humans have changed their life-style in various manners from hunter-gathers to ultra-urban societies. This change in life-style of humans in terms of energy consumption seems to be the change towards high energy consuming society. Clubbing these two main factors viz, energy and water, many assumptions/predictions are reported as “Total energy consumption is already six times what it was in 1950 (WWDR), and is projected to grow by as much as 55% by 2030 due to the combined effect of population growth and the improvement of living standards. It is hard to overestimate the combined effect of more people with better consumption over water and energy resources: it takes 1.5 cubic meters of water and almost 10 MJ of energy to produce 1 kg of wheat and around ten times more water and 20 times more energy to produce 1 kg of beef. The combined effect in a business-as-usual scenario

might have outstanding effects over the environment and will put at risk maintaining the economic and social advances obtained: to feed the world in 2050, food production may need to grow by 70% which may require 50% more water but by 2025 two in every three countries will be water stressed and 2.4 billion people will face “absolute water scarcity”. This scenario will look more dangerous if we include the rate of pollution in Asia for the availability of surface/groundwater. Researches worldwide reveal that the Asian rivers are much polluted as being the carrier of plastic, a hazardous product developed by humans, with other chemicals, as well. The proclamation of Albert Schweitzer in his words “*Man has lost the capacity to foresee and to forestall. He will end by destroying the earth*” indicates the direction in which this world is heading to and Yuval Noah Harari indicates that “*the great discovery that launched the Scientific Revolution was the discovery that human do not know the answers to their most important questions*”. Approach of sustainable systems with closing of the natural loops in all kind of living styles may appear in the form of hope, therefore, to save the earth, man needs to rediscover himself in Anthropocene.

## 2. METHOD

Based on the available text related to water issues, reports and the developments in recent researches in the field of water issues, energy consumption and its

demand for population growth with urbanization have been used as secondary data which were compared and analyzed for the development of the concept of wise generation to minimize these challenges in Anthropocene.

**Table 1. Some Indian rivers and their major sources of pollution**

S. No.	Name of the river	Sources of pollution
1	Kali at Meerut (U.P.)	Sugar mills, distilleries, paints, soap, rayon, silk, yarn, tin and glycerin industries
2	Jamuna near Delhi	D.D.T., factory, sewage, Indraprastha Power Station, Delhi
3	Ganga at Kanpur	Jute, chemical, metal and surgical industries, tanneries, textile mills and great bulking of domestic sewage of highly organic nature.
4	Gomti near Lucknow (U.P.)	Paper and pulp mills and sewage
5	Dajora in Bareilly (U.P.)	Synthetic rubber factories
6	Damodar between Bokao and Panchet	Fertilizers, fly ash from steel mills, suspended coal particles from washeries and thermal power station
7	Hoogly near Calcutta	Power stations, paper pulp, jute, textiles, chemical mills, paint, varnishes, metal, steel, hydrogenated vegetables, oils, rayon and soap, match shellac, polythene industries and sewage
8	Sone at Dalmia Nagar (Bihar)	Cement, pulp and paper mills
9	Bhadra (Karnataka)	Pulp, paper and steel industries
10	Cooum, Adyar and Buckingham canal (Chennai)	Domestic sewage and automobile workshops
11	Cauvery (Tamilnadu)	Sewage, tanneries, distilleries, paper and rayon mills
12	Godavari	Paper mills
13	Siwan (Bihar)	Paper, sulphur, cement and sugar mills
14	Kulu (between Bombay and Klyan)	Chemical factories, rayon mills and tanneries
15	Suwao (in Balrampur)	Sugar industries

### 3. RESULTS AND DISCUSSION

#### 3.1 Water Issues Related to Mankind

Water is the essential commodity for life and has always been precious to the humans whom always had the respect to the nature for a long survival in earth. The water quality is of vital concern for mankind as it is related to human health, protection of the environment and sustainable development. Water, an essential ingredient for the life, is present in polluted form in most of the countries in Asia. Some early major sources of pollution in the context of some Indian rivers are as in Table 1. Some of them are also carrying plastic along with, in recent scenario. Rivers are classified according to certain properties, shown by its water composition. These are as follows:

The most important dissolved salt in the river water is calcium bicarbonate, leached out by lime-bearing rocks making river water hard with a pH in upper side of 7. When the water flows from non-calcareous rocks, such as slates, shales and granite, very little calcium is present in the solution; water is therefore soft and may be slight acidic. Rivers are the water bodies which transport the domestic waste and get polluted in different ways, the main pollutants are: inorganic pollutants and toxic metals, organic pollutants, sewage and domestic waste, radioactive ghat pollutants, disease causing agents, sediments and synthetic detergents. In India, cloth washing in the pilgrim river ghats is a common practice (Plate 1) which creates pollution in the rivers and lather formation formed in the rivers even after a long flow of water (Plate 2).



Plate 1: Photograph by Ashutosh Pratap Pande



Plate 2: Photograph by Ashutosh Pratap Pande

Synthetic detergents are potentially harmful to aquatic and human life. In biodegradability of detergents, alkyl benzene sulphonates showed remarkable resistance to biodegradation.

The deterioration in all aspects of surface and sub-surface water is one of the outcomes of increasing population. Most of the researches and reports related to the use, management and future availability of water reveal that the two factors are of major concern, viz, population and urbanization and the rest are the outcome of these two factors. The comparison of water consumption in different continents with respect to time can be clearly seen in Fig. 1.

It is very much clear that a sharp increase between the years 2010 and 2025 in the plot of World and Asia indicate Asia will contribute major part in this global water consumption between 2010 and 2025.

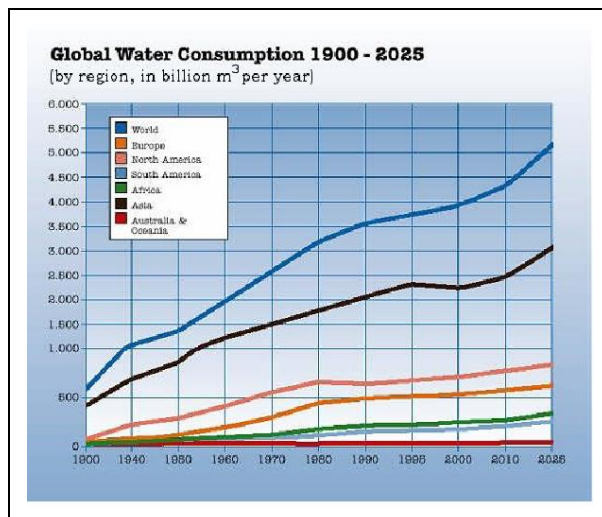


Fig. 1: Global water consumption: 1900 - 2025

The trend in world population is in the growing direction. Some picture about status of population in Asia has been developed in the study by C Haub, “Asia will likely experience a much smaller proportional increase than Africa but will still add about 1 billion people by 2050. Much of Asia's future population growth will be determined by what happens in China and India, the two countries that account for about 60 percent of the region's population. In India, the largest unknowns are future fertility trends in the heavily populated northern states where Total Fertility Rates (TFRs) of about 3.5 are well above those of the southern states. Asia's TFR is 2.2 (2.5 when the large statistical effect of China is removed). Excluding China, 47 percent of women in Asia use a modern form of contraception. Within Asia, several of the more economically advanced countries such as Japan, Singapore, South Korea and Taiwan have TFR of 1.4 or even lower. In Japan, 24 percent of the population is already aged 65 and above, a proportion certain to continue growing. Thus far in Japan, government efforts to restore somewhat higher past levels of the TFR have not been successful”.

The second factor, urbanization, and its global trend are according to the facts adopted by UNESCO “Asia and Africa remain the least urbanized of the developing regions (less than 38% each). Latin America and the Caribbean are more than 75% urban, a level almost equal to those in Europe, Northern America and Japan (all are between 75 and 79%). Urbanization is projected to continue well into the next century. By 2030, it is expected that nearly 5 billion (61%) of the world's 8.1 billion people will live in cities. The less-developed regions will be more than 57% urban. Latin America and the Caribbean will actually have a greater percentage of inhabitants living in cities than Europe will (Global trend towards Urbanization - UNESCO). In addition of the factor urbanization along with population, in the Asian scenario, there is water stress in the cities, especially in

developing countries. Urban life-style is a high-energy consuming life-style compared to the other; therefore, demand of drinking water and energy in the cities or new settlements developed in the form of sub-urban settlements near the cities increased and will increase. This kind of load and pressure to the cities, due to the centralization, comes out in terms of all kind of scarcities and among these water and energy scarcities are of primary concern. The mitigation of or the solution of these arising problems, begin with the study to the formation of policies and the final execution of the project. Ancient bonding of human with rivers and the generation of electrical energy as hydro-power have developed a concept of formation of dams for security and availability of water and energy in the process of urbanization which has been enlarged in the fascination of engineering to the Big Dams. Many researches exposed the boastful solutions of this kind for the problems became the new problem to the other co-existing systems and even failed to resolve the initial problems.

“Water, water everywhere, nor any drop to drink”, a call from ancient marine reached to the land as well in present water scenario; thus, no drop to drink in most of the big cities in Asia. Water pollution becomes an issue of main concern as it deteriorates the quality of surface and sub-surface water which directly leads to water scarcity. Poor implementation of sanitation policies and industrial waste disposal lead to water pollution and in connection with population and urbanization growth it enlarged the pollution rate. The hydrosphere is a dynamic system in physico-chemical and biological equilibria, and there is no doubt that a normal active waterway has a large capacity to assimilate waste. However, in many areas this capacity has reached its limit and even exceeded, so that many water ways have become increasingly contaminated.

Researchers worldwide are trying to understand the effects of possible anthropogenic evils as outcomes of development processes. “Global warming, population growth, urbanization and growing consumption of water and energy continue to disrupt our already fragile ecosystem. These unsustainable trends are reinforced by market and political drivers that still tend to favor further developments of water intensive activities in arid and semi-arid areas where there is no much water available. This is also a trend in emerging economies - some of them in Asia and Africa are dangerously short of water. For example, China has 20% of the world’s population but only 7% of its fresh water and half the population and most of the agricultural and manufacturing growth tend to concentrate in the Northern half where water resources per head are only 200 cubic meters per year per person which is merely one-fifth of what is conceived as a safe standard.

The existing and emerging issues related to water are certainly and slowly taking away the happiness from the life of mankind in all parts of the globe. Nature has its own way and system, based on natural rules to counter the anthropogenic activities; real sapiens have the natural sensitivity to sense the change. Natural issues are the challenges, but the outcomes of faulty solutions by any means must be rectified as soon as possible.

### **3.2 Utmost Urge of Wise Generation in Anthropocene**

Recently we are living in the world in which so called sapiens are busted with all possible kind of information. A simple click is sufficient to flood the information. Scientific aptitude seems to be common in most of the developed countries and in their societies as far as rules are concerned to avoid the chaotic mess by orderly developed systems. When we talk about the generation the time factor automatically comes into the scene, as basic definition of generation in almost all of the dictionaries related with the time is: "all of the people born and living at about the same time, regarded collectively." It can also be described as, "the average period, generally considered to be about thirty years, during which children are born and grow up, become adults and begin to have children of their own. The concept ‘generation’ is used in very different ways. Machines do not form societies as their generations are restricted to the utility only and have no genealogical continuity. Humans have emotions and intellect along with genealogical continuity. These carrying factors are capable of connecting to the generations and create a link into the journey of development of mankind. A generation may be wise by knowing the power of ‘thoughts’ and acquire the potential to foresee and forestall. Environment refers to such factors as air, water, soil, mineral and power generation resources, plants and animals, including sapiens. The inter-relations among these interacting factors finally affect the survival of life on earth. In the journey of development, the translation of power of thought into knowledge, was identified by historians in terms of generation, as Goethe wrote in the preface to *Dichtung und Wahrheit* (1811): “Anybody born only a decade earlier or later might have become a completely different person as far as his own education and sphere of action are concerned”. A reflection of generation and the power achieved by human by virtue of development of science is described by Yuval Noah Harari as, “During this revolution, human kind has obtained enormous new power by investing resources in scientific research. It is a revolution because, until about AD 1500, humans the world over doubted their ability to obtain new medical, military and economical powers. While government and wealthy patrons allocated funds and scholarships, the aim was, in general, to preserve existing capabilities rather than acquire new ones.”. This powered humans to synthesize many compounds which were not present in earth or not required in earth under

nature's selection rules. In Rachel Carson's 'Silent Spring' all stories are the example of human carelessness, greed and irresponsibility and can be considered as insensitivity of one generation to the next one under negligence. These generations have developed the naturally undesired compounds for their immediate solutions without knowing that neither they had the control on them nor nature. Still the existing generation along with different eco-systems is affected by the plastic in water and air. The powered human had increasing demand of energy and they found the new way of power generation with the inclusion of fine and crafty skill called engineering by intervening in the natural flow of rivers, with which they have a pristine connect from the beginning, to generate hydro-power; and another effective anthropogenic activity that comes in to the picture is big dams. In this context, the disadvantages of this kind of development have been recognized comparatively earlier but still in the present, especially in Asia, it is in practice. Moving to the researcher's local surroundings in the state Uttarakhand, India, one functioning multi-purpose dam is in Tehri, largest in India and fifth largest in the world, has faced a long protest from the local population, pioneers and activists but finally has been erected in highly active central Himalayan seismic zone. Years back, Ed Averill, President of the Oregon World Life Federation, 1937 stated: "I hope future generations will not look back upon their ancestors with scornful contempt, as they ask, 'why in the name of all the fishes that swim the seas, did they permit the engineers to utterly destroy our streams?'. After almost 70 years of this event, still one more big dam known as Pancheswar is in the process in the name of water-energy Indo-Nepal politics in sensitive Himalayan seismic zone. However, small dams have the advantages over their bigger siblings. Eco-friendly solutions are available but what they choose indicates the difference in generations. New issues emerge this way and recognizing new concerns through traditional government processes might take years, even though, there is no guarantee that the coming generation will be equipped with the necessary capabilities to address the challenges. In search of new solutions for emerging issues, in general, we are ready to apply new methods with great uncertainty instead of applying old methods to new problems.

Despite their shared characteristics, each generation has certain distinctions. Among the similarities in different generations, power of thoughts makes a connection irrespective of time as in 'Letter to Bapu' from Generation Next on his Birthday (an urge seems to connect in different generations to solve the confusion developed through thoughts). This is the genealogical continuity with many variations in views, beliefs, behaviors and lifestyles within a generation as there are between them. For the long survival in earth in Anthropocene so called sapiens have to connect with all generations through thought energy to check the linear development which produces scrap and polluted water in

the name of demand and utility. Wise generation may be considered as any generation having tenacious ability to deal with every aspect from sustainable development to all kind of securities related to the existence of life on earth. Reflection of foresight and pragmatic approaches in real must be the prime attribute of wise generation. Wise generation may acquire the capacity to negate every perilous prescription suggested in the name of leaner development enameled with ease. They have guts to pray in the words of Noble Laureate Rabindranath Tagore –

*"Let me not pray to be sheltered from dangers, but to be fearless in facing them. Let me not beg for the stilling of my pain, but for the heart to conquer it".*

Improvement is the process to rectify the mistakes done earlier, therefore, there is an utmost urge of wise generation in Anthropocene for reclamation.

#### 4. CONCLUSION

Wise generation may be considered to have developed enough in their general practices the realization towards the earth as home We are in the stage of understanding; true analyses have always found that the human activities have significantly disturbed the natural cycles, for instance, carbon, water, nitrogen and phosphorus cycles. In Anthropocene, all linear anthropogenic activities must be re-checked to find out the missing element to close the loop naturally. This is the era which demands the entire generation to be wise enough to hold and carry the legacy of caring stewardship towards the earth instead of being the brutal exploiter. The time has come to dust-off the concept of defying the nature and begin harmonious relationship to acquire happiness all around in life. Finally, ecological awareness must develop without any complications for the daily needs of life, like how much to drive, what to purchase, where to live and what to toss away. A sense of caring stewardship towards the earth and responsibility among the wise generation can be the index of hope for a better future.

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#### CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

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