

# Environmental Sanitation: The Public Health Challenge

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## Introduction

The term 'environment' is widely used and has a broad range of definitions, meanings and interpretations. What does the term 'environment' mean? In popular usage, for some people, the term 'environment' means, simply, 'nature': in other words, the natural landscape together with all of its non-human features, characteristics and processes. However, for other people, the term 'environment' includes human elements to some extent - the surroundings or conditions in which a person, animal, or plant lives or operates, the natural world, as a whole or in a particular geographical area, especially as affected by human activity.<sup>1</sup>

An ecosystem (also called as environment) is a natural unit consisting of all plants, animals and micro-organisms (biotic factors) in an area functioning together with all of the non-living physical (abiotic) factors of the environment. The natural environment encompasses all living and non-living things occurring naturally, meaning in this case not artificial. The term is most often applied to the Earth or some parts of Earth. This environment encompasses the interaction of all living species, climate, weather and natural resources that affect human survival and economic activity.<sup>2</sup> Therefore, it is not particularly helpful to conceptualize the 'environment' without including in that conceptualization some notion of relationship. Individual, objects, elements and systems influence and are in turn influenced by their surroundings.

Indeed, the networks of relationships that exist between different entities may, in some cases, be extensive and highly complex. Thus the 'environment' may be regarded as a 'space' or a 'field' in which networks of relationships, interconnections and interactions between entities occur.<sup>3</sup>

Sanitation is the conditions relating to public health, especially the provision of clean drinking water and adequate sewage disposal and can be defined as the provision of facilities and services for the safe disposal of human urine and feces. As WHO declares "Sanitation refers to the provision of facilities and services for the safe management of human excreta from the toilet to

containment and storage and treatment onsite or conveyance, treatment and eventual safe end use or disposal. More broadly sanitation also included the safe management of solid waste and animal waste".<sup>4</sup>

"Environmental sanitation" means the art and science of applying sanitary, biological and physical science principles and knowledge to improve and control the environment and factors therein for the protection of the health and welfare of the public.<sup>5</sup> This article highlights the burden of environmental sanitation as well as implication of sanitation problems.

## The burden of environment

The issues of sanitation and hygiene are closely related to perceptions of pollution and dirt, as well as wholesomeness or cleanliness. Scientists refer sanitation (as well as food-hygiene rules) to a universal human activity of classification. This implies that there is no universal specification of dirt itself; rather, what are considered dirty are items out of place in that society's classification system or hierarchies. Hence, dirt is referred to as "disorder" and exists only "in the eye of the beholder". Such values are of immense importance for how sanitation can be organized and upheld in a society.<sup>6</sup>

Globally, 946 million people still open defecate (9 out of 10 live in rural areas), 2.4 billion people lack access to basic sanitation (7 out of 10 in rural areas), 663 million lack access to basic water sources, and diarrhea is the second leading cause of death in children under five much of which is preventable by clean water and sanitation.<sup>7,8</sup>

Though Bangladesh has for many years enjoyed almost universal access to drinking water, arsenic contamination of 22 percent of the country's tube wells lowered the service coverage to below 80 percent. Bangladesh has made significant progress in reducing open defecation, from 34 percent in 1990 to just one percent of the national population in 2015. However, the current rate of improved sanitation is 61 percent, growing at only 1.1 percent annually. Still, the quality of sanitation coverage is an emerging area of concern, with more than 40 percent of all latrines classified as "unimproved." Drinking water access is widespread, but half of the drinking water consumed fails to meet water safety standards. In urban areas of Bangladesh, piped water supply reaches only about one-third of the population, and there is no systematic sewer disposal and treatment system. Only Dhaka, Bangladesh's capital city, has a sewer system, and it serves just 18 percent of the city.<sup>9</sup>

Bangladesh has made remarkable progress to in eliminating the practice of open defecation. But climbing the 'sanitation ladder' still represents a challenge. Access to sanitation remains moderate at 55.9 per cent. The knowledge of key

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hygiene messages is high in Bangladesh, but the practice of effective handwashing, the most effective hygiene behaviour, is very low. Conventional sewerage systems are absent in all urban areas except Dhaka. But even in the capital city, only 1 in 5 people are served by a sewer network. The safe disposal of faecal matter generated in rural and urban areas is recognised as a major challenge by the Bangladesh government. Only about two out of five households practice safe disposal of child faeces, despite implications that lead to illness and death of children. There are solid links among diarrhoeal diseases, stunting and sanitation. Unimproved sanitation can lead to faecally transmitted infections like diarrhoea, intestinal inflammation and worms.<sup>10</sup>

To minimize environmental burden the country is having activities aimed at improving or maintaining the standard of basic environmental conditions affecting the well-being of people. These conditions include (1) clean and safe water supply, (2) clean and safe ambient air, (3) efficient and safe animal, human, and industrial waste disposal, (4) protection of food from biological and chemical contaminants, and (5) adequate housing in clean and safe surroundings.<sup>11</sup>

Environmental sanitation was defined as “the control of all those factors in man's physical environment which exercise or may exercise a deleterious effect on his physical, mental or social well-being.” Methods for the safe and adequate disposal of excreta and sewage and clean and ample water supplies were among the priorities.<sup>12</sup>

Improving health is one of the main goals of water and environmental sanitation interventions. Despite this, many aid and development workers working in the field of water and environmental sanitation have only a limited knowledge of the infections they try to prevent. Although the relevant information does exist, it is often scattered in specialized literature and rarely finds its way into the field.<sup>13</sup> In recent years, there has been increasing pressure, particularly in the underdeveloped nations, for bettering the rural sanitary environment.<sup>14</sup>

## Implication of Sanitation problem

'The sanitary revolution' of introducing piped water and waterborne sewerage to people's homes in 19th Century Europe was voted the most important medical milestone since 1840, beating even the discovery of antibiotics and the development of anaesthesia.<sup>15</sup>

In many developing nations dry onsite sanitation systems are the norm and hence there is no direct requirement for water (other than for personal and domestic hygiene).<sup>16</sup>

Sustainability has become a central theme of environmental, human development and resource use studies. Although the idea of sustainability has many facets, the central idea is that we should use resources in ways that do not diminish them. An important question in environmental studies today is how continuous improvements can be made in human

welfare within the limits of the earth's natural resources. This is because the problem of environmental pollution has assumed a serious and gigantic proportion and this threatens the very existence of human society.<sup>17</sup>

Poor sanitation resulting from the practice of widespread open defecation and indiscriminate dumping of refuse have negative health and social impacts on communities with negative health consequences. Sanitation service provision is known as a “Top-Down” approach at the central, regional, district and/or municipal levels to the neglect of community members who are beneficiaries of the project. This resulted in a poor maintenance of the services provided.<sup>18</sup>

Sanitation can be said to be the state of cleanliness. It is a broad concept and connotes the process of keeping something clean. Sanitation is the arrangement for protecting the health, especially the removal of the human, industrial and domestic wastes. Sanitation is also a process embarked upon to keep the total of man's environment hazard free.<sup>19</sup>

Slum dwellers are likely to be among the most deprived people in urban areas. Poor hygiene practices and inadequate sanitary conditions play major roles in the increased burden of communicable diseases within developing countries and continuous community hygiene education along with adequate access to water supply and sanitation improves hygiene behavior.<sup>20</sup>

In areas where a large proportion of the population is not served with adequate water supply and sanitation, sewage flows directly into streams, rivers, lakes, and wetlands, affecting coastal and marine ecosystems, fouling the environment and exposing millions of children to disease. Particularly, in the context of urbanization, domestic wastewater, sewage, and solid waste improperly discharged presents a variety of concerns from providing breeding grounds for communicable disease vectors to contributing to air, water, and soil pollution. The results of poor waste management also contribute to a loss of valuable biodiversity. Improved sanitation reduces environmental burdens, increases sustainability of environmental resources and allows for a healthier, more secure future for the population.<sup>21</sup>

Implementation of low-cost sanitation system with lower subsidies, greater household involvement, range of technology choices, options for sanitary complexes for women, rural drainage systems, IEC and awareness building, involvement of NGOs and local groups, availability of finance, human resource development, and emphasis on school sanitation are the important areas to be considered. Also, appropriate forms of private participation and public private partnerships, evolution of a sound sector policy in Indian context, and emphasis on sustainability with political commitment are prerequisites to bring the change.<sup>22</sup>

There are serious scientific grounds for concern, and a need for objective evidence. However there is often a perverse preference for alarm rather than reassurance. 'They are poisoning us' is a favorite refrain of the media, but only because people want to hear it.<sup>23</sup>

A growth in population creates more work for the administration. To deal with the problems of population growth, various organizations need to work together; for example, water, sanitation and health service providers, and non-governmental organizations (NGOs). When growth is rapid, these organizations can be overwhelmed and so coordination can break down. This may mean that in some cases, efforts are duplicated, and sometimes there will be gaps in addressing some aspects of the programme. If public administration and regulation is already weak, the entire system can fail. In the absence of good regulation, standards of sanitation and waste provision can fall, increasing pressures in other areas such as health services.<sup>24</sup>

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