

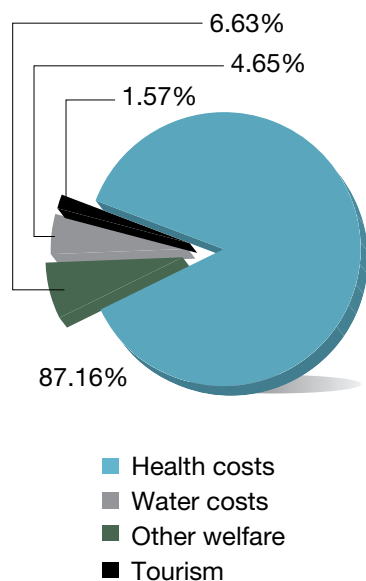








**Figure 1: Breakdown of total economic impact on Pakistan of poor sanitation, by cost area**



# Key Findings

## Status of sanitation and hygiene: resources and practices

The current status of sanitation and poor hygiene practices has led to significant public costs, such as premature deaths, economic and financial costs due to diseases attributable to poor sanitation, environmental costs, and other welfare costs. For example, as of 2006:

- The coverage level for sewage collection was estimated at 50 percent nationally (with only 20 percent coverage in rural areas), and only 10 percent of sewerage was being effectively treated. Treatment plants existed only in a few cities, and few of them were fully functional.
- Forty-two percent of the population were living with unimproved toilet facilities in 2006 out of which 11 percent had access to facilities that were either shared and/or unimproved.
- Approximately 50.1 percent of households had access to improved toilets, of which 55.8 percent had a sewer connected to a flush toilet, and 29.1 percent had a flush toilet connected to a septic tank.
- Of the total population, approximately 50 million people (31 percent) defecated in the open, and an estimated 8 million people (5 percent) used shared toilets. If we combine both groups, we find that 58 million people (36 percent) either defecated in the open or had access to shared toilets.
- National figures hide rural-urban disparities. While 90 percent of the urban population had access to improved sanitation (that is, the kind that hygienically separates human excreta from human contact), this compares with just 40 percent of the rural population. In rural areas, 45 percent of the population still practiced open defecation.

All these data indicate the degree of inadequate sanitation conditions that expose the population to fecal-oral diseases.

## Health costs

The total economic cost of poor sanitation for the year 2006 was estimated as 343.7 billion PKR (US\$5.7 billion). This amount is equivalent to 3.94 percent of GDP in Pakistan. Of this cost, 69.52 billion PKR (US\$1.15 billion) constitutes the direct financial cost, which is equivalent to 0.8 percent of GDP.

Health impacts accounted for the vast majority of total economic costs. They constituted 87.16 percent of the total quantified economic costs, equating to the equivalent of 3.43 percent of GDP. The total economic impact on health is estimated to cost 299.55 billion PKR (US\$4.93 billion), of which 48.76 billion PKR (US\$801.53 million) represents financial costs.



The major component of total health-related costs was from premature mortality. The cost of premature mortality is estimated at 216.29 billion PKR (US\$3.56 billion), equivalent to 2.48 percent of GDP. The cost of premature mortality comprises 72 percent of total health costs and 63 percent of total economic costs.

Productivity losses due to illness are estimated at 40.55 billion PKR (US\$666.61 million) or 0.46 percent of GDP. Total productivity losses contributed 11.80 percent of the total health costs. The major component (70.61 percent) of productivity losses was due to diarrhea, accounting for 8.33 percent of total health costs. The second largest share (21.64 percent) of productivity losses was from ALRI, which accounted for 2.55 percent of total health costs.

Total health care costs or cost of treatment comprised 12.42 percent of total health costs. The largest share (50 percent) in health care costs was the cost of treating diarrhea (6.16 percent of total costs), followed by ALRI (38 percent of health care costs and 4.78 percent of total costs).

### Water costs

The water-related economic cost of poor sanitation is estimated as 15.98 billion PKR (US\$262.68 million), equivalent to 0.18 percent of GDP. This represents 4.65 percent of the total impact; of this amount, 15.51 billion PKR (US\$254.85 million) were financial costs.

Piped-water costs (the excess cost made necessary by poor sanitation, which is estimated in this study as 50 percent of all piped-water cost) were the largest component of water-related costs, estimated as 7.47 billion PKR (US\$122.89 million). The cost of piped water accounts for 47 percent of all water-related costs (and 2.18 percent of total economic cost) due to poor sanitation.

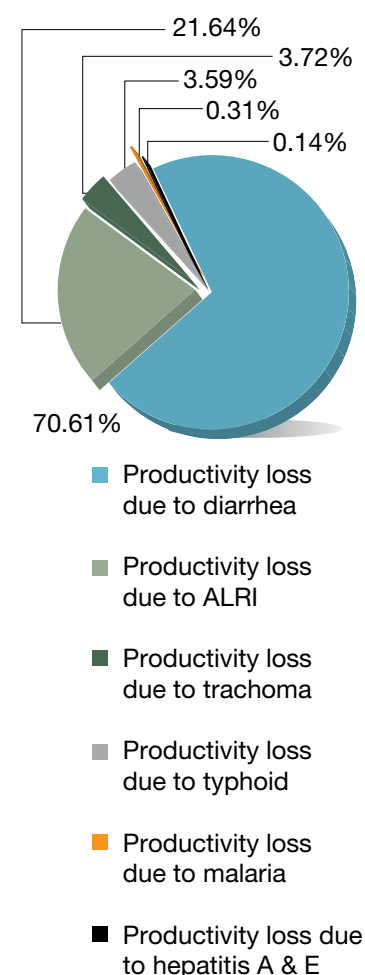
Bottled water consumption comprised 29 percent of water-related costs, equivalent to 1.4 percent of total economic costs and 0.05 percent of GDP. The cost of bottled water consumption was 4.67 billion PKR (US\$76.72 million).

The cost of household water treatment was 3.36 billion PKR (US\$55.23 million), equivalent to 21 percent of water-related costs, 1 percent of total costs, and 0.04 percent of GDP.

### Welfare costs

Other welfare losses, such as user preferences (which, while intangible or difficult to quantify, include comfort and acceptability, privacy and convenience, security, avoidance of conflict, and status and prestige) and time loss, are estimated as 22.77 billion PKR (US\$374.4 million), equivalent to 6.63 percent of total impacts and 0.26 percent of GDP. The major share is from the time loss due to household access to open defecation sites (which was 16.5 billion PKR [US\$271.6 million]), equivalent to 73 percent of total welfare costs or 5 percent of total costs.

**Figure 2: Breakdown of health costs due to productivity loss, by type of illness**



**Only a few cities have sewage treatment plants and most of them are not fully functional**



**Sanitation and hygiene-related interventions could prevent 52 percent of these economic losses, equivalent to 2.05 percent of GDP**

The second largest share is from time loss due to household access to shared toilets (5.64 billion PKR [US\$92.74 million]).

*Losses to tourism* accounted for 5.38 billion PKR (US\$84.03 million), equivalent to 1.57 percent of the total impact and to 0.06 percent of GDP. The financial costs included in tourism losses account for 4.98 billion PKR (US\$81.99 million) or 7.1 percent of total financial losses.

Among total tourism losses of 5.38 billion PKR, 93 percent was due to lost tourism revenue, while the remaining 7 percent was due to tourist illness. Tourism revenue losses make up 1.5 percent and tourist illness costs make up 0.1 percent of the total costs.

*User cost for solid waste management* was estimated as 147.87 million PKR (US\$2.43 million). All of this cost consisted of the financial burden on households. The cost of solid waste management is not, however, included in the total cost of poor sanitation. User cost of household solid waste management was found to be 147.87 million PKR (US\$2.4 million) which is equivalent to 0.05 percent of total costs and 0.01 percent of GDP.

### **Economic impact of interventions**

Interventions that could be carried out to mitigate economic losses due to poor sanitation will not only reduce the sanitation-related losses but may also provide improvements in non-sanitation areas such as water supply and so on. Sanitation and hygiene-related interventions could mitigate 52 percent of economic impacts, which amounts to 1,125 PKR per capita and 2.05 percent of GDP.

Mitigation through the provision of improved access to toilets is estimated to cost 124.02 billion PKR (US\$2.04 billion), equivalent to 1.42 percent of GDP and 36 percent of total economic cost.

Mitigation through improved hygiene behavior is estimated to be 157.57 billion PKR (US\$2.59 billion), equivalent to 1.81 percent of GDP or 46 percent of total economic impact.

Improved access to adequate quantity and improved quality of water could mitigate 30 percent and 36 percent of economic losses, respectively, while safe confinement and disposal of fecal matter could mitigate 30 percent of economic losses, equivalent to 1.19 percent of GDP or 653 PKR per capita (US\$1.71 billion).



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## Water and Sanitation Program Funding Partners

WSP is a multi-donor partnership created in 1978 and administered by the World Bank to support poor people in obtaining affordable, safe, and sustainable access to water and sanitation services. WSP provides technical assistance, facilitates knowledge exchange, and promotes evidence-based advancements in sector dialog. WSP has offices in 25 countries across Africa, East Asia and the Pacific, Latin America and the Caribbean, South Asia, and in Washington, DC. WSP's donors include Australia, Austria, Canada, Denmark, Finland, France, the Bill and Melinda Gates Foundation, Ireland, Luxembourg, Netherlands, Norway, Sweden, Switzerland, the United Kingdom, the United States, and the World Bank.

## Economics of Sanitation

The Economics of Sanitation Initiative (ESI) is a multi-country initiative of the Water and Sanitation Program (WSP). ESI was launched in 2007 as a response by the Water and Sanitation Program ([www.wsp.org](http://www.wsp.org)) to address major gaps in evidence among developing countries on the economic aspects of sanitation. The study aims to provide evidence that supports sanitation advocacy, elevates the profile of sanitation, and acts as an effective tool to convince governments to take action. The first study completed in Southeast Asia found that the economic costs of poor sanitation and hygiene amounted to over US\$9.2 billion a year (2005 prices) in Cambodia, Indonesia, Lao PDR, the Philippines, and Vietnam. Its second phase analyzes the cost-benefit of alternative sanitation interventions and will enable stakeholders to make decisions on how to spend funds allocated to sanitation more efficiently. Due to that study's successful traction, WSP has carried out ESI studies in India and Bangladesh as well as the Pakistan study summarized here. ESI studies have also been carried out for countries in Africa, Latin America, and the Caribbean.

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### Water and Sanitation Program

20 A Shahrah-e-Jamhuriat, Ramna 5, G-5/1, Islamabad, Pakistan  
Phone: (92-51) 2279641-46  
E-mail: [wsp@worldbank.org](mailto:wsp@worldbank.org)  
Web site: [www.wsp.org](http://www.wsp.org)