POPULATION PRESSURE AND WATER RESOURCES: STATUS, IMPACTS AND REMEDIAL MEASURES

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Abstract : Now days it is found highly impossible to maintain the increasing population, but now on the other hand it is essential to found correlation between the available water resources and population pressure. Because of population growth and economic development, water resources in many parts of the world are pushed to their natural limits. In turn, the ability of cities and countries to grow, attract investment, meet the fundamental needs of populations and ensure environmental protection will be increasingly threatened if water resources are not smartly managed. Water is the finite resource that enables life and fuels all human activities. It's now essential that the public, industries and policymakers understand, prioritize and act. Solutions and models are available; taking action to implement them will ensure the viability and sustainable development of our society, along with the preservation of a healthy environment.

Keyword : Population, Water Pollution, Agricultural, Industry, Human Activities & Remedial Measures etc.

INTRODUCTION:

Of all natural resources, water is the most essential. It is fundamental to all vital processes of value to mankind. It seems abundant at first sight--almost 70 percent of the earth's surface is covered with water. Water no longer can be taken for granted: "Ensuring that present and future generations will have adequate food and water, and concurrent maintenance of the resource base and the environment, are two of the most challenging tasks that have ever faced mankind" Populations require water for domestic and municipal usages; as an input in productive activities: agriculture, industry (including energy production) and services activities; and finally, in all usages, for the evacuation of effluents (sanitation, removing industrial wastes etc.). Per caput levels of domestic use increase as general levels of well-being and aspirations rise; in addition demographic factors contribute heavily to shape water requirements in this sector Population growth is a direct determinant of increases in water demand for domestic uses.

Human beings need only about 5 liters of water each day for cooking and drinking; according to WHO, however, good health and cleanliness require a total daily supply of about 30 liters per person (11 cubic meters per year).

Research Methodology:

Very simple methodology is used in this paper hence in this paper we try to highlight the main rhythm & Impact of increasing population and available water resources. In this paper we also highlight on use of water resources, necessary and unnecessary use of it and role of human leading to pollute water resource and we also suggested the remedial measures and policy option to overcome it.

1. Agricultural usages:

Irrigation and improved seed varieties were the basis of the "green revolution" which made most of Asia self-sufficient in food. But water requirements for irrigation are extremely high in comparison to the output. The need to adopt preventive measures against irrigation-induced land degradation compounds this factor. This, in combination with the frequent social, health and environmental costs, has actually discouraged lending, at least for large-scale irrigation. This category of needs is rapidly increasing. Population growth contributes to that increase, although in a minor way: income growth and the diversification of needs play a bigger role in this case. Competition will be particularly intense around the cities, where the demands of households, industrial plants and agriculture will inevitably put increasing stress on water (just as on land). If rural users are deprived of water resources in the process, this will accelerate migration to the cities.

2. Impact of Population

(A) Impact on Water Supply:

Human populations affect water in direct and indirect ways. The former consist in modifications to the circulation of water and its quality by withdrawals, waste water disposal, rives regulation etc. The latter consist in modifications of vegetation and soil cover: deforestation and compaction reduce the absorptive capacity of the soil and accelerate water runoff; this causes floods and deficits of recharge of aquifers; the loss of soil protection accelerates erosion and leaching, increasing water pollution; finally, air pollution affects the chemical properties of water through precipitations

(B) Impact on surface water:

Human activities affect levels of river runoff principally by the direct withdrawal of water, the regulation of rivers, and land uses that change the surrounding environment and affect watershed dynamics. Disturbances of water flows in turn affect the wetting of the soil, the recharge of aquifers and rivers, the quality of freshwater and the per caput availability of water Deforestation is a major factor of changes in watershed dynamics. Forest areas tend to have more stable patterns of river runoff, because the catchment capabilities of the forest ecosystem enable a higher amount of groundwater discharge, therefore causes significant changes in river flow patterns, with accelerated runoff and lost storage, in turn causing a higher occurrence of flooding in wet seasons and a greater likelihood of dried-up rivers in dry seasons. Other actions leading to land degradation (such as overexploitation or overgrazing) have analogous effects on

water regimes.

(C) Impact on groundwater:

Because of the climatic and human-induced instability of surface water, groundwater is important for water supply security. It also is a primary resource when surface water is scarce. During the recent decades it has supplied much of the water needed for burgeoning cities as well as for irrigation development. But groundwater aquifers are replenished only slowly, and human demands often exceed the natural recharge. Over pumping also causes a particular type of pollution in coastal urban areas where the depletion of the aquifers fosters the intrusion of saltwater.

3. Water pollution:

Most of the human activities contribute to pollute surface and ground water, by returning dissolved effluents to water bodies and because waste deposited on solid ground finds its way to water bodies. Freshwater is increasingly polluted by organic nutrients, toxic metals, and agricultural and industrial chemicals, carried by industrial effluents, land use runoff, and domestic wastewater. Secondary but growing sources are the leaching from mine tailings and solid waste dumps, and atmospheric deposition of pollutants into water bodies. Often, industrial liquid wastes are dumped in contravention of regulations, toxic and hazardous industrial and commercial wastes are disposed of in water bodies or land sites, and systems to dispose of waste water and control flooding are inadequate.

4. Impact of Changes In Water Supply on Population:

(A) Water scarcity:

Household level may be the most preoccupying as they regard the most essential aspects of well-being: shortages of drinking water affect nutrition and health through limited hydratation and cooking as well as constraints on hygiene. At the same time water pollution are worsened, aggravating effects on human health: "Water shortages usually lead to problems of water quality since sewage, industrial effluents and agricultural and urban run-off overloads the capacity of water-bodies to break down biodegradable wastes and dilute non-biodegradable ones". Unfortunately such shortages are increasingly common. Water scarcity also limits economic performance, first of all in respect of agriculture and food production. Agriculture, being a major water user, is a major victim of water scarcity when prospects for further development of the production depend on irrigation techniques. Agricultural withdrawals have left human settlements and industries downstream short of water. The largest need for irrigation water is during the dry season when the water accessible to people can be as low as 10 percent of the annual flow.

(B) Water pollution:

Water pollution can affect natural biological systems, as in the eutrophication of lakes and coastal waters or the accumulation of unsafe levels of metals and organic residues in aquatic life. Health impacts probably are the most preoccupying: the "use of polluted waters for drinking and bathing is one of the principal pathways for infection by diseases that kill millions and sicken more than a billion people each year. The magnitude of the problem is apparent from the information that 25,000 people die every day as a result of water-related sicknesses. WHO estimates that at least 600 million urban dwellers in the developing countries live in what it terms "life- and health-threatening homes and neighborhoods". Environmental health problems common to many neighborhoods include: "pools of dirty water, which accumulate around the home because there are no drains or sewers, and house sites are contaminated with excreta; pools of waste water become a breeding ground for disease vectors; lack of drains will often mean that floods are common occurrences and these bring additional health problems".

5. Population-Water Linkage In a Policy Framework:

Population-environment linkages are a development issue: environment resources provide the basis for development, just as environmental factors constitute part of the improvement in the quality of life that development is meant to bring about". Because of that, environmental variables must be part of the analysis of development issues which influence population dynamics. Likewise, population variables are relevant for the analysis of environmental issues which may constrain overall development. In practice, however, this convenient dichotomy is useful only up to a point since actual issues involve both population and development variables. Two major categories of issues can be identified, namely: Water scarcity in a general sense, i.e. actual or impending insufficiency of per caput resources, which may constrain the development of an economic base; this also constrains the well-being of the population and its very growth, mainly through poorer health, higher morbidity and mortality, and more intense out-migration than would otherwise be the case. Water pollution also affects animal health and economic activities that depend on water supply of a given quality. Policy-wise, these issues can be analyzed and addressed on various scales, from the country to the village level. Certainly, population-water linkages can be considered at the national level, where broad issues arising from overall levels of use and sect oral competition can be identified. Some types of field programmes requiring attention on account of population-water linkages, either because they are heavily dependent on water resources or because they are liable to affect these in a significant manner, are the following:

(a) Proper attention to human health issues in policies and projects involving water use and development, in particular irrigation, water catchment and storage.

(b) Proper attention to migration and urbanization factors in all forecasts made regarding water requirements, including taking into consideration different consumption patterns of households in different settings.

(c) Taking into account water needs, waste production and ecosystem sustainability in formulating human settlement policies.

6. population-water linkages and Leading Pollution:

• Domestic pollution:

Domestic water is polluted solely by human wastage. Since the level of per caput wastage is largely independent from "affluence", population growth undoubtedly is the major cause for growing emissions of polluting effluents. The impact of those emissions depends on technology, in the form of water treatment facilities. It must be noted that the efficiency of treatment systems in turn is affected by a "workload" factor, i.e. the size of population

served per treatment unit.

•Agricultural pollution:

Water pollution from agricultural activities is essentially due to the use of chemicals (fertilizers and pesticides), mainly in conjunction with irrigation. It might seem plain to say that increase in that use is driven by growing demand for agricultural products in the face of difficulties for extension of cultivation. This is largely true in developing regions, but fertilizer use has been known to increase also in developed regions, where such pressures are absent but economic factors may push in the same direction.

7. Policy options:

Two main policy problems are posed with regard to water resources. One is to avoid major demand-supply imbalances during the "planning period" under consideration. The other is to minimize water pollution. Admittedly, population policies will rarely be launched just to facilitate the solution of an impending environmental problem. Rather, detecting a conflict between population and supply trends in a key sector such as water may be a strong additional reason to consider such policies or to intensify them.At an elementary level, when the level of basic services (domestic supply and sanitation) is low, rapid population growth means that it will be very difficult or impossible to improve the situation rapidly. This assessment of the varying degrees of resistance to change, among factors of environmental problems, has also been questioned. Surely a case-by-case examination is necessary. At any rate it can be said that stabilizing population in itself has three effects, namely: - moderate the growth of demand; - moderate the growth of human waste; and - ease time and space constraints so as to facilitate a "sound development necessary to address problems of supply, inefficient irrigation and waste disposal". In various sectors, outlining and selecting among policy options is carried out through scenario analysis. A typical procedure for applying this method is: (a) Construction of a "trend scenario", illustrating the consequences of the mere continuation of existing trends. (b) Assessment of the said scenario on the basis of selected criteria and indicators: identification of potential conflicts, negative changes and required adjustments. (c) Construction of alternative scenarios, simulating the implementation of a range of possible policies to address the issues identified. (d) Comparative assessment of the alternative scenarios and choice of one of them as "target". Scenario analysis can be conducted in a variety of manners, ranging from largely qualitative analyses to the use of full-scale mathematical models of the system or sub-sector under review. With regard to water resources, while one strand of thinking emphasizes the relation between physical water supply and growing human use as a constraint on development , another denies fundamental incompatibilities and places hope (albeit cautious) in the improvement of water management methods. In particular, most recent technical meetings held by water scientists or environment specialists at large do recognize population factors in water issues, but tend to focus on technical and management aspects in dealing with those issues.

8. Indicator & Remedial Measures:

A variety of indicators such as water use per caput, per unit or ton of industrial product, per unit of energy produced or per ton of agricultural commodity produced, per unit area, per unit value added and so on. One possible approach to the exploration of potential imbalances between population and resources, for instance, is to assess the specific "carrying capacities" of relevant areas with due attention to critical resources and ecosystem sustainability. Both rural and urban problems must be assessed and addressed; focus must be placed on urban communities in the sense that the major ones must be treated as separate "individuals". Working from actual use levels, with some spatial disaggregation, would be a major improvement: for policy purposes, it is essential to determine which economic sectors, geographic areas or groups are at risk of water scarcity. Distributional dimensions--referring to groups within the population of a given geographic area--are extremely important. Those dimensions modify the usual risk considerations in critical ways, since unequal distribution can imply severe shortages for some groups, even though aggregate indices do not indicate overall scarcity. And they will point to problems that generally require more than technical solutions.

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ENVIRONMENTAL WATER POLLUTION AND WATER BORNE DISEASES

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Abstract: Water is need to human being for drinking purpose, domestic purpose, agricultural purpose as well as industrial purpose. In addition to the acute problems of water pollution in developing countries, developed countries also continue to struggle with pollution problems. For example, in the most recent national report on water quality in the United States, 44 percent of assessed stream miles, 64 percent of assessed lake acres, and 30 percent of assessed bays and estuarine square miles were classified as polluted. Some Water borne diseases Typhoid Fever, Cholera Dysentery, Amoebiasis, Hepatis A and Escherichia coliare viral, bacterial and parasitic diseases which use water as a common means of transmission. In this module we will discuss those water borne diseases in which the mode of entry of their etiologic agents into a susceptible host. According to the World Health Organization (WHO) 3 million deaths occur every year from diarrheal diseases worldwide. The problem of water borne diseases is especially prevalent where general hygiene and environmental sanitation are poor and where there is a shortage of protected water supply.

Keywords: Water Pollution, Causes of Water pollution, Water Borne diseases.

INTRODUCTION:

Water pollution is a major global problem which requires ongoing evaluation and revision of water resource policy at all levels (international down to individual aquifers and wells). It has been suggested that water pollution is the leading worldwide cause of deaths and diseases, and that it accounts for the deaths of more than 14,000 people daily. An estimated 580 people in India die of water pollution related illness every day. About 90 percent of the water in the cities of China is polluted. As of 2007, half a billion Chinese had no access to safe drinking water.In addition to the acute problems of water pollution in developing countries, developed countries also continue to struggle with pollution problems. For example, in the most recent national report on water quality in the United States, 44 percent of assessed stream miles, 64 percent of assessed lake acres, and 30 percent of assessed bays and estuarine square miles were classified as polluted. The head of China's national development agency said in 2007 that one quarter the length of China's seven main rivers were so poisoned the water harmed the skin.Water is typically referred to as polluted when it is impaired by anthropogenic contaminants and either does not support a human use, such as drinking water, or undergoes a marked shift in its ability to support its constituent biotic communities, such as fish. Natural phenomena such as volcanoes, algae blooms, storms, and earthquakes also cause major changes in water quality and the ecological status of water.Water borne diseases are viral, bacterial and parasitic diseases which use water as a common means of transmission. In this module we will discuss those water borne diseases in which the mode of entry of their etiologic agents into a susceptible host.

MATERIALS AND METHODS :

Methodology:
Very simple methodology is used in this paper hence in this paper we try to Highlight the main Environmental Water Pollution & Its Borne Diseases. In this paper used secondary data source of Water Pollution, Causes ofWater pollution, some water borne disease.

Causes of Water pollution:

The specific contaminants leading to pollution in water include a wide spectrum of chemicals, pathogens, and physical changes such as elevated temperature and discoloration. While many of the chemicals and substances that are regulated may be naturally occurring (calcium, sodium, iron, manganese, etc.) the concentration is often the key in determining what is a natural component of water and what is a contaminant. High concentrations of naturally occurring substances can have negative impacts on aquatic flora and fauna.Oxygen-depleting substances may be natural materials such as plant matter (e.g. leaves and grass) as well as man-made chemicals. Other natural and anthropogenic substances may cause turbidity (cloudiness) which blocks light and disrupts plant growth, and clogs the gills of some fish species.Many of the chemical substances are toxic. Pathogens can produce waterborne diseases in either human or animal hosts. Alteration of water's physical chemistry includes acidity (change in pH), electrical conductivity, temperature, and eutrophication. Eutrophication is an increase in the concentration of chemical nutrients in an ecosystem to an extent that increases in the primary productivity of the ecosystem. Depending on the degree of eutrophication, subsequent negative environmental effects such as anoxia (oxygen depletion) and severe reductions in water quality may occur, affecting fish and other animal populations.

Water Borne Diseases:

Water borne diseases are among one of the major public health problems in developing countries like Ethiopia. They are the leading causes of morbidity and mortality in all age groups particularly in children under 5 years of age. According to the World Health Organization (WHO) 3 million deaths occur every year from diarrheal diseases worldwide. The problem of water borne diseases is especially prevalent where general hygiene and environmental

sanitation are poor and where there is a shortage of protected water supply. It is believed that 80% of all diseases in the world are caused by inadequate sanitation, polluted water or unavailability of water (WHO Monica II). Poverty, illiteracy, overcrowding and low health services are contributing factors that directly or indirectly affect the prevalence of water born diseases. Therefore an integrated prevention and curative approach with community participation is required in order to tackle this prevalent public health problem

v **Objectives**

1. Define water borne diseases.
2. Describe the magnitude of the problem of water borne diseases at national and global level.
3. List the different causative agents and describe pathogenesis of the common water borne diseases.
4. Describe the clinical features and diagnostic methods of the common water borne diseases.
5. Describe the general management of the common water borne diseases.
6. State the different preventive and control measures of water borne diseases.

Some water borne diseases:

Ø **Typhoid Fever:**

Typhoid fever is caused by Salmonella typhi bacteria. Typhoid fever is rare in industrialized countries. However, it remains a serious health threat in the developing world, especially for children.Typhoid fever spreads through contaminated food and water or through close contact with someone who's infected. Signs and symptoms usually include high fever, headache, abdominal pain, and either constipation or diarrhea.Most people with typhoid fever feel better within a few days of starting antibiotic treatment, although a small number of them may die of complications. Vaccines against typhoid fever are available, but they're only partially effective. Vaccines usually are reserved for those who may be exposed to the disease or are traveling to areas where typhoid fever is common.

Ø **Cholera:**

Cholera is an infection of the small intestine by some strains of the bacterium Vibrio cholerae. Symptoms may range from none, to mild, to severe. The classic symptom is large amounts of watery diarrhea that lasts a few days. Vomiting and muscle cramps may also occur. Diarrhea can be so severe that it leads within hours tosevere dehydration and electrolyte imbalance. This may result in sunken eyes, cold skin, decreased skin elasticity, and wrinkling of the hands and feet. The dehydration may result in the skin turning bluish. Symptoms start two hours to five days after exposure.Cholera is caused by a number of types of *Vibrio cholerae*, with some types producing more severe disease than others. It is spread mostly by unsafe water and unsafe food that has been contaminated with human feces containing the bacteria.Undercooked seafood is a common source. Humans are the only animal affected. Risk factors for the disease include poor sanitation, not enough clean drinking water, and poverty. There are concerns that rising sea levels will increase rates of disease. Cholera can be diagnosed by a stool test. A rapid dipstick test is available but is not as accurate.Prevention involves improved sanitation and access to clean water. Cholera vaccines that are given by mouth provide reasonable protection for about six months. They have the added benefit of protecting against another type of diarrhea caused by E.coli. The primary treatment is oral rehydration therapy—the replacement of fluids with slightly sweet and salty solutions. Rice-based solutions are preferred.Zinc supplementation is useful in children. In severe cases, intravenous fluids, such as Ringer's lactate, may be required, and antibiotics may be beneficial. Testing to see which antibiotic the cholera is susceptible to can help guide the choice.Cholera affects an estimated 3–5 million people worldwide and causes 58,000–130,000 deaths a year as of 2010. While it is currently classified as a pandemic, it is rare in the developed world. Children are mostly affected. Cholera occurs as both outbreaks and chronically in certain areas. Areas with an ongoing risk of disease include Africa and south-east Asia. While the risk of death among those affected is usually less than 5%, it may be as high as 50% among some groups who do not have access to treatment. Historical descriptions of cholera are found as early as the 5th century BC in Sanskrit. The study of cholera by John Snow between 1849 and 1854 led to significant advances in the field of epidemiology.

Ø **Dysentery:**

Dysentery is a type of gastroenteritis that results in diarrhea with blood. Other symptoms may include fever, abdominal pain, and a feeling of incomplete defecation.It is caused by a number of types of infection such as bacteria, viruses, parasitic worms, or protozoa. The mechanism is an inflammatory disorder of the intestine, especially of the colon.The most common form of dysentery is bacillary dysentery which is typically a mild illness, causing symptoms normally consisting of mild stomach pains and frequent passage of stool or diarrhea. Symptoms normally present themselves after one to three days and are usually no longer present after a week. The frequency of urges to defecate, the large volume of liquid feces passed, and the presence of mucus, pus and blood depends on the pathogen that is causing the disease. Temporary lactose intolerance can occur. In some caustic occasion's severe abdominal pain, fever, shock, and delirium can all be symptoms.In extreme cases, dysentery patients may pass over one litre of fluid per hour. More often, individuals will complain of nausea, abdominal pain, and frequent watery and usually foul-smelling diarrhea, accompanied by mucus and blood, rectal pain and fever. Vomiting, rapid weight-loss, and generalized muscle aches sometimes also accompany dysentery. On rare occasions, the amoebic parasite will invade the body through the bloodstream and spread beyond the intestines. In such cases, it may more seriously infect other organs such as the brain, lungs, and the liver.

Ø **Amoebiasis:**

Amoebiasis, also known amoebic dysentery, is an infection caused by any of the amoebas of the Entamoeba

group. Symptoms are most common upon infection by Entamoeba histolytica. Amoebiasis can present with no, mild, or severe symptoms. Symptoms may include abdominalpain, mild diarrhoea, bloodydiarrhea or severe colitis with tissue death and perforation. This last complication may cause peritonitis. People affected may develop anemia due to loss of blood.Invasion of the intestinal lining causes amoebic bloody diarrhea or amoebic colitis. If the parasite reaches the bloodstream it can spread through the body, most frequently ending up in the liver where it causes amoebic liver abscesses. Liver abscesses can occur without previous diarrhea. Cysts of Entamoeba can survive for up to a month in soil or for up to 45 minutes under fingernails. It is important to differentiate between amoebiasis and bacterial colitis. The preferred diagnostic method is through faecal examination under microscope, but requires a skilled microscopist and may not be reliable when excluding infection. This method however may not be able to separate between specific types. Increased white blood cell count is present in severe cases, but not in mild ones. The most accurate test is for antibodies in the blood, but it may remain positive following treatment. Prevention of amoebiasis is by separating food and water from faeces and by proper sanitation measures. There is no vaccine. There are two treatment options depending on the location of the infection. Amoebiasis in tissues is treated with either metronidazole, tinidazole, nitazoxanide, dehydroemetine or chloroquine, while luminal infection is treated with diloxanide furoate or iodoquinoline. For treatment to be effective against all stages of the amoeba may require a combination of medications. Infections without symptoms do not require treatment but infected individuals can spread the parasite to others and treatment can be considered. Treatment of other Entamoeba infections apart from *E.* histolytica is not needed.Amoebiasis is present all over the world. About 480 million people are infected with what appears to be *E.* histolytica and these result in the death of between 40,000–110,000 people every year. Most infections are now ascribed to E. dispar. E. dispar is more common in certain areas and symptomatic cases may be fewer than previously reported. The first case of amoebiasis was documented in 1875 and in 1891 the disease was described in detail, resulting in the terms amoebic dysentery and amoebic liver abscess. Further evidence from the Philippines in 1913 found that upon ingesting cysts of *E.* histolytica volunteers developed the disease. It has been known since 1897 that at least one non-disease-causing species of Entamoeba existed (Entamoeba coli), but it was first formally recognized by the WHO in 1997 that *E.* histolytica was two species, despite this having first been proposed in 1925. In addition to the now-recognized E. despair evidence shows there are at least two other species of Entamoeba that look the same in humans – E. moshkovskii and Entamoeba bangladeshi. The reason these species haven't been differentiated until recently is because of the reliance on appearance.

HepatitisA

Hepatitis A (formerly known as infectious hepatitis) is an infectious disease of the liver caused by the hepatitis A virus . Many cases have few or no symptoms, especially in the young. The time between infection and symptoms, in those who develop them, is between two and six weeks. When symptoms occur, they typically last eight weeks and may include nausea, vomiting, diarrhea, jaundice, fever, and abdominal pain. Around 10–15% of people experience a recurrence of symptoms during the six months after the initial infection. Acute liver failure may rarely occur, with this being more common in the elderly.It is usually spread by eating food or drinking water contaminated with infected feces. Shellfish which have not been sufficiently cooked are a relatively common source. It may also be spread through close contact with an infectious person.While children often do not have symptoms when infected, they are still able to infect others. After a single infection, a person is immune for the rest of his or her life.Diagnosis requires blood testing, as the symptoms are similar to those of a number of other diseases. It is one of five known hepatitis viruses: A, B, C, D, and E.The hepatitis A vaccine is effective for prevention. Some countries recommend it routinely for children and those at higher risk who have not previously been vaccinated. It appears to be effective for life. Other preventive measures include hand washing and properly cooking food. No specific treatment is available, with rest and medications for nausea or diarrhea recommended on an as-needed basis. Infections usually resolve completely and without ongoing liver disease. Treatment of acute liver failure, if it occurs, is with liver transplantation.Globally, around 1.4 million symptomatic cases occur each year and about 102 million infections (symptomatic and asymptomatic). It is more common in regions of the world with poor sanitation and not enough safe water. In the developing world about 90% of children have been infected by age 10 and thus are immune by adulthood. It often occurs in outbreaks in moderately developed countries where children are not exposed when young and vaccination is not widespread. Acute hepatitis A resulted in 1,02,000 deaths in 2010. World Hepatitis Day occurs each year on July 28 to bring awareness to viral hepatitis.

Ø **Escherichia coli:**

Escherichiacoli also known as E. coli) is a gram-negative, facultative anaerobic, rod-shaped, coli form of the genus Escherichia that is commonly found in the lower intestine of warm-blooded organisms (endotherms). Most E. coli strains are harmless, but some serotypes can cause serious food poisoning in their hosts, and are occasionally responsible for product recalls due to food contamination.The harmless strains are part of the normal flora of the gut, and can benefit their hosts by producing vitamin K2, and preventing colonization of the intestine with pathogenic bacteria. E. coli is expelled into the environment within fecal matter. The bacterium grows massively in fresh fecal matter under aerobic conditions for 3 days, but its numbers decline slowly afterwards.E. coli and other facultative anaerobes constitute about 0.1% of gut flora, and --fecaloral transmission is the major route through which pathogenic strains of the bacterium cause disease. Cells are able to survive outside the body for a limited amount of time, which makes them potential indicator organisms to test environmental samples for fecal contamination. A growing body of research, though, has examined environmentally persistent E.coli which can survive for extended periods outside of a host.The bacterium can be grown and cultured easily and inexpensively in a laboratory setting, and has been intensively investigated for

over 60 years. E. coli is a chemoheterotroph whose chemically defined medium must include a source of carbon and energy. E. coli is the most widely studied prokaryotic model organism, and an important species in the fields of biotechnology and microbiology, where it has served as the host organism for the majority of work with recombinant DNA. Under favorable conditions, it takes only 20 minutes to reproduce.

CONCLUSION :

Water pollution is todays most harmful factersfor animal on the Earth,most of the diseases give birth in water pollution if is necessary to stop water pollution. Strong implemention programme are important to overcome water pollution. Human being should think to wipe out water pollution and water diseases.Water literacy and social awareness are very important to conserve rainwater in today's world. The democratic socialism aims to end poverty, ignorance, disease, and inequality of opportunity. This socialistic concept sought to be implemented in the true spirit of the constitution.

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