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Environmental and Health Status Outcome in Africa

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Abstract
As the human population continues to increase across the world, the interface of people, animals and the environment becomes more significant and impactful. In poorly resourced countries in Africa, people face multiple health risk associated with environmental hazard and under-development. While accelerated housing and settlement development over the past two decades has being a major environmental policies in most African country, large numbers of people continue to face major environmental threats to their health, some of which have hitherto been neglected. In this light greater urgency and momentum is needed to improve living conditions and other socio-environmental determinants of the citizens of under-resourced countries in Africa. Environmental health should be the focus for policy and development as our global society strives to meet the Sustainable Development Goals.

Keywords: Environment, health outcome, pollution, climate

Introduction

Environmental sanitation envisages promotion of health of the community by providing clean environment and breaking the cycle of disease. It depends on various factors that include hygiene status of the people, types of resources available, innovative and appropriate technologies according to the requirement of the community, socioeconomic development of the country, cultural factors related to environmental sanitation, political commitment, capacity building of the concerned sectors, social factors including behavioural pattern of the community, legislative measures adopted, and others. The permanent interaction between man and his immediate environment is to a considerable extent determined by the environmental quality. As a consequence, environment and health are closely related. The environment is a major determinant human health and well-being. Physical, as well as chemical and micro (biological) factors in the environment can have effects on our health, both physically and mentally.

The World Health Organization (WHO) definition of health emphasizes the physical, mental and social well-being: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Health is considered as an overall concept reaching beyond the absence of illness and ailments. Well-being and quality of life are subject to an impressive number of factors, including psychological, social and environment-related aspects. In addition to positive influences such as green belts and entertainment areas, it is also important to identify the negative factors, such as noise, odor and light nuisance.However, the relation between environment and health is extremely complex. Although many health problems are thought to be associated with environmental pollution, it is difficult to assess the seriousness, extent and causes of environment-related diseases. Besides environmental-related causes, there are other factors which can directly or indirectly lead to the same health problems. Good health is to a large extent determined by the quality of our environment, both indoor and outdoor. The impact on human health not only involves

the consequences of air, ground and water pollution, but also other factors, such as genetic susceptibility, food contamination, radiation, life style and life quality.

The need of the hour is to identify the existing system of environmental health with respect to its structure and functioning and to prioritize the control strategies according to the need of the country. These priorities are particularly important because of issue of water constraints, environment-related health problems, rapid population growth, inequitable distribution of water resources, issues related to administrative problems, urbanization and industrialization, migration of population, and rapid economic growth. Human being often desire good things to improve their lot. People desire for better quality of life, education, vocational training, employment, housing, search for spouse etc, make them to move to the cities from the rural areas. This is a worldwide occurrence but is predominant in developing countries of Africa. This population growth in the urban cities however, has being accompanied by enormous deficiencies in social amenities and environmental resources. This results from the increasing association of humans, animals their products and environment. Rapid urbanization, changing farming systems and ecosystems, and globalization of trade in animals and their products have also contributed to this effect.

Concepts Health and Environmental Health

Concerns about environmental issues are inserted in the Public Health since its inception. In human history the major health challenges are related to the community, infectious diseases, improving sanitation and access to water and food consumption conditions. The emphasis on solving each challenge regarding human health varies over time and history, although only in the second half of the twentieth century a specific area to address these issues was structured. (Rosen, 1958) In the mid-twentieth century there was a concern of the WHO in conceptualizing health. The World Health Organization (WHO) defined health as a complete state of physical well-being, mental and social and not merely the absence of disease (WHO, 1946).

Concept of Health Outcome

Health outcomes have been described as measures of the end result of what happens to patient or individuals as a consequence of their encounter (s) with particular disease or healthcare system, (Krousel-Wood, 1999). Health outcomes can be classified into two categories; positive and negative health outcomes. He positive health outcomes for people include being alive, functioning well mentally, physically, socially, and having sense of wellbeing. Negative outcomes include death, malnutrition and lack of well-being. Meanwhile, diseases are the intermediate factor that influence the likelihood of achieving a state of positive health outcomes, (Henderson, 2002). Environmental changes in African countries with major impact on health outcomes Rapid and massive urban population growth

Changes in the spatial distribution of the population associated with the increased use of land in previously unsettled ecosystems and the occupation of urban land that is subject to landslides, flood and other natural hazards. Increase in population density with consequent over-crowding , congestion, and high traffic flow, resulting in various

communicable and non- communicable diseases. The ever growing numbers of people living in extreme poverty, many of them, especially women and children are exposed to high health and social risks. Sometimes disease rates in urban children are even higher than for rural youths

Increasing biological, chemical and physical pollution of air, water and land as a result of industrialisation, transportation energy production and the increasing generation and improper disposal of commercial and domestic wastes. The increasing inadequacy of the financial and administrative resources of cities to meet the need for proper water supplies and sanitation, make suitable employment and housing available, manage wastes, impose environmental control and provide health and social services. **(**Akande,1997**)**

The Economic Perspective of Environmental Health

Most developing countries and most development agencies spend about 5% of their budget on the health sector, and most of this health budget is spent on the delivery of health services. A considerably larger part of the national budget or of development loans is spent on the development and management of infrastructure projects. Decisions on infrastructure development that may be critical to people's health status are, however, made without proper consultation of health authorities and experts.

When negative health impacts occur, it represent a hidden cost of the project that is transferred to the health sector without adequate provision for alleviation. It also represent an increase in pain, suffering, and loss of education achievement and of productivity for the affected community. Improving the health status of the community through preventative action by other sectors is an efficient way to help to reduce the burden on the health sector.

Environmental Pollution and Health Outcome

Over the last three decades, there has been increasing global concern over the public health impacts attributed to environmental pollution. Environmental pollution is the contamination of the physical and biological components of the earth/atmosphere system to such an extent that normal environmental processes are adversely affected. On the other hand, pollution is the introduction of contaminants into the environment that cause harm or discomfort to humans or other living organisms, or that damage the environment which can come in the form of chemical substances or energy such as noise, heat and light (Gray, 2011).

The World Health Organization estimates that about a quarter of the diseases facing mankind today occur due to prolonged exposure to environmental pollution [Kimani, 2007). Significant adverse indirect environmental impacts could occur during emergency operation activities for containment of outbreaks such as from inappropriate transportation of infected and at-risk birds, disposal of carcasses and use of chemicals for disinfection. Other issues of concern are disposal of dead birds and lack of/improper use of personal protection equipment, release of chemicals in the environment, exposure during the process of disinfection, inadequate laboratory waste management including transportation, and environmental pollution from farms [One World - One Health, 2008). One way of minimizing these impacts to acceptable levels is by integrating environmental health safety aspects in the design and implementation of Health policies.

Water, Sanitation and Hygiene

It is estimated that nearly 10% of the global burden of disease is associated with lack of access to adequate sanitation, safe drinking water, proper hygiene and effective water management (World Health Organization, 2008). The high burden of sanitation related diseases is particularly common in developing countries including Africa. In communities where animals share water sources with humans, water becomes a medium for zoonotic diseases transmission (Kankya etal, 2011). Improving access to safe water and basic sanitation have indeed direct implications for better health, as they lead to the interruption of transmission pathways for many gastro-intestinal and other infectious diseases. Furthermore, such access increases the likelihood of hygiene practices such as hand washing with soap within homesteads and communities. Improvement in water resources management also has a significant potential to reduce vector borne diseases such as malaria, dengue and schistosomiasis.

Environmental Health and Infectious Diseases.

The relationship between the environment humans live in and infectious diseases is a long discussed topic in literature, however, only recently a more ecological approach to infectious diseases became more common in scientific studies (Conrad, 2005). The environment is constantly changing, and all living organisms must evolve in order to adapt to these continuously changing conditions. That is, as the environment is changing, so are the available niches, and thus, organisms must follow these changes shifting their potential niches or perishing. This never ending race proposed in the Red Queen Hypothesis has strong implications on infectious disease dynamics, as mankind had major impact in the environment, and over the centuries basically human populations have undergone several behavioural and structural changes. Basically, these human transitions had reflections in their pathogens: when humans shifted their main foraging strategy from hunting to agriculture, this allowed larger populations and led to animal domestication, which resulted in the rise of the first zoonotic infections (Wolfe et al. 2007). Another great shift in the structure of human populations came with the industrial revolution, when life expectancy was lengthened by the decrease in infectious disease and infant mortality, while on the other hand, non-infectious chronic diseases arose (Montira et al. 2009). While the notion of the intimate link between environment and infectious diseases has been well established over the years, most of the studies that deal with disease dynamics often approach these systems in a simplistic manner (Figueiró & Gil-Aze- vedo, 2010).

All populations of living organisms have their growth limited by resources and interactions with other organisms, which can be intraspecific or interspecific. This phenomenon has important implications when it comes to infectious disease dynamics: vectors, reservoirs and pathogens may be regulated by resources and other populations which generally are not accounted for in the traditional approach used in most studies. As the transmission of infectious diseases is basically an ecological process, species diversity and community structure can influence the prevalence of infectious diseases (Keesing et al. 2006). There is a well-established pattern in literature that more diversity reduces disease risk in biological communities: This intimate relationship between biodiversity and disease risk is alarming, as recently the Millennium Ecosystem Assessment, which was an ensemble of over 1000 of the world's leading biological

researchers, analysed the current state of the world`s main ecosystems, releasing an astounding report of the profound degradation and biodiversity loss in all of the studied ecosystems (Millennium Ecosystem Assessment 2005). Over the last decades, deforestation and habitat loss have strongly contributed to the decline in biological diversity (Pimm & Raven 2000). Another relevant issue that compromises the ecosystem stability is the constantly growing number of biological invasions, partly due to the improvement in human transportation means that can have a direct or indirect effect in disease dynamics. Much of the environmental disease burden is attributable to a few key risks. those include-unsafe water and sanitation, vector-borne disease, indoor smoke from solid fuels, toxic hazards and global environmental change as well as unsustainable patterns of development that contribute to air pollution, traffic injury and other forms of urban environmental degradation

Climate and Health Outcome

Although Sub-Saharan Africa is rapidly urbanizing, the continent remains substantially reliant on rain-fed agriculture and surface water resources (McCartney et al. 2013). Despite significant economic growth in several countries, there is still a high burden of climate-sensitive diseases, food insecurity and hydro-meteorological disasters (WHO-AFRO 2011). Health and well-being therefore remains highly environment dependent.

.The overarching goal by most Government in Africa was “to increase the well-being of people in Africa by reducing vulnerability to adverse climate impacts”. The purpose is “to create the knowledge and capacity, and thus the opportunity for health organizations and their partners to predict, prevent and manage adverse climate-influenced health outcomes.” To realise this knowledge and capacity, efforts were focused on diseases of major public health significance that impact the poor across the differing disease ecological strata. The choice of efforts was based on their potential to impact health policy rather than scientific curiosity.

A prerequisite to the effective use of new (in this case climate) information in health decision-making is the role of evidence (Kula et al. 2013). Demonstrating cost-effectiveness is easiest to do when a climate-informed intervention is compared with no such intervention (Worrall et al. 2008). For example, understanding the basic mechanism whereby climate affects infectious disease transmission is important for an improved scientific understanding of the disease dynamics and better targeting of interventions.. Malaria is a climate-sensitive, vector-borne disease that is transmitted in Africa by mosquitoes belonging to the Anopheles gambiae species complex, which breeds primarily in sun light , rain-fed puddles and other still, clear water sources (Thomson et al. 2014). Laboratory studies confirm the importance of temperature on the development rates of both the malaria parasite and its mosquito vector, but the relationship is likely more complicated than initially thought (Paaijmans et al. 2012). Mechanisms underpinning many other climate-sensitive diseases or health outcomes are not necessarily well under- stood. Early on in its history, the Roll Back Malaria Partnership recognized the potential to use climate information in Malaria.

Recommendations for Improving Health Outcomes

Health Impact Assessment (HIA)

There is an overwhelming need to include Health Impact Assessment (HIA) as an integral component in the planning major infrastructure projects.

HIA is an instrument for safeguarding the health of stakeholder communities. Prospective health impact assessment provides a mechanism for scrutinising and comparing the health outcomes of different project plans. Changes can then be included in the plans and operations so as to safeguard and promote human health.

Capacity building

Appropriate capacity in HIA and community health management needs to be built both within the health sector. National authorities, such as the ministry of health, cannot use instruments such as HIA to their full potential until there is a significant body of trained personnel, and this is clearly lacking in Africa at the present time. Health sector personnel will benefit from training in impact assessment procedures and methods, and will be better placed to appreciate the concerns of other sectors. Institutional support is required to foster these training programmes and provide quality assurance mechanisms

Budgeting for Health

A health component should be negotiated as a budgeted item for all project loans in order to safeguard and enhance health. Economic assessments of developmental projects that do not include the consideration of health issues tend to transfer a hidden cost to the health sector. That is, the cost of providing health and medical support to communities for illnesses that arise because of unforeseen (though avoidable) consequences of environmental activities. The health budget, which is not necessarily administered by the medical sub-sector, should be used primarily for preventative rather than curative actions, with the optimal balance decided on a case by case basis. It should complement the existing general health infrastructure and should not be considered as a substitute for the existing health care

Prioritising the Health Issues

It is important that the health priorities are not pre-judged but allowed to emerge from the health impact analysis and community consultation. There are often differences in perception of risk between subject experts (health specialists) and affected communities. Such differences in opinion cannot simply be dismissed out of hand as subjective or emotive. There are various approaches to establishing priorities, including the following:

Estimating the frequency, severity and probability of health impacts; conducting an economic analysis that compares the cost of all health outcomes; determining the subjective perception of risk expressed by the stakeholder community; negotiation of opportunities for mutual gain; comparison with standards; reducing health inequalities.

Transparency

The health impact assessment and planning process should be open to scrutiny by all stakeholders and communities. As with all forms of impact assessment, and indeed the entire planning process, it is crucial to include all stakeholders at all stages of the process. This is good practice for all kinds of assessment and development activities.

In short, to use climate information effectively policies need to be flexible in order to respond to changes in climatic risk, practitioners need to be able to use policy relevant climate information when and where cost- effective, the providers of climate information need to provide reliable, relevant, accurate and timely information, and the underlying observational data need to be quality- controlled, analysed and readily accessible (WHO, 1999).

Conclusion

Today it is impossible to dissociate human health from environmental health: there is a reciprocal effect between the two. To address ensuing health and environmental issues, the challenge society faces is to approach those in an integrated way, which is something that demands serious reflections about the anthropocentric nature of human thought.

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