ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

AN OVERVIEW OF WATER POLLUTION IN ASIA: AN EMERGING NEEDS OF PREVENTION &MONITORING FOR SUSTAINING AN ECO-ENVIRONMENT

#[1]Prof. (Dr.) Ramesh Chandra Rath

#[1] Professor –Cum-Dean at Research & Development Cell ,Einstein Academy of Technology & Management, Approved by AICTE Govt .of India New Delhi and affiliated to BPUT Rourkela, Odisha

 # [2]Prof. (Dr.) Padma Charan Tripathy

#[2] Professor-cum-HOD, Department of Civil Engineering , Einstein Academy of Technology and Management Approved by AICTE Govt. of India New Delhi and Affiliated to BPUT Rourkela, Odisha

#[3]Er.Shatabdi Das

Assistant Professor ,Department of Civil Engineering , Einstein Academy of Technology and Management Approved by AICTE Govt. of India New Delhi and Affiliated to BPUT Rourkela, Odisha

#[4] Er. Supriya Mahapatra

#[4] Research Scholar, Department of Civil Engineering ,Einstein Academy of Technology & Management, Approved by AICTE Govt. of India New Delhi and affiliated to BPUT Rourkela Odisha

---

E-Mail:#[1]**ramesh.ch.rath@gmail.com#[2] hodcivil.eatm@gmail.com**
#[3]dasshatabdi17.@gmail.com #[4]supriya31.94@gmail.com

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

ABSTRACT

"Water is the Life Blood vessels of Human , Animal & all Creature of the World" because of without water life can't imagine for survival .So we need water in our day-to-day life in various ways like people are Consuming water in domestic Purpose, Industrial Manufacturing (IM), Agricultural Manufacturing (AM), Electricity Production (EP), Drinking, Bathing , Washing, Cultivating etc. The water available from various natural & unnatural sources like surface water (Through rainfall, & preservation, i.e. River, Sea, Ponds, and Ground water (through dug- well, bore-well, etc.) but these availed sources of water may or may not be contain impurities. India and china and other countries of Asian continent used nearly 68% of water from the total consumption water by the peoples of World because, these countries are high density of population .Similarly ,In India nearly, 70 to 80% of population need to use unsafe water for the purpose of drinking due to unavailability of pure and hygienic water. Henceforth, they have suffer many types of diseases i. e. gastroenteritis, jaundice Cholera, diarrhoea, Typhoid, and skin diseases etc. are caused by eating infected food & drinking polluted water. By uncovered food and water, insects and animals are carrying diseases so we should have neat and clean as well as proper care for our personal hygiene we need plenty of clean and safe water. Alexandra Evans is a researcher at the International Water Management Institute (IWMI) in Colombo. She works on wastewater management particularly in relation to its reuse in agriculture, with a focus on both water quality issues and livelihoods .In this research article, basically focussed on the ways of water pollution, and what are the preventive measures for protect it in order to getting a healthy, hygienic and pure and safe water how to provided to the people of the Asia.

Keywords: Consuming water in domestic Purpose (CWIDP), International Water Management Institute (IWMI), Industrial Manufacturing (IM), Agricultural Manufacturing (AM), Electricity Production (EP)

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

1. INTRODUCTION

Generally, we know, contamination of water with undesirable and harmful substances is called "**Pollution**". Different human activities are responsible for polluting the natural resource of water where, water is getting polluted by waste releases by different types of industries in to water bodies .The water which comes in contact with our day-to-day life of impurities is known as "**polluted water".** The Word **"Pollute**" has been derived from the Latin Word "**Pollute**" where **"Pol"** means **'before**' and **'lute'** means **'wash'.** Thus the Word **"Pollute**" refers about the Non- purification of water by the external factors and Contamination. Here, there is a vast difference in between the two words, "pollution" and "Contamination". Where "pollution "means "Impure Water" by many extranet factors. Whereas the Word "Contamination" is the specific term used to denote the polluted water by many ways i.e oil, grease, floating of dead bodies of animals, human beings, and coloured and foul smelled things, garbage's mixed with water bodies etc. Besides that ,the water also contaminated by high percentage of pathogenic bacteria and harmful impurities are the bright examples of polluted water ,due to polluted water, we face terrible situation for the survival ,because we need pure and hygienic water for the purpose of drinking ,bathing ,cooking and washing our clothes for neat and clean. Due to face terrible problems of scarcity of drinking water and clean water, many countries of Asian continents has taken positive effort to clean the water like honourable Prime Minister of India has taken the initiative step to clean the river Ganga, and open a Separate department of **"Swachha Ganga Abhiyan"** headed by a cabinet minister **Ms .Uma Bharati,** besides that India also taken many ideological programmes in order to make India neat and clean followed by the **slogan "Swachha Bharat" and "Smart City"** which are most welcome to make the environment neat & Clean. Therefore, to make a good, healthy and hygienic environment we need pure and contamination free safe water.

In this invited research article, we the researchers have focused on the availability of pure and safe water how obtained from the sources of surface water, ground water and sources of

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

snowfall. Again we also emphasizing upon the neat and clean water how available from the natural and artificial sources of earth .As well as we emphasized to protect and prevent these sources of water from the external extremities like muddy and contaminated water apart from industries, highly populated mega cities of India i.e Kolkata, Mumbai, Delhi, Chennai, Bangalore, many more cities from china i.e Beijing, Shanghai, and as well as many cities of Asian Continent.

2. LITERATURE REVIEW

In the literature review section, we the researchers have focused about the Problems related with the research topic titled "**An overview of Water pollution in Asia: An Emerging Needs of Prevention &Monitoring for Sustaining an Eco-Environment"** in which we are so much worried about the neat and clean water how to available throughout the globe .After our research work, we try to recommended few suggestion & recommendation to the people of the globe for their up to date awareness & water consumption .In connection with ,we have taken empirical method of study by taking few countries of Asian continent i.e In India, China ,Pakistan, Thailand ,Japan ,Singapore etc. although there is growing awareness about the ill effects of pollution, promotion of continual introduction of environmentally friendly products a methodologies in the chemical industry needs to be furthered. Usage of nonconventional technologies is highly popular in India. First in this list is the usage of microwaves. Further, the microwave chemists are turning their attention toward microwave-assisted dry-media reactions in order to minimize solvent usage, an added advantage to already established microwave chemistry in number of industries of Asian continents. In addition to microwave-assisted reactions, ultrasonic and photochemical reactions are also used as nonconventional reaction technology. Analytical chemistry has been at the centre of the green chemistry movement. Advances in analytical chemistry are major role into an environmental protection. In India, the focus for analytical chemistry is mainly on extraction technologies such as solid phase, ultrasound and microwave, supercritical fluid extraction, and automated soxhlet extraction. Monitoring and analysis of heavy metals and pesticides is

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

very important for an agro economy-based country like India and chief governmental institutes like the Indian Agricultural Research Institute (IARI) and the Defence Research and Development Organization (DRDO) are working extensively in this field. Further removing of these elements from industrial and agrochemical usage is of prime importance for this polluted environment through the water.

3. AIM &OBJECTIVE OF RESEARCH

(i) To understand the situation & recognize the importance of surface water in urban & rural area of poor people and value of protecting it.

(ii) Increasing the awareness & understanding the trends & use of surface water & ground water in order to providing them neat & clean water.

(iii) To motivate the people to conserve reserve water, for the purpose of drinking, agriculture, industrial manufacturing, production of electricity etc. in order to create an ecological environment by pollution free.

(iv) To use the adequate resources of water through various policies adopted by the Asian continent.

(v) By using Modern Technology, the polluted water apart from the industries, cities in to the river shall be cleaned & recycling it in to a neat & hygienic water for the purpose of drinking.

4. PROBLEM FORMULATION

In the problem formulation section, we hypothesized that ,water will polluted due to discharge of domestic & Industrial Waste in the aquatic system has becomes a serious problem in the country and abroad the globe, from the authentic source of study there are 70 to 80 % percent of Indian people had used unsafe water in their drinking purpose. Due to unsafe water, the people of the said counties shall suffer many diseases i.e cholera, jaundice, etc. through the polluted water from nearest river, lakes ,ponds etc.

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

5. POLLUTION ON NON-ACADEMIC ENDEAVOUR - A MAJOR CONCERN

Industry in India still needs to make major improvement from the environmental point of view. Most of the industrial R&D is mainly concerned with cost efficiency rather than eco-effective methods. Although there has been some joint work between academia and industries, still there is plenty opportunity for increased collaboration. There is instantaneous need for technology transfer from academic labs to industrial plants for meaningful application of green research. The best examples are the applications of enzymes in various industries ranging from drugs to leather. The textile industry is one of the highly revenue generating industries in India, and they are now switching over to microbial decolourization and degradation. There is an increasing need of exploring biodiversity for natural dyes and developing eco-friendly methodology for synthetic dyes. All these require more funding in the R&D of respective fields and greater interaction and coordination between industry, academia, and government.

6. OUTSTANDING GOVERNMENT INITIATIVES

Government can do a lot of good for the cause of green chemistry by increasing public alertness and by bringing and enforce strict environmental legislations. One of the fresh and notorious examples of government initiative is the conversion of diesel vehicles to compressed natural gas (CNG) in order to reduce pollution. Relocation of industries into industrial areas away from residential parks is another bold step taken by the government. Further, the government is also concentrating on new projects such as fuel pellets from municipal waste, aspirated H-cylinder engines for light commercial vehicles (LCVs), meeting India 2000 emission norms, battery-powered cars for pollution-free driving, hydrogen energy and energy towers for new environment-friendly fuel, development of traditional herbal drugs as adapt gens immune-modulators. The government should also increase funding to encourage research in green chemistry [14]. By introducing green chemistry education at all levels, the government can build a solid foundation toward green chemistry in India.

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

7. REMEDIATION OF ARSENIC-CONTAMINATED WATER

A large number of approaches have been investigated for removing arsenic from drinking water. Several useful identifications relating to the problem and its remediation have been published. Various existing and emerging arsenic-removal technologies are listed here.

(a)Coagulation with ferric chloride, alum, or natural products (b)Sorption onto activated alumina(c) Sorption onto iron oxide–coated sand particles (d)Granulated iron oxide particles (e)Polymeric ligand exchange (f)Nanomagnetite particles (f) Sand with zero-valent iron (g) Hybrid cation-exchange resins (h) Hybrid anion-exchange resins(i) Polymeric anion exchange (j) Reverse osmosis

8. POLLUTION CONTROL STRATEGIES

Pollution can be defined in several ways. It has been recognized for some time now that most of the pollution is with respect to air, water and soil which are the most essential ingredients for life in this earth. It has also been recognized that the present day pollution that we generally conceive is mainly generated by the anxiety of human beings for their comfort. It is no doubt that the pollution has to be completely avoided if that were not to be possible, at least it should be reduced considerably. Each pollutant that has been introduced in the surroundings has its own health risk profile, which makes summarizing all relevant information into a single unit difficult. That is why we have decided to make a series of presentations on various manifestation of this matter. However, public health practitioners and decision makers in developing countries need to be aware of the potential health risks caused by air and water pollution and to know where to find the more detailed information required handling a specific situation. With this objective in mind we have attempted in this compilation some of the aspects of pollution and its control. The presentations are based on some awareness that sector wise the problem of pollution can and may be controlled.

However this is not the only methodology one has to adopt. Climatic changes occurring on earth has been addressed in various forms like Governmental legislation, also from the point

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

of view of disaster management and also from the points of view individuals/organizations to safeguard the interests of future generations. The climatic change has been mainly though not exclusively, considered to be due to carbon dioxide emission and methodologies based on carbon dioxide control or conversion has been evolved. Details of converting carbon dioxide to useful and value added products have been well addressed in literature.

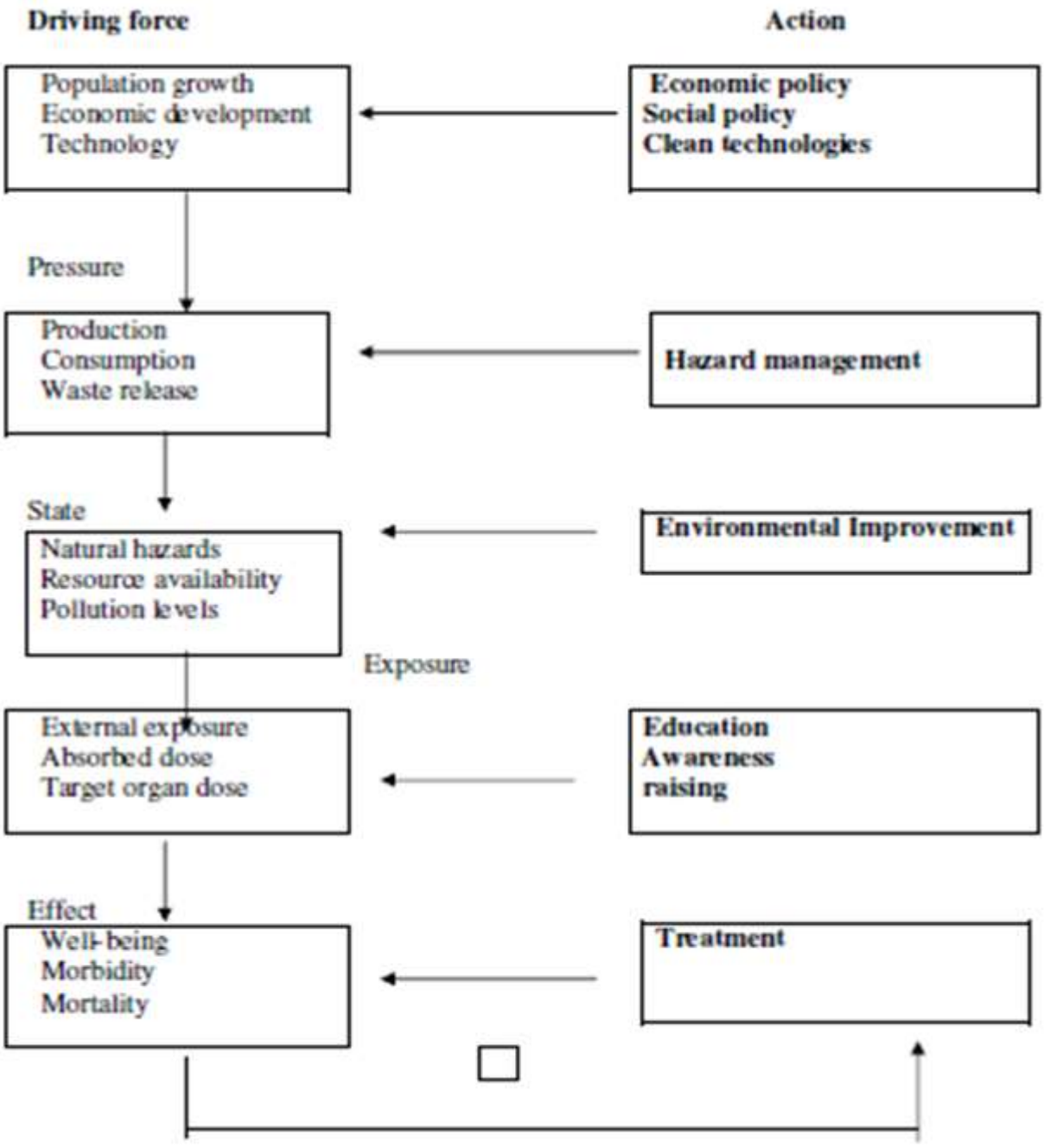
The approach for automobile exhaust control has been evolved in the form of the catalytic converter. The challenges in this converter are concerned with dealing with opposing oxidation (of carbon monoxide and hydrocarbons) and reduction reaction (reduction of NOx to N_2) simultaneously and under varying experimental conditions of high space velocity, temperature and lean and rich Air/fuel ratio. Though three way catalyst as a concept has been introduced to carry out all these three reactions there are still challenges to be faced in terms of high cost of the noble metal catalysts employed, the operational difficulties that are introduced by the inclusion of a catalytic converter. Scientists, in their concern to publicize their innovations and discoveries, have been pushing hard their achievements too strongly, without much consideration to the after effects that will follow in the years to come. This has been true in each of the scientific discoveries that have broken in the last few decades.

The environmental pollution is mainly the result of many processes and chemical reactions that are being practiced in chemical industries for manufacture of commodities and also due to indiscriminate use of energy sources. It is therefore necessary to understand the unit operations of these chemical industries. The proper understanding of the various unit operations of these chemical industries may provide us some conceptual frame work to combat the pollution of the environment. Human beings in their concern to present themselves with simple easy to adopt solutions to the issues with respect to contented living have come up with some possibly undesirable solutions that are not naturally degradable and hence leave some non-degradable marks in nature and this aspect has been addressed at various stages but no viable solution has been found yet meeting the human desire for low cost, simple and elegant methodology [15].

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

Schematic Models of water Pollution [Table: 1]



ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

9. GREEN CHEMISTRY CAN ADVANCE FROM THEORY TO PRACTICE?

As we can see from all the above technological advances, Green Chemistry principles have advanced considerably in the last decades. Research on various industrial applications have been very successful and with considerable advantages for energy consumption, less toxic products and minimum waste. These advances have contributed first of all in the safely and health of workers who work in chemical industries, making of products with basic materials workshops and other professional people involved in the transport and distribution of these products. Secondly, green chemistry found alternative ways to cut energy consumption, or by changing processes, or through new catalytic routes, in order to save energy [16-18].

10. WHY WE NEED TO USE CLEAN WATER?

- We must have use clean water for drinking and cooking.
- Water should be boiled for ten minutes and then stored in clean and covered with containers.
- Water filters/aqua guards can also be used for purification of water.
- Large quantity of surface water from river, Ponds, reserved water should be purified by chlorination.
- Oil must be sprayed on the surface of water in tanks and ponds to destroy mosquito larvae.
- For getting a pure and healthy and hygienic water for the purpose of drinking and domestic consumption in our day-to-day life.

11. SWACHHA BHARAT ABHIYAN & SMART CITIES

The great dream has seems by Mr. Prime Minister of India in order to make India for neat & Clean forever by his great Vision of “Swachha Bharat Abhiyan” , and Smart Cities” which will be a great impact to clean the environment for sustaining an eco-friendly Environment.

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

Narendra Modi wields a broom with NDMC workers to launch 'Swachh Bharat Abhiyan' in Valmiki Basti in New Delhi. (PTI Photo) on 2nd October 2015.

A government survey shows Delhi as one of the dirtiest Indian cities with rampant open defecation and poor

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

waste management facilities, indicating that Prime Minister Narendra Modi's Swachha Bharat mission might not have had a big impact in Delhi. (Sonu Mehta/ HT Photo)

The city of Mysore in Karnataka was named the cleanest city in India after the launch of Modi's Swachh Bharat Abhiyan. (HT Photo)

Delhi chief minister Arvind Kejriwal agreed to participate in the campaign on urban development minister M Venkaiah Naidu's invitation but said that such "symbolic gestures" cannot make India clean. The campaign was also criticised on the grounds that Modi was using it as a platform to gain political mileage by rebranding the existing Nirmal Bharat Abhiyan mission.

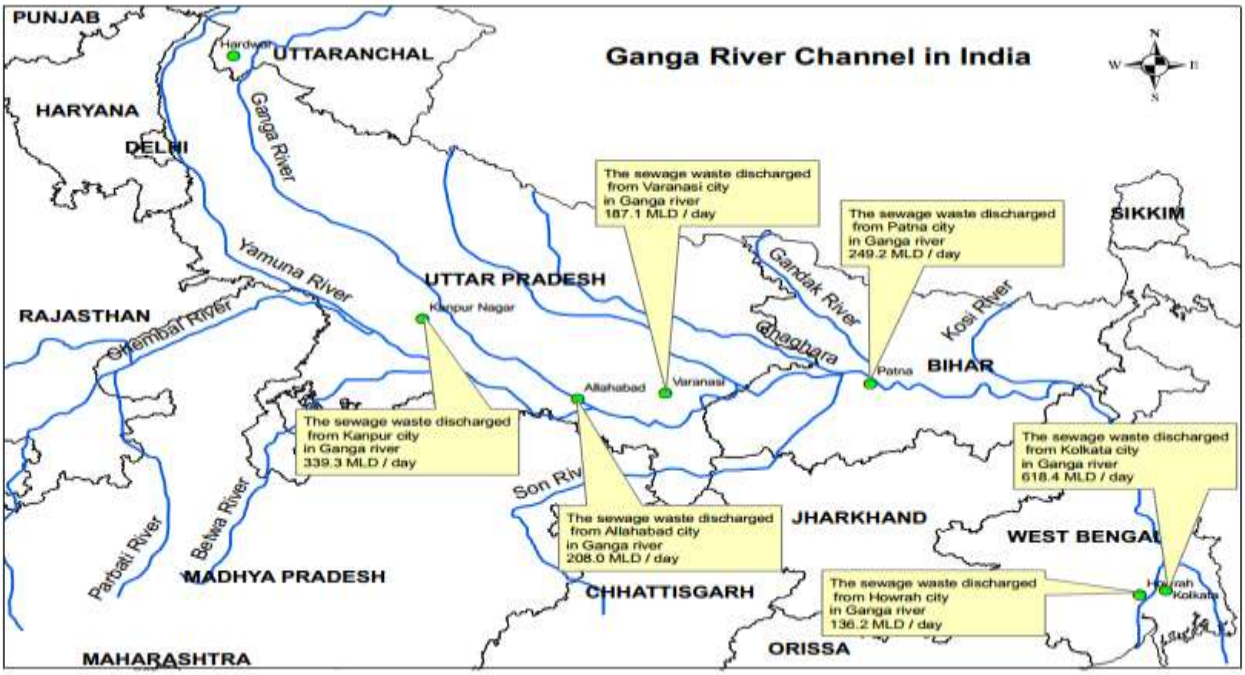
12. WATER POLLUTION, IN INDIA &CHINA

Due to Driven by population growth and the need for increased agricultural production, water resources are coming under intense pressure across Asia. Annual water withdrawal and return flows are higher than in any other region. The volume of wastewater generated annually, excluding agricultural drainage, is some 142 km^{3}.[1] in adequate provision of sanitation

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

facilities, sewerage and wastewater treatment results in significant quantities of this wastewater reaching water bodies that may service human consumption



(Figure:-4) Channels of the journey of river Ganga in India from her Inception

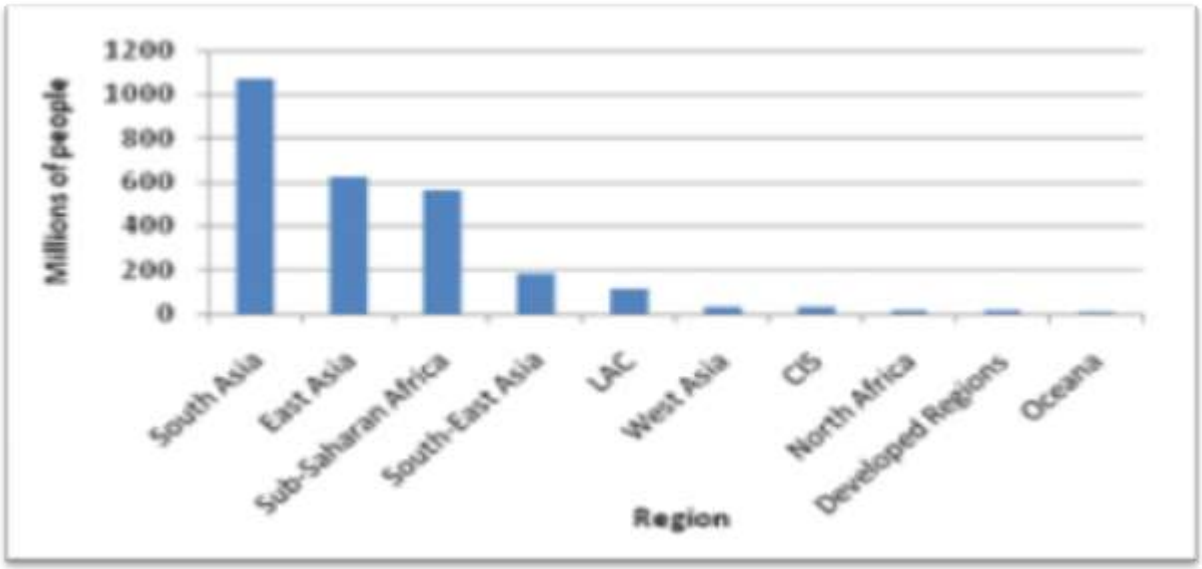
ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

Figure: 05 (Water pollution by the users of street where, garbage's mixed with mud Water in to the drainage System of the city Beijing

13. WATER POLLUTION AT NON-POINT SOURCE

Water mostly polluted at Non-Point Source, Predominantly agricultural, is also of concern, especially given the rise in agrochemical consumption. Industrial waste plays its part too as Asia's economies grow and change. The impacts are being felt by nature and people: 42% of the deaths associated with unsafe or inadequate supply of water, sanitation, and hygiene occur in Asia (Figure 2).[2] Asian countries are making concerted efforts to address these problems but the pace and scale of this policy response must increase urgently.[3] In a recently published paper we conducted an extensive survey of these issues[4]; the following provides a summary of the key points.



Source: [WHO/UNICEF (2010) Regional distribution of the 2.6 billion people without improved sanitation (LAC, Latin America & Caribbean Commonwealth of Independent States (CIS). Domestic Pollution Showing in Bar Graph No: 01]

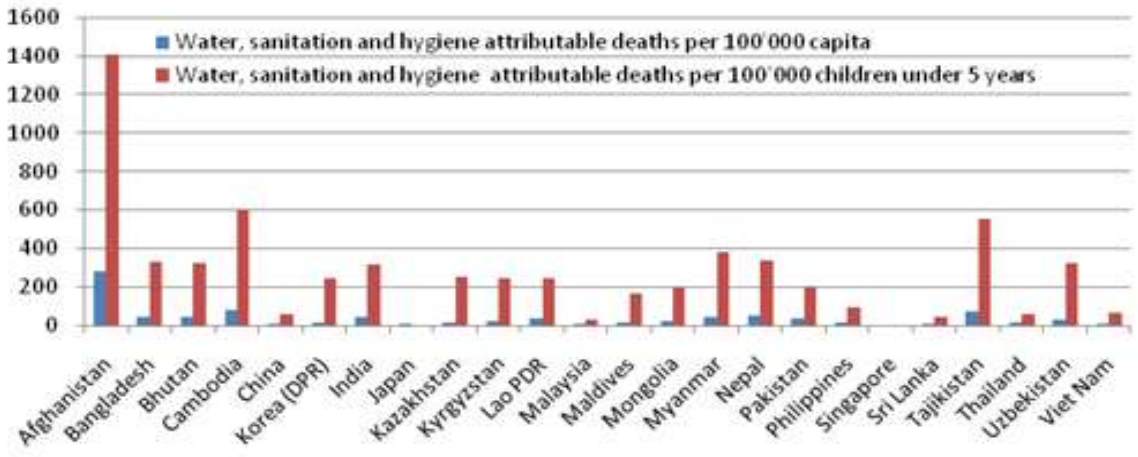
ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

Many Rivers in Asia like the Ganga, Brahmaputra, Yamuna, Hoang Ho etc. are highly polluted with domestic waste. Many of the region's rivers contain up to 3 times the world average of human waste derived bacteria (measured in faecal coli forms, or FC).[5] Inadequate access to sanitation infrastructure (such as connections to public sewers and septic systems) is already a contributing factor today; yet, as urban centres grow so too will the need for more of this infrastructure. Based on current trends demand will continue to outstrip supply, worsening pollution. While there are strong efforts to equip exploding cities, a myriad of growing Asian towns remain completely un-served.

14. AGRICULTURAL POLLUTION

Pollution are also happening due to Agricultural production in the region increased 62% from 1990 to 2002 and consumption of mineral fertilizer increased 15%.[6] Exceedingly high levels of nutrients were found in 50% of rivers in the region and moderate levels in 25%.[6] High nutrient levels cause eutrophication , including algal blooms that severely damage freshwater ecosystems and hinder their provision of vital environmental services to people.



[Bar Graph No: 03(a), showing about the Water, sanitation, and hygiene related deaths in Asia. Source: WHO (2008)]

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

Pesticides are another problem across the region. In India for example, pesticide use grew by 750% from the mid-1900s to the present day and even prohibited pesticides have been detected in excess of international recommendations in the Ganga River.[7] Pesticide bans have brought improvements in China, but nutrients are still inadequately controlled. In Central Asia, the use of small quantities of unregulated imports is posing a serious risk. Further south, in Sri Lanka the disposal of unused pesticides, equipment washing, and poor storage have been identified as factors contributing to surface water pollution. [6, 8]

Salinity of ground and surface water caused by poor agricultural drainage systems remains a problem in many countries in Central Asia, as well as Pakistan, Iran, and India.

15. INDUSTRIAL POLLUTION

In connection with, the traditional agriculture-based economies of Asia are giving way to industrial economies. This transformation is having serious environmental side-effects, particularly in the case of pollution. Efforts have been made to improve regulation, but the absence, in most cases, of effective governance makes enforcement very difficult. For example, in Pakistan only 5% of national industries have provided environmental assessments.[9]

Industrial pollution levels, indicated by BOD (Biochemical Oxygen Demand) emissions per USD 1,000 of GDP, are highest in some Central and Northeast Asian countries, followed by South Asian countries. Major sources of pollution are industries producing metals, paper and pulp, textiles, and food and beverages. The mining industry is also a significant contributor.

16. HYPOTHESIS TESTING

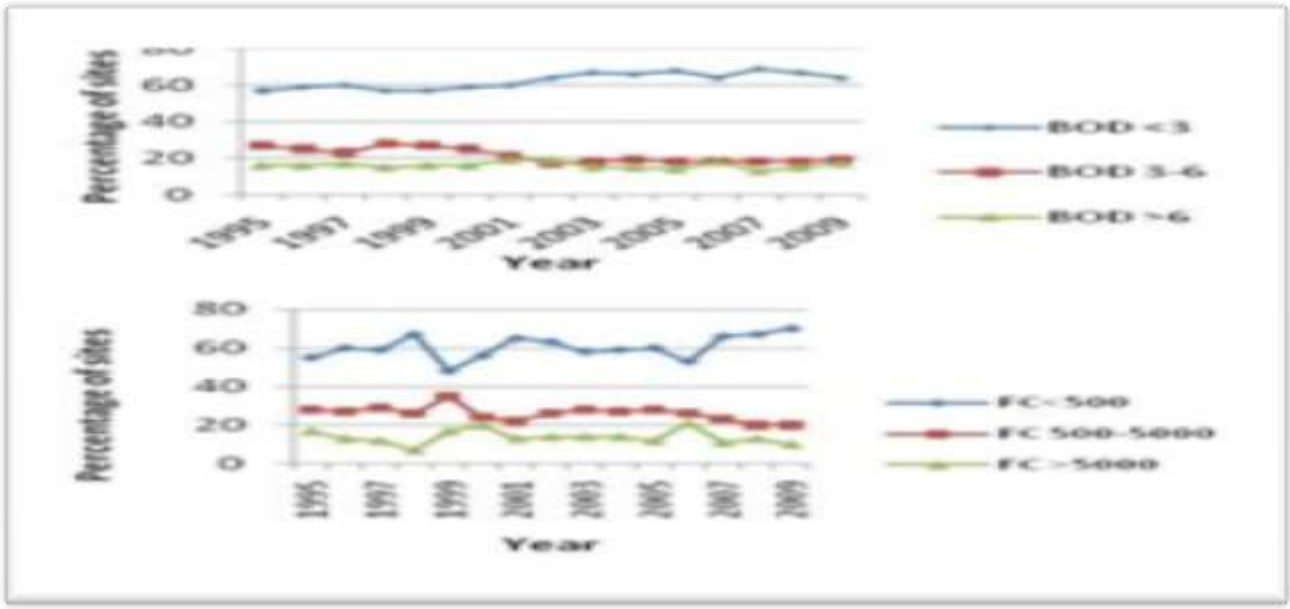
In this section, we have already clear that this research is purely based on the combination of primary & secondary mode of study in which most of empirical studies have been made by

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

us. So we have taken two hypotheses for testing the validity of our study i.e followed with two variable like Independent variable ($V_{1)}$ & Dependent variable (V_2 where , Prevention &

Control of Pollution in all segmentation as taken by the Government, people, Organization, Company, Social Organization etc .as observable hypothesis (H_o), in anticipation with the execution of the principles and laws as the alternative hypothesis (H_e) which is completely dependent upon the second variable (V_2). Finally we studied a lot regarding various measures taken by various countries ,and observed that, If taken the said measures by the said counties, regarding the pollution control in Asia and remaining parts of the World. The density of pollution and global warming ultimately reduces day –to-day and finally we got a healthy ,hygienic environment with plenty of green air ,water, and beautiful ecological environment for living comfortable in all segmentation of life.



ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

Figure 03a (top): Trend in BOD (mg/l) in Indian water bodies. Figure 3b (bottom): Trend in FC (MPN/100ml) in Indian water bodies. Source: CPCB (2009)

17.TRENDS ACROSS THE REGION

Water quality differs markedly across the region, as does the collection and sharing of data. This complicates analysis of the picture and the ability of countries to implement remedial measures, especially across boundaries. India and China appear to have comprehensive monitoring systems, putting them in a strong position to address the problems. Other countries lack data-sets with which to make informed decisions. In India, for example, 62 parameters are monitored at 1,700 locations and the results are published annually (Figures 3a and 3b).

Monitoring by the State Environmental Protection Administration in China showed that river water quality was lower in the north because of higher populations and the smaller assimilation capacity of the rivers. In the south, river water quality improved from 1990 to 2008. In the north it declined from 1990 to 2005 but has been improving since. Currently 85% of the sample sites in southern rivers have water suitable for consumption after treatment, compared to 40% in the north.[10]

18. MANAGING WATER QUALITY

Two key steps are needed across Asia: prevention and Monitoring.

- Several countries are implementing ambitious programmes to build wastewater treatment plants and rehabilitate degraded water resources. Examples include China, India, Thailand, the Philippines, Bangladesh, and Indonesia. These and many more have passed water quality acts or laws to prevent pollution and protect receiving waters. Unfortunately enforcement is challenging, especially in emerging economies where institutional capacities cannot keep pace with rapid industrialization, and

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

economic instruments like taxation and removal of fertilizer subsidies clash with development goals. Monitoring is also costly and voluntary compliance unlikely.

- Given the trans boundary nature of many river basins, and the need for their collaborative management, improved and effective water quality management strategies in Asia require the collection, analysis, and sharing of accurate data. Currently this task is, with some exceptions, generally poorly implemented. In most countries sporadic or patchy data collection prevails, and it is often accompanied by inadequate analysis.[11]

Devolving functions and funds has been one way to address the water quality challenges, for example in the Philippines and the Republic of Korea. Economic instruments, such as user charges and effluent charges, are often considered to hold the key. But implementation is not easy, especially where sewers and treatment facilities simply do not exist. Payment for environmental services is an emerging solution for agricultural pollution but as yet few if any working examples exist.

valuable co-operation towards us with motivating a lot to complete this article.

19. CONCLUSION

Finally, In the Portal of conclusion, we the researcher openly confess that Water pollution in our present society is inevitable. Effective safety measures that prevent point-source pollutions should be employed. In addition, our vigilance to avoid nonpoint-source pollution must be significantly improved. Green chemistry solutions should be employed, wherever possible. An effective way to agreement with the water pollution problem is to use the least harmful ways to eliminate contaminants. Chromatography and separation chemistry offer a variety of interesting approaches to achieve these goals. Interesting examples of remediation have been provided to help correct arsenic contamination of groundwater, which affects nearly 200 million people worldwide. A variety of novel methods for prevention and

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

remediation of water pollution that entail radical reaction and utilization of Nano-particles have been considered.

The role of the academia is to bring about a mass understanding about the pertinence of Green chemistry. This body must also take upon itself to device appropriate educational material for different levels of curricular instructions. The research and development and the science and technology agencies that are responsible for the funding of scientific activities in the country must encourage and give preference to the development of greener science and technology. In order to ensure global environmental protection while keeping scientific and economic development on the forefront, the policy makers should understand the role of 'green' science and technology and make pollution prevention, rather than pollution control, their slogan. Though it is true that many industries and research organizations are yet to implement the principles of Green environment, nevertheless some of them have begun to realize that the 'think green' culture is more than just a fashion. In fact the most successful chemistry researchers and chemical technologists will like to appreciate and apply the values of Green chemistry in innovation, application and teaching.

The Asian region continues to face serious water quality issues that contribute to freshwater scarcity, ill-health, and even deaths. In many places quality is continuing to decline and insufficient efforts are being made to monitor and remedy the situation amid institutional and social challenges. However, there are also robust efforts to correct the situation and cause to be hopeful. Positive examples exist in the region that must be shared, learnt from, and replicated.

ACKNOWLEDGEMENT

In this section, firstly, we the researchers tender our hearty thanks to the almighty for their invisible blessings to us in order to complete this invited article. Secondly, we rendering our highest gratitude & obligation to our beloved parents for their endless love & affection

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

towards us as well as blessings forever from the inception of our life to till date by which, we stood this position .Finally, we also very much thankful to all well wishers, friends, students, readers etc. for their

REFERENCES

[1.] FAO AQUASTAT (2011), FAO's information system on water and agriculture (Food and Agriculture Organization of the United Nations), Available at http://www.fao.org/nr/water/aquastat/main/index.stm (accessed 7 June 2011).

[2.] WHO (2008), Global Health Observatory Data Repository, World Health Organization. Available at: http://apps.who.int/ghodata/?vid=10012# (accessed 7 June 2012).

[3.] Economic and Social Commission for Asia and the Pacific [ESCAP] (2011), Statistical Yearbook for Asia and the Pacific 2011 (Bangkok: United Nations ESCAP), Available at http://www.unescap.org/stat/data/syb2011/II-Environment/Water-availability-and-use.asp (accessed 6 March 2012).

[4.] Evans, A. E. V., Hanjra, M. A., Jiang, Y., Qadir, M. and Drechsel, P. (2012), 'Water Quality: Assessment of the Current Situation in Asia', International Journal of Water Resources Development Vol. 28, No.2, pp. 195-216.

[5.] Economic and Social Commission for Asia and the Pacific [ESCAP] (2000), State of the Environment in Asia and the Pacific (Bangkok: United Nations ESCAP).

[6.] Economic and Social Commission for Asia and the Pacific [ESCAP] (2005), State of the

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

Environment in Asia and the Pacific (Bangkok: United Nations ESCAP). 7. Ministry of Environment and Forest [MoEF] (2009), State of Environment Report, India 2009 (Government of India).

[8.] Howarth, S., Ismael, A. E., Tharme, R., Abeysekera, T., Clemett, A., Lashin, I., Jinapala, K., Mei, M., Meilhac, C., Murphy, S. E., Someratne, P. G., Terry, G., Turner, S. and Thomas, C. M. (2007), Diffuse Agricultural Pollution: Impacts and Options for Mitigation. Final Report, Department for International Development Knowledge and Research Services Contract R8337, unpublished report.

[9.] Pakistan Environmental Protection Agency [Pak-EPA] (2005), State of the Environment Report. Commissioned by Pak-EPA, Ministry of Environment, and Government of Pakistan. Available at: http://www.environment.gov.pk/Publications.htm%20.

[10.] Ministry of Environmental Protection [MEP] (2009) Report on the State of the Environment in China 2008 (Beijing: MEP).

[11.] Biswas, A. K. and Seetharam, K. E. (2008), Achieving water security for Asia, International Journal of Water Resources Development, Vol. 24, No.1, pp. 145–176.
[12.] Central Pollution Control Board [CPCB] (2010), Status of Water Quality in India: 2009, Monitoring of Indian Aquatic Resources Series: MINARS 2009-10 (Ministry of Environment and Forests, Government of India).

[12] P. T. Anastas and G. C. Warner, Green Chemistry: Theory and Practice, Oxford University Press, Oxford, 1998.

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

[13] P. T. Anastas and T. C. Williamson, (eds), Green Chemistry: Frontiers in Benign Chemical Synthesis and Processes, Oxford University Press, Oxford, 1998.

[14] P. Tundo and P. T. Anastas, Green Chemistry: Challenging Perspectives, Oxford University Press, Oxford, 1998.

[15] J. X. Haberman, G. C. Irvin, V. T. John and Li. Chao-Jun, Green Chem., 1999, 1, 265–267.

[16] J.H. Clark (ed.), Chemistry of Waste Minimization, Chapman and Hall, London, 1995.

[17] J.W.King, and G.R. List (eds), Supercritical Fluid Technology in Oil and Lipid Chemistry, AOCS Press, Champaign, IL, 1996

[18] P.G. Jessop, and W. Leitner, Chemical Synthesis Using Supercritical Fluids, Wiley-VCH, Weinheim, 1999.

[19] E. Dinjus, R. Fornika, and M. Scholz, Chemistry Under Extreme or Non-classical Conditions (eds van Eldik, R. and Hubbard, C. D.), John Wiley, New York, 1997

[20] M. Anpo, Pure Appl. Chem., 2000, 72, 1265.

[21] K. Sato, and R. Noyori, in 3rd International Conference on Phase Transfer Catalysis in Honolulu, Hawaii, Symposium at Pacific hem, 2000.

Author Profile: 01

.

[Prof. (Dr.) Ramesh Chandra Rath]

He is an Eminent Professor & academician of an international repute in the field of Management Education (Mkt. &HR) since last 22 years. He has obtained his PG in Psychology from Sambalpur University Odisha achieved his MBA Degree from Delhi University in 1996, Concurred his PhD, Degree from the Department of Management

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

Studies "Birla Institute of Technology (BIT), Meshra , Ranchi Jharkhand (India)" in 2000 on the area of **Green Marketing &Supply Chain Management** (Marketing Management specialization) and Concurred his Post -Doctorate Degree from Patna University in 2003,on the area of **"Advanced physiology and Criminology "**He has joined as a HR Manager in Pradhan Steels and Mines, Limited ,Athagarda from January 1998 to July 2001 .He has served as a faculty of NMIT for three years , Associate Professor at ICFAI, Berhumpur Centre, from June 2004 to May 2005, professor in at Centre of Management Studies (OEC)form 2nd June 2005 to 30th June 2007, and he had also served as a professor in Management studies in Ravens haw University form July 2007 to June 2008, Principal of Presidency College, Berhumpur (Odisha) from Sept.2009 to June 2012, Head of the Department of Management Studies (MBA) in Gandhi Engineering College ,Bhubaneswar from the 2nd July 2012 to May 2014. He has presently working as a Professor-Cum-Dean at Research and Development Cell, EATM Bhubaneswar. Dr. Rath has guided four PhD research scholars on the specialization area of Green Marketing & supply Chain Management, Consumer Behaviour, and Organizational Behaviour, Production & Operational Management etc. There are 12 International journals and 16 National Journals & two books of (Management) publication in his credit by reputed publishers.

Author Profile: 02

Prof. (Dr.) Padma Charan Tripathy

He is a reputed Civil Engineer in the field of Construction Technology, Rural & Development, Road & Construction, and PWD etc. He has served 30 Years of Marathon service in Industry & Academia, with holding Superintendent Engineer & takes retirement

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

from his service as a Chief Engineer in Public Works Department of Govt. of Odisha .During his academic life ,he has acted as Associate Professor, Professor ,Principal in various Colleges,& Universities in the field of Modern Construction & Designing. Presently he is working as the Professor –Cum-Head of the Department of civil Engineering, at Einstein Academy of Technology & Management (EATM), Bhubaneswar, Odisha (India).There are Twenty number "National & International Journal" & four number of Books in his credit .It was published by the reputed publisher of India & abroad.

Author Profile: 03

Er.Shatabdi Das

She is an excellent academician with having very good career from her inception of Education as well as an engineer in the field of Civil Engineering & Construction technology. She has completed her B.Tech, M.Tech Degree for the S'O'A University, Bhubaneswar, Odisha. & She has three year of Experience in Academic with serving an Assistant Professor in Department of Civil Engineering at Gandhi Engineering College (GEC) Bhubaneswar, & Served as an Assistant Professor at Zenith College, Bhubaneswar .Presently She has been working as an Assistant Professor in the Department of Civil Engineering, at Einstein Academy of Technology of Management (EATM), Bhubaneswar, Odisha.

ISSN: 2348 9510

International Journal Of Core Engineering & Management (IJCEM)
Volume 2, Issue 10, January 2016

Author Profile: 04

Er.Supriya Mahapatra.

She is a well known research scholar in the field of Modern Construction & Designing with having an excellent career from her inception of Education. She has obtained her B.Tech Degree from the Department of Civil Engineering, under the Bijupatnaik University of Technology, Rourkela; Odisha (India) Presently She has doing her research work at the Research Cell (R&D) of EATM, Bhubaneswar, Odisha (India)