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DATE; 31st/December/2019

**MODULE FIVE QUESTIONS**

1. Define Environmental Health, what is its purpose?

Environmental health is the science and practice of preventing human injury and illness and promoting well-being by identifying and evaluating environmental sources and hazardous agents and limiting exposures to hazardous physical, chemical, and biological agents in air, water, soil, food, and other environmental media or settings that may adversely affect human health.

**Below are the purposes of environmental health**

1. **Water quality management (Surface and ground water quality);**

Surface and ground water quality concerns apply to both drinking water and recreational waters. It is one of the most essential compound in our life because when it’s not taken good care of by letting it to get Contaminated by infectious agents or chemicals can cause mild to severe illness; such as diarrhea, typhoid cholera, malaria among others. With the knowledge of environmental health, we are able to Protect water sources and minimizes exposure to contaminated water sources by setting regulations which prevent people from contaminating water sources, separating animals water from where water for human consumption is drawn.

1. **Waste management**

**Wastes** materials/substances are the source of many diseases; for example, waste water from the industries can be more hazardous to our health if not treated because they contain some dangerous chemicals. Also wastes like left over foods can be source of diseases because it attracts vectors and rodents which are the carriers of germs so it the role of environmental health worker to set up regulations on the damping sites hence reducing exposure to toxic substances and hazardous wastes is fundamental to environmental health.

1. **Vector control**

For diseases where there is no effective cure, such as Zika virus, West Nile fever and Dengue fever, vector control remains the only way to protect human populations.

However, even for vector-borne diseases with effective treatments the high cost of treatment remains a huge barrier to large amounts of developing world populations. Despite being treatable, malaria has by far the greatest impact on human health from vectors. In Africa, a child dies every minute of malaria; this is a reduction of more than 50% since 2000 due to vector control. In countries where malaria is well established the World Health Organization estimates countries lose 1.3% annual economic income due to the disease. Both prevention through vector control and treatment are needed to protect populations.

As many vector control methods are effective against multiple diseases, they can be integrated together to combat multiple diseases at once.

In general vector control can be carried out in the following ways as explained below

**Habitat and environmental control;** Removing or reducing areas where vectors can easily breed can help limit their growth. For example, stagnant water removal, pouring used engine oil on the stagnant water in order to cut off the vector breeding system, clearing tall grass near our hours, destruction of old tires and cans which serve as mosquito breeding environments, and good management of used water can reduce areas of excessive vector incidence.

Further examples of environmental control are by reducing the prevalence of open defecation or improving the designs and maintenance of pit latrines. This can reduce the incidence of flies acting as vectors to spread diseases via their contact with feces of infected people.

**Reducing contact;** Limiting exposure to insects or animals that are known disease vectors can reduce infection risks significantly. For example, bed nets, window screens on homes, or protective clothing can help reduce the likelihood of contact with vectors. To be effective this requires education and promotion of methods among the population to raise the awareness of vector threats.

**Chemical control;** larvicides, rodenticides, lethal ovitraps and repellants can be used to control vectors. E.g. larvicides can be used in mosquito breeding zones; insecticides can be applied to house walls or bed nets, and use of personal repellents can reduce incidence of insect bites and thus infection. The use of pesticides for vector control is promoted by the World Health Organization (WHO) and has proven to be highly effective.

**Biological control;** The use of natural vector control predators, such as the use of bacterial toxins or botanical compounds, can also help control vector populations.

Another biological control is by rearing cat fish in ponds in order to eat up the mosquito larvae hence reducing their population or reducing the breed rates by introducing male tsetse flies which are sterilized to reduce infection risk.

1. **Outdoor Air Quality**

Poor air quality is linked to premature death, cancer, and long-term damage to respiratory and cardiovascular systems. Progress has been made to reduce unhealthy air emissions, but in 2008, approximately 127 million people lived in U.S. counties that exceeded national air quality standards. Decreasing air pollution is an important step in creating a healthy environment and was brought about by the knowledge of environmental health.

1. **Identify and explain the five focal practice areas of environmental health**

**Disease Control**

Under disease control, there are current, emerging and future risks and challenges relating to communicable and non-communicable diseases in South Sudan and the world in general.

Currently, South Sudan faces a double burden of both communicable and non-communicable diseases due to long term civil war in the country neglecting the health of the citizens hence the prevalence of communicable diseases is still high i.e. malaria related fever at 95% and diarrhea at 45% in the under-five children and an estimate of 20% prevalence of HIV among those aged 15 to 49 years, the risks relating to non-communicable diseases are also high.

The prevalence of diabetes was estimated at 1%, while injuries, other than road traffic accidents, were at 10% due to poor road network in the country. The prevalence of cardiovascular diseases was 9% and that of asthma was 5.1% and Chronic respiratory diseases was 2%. From evidence above, its observed that South Sudan is facing a double epidemic of communicable and non-communicable diseases. The risks associated with communicable diseases include inadequate safe water, sanitation and hygiene especially in rural and peri-urban areas (including institutions like schools and other public places), poor adoption of safe health behaviours, poor housing conditions, poverty and poor access to basic health information and facilities. The high burden of non-communicable diseases is partly due to increased poverty, drug and alcohol addiction, smoking, bad eating habits, poor food choices, pollution and environmental exposures. While these risks are already in existence, it is seen that more are emerging including deforestation which will lead to reduction of quantities and pollution of water in water bodies, overcrowding, extreme temperatures due to climate change, pollutants from industries, use of genetic products and radiation from electronic products. Therefore, there is need for preparedness on how to tackle such risks.

In general, control of diseases can be challenging but if the right procedures are followed can be success for example practicing safe health behavior e.g. sleeping under treated mosquito nets, washing hands at critical times, treating unsafe water, participating in immunizations and mass drug administration exercises among others.

**Water, Sanitation and Hygiene**

Water supply, sanitation and hygiene mostly affect children and women living in rural and peri-urban areas of the country. People travel long distances to access water and in most cases the water sources are contaminated with chemical, physical and biological contaminants. These contaminants arise from unplanned settlements and associated poor sanitary conditions, as well as improper disposal of waste. The other sources are human settlements established in river catchment areas mainly because many households either do not have latrines or general waste disposal facilities. There is also discharge of inadequately treated sewage from some institutions into rivers and streams. Lack of authority to control sanitary installations and of maintenance of sewer reticulation networks have led to overflow of septic tanks and sewers.

**Occupational health and safety**

Under occupational health and safety, the concern is on the workplace, people who work there, the visitors and the general population. People at workplaces are at risk of diseases and injuries due to unsafe working environments. Occupational diseases are those that workers get as a result of exposure in their work places. Occupational health and safety deals not only with health and safety of people in the work place but also visitors, customers and also the general public by making sure the activities from work places or industries do not affect the environment.

It looks at the health and safety of people who happen to visit various places like shops, hotels, play grounds, restaurants, streets and many other places. These places have to guarantee safety of the patrons in terms of accident and disease prevention. The safety issues include dangerous equipment, poor room conditions and physical hazards including fire, light, sound radiation and extreme temperatures.

Although data on the exposure levels and prevalence of occupational diseases are not available in South Sudan, several diseases are known to occur as a consequence of hazardous work environments. The occupational health risks are common in mines and industries. The Department of Occupational Health and Safety in the Ministry of Labour carries out routine factory inspection of all factory premises in the country with the aim of improving the working conditions. However, the frequency and extent of the inspections are hampered by lack of and inadequately trained personnel and financial resources due to long civil war which tore the nation apart. Lack of proper inspections by Safety, Health and Environment Officers in workplaces leads to companies putting the health of their workers at risk and polluting the environment.

If not properly checked, the Government will continue losing scarce resources towards treating diseases that are due to ones’ occupation and also as a result of pollution from industries and mines. There is need for collaborative effort by Ministry of Labour and Ministry of Health to overcome the labour shortage in implementing the occupational safety, health and welfare.

**Built environment**

Housing conditions in South Sudan are generally poor. The population and housing census of 2008 indicated that on average 10% of the houses were permanent, half of the households in rural areas were temporary and 75% of the households had mud floors. It was also observed that 38% of houses used either burnt or unburnt bricks for walls while the main source of energy for lighting was paraffin (85%) and that for cooking was firewood (87%) followed by charcoal at 8.5% and electricity at 2%. The demand for shelter and housing in peri-urban areas is expected to rise due to population growth and migration. This will lead to over-crowding in existing traditional housing and peri-urban areas. There is also a problem of unplanned construction of substandard houses. The dwelling units lack basic infrastructures and services such as roads, electrical and water supply and wastewater disposal systems.

Emerging environmental health risks in the built environment include the increased respiratory infections and diseases due to high reliance on wood for cooking and use of paraffin for lighting. The problems are exacerbated by people’s behaviours like cooking in structures with poor ventilation and with under-five children at their backs. It is also common to find households where family members share the dwellings with livestock for the fear of losing them to theft. The other challenges on housing include poor structures with no windows or small windows in the wrong place. This results to poor ventilation which promotes transmission of diseases like tuberculosis.

**Food Safety and Hygiene**

Food safety and hygiene is of immediate concern based on awareness and perceived issues with genetically modified foods, the use of cloned animals as food sources and the risk for new dietary allergens, eating habits and microbial contamination of foods. Other issues viewed as falling within this broad topic are the re-evaluation of food additives and other chemicals, food quantity and sources, patterns of food consumption and the distribution of food, the regulation of botanical products, the adulteration of food ingredients and possible chemical contamination. There is little evidence on the health effects of genetically modified foods. We expect more challenges associated with genetic modification in future as these are not currently monitored. The high consumption rates of only processed foods where several chemicals have been added as preservatives and colorants or flavorings plus the fertilizers and pesticides in the fields put consumers at risk of cancers and skin diseases.

The high consumption rates of sugars and oils means that diabetes prevalence will continue to increase and will also affect school going children. The low surveillance of restaurants and informal sector on food hygiene means an increasing prevalence of foodborne diseases. On emerging risks relating to meat safety, there are more emerging animal related diseases partly due to changes in lifestyles and climate change which leads to emergence of new disease causing agents. The other risks include consumption of meat or its products not consumed before i.e. dog and horse meat due to illegal business, globalization of trade, increased movement of animals among other factors leads to new diseases.

1. **What role can the government in your Country play to ensure environmental health?**

* Governments ensure a healthy environment by various means, sometimes providing services directly, in other cases by setting standards and regulating how the services should be provided.
* Government provide sewage systems to dispose of wastes from individual households and to handle runoff from the land.
* Government also play a great role in environmental health by identifying hazards in the environment and to set safety standards that must be met by industry and by state and local governments to protect people from these hazards.
* Government through Ministry of health is responsible for health protection and undertake that responsibility by implementing the essential public health functions, including surveillance systems and provision of public goods such as programmes for mass immunization, environmental protection, food fortification, food safety, and so many others.
* Government-owned health and hospital facilities are the reference places for training of human resources and are often the most appropriate sites for research activities in the field of health, public health and medicine.
* Governments play a major role in health care financing by mobilizing the necessary resources through public budgets and other contributive mechanisms, pooling resources allocated to health development, guiding the process of resource allocation and purchasing health services from various providers.

1. **Older people are more vulnerable to diseases, why is this so? Identify and explain four diseases that are common among the older generation**

Older adults become more vulnerable to diseases due to several factors as explained below;

As people get older, it is more frequent that they have one or more diseases/disorder at the same time, such as diabetes, renal insufficiency and arthritis. The presence of these conditions predispose them to infections because when people age, their immune system doesn’t function as well or as vigorously. The combination of increased comorbid conditions and the decrease in activity of the immune system can make people more prone to infections.

The other syndrome that occurs when people become old is frailty. When people become frail, their body mass index drops and they have a harder time functioning independently, in terms of their daily living activities. They become more prone to falls and injuries. All of these things predispose older people to infections.

**Below are the diseases that are common among the older generation**

**Cancer**

Cancer is a leading cause of mortality, accounting for 9・9 million deaths yearly of which 5・4 million (54%) occur in people aged 60 years and older in the world and accounted for the total death of 126000 both males and female in the country.

The incidence of many cancers rises with age. In South Sudan, the incidence of cancer increases exponentially for the death of 2800 men 40–44 years and the death of 3100 women at age 40–44 years to 12800 women at age 60-70 years and older; 63% of all cancers were diagnosed in people aged 65 and older. For four cancer sites, most of the disability adjusted life year (DALY) country’s burden is in older male people: prostate (18%), oesophagus (10%), colon and rectum (5.9%), and others (48.8%). In other hands the prevalence in women is as follows, Cervix uteri 19.3%, Breast 17.2%, Oesophagus Lymphomas, 6.3% multiple myeloma 5.0% Ovary 4.9%.

The risk factors include Current tobacco smoking, total alcohol per capita consumption, in litres of pure alcohol, Physical, inactivity, Obesity and Household solid fuel use.

**Diabetes**

Diabetes mellitus accounted for 22・6 million DALYs in older people in 2010, 80% of the burden arising in low income and middle-income regions. Burden in older people is forecast to increase by 96% from 2004 to 2030. In NHANES 1999–2002,68 the prevalence of total (diagnosed and undiagnosed) diabetes increases sharply with age, from 2・4% in people aged 20–39 years to 21・6% in people aged 65 years and older. Prevalence of total diabetes had risen from 5・1% (1988–94) to 6・5% (1999–2002), with the largest increases occurring in the oldest age groups.

**Visual impairment**

Visual impairment (blindness or low vision) accounted for 10・4 million DALYs among older people in 2010, 86% of the burden arising in low-income and middle-income regions. This is a very substantial reduction from the 30・9 million DALYs in the WHO 2004 GBD estimates, which was forecast to increase by 86% by 2030. 186 million of the world’s 285 million visually impaired (65%), and 32 million of the world’s 39 million blind people (82%) are estimated to be older adults aged50 years and older; cataracts are the leading cause of blindness in the world, and refractive errors are the leading cause of low vision Chronic obstructive pulmonary disease

**Chronic obstructive pulmonary disease** (COPD) accounted for 43・3 million DALYs in older people in 2010, 86% of the burden arising in low-income and middle-income regions. The global burden was forecast to increase by 89% from 2004 to 2030. In an international multisite survey, the prevalence of COPD was around 10% for people aged 40 years and older, nearly doubling with every 10-year increment of age, to reach 19–47% for men and 6–33% for women aged 70 years and older. The projected large increase in population burden is to be driven, mainly, by population ageing. Smoking is the most important risk factor, according to some estimates, for 90% of the costs of illness. However, there is a substantial prevalence of COPD in non-smokers, and other risk factors such as exposure to biomass fuels and tuberculosis might be important, particularly in low income and middle-income countries.

**Dementia**

Dementia accounted for 10・0 million DALYs in older people in 2010, 44% of the burden arising in low-income and middle-income regions. This is a substantial reduction from the 18・8 million disability adjusted life year in World Health Organization Global Burden of Disease Study 2004 estimates, which was forecast to increase by 86% by 2030. Dementia is characterized by progressively disabling impairment of several cognitive functions. However, behavioral and psychological symptoms affect quality of life, are an important cause of care strain, and are a common reason for institutionalization. In population studies in low-income and middle-income countries, dementia was consistently the leading contributor to disability50 and dependence.

1. **Identify one health effect that is associated with contaminants in the work place.**

**Disinfectants**

Disinfectants are chemical agents applied to non-living objects in order to destroy bacteria, viruses, fungi, mold or mildews living on the objects. The “active ingredient” in each disinfectant formula is what kills pathogens, usually by disrupting or damaging their cells.

Active ingredients are usually aided by other ingredients with various purposes. For example, surfactants can be added to a disinfectant formula to provide consistent wetting on a surface or to help in cleaning.

The often contributes to poor indoor air quality and may contain chemicals that cause cancer, reproductive disorders, respiratory ailments including occupational asthma, eye and skin irritation, central nervous system impairment and other human health effects.

1. **Globalization has played a major role in environmental health. Discuss both positive and negative effects of globalization on environmental health**

Globalization is often seen to refer to interconnectedness between individuals and communities across diverse geo-politically nation states (Stephens, 2000; Beaglehole, 2000).

**Positive effects of globalization**

* Positive consequences stem from the idea that globalization increases sharing of health information, ideas and forms of knowledge on modern concepts, prevention and control, causation and this has important benefits for environmental health. For example, the collaboration between states over the shared global environmental health issues such as tuberculosis, air pollution (tobacco smoking), and control can be an important experience.
* The ease and rapidity of communications have facilitated the diffusion of ideas and policy concern relating to health care and environmental health of community inhabitants (Bettcher & Wipfli, 2001).
* Globalization is also seen as having a positive effect in terms of promoting gender equality as well as human right to health services (Ganguly-Scrase, 2003).
* It also allows developing countries to catch up to industrialized nations through increased manufacturing, diversification economic expansion, and improvements in standards of living.
* Globalization has advanced social justice on an international scale, and advocates report that it has focused attention on human rights worldwide.
* The burgeoning of global travel, printed media and technologically enhanced media (such as Internet) are viewed as positive aspects of global processes.
* Towards promoting global health, globalization is something to be encouraged as it engenders openness to idea, people, trade and culture (Feachem, 2001). This eventually lead to national wealth accumulation focusing predominantly on the economic justification in terms of increased health with corresponding increased workers’ productivity.
* Globalization has helped to reduce inequalities between and within countries (Ganguly-Scrase, 2003). Globalization has notably declined the gap between rich and poor people. For many centuries there has been a wide gap between these groups, a gap that seemed to widen every year. Globalization enabled poor people to have access to job opportunities.
* Globalization gives people job opportunities in other countries. Their primary advantage over the residents of the developed countries is the fact that they offer cheap services. They are also open to learning as they consider themselves lucky to have a new life.
* Globalization has helped to transport technology to developing countries. Some investors and foreigners who have got a bargain with the people from developing countries needed to communicate with them and exchange ideas as well as information. volunteers from developed countries. Consequently, most people can satisfy their basic needs such as food, clothing or medicines.

**Negative Effects of Globalization**

Although the developing countries have had many benefits from globalization, there are a few negative impacts it has caused in the developing countries.

In almost all developing countries over half of the working population relied on casual jobs in industries until globalization took root. The advancement of technology has reduced such employment and increased global need for skilled professionals. Majority of people in developing countries don’t have skills, while the available jobs are poorly paid due to high demand caused by globalization. Most of the people are left unemployed and unable to meet their basic needs resulting in increased criminal activities such as burglary, pickpocketing, murder and drug abuse. The rate of unemployment and poverty keeps growing as the gap between the rich and the poor widens.

Globalization has brought in the consumption of processed foods, planting crops using chemicals to minimize the duration of growth and increase profit. In order to benefit from business, animals such as the cows are fed on chemicals that make them produce a lot of milk or increase in weight for those that are sold for the meat industry. Due to increased ingestion of chemicals from foods, chronic diseases are on the rise. The mortality rate is high. Furthermore, there is a reduction in the lifespan in the developing countries.

Every community, society, or nation has its values and beliefs, that is to say one’s own culture. They are essential because they mold the acceptable behavior of the people in a particular community. The elders or leaders ensure that the people behave in a morally upright way. However, globalization mixed different cultures. Then people reconsidered their authentic rules and customs regarding their culture as primitive.

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