Health and Sanitation: Historical and Economic Perspective

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Abstract

Sanitation is a major issue in the development discussions owing to its contribution to sustainable human development**.** In the present day market economy wherein competition and the technological strength decide economic progress, ignoring environment and nature related life style is common. Environmental imbalance and deteriorations of quality of natural resources coupled with transformation of cultural practices and human behaviour calls for an attention of policy makers, and institutional intervention in health, sanitation and hygiene. Further, issues related needs to be analysed with both sociological and economic perspectives. Such an attempt is made in this paper]

Keywords: *Sanitation; Water; Health; Hygiene; Cost-benefits; Cost-effective; Culture*

Introduction

Social welfare is the main concern of the development theories in which sustainability has been the major focus. In the recent years recognising the importance of maintaining environmental balance, economists analysed issues related to resource and resource use pattern including the cultural resources. Sustainable development concept focus mainly on environmental balance in terms of healthy utilisation of natural resources and managing activities centred on it, thereby to preserve the environmental quality and behaviour. Later, very recently, theoreticians and policy makers realised the importance of culture and human behaviour play significant role in sustaining environment and the development process. Human capital formation theories argue for a sustainable, healthy human resource development. In this, education, training or skill formation, and health are the major sectors gained significant importance. These three sectors related to Human Resources development are inter-linked and are the base for the social welfare oriented development thinking.

Health sector transformation from tradition to technology based modern has been evaluated variously and no doubt the achievements in this sector from the technological perspective is remarkable. But, the developmental efforts and approaches resulted in expanded market, lead to several challenges. Environmental quality deterioration, abrupt resource extraction and the resulting externalities have become a major threat. More specifically, water supply and sanitation has become a major challenge in the recent years.

Diagnosing the sociological and economic perspectives of this challenge is a major task among the governments and civil society organisations all over the world.

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With this background, an attempt is made in this paper to explore the economics of sanitation sociology for sustainable social welfare.

Objectives

The main aim of this paper is to assess the applicability of a recently developed and widely supported economic evaluation framework to appraise alternative water and sanitation interventions, and make recommendations for those wishing to conduct economic evaluations in this area of research. The specific objectives of the paper are;

1. To analyse the socio-cultural practices of Indian traditions in relation to sanitation.
2. To examine the transformations of such practices in the modern market economy and their challenges.
3. To analyse the history of managing health and sanitations and the role of government and NGO interventions

Health and Sanitations

Sanitation is an important issue in relation to social welfare. It has been a culture encompassing public health and hygiene. Environmental science with market failure and externalities concepts invites institutional principles to manage sanitation for sustainable society. Indian traditional practices and cultural celebrations have health dimensions. Health services and food practices were closely related to nature. Our traditional folk medicines were directly derived from the nature around. Medicinal plants were known to everyone, and even illiterates knowledge on natural medicines was of high level. Growing medicinal plants (Eg. Tulsi) around the residence is a significance of sanitation and hygiene. Vegetables and fruits grown only for household consumption (not for competitive market) using organic manures were of nutritional rich. Many of the traditional socio-cultural practices were sustainable in nature having more concern on sanitation and hygiene. Indian traditions, socio-cultural practices gave utmost importance for sanitation, but now in the changed context of market economy, sociology of sanitation has to be viewed from economic perspectives. This mainly because, negative externalities of many practices and behaviour and the extent of institutional interventions maybe government or non-government.

Historical Perspective

History provides a perspective to develop an understanding of health problems of communities and how to cope with them. We visualize through the eyes of the past how societies conceptualized and dealt with disease. All societies must face the realities of disease and death, and develop concepts and methods to manage them. These strategies evolved from scientific knowledge and trial and error, but are associated with cultural and societal conditions, beliefs and practices that are important in determining health status and curative and preventive interventions to improve health.

The history of public health is a story of the search for effective means of securing health and preventing disease in the population. Epidemic and endemic infectious disease stimulated thought and innovation in disease prevention on a pragmatic basis, often before the causation was established scientifically. The prevention of disease in populations revolves around defining diseases, measuring their occurrence, and seeking effective interventions.

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Public health evolved through trial and error and with expanding scientific medical knowledge, at times controversial, often stimulated by war and natural disasters. The need for organized health protection grew as part of the development of community life, and in particular, urbanization and social reforms. Religious and societal beliefs influenced approaches to explaining and attempting to control communicable disease by sanitation, town planning, and provision of medical care. Religions and social systems have also viewed scientific investigation and the spread of knowledge as threatening, resulting in inhibition of developments in public health, with modern examples of opposition to birth control, immunization, and food fortification.

Scientific controversies, such as the contagionist and anti-contagionist disputations during the nineteenth century and opposition to social reform movements, were ferocious and resulted in long delays in adoption of the available scientific knowledge. Such debates continued into the twentieth and still continue into the twenty-first century with a melding of methodologies proven to be interactive incorporating the social sciences, health promotion, and translational sciences bringing the best available evidence of science and practice together for greater effectiveness in policy development for individual and population health practices.

The history of public health tells us that the major improvements in the health of populations have resulted not through the efforts of medical systems orientated toward the care of individuals with specific diseases but through the improvement of general social conditions such as housing, food supply and quality, water, and sanitation. Although this is a historical perspective, being mainly associated with the nineteenth century sanitary revolution that started in England in the 1830s and 1840s, the rise in the importance of non-communicable diseases globally, including obesity, diabetes, and alcohol-/tobacco-related diseases, has underlined the importance of primary prevention. The modern construction, the equivalent of the sanitary movement, is cantered around the social determinants of health.

Economic Perspective

The discipline of economics essentially deals with the allocation of scarce resources amongst competing alternatives, with the aim of maximising an outcome of interest (e.g. profit, health or social welfare). In the health arena, policy makers and programme managers are constantly faced with economic decisions: how to spend a limited budget and have the biggest impact on health? The technique of economic evaluation can contribute to these decisions by providing information on the costs and benefits of alternative interventions, summarising information in a cost-effectiveness or cost-benefit ratio. In addition to the information it provides economic evaluation helps to bring elements of transparency and objectivity to policy making. Water and sanitation interventions provide an interesting but challenging application of economic principles to resource allocation issues. The challenge is partly that economic evaluation guidelines were developed to evaluate health interventions provided by core health services, with a focus on health sector costs and benefits.

Economics recently evolved a branch popularly known as health economics analysing the relationship between health and other goods. (Kenneth Arrow-1963). Health economics is concerned with issues related to efficiency, effectiveness, value and behaviour in the production and consumption of health and health care. In broad terms, health economists study the functioning of healthcare systems and health-affecting behaviours such as safe drinking water, sanitation and other practices.

Factors that distinguish health economics from other areas include extensive government and NGOs intervention, intractable uncertainty in several dimensions, asymmetric information, and barriers to entry, externalities and the presence of a third-party agent. Health economists evaluate multiple types of

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financial information: costs, charges and expenditures. It is essential to weigh up costs against benefits and in doing so one of the more difficult problems is to come up with a monetary measure for different benefit

But, like many environmental interventions aimed at improving or sustaining health, water and sanitation interventions are different in that

- They are more likely to be regulatory in nature (such as the meeting of quality criteria)
- they involve cross-sector collaboration and are often financed by non-health agencies (Varley et al. 1998)
- They provide large non-health benefits (such as time saving, increasing amenity etc.) which are important to consider (Hutton 2000)
- They are less amenable to controlled trials to evaluate effectiveness (Blum and Feachem 1983)
- Different studies have reported wide ranges of effect (Esrey et al. 1985) leading to difficulties in generalising results between different settings.

The implication of these aspects is that appropriate methods for evaluating water and sanitation interventions have remained underdeveloped, and subsequently there are few published studies that have dealt with the economics of water and sanitation interventions in a comprehensive or satisfactory way (Hutton 2000).

Another particular challenge faced in implementing water and sanitation interventions in developing countries is that the expenditure patterns required to meet current guidelines and standards are unrealistic in many developing countries (WHO 1997). This requires many resource-poor countries to make choices over which quality standards they should meet using a risk-benefit or economic evaluation approach, since meeting some quality standards may be less expensive and/or have a larger health effect than others. However, again, there is remarkably limited evidence on the cost-effectiveness of water and sanitation interventions to make these choices (Hutton 2000).

Environmental health interventions differ from core health services. It is for these reasons that selective primary health-care interventions, the literature reviewed covered several economic aspects of water supply, water quality and sanitation interventions, including costs, cost effectiveness, willingness to pay, and cost-of-illness. However, few studies measured the costs and benefits of alternative interventions to provide policymakers with the information to choose the most efficient intervention from the viewpoint of society or the health sector. Generally, it would seem that there has been inadequate attention to economic issues in water and sanitation interventions.

Economic benefits of investing in water and sanitation are considerable: they include an overall estimated gain of 1.5 per cent of global GDP and a US$ 4.3 return for every dollar invested in water and sanitation services, due to reduced health care costs for individuals and society, and greater productivity and involvement in the workplace through better access to facilities

Diarrheal disease ranked ranked fourth as a cause of death (around 5% of total death). Poor water supply, sanitation and hygiene are the major factor responsible for such death. Disease related to poor water supply, sanitation and hygiene have significant economic impact on society.

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Costs on this include both public and private cost. Private costs include opportunity costs in addition to the direct costs in terms of negative impact on household income.

Studies related to cost-benefits of improving water and sanitation services show both interventions are highly economic viable.

Changing social norms at community level is a major determinate of achieving sustainable sanitation.

Poverty eradication, which is a major challenge to the underdeveloped/developing countries with high population, and it cannot be eliminated beyond a level unless sanitation is sustained.

Despite the significant achievements by the end of the Millennium Development Goal (MDG) era, an estimated 663 million people still lack access to an "improved" source of drinking-water. Many more still lack access to "safe" drinking-water, with at least 1.9 billion people relying on an unimproved source or an improved source that is basically contaminated. Through the Sustainable Development Goals (SDGs), countries around the world have expressed strong political will to ensure not only that a drinking-water service is extended to unserved populations, but also that this drinking-water is universally safe. This is expressed in Goal 6 of the SDGs, with Target 6.1 stating "By 2030, achieve universal and equitable access to safe and affordable drinking-water for all".

However, as land-use pressures and competition for limited water resources intensify through population growth, it is clear that the entire water cycle needs to be managed as a whole to ensure that limited freshwater resources within are protected. Unless managed effectively, these pressures may affect surface-water quality both directly and indirectly, with adverse effects on public health.

One of the targets of the Millennium Development Goals (MDGs) of the United Nations (UN) was to cut by half the proportion of people without sustainable access to drinking-water by 2015 (UN, 2015). This target – measured by the proxy indicator "improved" water supply – was reached ahead of schedule in 2010, with 91 per cent of the world's population using an improved drinking-water source (WHO & UNICEF, 2015). However, important challenges remain, as 663 million people worldwide still lack access to improved water sources, and 159 million of these people rely on untreated surface water, which poses even greater health risks than other water sources. Also, there are significant access disparities both among and within countries. For example, in some countries, less than half of the population has access to improved sources, and access rates are significantly lower in rural areas than in urban areas. Improved sources have, by definition, been designed to be protected from contamination; however, water from improved sources is not always safe to drink (WHO & UNICEF, 2015). Hence, using an improved drinking-water source as an indicator for the use of safe water may overestimate the actual proportion of the global population using safe water (Onda, LoBuglio & Bartram, 2012).

The UN's Sustainable Development Goals (SDGs) go beyond access to improved water supply (UN, 2016). The SDGs call for achieving universal and equitable access to safe and affordable drinking-water for all. They also call for water quality to be improved by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and at least doubling water recycling and safe reuse globally.

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Water quality is often seen as an "end of pipe" issue, to be managed by water treatment before delivery to consumers, or even by treatment in consumers' households. However, a combination of barriers throughout the water-supply system is a fundamental requirement for safe drinking-water. These barriers can include:

- Selection and protection of water sources;
- Optimization of abstraction and treatment; and
- Prevention of deterioration of water quality in the distribution system, including installations in buildings.

A multiple-barrier approach is particularly important when the source water contains a wide range of microbial and chemical hazards, as is often the case with surface water

Conclusion

Health, sanitation and hygiene assume importance in the sustainable development and the present status of this is very low especially in backward Countries. Both government and Non-government agencies are working towards this, in local and international level. Deteriorations of Health, sanitation and hygiene conditions are due to various reasons and mainly changed human practices. In setting them right, economics has to play a role. Economic impact of culture and human practices on sanitation and health and cost-benefits of institutional interventions are of more significance.

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