Virginia Events

- **ADA Accessibility Basics for Portable Restrooms**
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Guidelines

Understanding ADA Requirements for Portable Restrooms

When considering the upgrade of existing portable toilets to meet ADA guidelines, the initial step involves a thorough assessment of the current facilities to determine their compliance with the Americans with Disabilities Act (ADA) standards. This process is crucial as it sets the foundation for any subsequent modifications or replacements needed to ensure accessibility for all users, including those with disabilities.

Assessing current portable toilets for ADA compliance begins with a physical inspection of each unit. Virginia Department of Health regulations may apply to portable restroom placement at certain public events and gatherings **porta potty rental near me** Waste Management, Inc.. Key aspects to evaluate include the size of the unit, which should provide adequate space for wheelchair maneuverability, typically requiring a minimum interior dimension of 60 inches by 60 inches. The door must open outward to avoid obstructing internal space and should have a handle that is easy to operate without tight grasping or twisting of the wrist, adhering to ADAs operable part requirements.

Next, we look at the placement and design of grab bars inside the toilet area. These must be installed correctly in terms of height, location, and strength to assist individuals in transferring from a wheelchair to the toilet. They should be within reach from both seated and standing positions, ensuring safety and ease of use.

The assessment also covers the toilet seat height, which should be between 17 to 19 inches from the floor to accommodate various mobility needs. Additionally, there should be sufficient clear floor space next to the toilet for side transfers if needed.

Beyond these structural elements, considerations like signage are also part of this evaluation. Signage must be visible and comprehensible, indicating accessible units with appropriate symbols or written descriptions at an accessible height.

This comprehensive assessment not only identifies what upgrades are necessary but also helps prioritize them based on urgency and impact on accessibility. By understanding where

current facilities fall short, facilities managers can plan effective upgrades that not only comply with legal standards but also enhance user experience for individuals with disabilities. This proactive approach ensures that when upgrades are implemented, they are done efficiently and effectively, minimizing disruptions while maximizing accessibility improvements.

Key Dimensions and Clearances for ADA Porta Potties —

Okay, so youre thinking about upgrading your portable toilets to be ADA compliant. Thats a great move, making your facilities accessible to everyone. Its not just about doing the right thing, its also about expanding your customer base and avoiding potential legal headaches. Thing is, retrofitting existing units isnt always a walk in the park. There are a few key modifications youll almost certainly need to address.

First, space. ADA guidelines are pretty specific about the turning radius inside the unit. Youll need enough room for someone using a wheelchair to maneuver comfortably. This often means a larger unit overall, or reconfiguring the interior layout to maximize available space. Think about how the door swings, the placement of the toilet itself, and any grab bars.

And speaking of grab bars, theyre absolutely essential. They need to be strategically placed on the side and rear walls, be of the correct diameter and length, and be securely mounted to handle the expected weight. Dont skimp on the installation – flimsy grab bars are worse than

no grab bars at all.

Then theres the door. It needs to be easy to open and close with one hand, and require minimal force. A lever-style handle is generally preferred over a knob. The doorway itself also needs to be wide enough to accommodate a wheelchair. You might need to widen the existing opening or replace the entire door assembly.

Finally, dont forget about signage. The unit needs to be clearly marked with the International Symbol of Accessibility. The sign needs to be visible and easily readable.

Upgrading portable toilets to ADA compliance can seem daunting, but with careful planning and attention to these key modifications, you can create facilities that are accessible and welcoming to everyone. Its an investment that pays off in the long run, both ethically and practically.

restroom rentals virginia

Social Signals:

Clear Restroom Social Signal:

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Essential Features of ADA Compliant Portable Restrooms

Upgrading existing portable toilets to meet ADA (Americans with Disabilities Act) guidelines is a critical step towards ensuring accessibility and inclusivity at public events, construction sites, and various outdoor venues. Implementation strategies for these upgrades require careful planning, resource allocation, and a commitment to compliance with federal standards. Here's how this can be effectively approached.

First, conducting a thorough assessment of the current inventory of portable toilets is essential. This initial audit should identify which units are non-compliant with ADA standards. Key areas to focus on include the dimensions of the toilet space, ensuring theres enough room for wheelchair maneuverability, the height of the toilet seat from the floor, and the presence of necessary grab bars. By understanding the scope of what needs upgrading or replacing, planners can better allocate their budget and resources.

Once the assessment is complete, selecting appropriate contractors or suppliers who specialize in ADA-compliant portable toilets becomes crucial. These professionals should have experience not only in providing units that meet legal requirements but also in advising on best practices for installation and placement to maximize accessibility. For instance, ensuring that there is a clear path to the toilet without obstacles like uneven ground or steps is vital.

The actual implementation involves several practical steps. First, non-compliant units need to be phased out or modified. For modifications, this might mean retrofitting existing units with wider doors for easier access, installing grab bars at specified heights and locations within reach of users when seated or transferring from a wheelchair, and possibly adjusting the height of toilet seats if they do not already comply with ADA standards. In cases where modification isnt feasible due to structural limitations or cost-effectiveness considerations, replacing these units entirely with new ADA-compliant models might be necessary.

Training staff on how to set up these toilets correctly at various locations is another layer of strategy that shouldnt be overlooked. Proper setup ensures that ramps are correctly aligned if needed, signage indicating accessible facilities is clearly visible from a distance, and privacy screens are installed in a manner that does not obstruct access but provides necessary privacy.

Lastly, ongoing maintenance and periodic checks are part of a comprehensive strategy to ensure continued compliance over time. Regular inspections should verify that all features remain intact and functional; this includes checking for wear on grab bars or any changes in ground level around the unit that could impede access.

In summary, implementing strategies for upgrading portable toilets to meet ADA guidelines involves a detailed initial assessment followed by strategic sourcing of compliant products or services. It requires practical steps in modification or replacement along with training for correct setup by staff members. Continuous maintenance ensures long-term accessibility for all users, reflecting an organizations commitment to inclusivity and legal compliance in public sanitation facilities.

Placement and Accessibility Considerations for ADA Porta Potties on Site

When considering the upgrade of existing portable toilets to meet ADA guidelines within rental services, several benefits and challenges come to light. Firstly, one of the primary benefits is inclusivity. By ensuring that portable toilets are ADA-compliant, rental services cater to a broader audience, including individuals with disabilities. This not only promotes equality but also enhances customer satisfaction as everyone can enjoy events or work sites with dignity and comfort.

Another significant advantage is legal compliance. The Americans with Disabilities Act (ADA) mandates accessibility in public facilities, which includes portable toilets at public events or construction sites. Upgrading ensures that rental companies avoid potential legal issues or fines associated with non-compliance.

However, these upgrades come with their set of challenges. The financial aspect is a notable hurdle; retrofitting existing units or purchasing new ADA-compliant models requires an investment. For small businesses or those operating on tight margins, this can be a considerable expense, especially when considering the need for ongoing maintenance to keep these units in compliance.

Space constraints present another challenge. ADA-compliant portable toilets require more room not just for the unit itself but also for maneuverability around it. This means that at venues where space is at a premium, fitting these larger units might require rethinking layout or reducing the number of standard units available.

Logistics also become more complex. Transporting wider and often heavier ADA-compliant units adds to operational complexity and costs, from fuel consumption to potential wear and tear on transportation vehicles.

Despite these challenges, theres a growing recognition of the value in providing accessible facilities. Many companies find that the positive publicity and reputation enhancement from being inclusive outweighs the initial logistical and financial hurdles. Moreover, as awareness grows among consumers about accessibility rights, demand for such services increases, potentially leading to a competitive edge in the market.

In conclusion, upgrading existing portable toilets to meet ADA guidelines offers significant benefits through inclusivity and compliance but requires careful consideration of financial implications, space requirements, and logistical complexities. However, with strategic planning and investment in long-term benefits like customer loyalty and market differentiation, these

challenges can be effectively managed by forward-thinking rental service providers.

About Toilet paper

Bathroom tissue (often called toilet/bath/bathroom tissue, or bathroom roll) is a tissue paper product mostly used to clean the anus and surrounding region of feces (after defecation), and to clean the external genitalia and perineal area of pee (after peeing). It is frequently provided as a long strip of perforated paper wrapped around a round paperboard core, for storage space in a dispenser within arm's reach of a toilet. The bundle, or roll of toilet tissue, is particularly referred to as a bathroom roll, bathroom roll, or bog roll (in Britain). There are other uses for toilet paper, as it is an easily offered house item. It can be utilized for blowing the nose or cleaning the eyes (or various other uses of face tissue). It can be used to wipe off sweat or absorb it. Some people may use the paper to soak up the bloody discharge that comes out of the vaginal area throughout menstruation. Bathroom tissue can be utilized in cleansing (like a much less unpleasant paper towel). As an adolescent trick, "toilet papering" is a kind of momentary criminal damage. Many modern toilet paper in the established globe is developed to decompose in sewage-disposal tanks, whereas some other washroom and facial tissues are not. Damp toilet paper quickly breaks down in the setting. Toilet paper can be found in different varieties of plies (layers of thickness), from one- to six-ply, with even more back-to-back plies offering better strength and absorbency. The majority of modern residential bathroom tissue is white, and embossed with a pattern, which enhances the area of the paper, and therefore, its efficiency at removing waste. Some people have a preference for whether the orientation of the roll on a dispenser ought to more than or under. Making use of paper for hygiene has actually been taped in China in the 6th century AD, with especially made bathroom tissue being mass-produced in the 14th century. Modern business bathroom tissue originated in the 19th century, with a license for roll-based dispensers being made in 1883.
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About Environmentally friendly

Environment friendly procedures, or environmental-friendly processes (also described as environmentally friendly, nature-friendly, and green), are sustainability and advertising terms describing items and services, laws, standards and policies that claim reduced, very little, or no damage upon ecosystems or the environment. Companies make use of these unclear terms to promote items and services, sometimes with added, a lot more specific qualifications, such as ecolabels. Their overuse can be described as greenwashing. To ensure the successful conference of Lasting Growth Goals (SDGs) firms are encouraged to employ ecological pleasant procedures in their manufacturing. Especially, Lasting Advancement Goal 12 measures 11 targets and 13 indicators "to make sure sustainable usage and manufacturing patterns". The International Company for Standardization has actually created ISO 14020 and ISO 14024 to establish concepts and treatments for

ecological labels and statements that certifiers and eco-labellers need to comply with. In particular, these standards relate to the avoidance of financial conflicts of interest, using audio clinical methods and approved examination treatments, and openness and transparency in the setting of standards.
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About Sanitation

Not to be confused with Sanitization.

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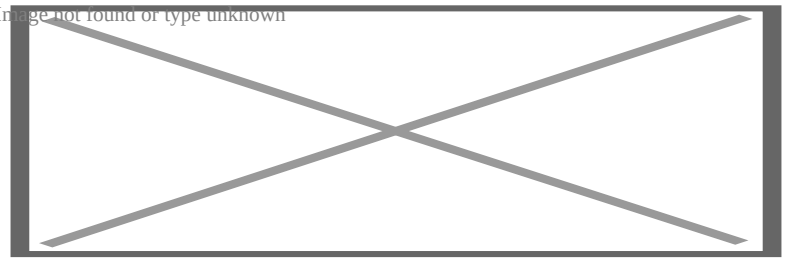

The sanitation system: collection, transport, treatment, disposal or reuse.

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Part of a series on

Public health

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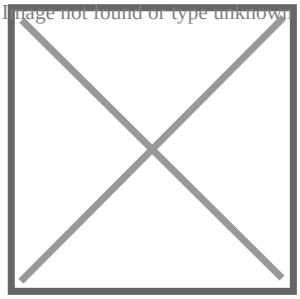

- Outline

Subfields

- Community health
- Dental public health
- Environmental health
- Epidemiology
- Health economics
- Health education
- Health promotion
- Health policy
- Health politics
- Mental health
- Occupational safety
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- Sanitation
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Prevention

- Disease surveillance
- Harm reduction
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- Health indicators
- Human right to water and sanitation
- Right to health
- Supervised injection site
- Universal health care

Lists and categories

- Terminology
- Journals
- National public health agencies

- Medicine portal
- Society portal

Sanitation refers to public health conditions related to clean drinking water and treatment and disposal of human excreta and sewage.[1] Preventing human contact with feces is part of sanitation, as is hand washing with soap. Sanitation systems aim to protect human health by providing a clean environment that will stop the transmission of disease, especially through the fecal–oral route.[2] For example, diarrhea, a main cause of malnutrition and stunted growth in children, can be reduced through adequate sanitation.[3] There are many other diseases which are easily transmitted in communities that have low levels of sanitation, such as ascariasis (a type of intestinal worm infection or helminthiasis), cholera, hepatitis, polio, schistosomiasis, and trachoma, to name just a few.

A range of sanitation technologies and approaches exists. Some examples are community-led total sanitation, container-based sanitation, ecological sanitation, emergency sanitation, environmental sanitation, onsite sanitation and sustainable sanitation. A sanitation system includes the capture, storage, transport, treatment and disposal or reuse of human excreta and wastewater.[4] Reuse activities within the sanitation system may focus on the nutrients, water, energy or organic matter contained in excreta and wastewater. This is referred to as the "sanitation value chain" or "sanitation economy".[5][6] The people responsible for cleaning, maintaining, operating, or emptying a sanitation technology at any step of the sanitation chain are called "sanitation workers".[7]: 2

Several sanitation "levels" are being used to compare sanitation service levels within countries or across countries.[8] The sanitation ladder defined by the Joint Monitoring Programme in 2016 starts at open defecation and moves upwards using the terms "unimproved", "limited", "basic", with the highest level being "safely managed".[8] This is particularly applicable to developing countries.

The Human right to water and sanitation was recognized by the United Nations General Assembly in 2010. Sanitation is a global development priority and the subject of Sustainable Development Goal 6.[9] The estimate in 2017 by JMP states that 4.5 billion people currently do not have safely managed sanitation.[9] Lack of access to sanitation has an impact not only on public health but also on human dignity and personal safety.

Definitions

[edit]

Animated video to underline the importance of sanitation (here with a focus on toilets) on public health in developing countries

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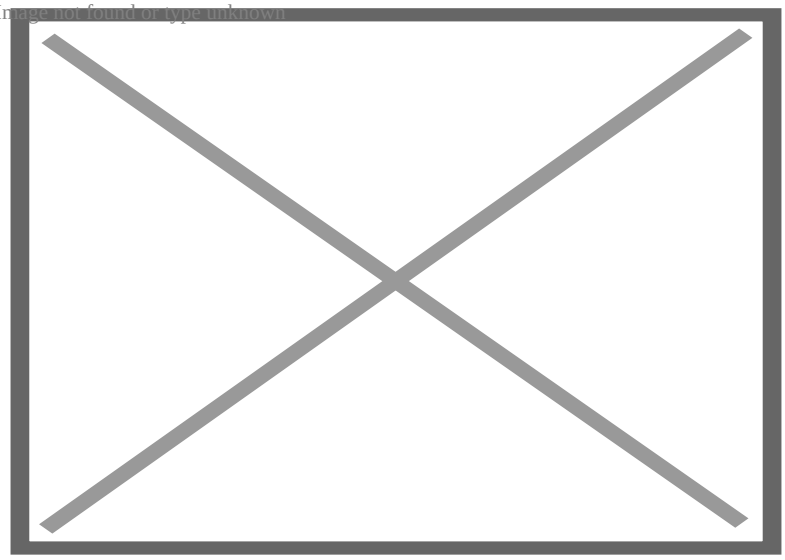

Urban improved sanitation facilities versus rural improved sanitation facilities, 2015.[10]

There are some variations on the use of the term "sanitation" between countries and organizations. The World Health Organization defines the term "sanitation" as follows:

> "Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces. The word 'sanitation' also refers to the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal."[11]

Sanitation includes all four of these technical and non-technical systems: Excreta management systems, wastewater management systems (included here are wastewater treatment plants), solid waste management systems as well as drainage systems for rainwater, also called stormwater drainage.[*citation needed*] However, many in the WASH sector only include excreta management in their definition of sanitation.

Another example of what is included in sanitation is found in the handbook by Sphere on "Humanitarian Charter and Minimum Standards in Humanitarian Response" which describes minimum standards in four "key response sectors" in humanitarian response situations. One of them is "Water Supply, Sanitation and Hygiene Promotion" (WASH) and it includes the following areas: Hygiene promotion, water supply, excreta management, vector control, solid waste management and WASH in disease outbreaks and healthcare settings.[12]: 91

Hygiene promotion is seen by many as an integral part of sanitation. The Water Supply and Sanitation Collaborative Council defines sanitation as "The collection, transport, treatment and disposal or reuse of human excreta, domestic wastewater and solid waste, and associated hygiene promotion."[13]

Despite the fact that sanitation includes wastewater treatment, the two terms are often used side by side as "sanitation and wastewater management".

Another definition is in the DFID guidance manual on water supply and sanitation programmes from 1998:[14]

> "For the purposes of this manual, the word 'sanitation' alone is taken to mean the safe management of human excreta. It therefore includes both the 'hardware' (e.g. latrines and sewers) and the 'software' (regulation, hygiene promotion) needed to reduce faecal-oral disease transmission. It encompasses too the re-use and ultimate disposal of human excreta. The term environmental sanitation is used to cover the wider concept of controlling all the factors in the physical environment which may have deleterious impacts on human health and well-being. In developing countries, it normally includes drainage, solid waste management, and vector control, in addition to the activities covered by the definition of sanitation."

Sanitation can include personal sanitation and public hygiene. Personal sanitation work can include handling menstrual waste, cleaning household toilets, and managing household garbage. Public sanitation work can involve garbage collection, transfer and treatment (municipal solid waste management), cleaning drains, streets, schools, trains, public spaces, community toilets and public toilets, sewers, operating sewage treatment plants, etc.[15]: 4 Workers who provide these services for other people are called sanitation workers.

Purposes

[edit]

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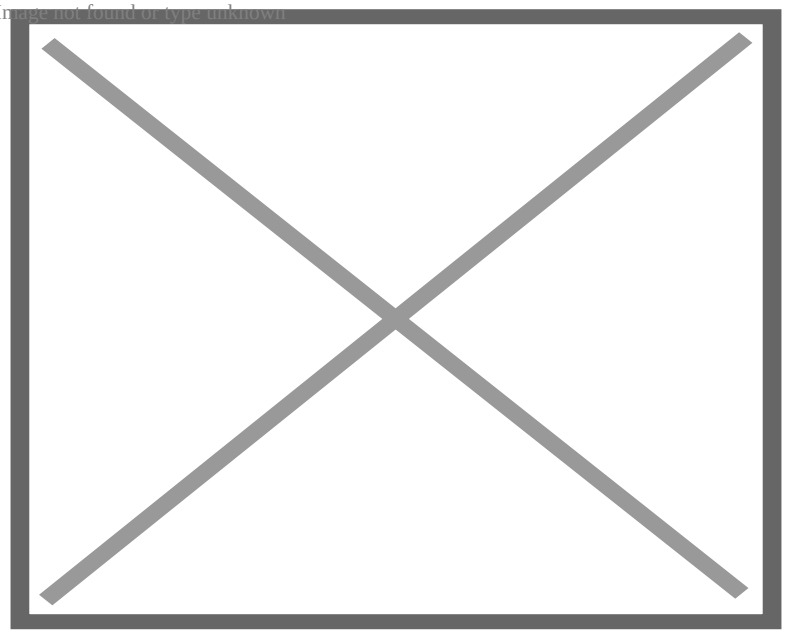

Access to safe drinking water and sanitation (2016)

The overall purposes of sanitation are to provide a healthy living environment for everyone, to protect the natural resources (such as surface water, groundwater, soil), and to provide safety, security and dignity for people when they defecate or urinate.[*citation needed*]

The Human Right to Water and Sanitation was recognized by the United Nations (UN) General Assembly in 2010.[16][17][18] It has been recognized in international law through human rights treaties, declarations and other standards. It is derived from the human right to an adequate standard of living.[19]

Effective sanitation systems provide barriers between excreta and humans in such a way as to break the disease transmission cycle (for example in the case of fecal-borne diseases).[20] This aspect is visualised with the F-diagram where all major routes of fecal-oral disease transmission begin with the letter F: feces, fingers, flies, fields, fluids, food.[21]

Sanitation infrastructure has to be adapted to several specific contexts including consumers' expectations and local resources available.[*citation needed*]

Sanitation technologies may involve centralized civil engineering structures like sewer systems, sewage treatment, surface runoff treatment and solid waste landfills. These structures are designed to treat wastewater and municipal solid waste. Sanitation technologies may also take the form of relatively simple onsite sanitation systems. This can in some cases consist of a simple pit latrine or other type of non-flush toilet for the excreta management part.

Providing sanitation to people requires attention to the entire system, not just focusing on technical aspects such as the toilet, fecal sludge management or the wastewater treatment plant.[22] The "sanitation chain" involves the experience of the user, excreta and wastewater collection methods, transporting and treatment of waste, and reuse or disposal. All need to be thoroughly considered.[22]

Economic impacts

[edit]

The benefits to society of managing human excreta are considerable, for public health as well as for the environment. As a rough estimate: For every US$1 spent on sanitation, the return to society is US$5.50.[23]: 2

For developing countries, the economic costs of inadequate sanitation is a huge concern. For example, according to a World Bank study, economic losses due to inadequate sanitation to The Indian economy are equivalent to 6.4% of its GDP.[24] Most of these are due to premature mortality, time lost in accessing, loss of productivity, additional costs for healthcare among others.[24] Inadequate sanitation also leads to loss from potential tourism revenue.[24] This study also found that impacts are disproportionately higher for the poor, women and children. Availability of toilet at home on the other hand, positively contributes to economic well-being of women as it leads to an increase in literacy and participation in labor force.[25]

Types and concepts (for excreta management)

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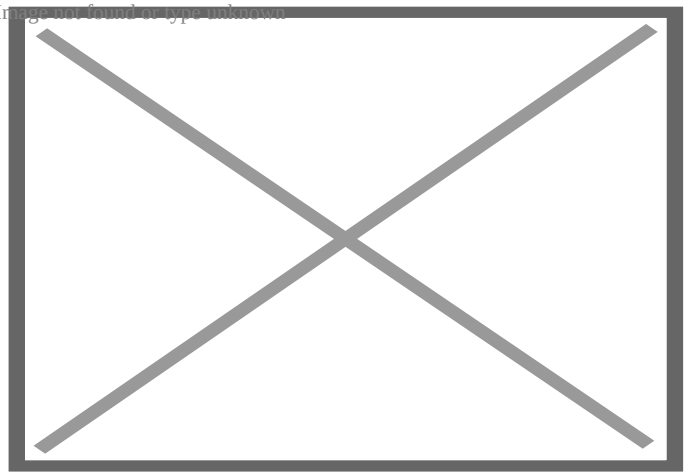

Percentage of population served by different types of sanitation systems[26]

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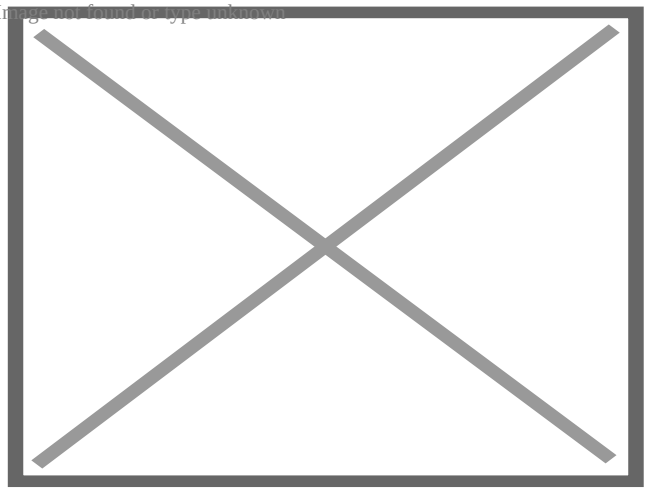


Example of sanitation infrastructure: Shower, double-vault urine-diverting dry toilet (UDDT) and waterless urinal in Lima, Peru

The term sanitation is connected with various descriptors or adjectives to signify certain types of sanitation systems (which may deal only with human excreta management or with the entire sanitation system, i.e. also greywater, stormwater and solid waste management) – in alphabetical order:

Basic sanitation

[edit]

In 2017, JMP defined a new term: "basic sanitation service". This is defined as the use of improved sanitation facilities that are not shared with other households. A lower level of service is now called "limited sanitation service" which refers to use of improved sanitation facilities that are shared between two or more households.[9]

Container-based sanitation

[edit]
This section is an excerpt from Container-based sanitation.[edit]
Container-based sanitation (abbreviated as CBS) refers to a sanitation system where toilets collect human excreta in sealable, removable containers (also called cartridges) that are transported to treatment facilities.[27] This type of sanitation involves a commercial service which provides certain types of portable toilets, and delivers empty containers when picking up full ones. The service transports and safely disposes of or reuses collected excreta. The cost of collection of excreta is usually borne by the users. With suitable development, support and functioning partnerships, CBS can be used to provide low-income urban populations with safe collection, transport and treatment of excrement at a lower cost than installing and maintaining sewers.[28] In most cases, CBS is based on the use of urine-diverting dry toilets.

Community-based sanitation

[edit]

Community-based sanitation is related to decentralized wastewater treatment (DEWATS).[*citation*

Community-led total sanitation

[edit]

This section is an excerpt from Community-led total sanitation.[edit]

Dry sanitation

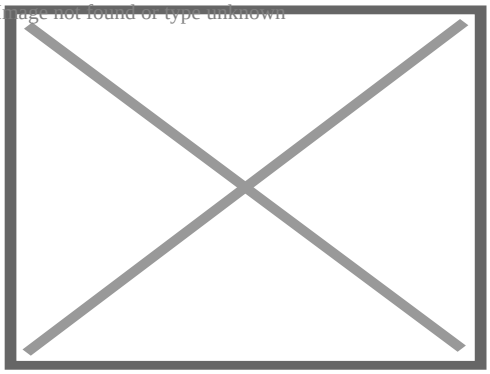
[edit]

The term "dry sanitation" is not in widespread use and is not very well defined. It usually refers to a system that uses a type of dry toilet and no sewers to transport excreta. Often when people speak of "dry sanitation" they mean a sanitation system that uses urine-diverting dry toilet (UDDTs).[29][30]

Ecological sanitation

[edit]

This section is an excerpt from Ecological sanitation.[edit]
Ecological sanitation, commonly abbreviated as ecosan (also spelled eco-san or EcoSan), is an approach to sanitation provision which aims to safely reuse excreta in agriculture.[31] It is an approach, rather than a technology or a device which is characterized by a desire to "close the loop", mainly for the nutrients and organic matter between sanitation and agriculture in a safe manner. One of the aims is to minimise the use of non-renewable resources. When properly designed and operated, ecosan systems provide a hygienically safe system to convert human excreta into nutrients to be returned to the soil, and water to be returned to the land. Ecosan is also called resource-oriented sanitation.



Emergency pit lining kits by Evenproducts

Emergency sanitation

[edit]

This section is an excerpt from Emergency sanitation.[edit]
Emergency sanitation is the management and technical processes required to provide sanitation in emergency situations. Emergency sanitation is required during humanitarian relief operations for refugees, people affected by natural disasters and internally displaced persons.[32] There are three phases of emergency response: Immediate, short term and long term.[32] In the immediate phase, the focus is on managing open defecation, and toilet technologies might include very basic latrines, pit latrines, bucket toilets, container-based toilets, chemical toilets. The short term phase might also involve technologies such as urine-diverting dry toilets, septic tanks, decentralized wastewater systems. Providing handwashing facilities and management of fecal sludge are also part of emergency sanitation.

Environmental sanitation

[edit]

Environmental sanitation encompasses the control of environmental factors that are connected to disease transmission. Subsets of this category are solid waste management, water and wastewater treatment, industrial waste treatment and noise pollution control. According to World health organization (WHO) Environmental sanitation was defined as the control of all those factors in the physical environment which exercise a harmful effect on human being physical development, health and survival. One of the primary function of environmental sanitation is to protect public health.[*citation needed*]

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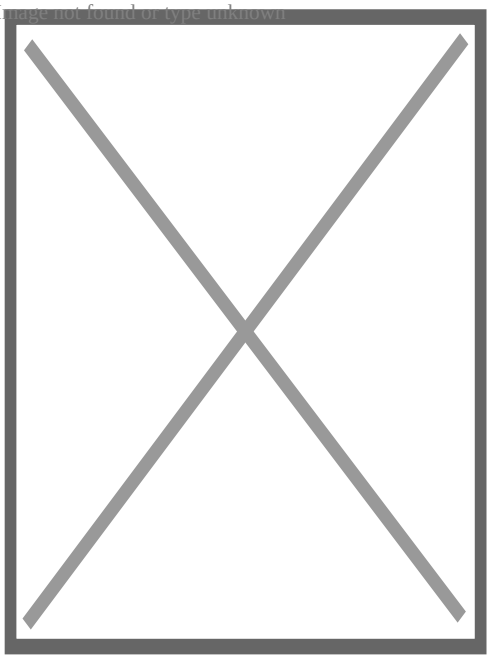

Environmental sanitation by an NGO member

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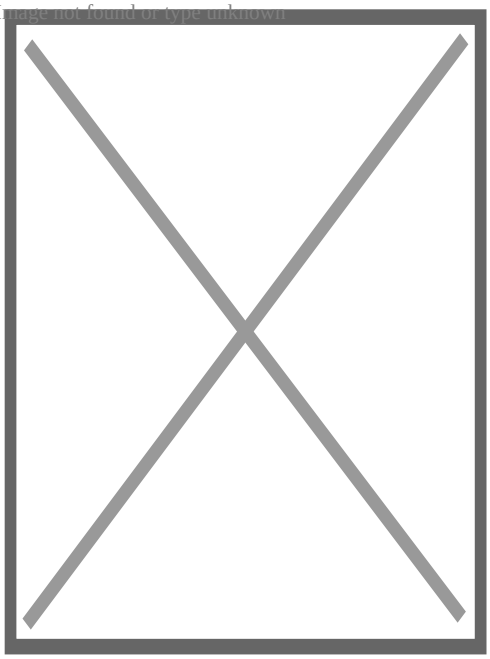


A clean exercise organized by an NGO

Fecal sludge management

[edit]

This section is an excerpt from Fecal sludge management.[edit]
Fecal sludge management (FSM) (or faecal sludge management in British English) is the storage, collection, transport, treatment and safe end use or disposal of fecal sludge.[33] Together, the collection, transport, treatment and end use of fecal sludge constitute the "value chain" or "service chain" of fecal sludge management. Fecal sludge is defined very broadly as what accumulates in onsite sanitation systems (e.g. pit latrines, septic tanks and container-based solutions) and specifically is not transported through a sewer. It is composed of human excreta, but also anything else that may go into an onsite containment technology, such as flushwater, cleansing materials (e.g. toilet paper and anal cleansing materials), menstrual hygiene products, grey water (i.e. bathing or kitchen water, including fats, oils and grease), and solid waste. Fecal sludge that is removed from septic tanks is called septage.

Improved and unimproved sanitation

[edit]

This section is an excerpt from Improved sanitation.[edit]

Improved sanitation (related to but distinct from a "safely managed sanitation service") is a term used to categorize types of sanitation for monitoring purposes. It refers to the management of human feces at the household level. The term was coined by the Joint Monitoring Program (JMP) for Water Supply and Sanitation of UNICEF and WHO in 2002 to help monitor the progress towards Goal Number 7 of the Millennium Development Goals (MDGs). The opposite of "improved sanitation" has been termed "unimproved sanitation" in the JMP definitions. The same terms are used to monitor progress towards Sustainable Development Goal 6 (Target 6.2, Indicator 6.2.1) from 2015 onwards.[34] Here, they are a component of the definition for "safely managed sanitation service".

Lack of sanitation

[edit]

Lack of sanitation refers to the absence of sanitation. In practical terms it usually means lack of toilets or lack of hygienic toilets that anybody would want to use voluntarily. The result of lack of sanitation is usually open defecation (and open urination but this is of less concern) with associated serious public health issues.[35] It is estimated that 2.4 billion people still lacked improved sanitation facilities including 660 million people who lack access to safe drinking water as of 2015.[36][37]

Onsite sanitation or non-sewered sanitation system

[edit]

Onsite sanitation (or on-site sanitation) is defined as "a sanitation system in which excreta and wastewater are collected and stored or treated on the plot where they are generated".[22]: 173 Another term that is used for the same system is non-sewered sanitation systems (NSSS), which are prevalent in many countries.[38] NSSS play a vital role in the safe management of fecal sludge, accounting for approximately half of all existing sanitation provisions.[38] The degree of treatment may be variable, from none to advanced. Examples are pit latrines (no treatment) and septic tanks (primary treatment of wastewater). On-site sanitation systems are often connected to fecal sludge management (FSM) systems where the fecal sludge that is generated onsite is treated at an offsite location. Wastewater (sewage) is only generated when piped water supply is available within the buildings or close to them.[*citation needed*]

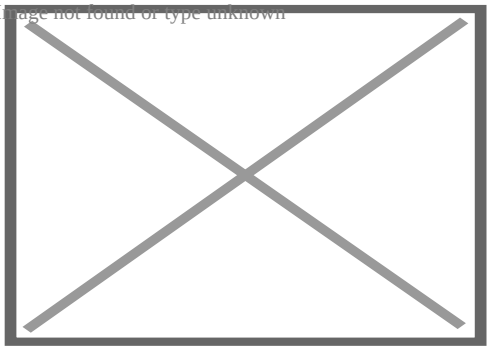
A related term is a decentralized wastewater system which refers in particular to the wastewater part of on-site sanitation. Similarly, an onsite sewage facility can treat the

wastewater generated locally.[*citation needed*]

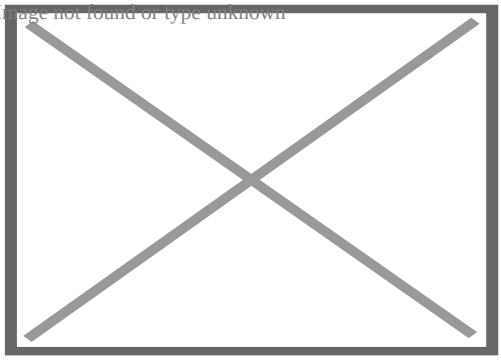
The global methane emissions from NSSS in 2020 was estimated to as 377 Mt CO2e per year or 4.7% of global anthropogenic methane emissions, which are comparable to the greenhouse gas emissions from wastewater treatment plants.[38] This means that the GHG emissions from the NSSS as a non-negligible source.[38]

Safely managed sanitation

[edit]



Share of population using safely managed sanitation facilities in 2022[39]



Number of handwashing facilities in the world, 2022

Safely managed sanitation is the highest level of household sanitation envisioned by the Sustainable Development Goal Number 6.[40] It is measured under the Sustainable Development Goal 6.2, Indicator 6.2.1, as the "Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water".[41][9] The current value in the 2017 baseline estimate by JMP is that 4.5 billion people currently do not have safely managed sanitation.[9]

Safely managed sanitation is defined as an improved sanitation facility which is not shared with other households, and where the excreta produced is either treated and disposed in situ, stored temporarily and then emptied and transported to treatment off-site, or

transported through a sewer with wastewater and then treated off-site.[41] In other words, safely managed sanitation is a basic sanitation service where in addition excreta are safely disposed of in situ or transported and treated offsite.[9]

Sustainable sanitation

[edit]

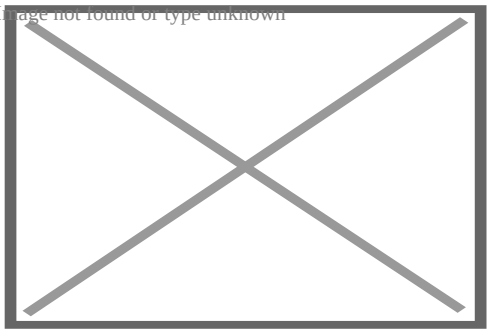
This section is an excerpt from Sustainable sanitation.[edit]
Sustainable sanitation is a sanitation system designed to meet certain criteria and to work well over the long-term. Sustainable sanitation systems consider the entire "sanitation value chain", from the experience of the user, excreta and wastewater collection methods, transportation or conveyance of waste, treatment, and reuse or disposal.[42] The Sustainable Sanitation Alliance (SuSanA) includes five features (or criteria) in its definition of "sustainable sanitation": Systems need to be economically and socially acceptable, technically and institutionally appropriate and protect the environment and natural resources.[43]

Other types, concepts and systems

[edit]

Wastewater management

[edit]
Main articles: Wastewater and Wastewater treatment



Sewage treatment plant, Australia.

Wastewater management consists of collection, wastewater treatment (be it municipal or industrial wastewater), disposal or reuse of treated wastewater. The latter is also referred to as water reclamation.[*citation needed*]

Sanitation systems in urban areas of developed countries usually consist of the collection of wastewater in gravity driven sewers, its treatment in wastewater treatment plants for reuse or disposal in rivers, lakes or the sea.[*citation needed*]

In developing countries most wastewater is still discharged untreated into the environment. Alternatives to centralized sewer systems include onsite sanitation, decentralized wastewater systems, dry toilets connected to fecal sludge management.

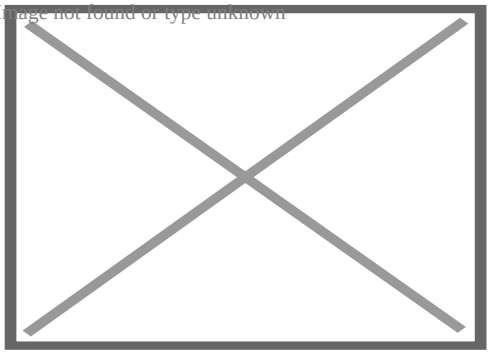
Stormwater drainage

[edit]
Main article: Storm drain

Sewers are either combined with storm drains or separated from them as sanitary sewers. Combined sewers are usually found in the central, older parts or urban areas. Heavy rainfall and inadequate maintenance can lead to combined sewer overflows or sanitary sewer overflows, i.e., more or less diluted raw sewage being discharged into the environment. Industries often discharge wastewater into municipal sewers, which can complicate wastewater treatment unless industries pre-treat their discharges.[44]

Solid waste disposal

[edit]
Main article: Waste management



Hiriya Landfill, Israel.

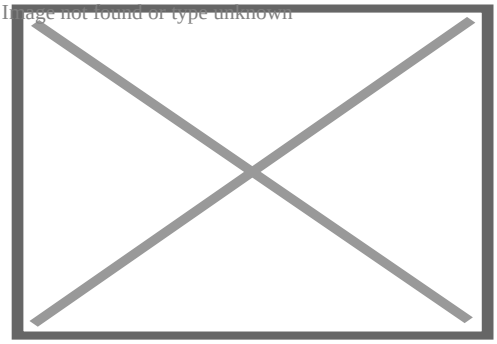
Disposal of solid waste is most commonly conducted in landfills, but incineration, recycling, composting and conversion to biofuels are also avenues. In the case of landfills, advanced countries typically have rigid protocols for daily cover with topsoil, where underdeveloped countries customarily rely upon less stringent protocols.[45] The importance of daily cover

lies in the reduction of vector contact and spreading of pathogens. Daily cover also minimizes odor emissions and reduces windblown litter. Likewise, developed countries typically have requirements for perimeter sealing of the landfill with clay-type soils to minimize migration of leachate that could contaminate groundwater (and hence jeopardize some drinking water supplies).

For incineration options, the release of air pollutants, including certain toxic components is an attendant adverse outcome. Recycling and biofuel conversion are the sustainable options that generally have superior lifecycle costs, particularly when total ecological consequences are considered.[46] Composting value will ultimately be limited by the market demand for compost product.[*citation needed*]

Food safety

[edit]



Modern restaurant food preparation area.

Main article: Food safety

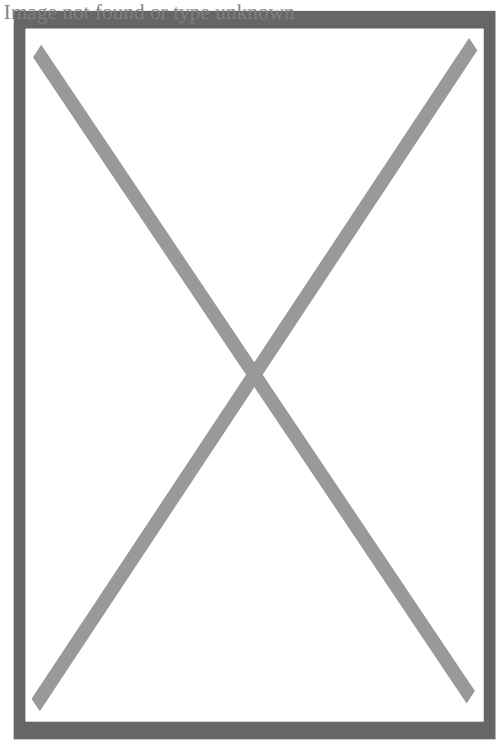
Sanitation within the food industry means the adequate treatment of food-contact surfaces by a process that is effective in destroying vegetative cells of microorganisms of public health significance, and in substantially reducing numbers of other undesirable microorganisms, but without adversely affecting the food or its safety for the consumer (U.S. Food and Drug Administration, Code of Federal Regulations, 21CFR110, USA). Sanitation Standard Operating Procedures are mandatory for food industries in United States. Similarly, in Japan, food hygiene has to be achieved through compliance with food sanitation law.[47]

In the food and biopharmaceutical industries, the term "sanitary equipment" means equipment that is fully cleanable using clean-in-place (CIP) and sterilization-in-place (SIP) procedures: that is fully drainable from cleaning solutions and other liquids. The design should have a minimum amount of deadleg, or areas where the turbulence during cleaning is insufficient to remove product deposits.[48] In general, to improve cleanability, this

equipment is made from Stainless Steel 316L, (an alloy containing small amounts of molybdenum). The surface is usually electropolished to an effective surface roughness of less than 0.5 micrometre to reduce the possibility of bacterial adhesion.

Hygiene promotion

[edit]
Further information: Hygiene



Hygiene education (on proper handwashing) in Afghanistan

In many settings, provision of sanitation facilities alone does not guarantee good health of the population. Studies have suggested that the impact of hygiene practices have as great an impact on sanitation related diseases as the actual provision of sanitation facilities. Hygiene promotion is therefore an important part of sanitation and is usually key in maintaining good health.[49]

Hygiene promotion is a planned approach of enabling people to act and change their behavior in an order to reduce and/or prevent incidences of water, sanitation and hygiene (WASH)[50] related diseases. It usually involves a participatory approach of engaging people to take responsibility of WASH services and infrastructure including its operation and maintenance. The three key elements of promoting hygiene are; mutual sharing of information and knowledge, the mobilization of affected communities and the provision of essential material and facilities.[12]

Health aspects

[edit]

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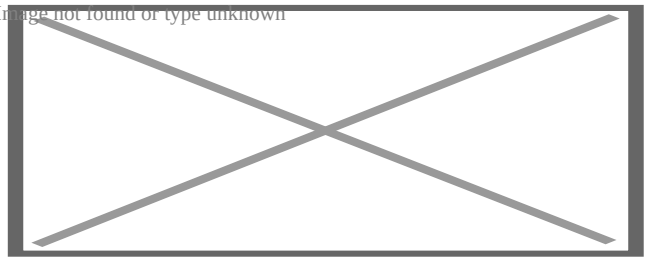

The "F-diagram" (feces, fingers, flies, fields, fluids, food), showing pathways of fecal-oral disease transmission. The vertical blue lines show barriers: toilets, safe water, hygiene and handwashing.

A video shedding light on the unsafe and undignified working conditions of many sanitation workers in India

Main article: WASH § Health aspects

This section is an excerpt from WASH § WASH-attributable burden of diseases and injuries.[edit]

The WHO has investigated which proportion of death and disease worldwide can be attributed to insufficient WASH services. In their analysis they focus on the following four health outcomes: diarrhea, acute respiratory infections, malnutrition, and soil-transmitted Helminthiasis (STHs).[51]: vi These health outcomes are also included as an indicator for achieving Sustainable Development Goal 3 ("Good Health and Well-being"): Indicator 3.9.2 reports on the "mortality rate attributed to unsafe water, sanitation, and lack of hygiene".

In 2023, WHO summarized the available data with the following key findings: "In 2019, use of safe WASH services could have prevented the loss of at least 1.4 million lives and 74 million disability-adjusted life years (DALYs) from four health outcomes. This represents 2.5% of all deaths and 2.9% of all DALYs globally."[51]: vi Of the four health outcomes studied, it was diarrheal disease that had the most striking correlation, namely the highest number of "attributable burden of disease": over 1 million deaths and 55 million DALYs from diarrheal diseases were linked with lack of WASH. Of these deaths, 564,000 deaths were linked to unsafe sanitation in particular.

Environmental aspects

[edit]

Indicator organisms

[edit]

When analyzing environmental samples, various types of indicator organisms are used to check for fecal pollution of the sample. Commonly used indicators for bacteriological water analysis include the bacterium *Escherichia coli* (abbreviated as *E. coli)* and non-specific fecal coliforms. With regards to samples of soil, sewage sludge, biosolids or fecal matter from dry toilets, helminth eggs are a commonly used indicator. With helminth egg analysis, eggs are extracted from the sample after which a viability test is done to distinguish between viable and non viable eggs. The viable fraction of the helminth eggs in the sample is then counted.

Climate change

[edit]
Main article: WASH § Climate change aspects

Global mechanisms

[edit]

Sustainable Development Goal Number 6

[edit]
Further information: Sustainable Development Goal 6

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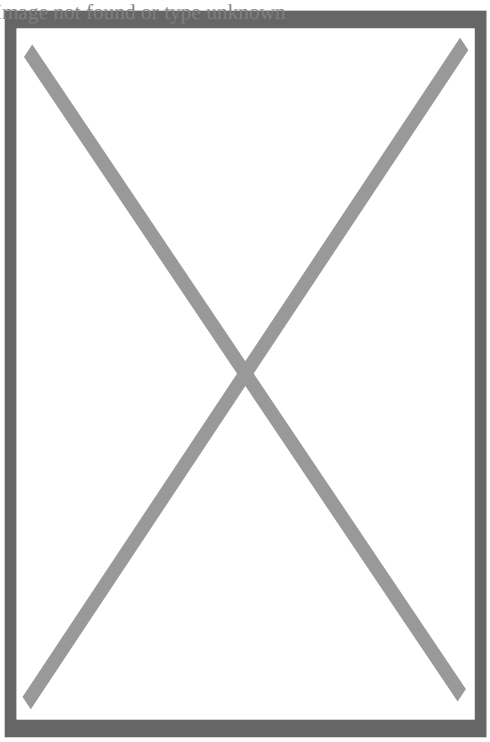
United Nations SDG 6 Logo

In the year 2016, the Sustainable Development Goals replaced the Millennium Development Goals. Sanitation is a global development priority and included Sustainable Development Goal 6 (SDG 6).[9] The target is about "clean water and sanitation for all" by 2030.[52] It is estimated that 660 million people still lacked access to safe drinking water as of 2015.[36][37]

Since the COVID-19 pandemic in 2020, the fight for clean water and sanitation is more important than ever. Handwashing is one of the most common prevention methods for Coronavirus, yet two out of five people do not have access to a hand-washing station.[53]

Millennium Development Goal Number 7 until 2015

[edit]



Example for lack of sanitation: Unhygienic pit latrine with ring slab in Kalibari community in Mymensingh, Bangladesh

The United Nations, during the Millennium Summit in New York in 2000 and the 2002 World Summit on Sustainable Development in Johannesburg, developed the Millennium Development Goals (MDGs) aimed at poverty eradication and sustainable development. The specific sanitation goal for the year 2015 was to reduce by half the number of people who had no access to potable water and sanitation in the baseline year of 1990. As the JMP and the United Nations Development Programme (UNDP) Human Development Report in 2006 has shown, progress meeting the MDG sanitation target is slow, with a large gap between the target coverage and the current reality.

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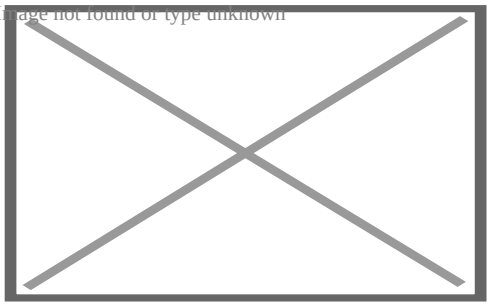

Modified logo of International Year of Sanitation, used in the UN Drive to 2015 campaign logo

In December 2006, the United Nations General Assembly declared 2008 "The International Year of Sanitation", in recognition of the slow progress being made towards the MDGs sanitation target.[54] The year aimed to develop awareness and more actions to meet the target.

There are numerous reasons for this gap. A major one is that sanitation is rarely given political attention received by other topics despite its key importance. Sanitation is not high on the international development agenda, and projects such as those relating to water supply projects are emphasised.[55]

The Joint Monitoring Programme for Water Supply and Sanitation of WHO and UNICEF (JMP) has been publishing reports of updated estimates every two years on the use of various types of drinking-water sources and sanitation facilities at the national, regional and global levels. The JMP report for 2015 stated that:[36]

- Between 1990 and 2015, open defecation rates have decreased from 38% to 25% globally. Just under one billion people (946 million) still practise open defecation worldwide in 2015.
- 82% of the global urban population, and 51% of the rural population is using improved sanitation facilities in 2015, as per the JMP definition of "improved sanitation".[56]

Initiatives to promote sanitation

[edit]

In 2011 the Bill & Melinda Gates Foundation launched the "Reinvent the Toilet Challenge" to promote safer, more effective ways to treat human waste.[57] The program is aimed at developing technologies that might help bridge the global sanitation gap (for example the Omni Processor, or technology for fecal sludge management). In 2015, the Bill & Melinda Gates Foundation published their "Water, sanitation, and hygiene strategy portfolio update and overview" called "Building demand for sanitation".[58]

The latest innovations in the field of public health sanitation, currently in the testing phase, comprise - use of 'locally produced alcohol-based hand rub'; 'novel latrine improvement'; and 'container-based sanitation'. Centers for Disease Control and Prevention (CDC), the national public health agency of the United States has recognized the stated three initiatives.

Capacity development

[edit]

Capacity development is regarded as an important mechanism to achieve progress in the sanitation sector.[59] For example, in India the Sanitation Capacity Building platform (SCBP) was designed to "support and build the capacity of town/cities to plan and implement decentralized sanitation solutions" with funding by the Bill & Melinda Gates Foundation from 2015 to 2022.[60][61] Results from this project showed that capacity development best happens on the job and in a learning organization culture.[62] In a government capacity development initiative, it is critical to have an enabling policy and program funding to translate capacity development input into program and infrastructure outputs. Capacity development aims to empower staff and institutions, develop a learning strategy, learning content and training modules, as well as strengthened partnerships and institutions of learning.[62] The Capacity Development Effectiveness Ladder Framework (CDEL) identifies five critical steps for capacity development interventions: Developing original learning content, partnerships for learning and outreach, learning strategy, visioning change and designing solutions, contribution to capacity development discourse.[62][63]

Costs

[edit]

A study was carried out in 2018 to compare the lifecycle costs of full sanitation chain systems in developing cities of Africa and Asia. It found that conventional sewer systems are in most cases the most expensive sanitation options, followed, in order of cost, by sanitation systems comprising septic tanks, ventilated improved pit latrines (VIP), urine diversion dry toilets and pour-flush pit latrines.[64] The main determinants of urban sanitation financial costs include: Type of technology, labour, material and utility cost, density, topography, level of service provided by the sanitation system, soil condition, energy cost and others (distance to wastewater treatment facility, climate, end-use of treatment products, business models, water table height).[64]

Some grassroots organizations have trialled community-managed toilet blocks whose construction and maintenance costs can be covered by households. One study of Mumbai

informal settlements found that US$1.58 per adult would be sufficient for construction, and less than US$1/household/month would be sufficient for maintenance.[65]

History

[edit]

Further information: History of water supply and sanitation, Toilet § History, and History of waste management

Major human settlements could initially develop only where fresh surface water was plentiful, such as near rivers or natural springs. Throughout history people have devised systems to get water into their communities and households, and to dispose (and later also treat) wastewater.[66] The focus of sewage treatment at that time was on conveying raw sewage to a natural body of water, e.g. a river or ocean, where it would be diluted and dissipated.

The Sanitation in the Indus Valley Civilization in Asia is an example of public water supply and sanitation during the Bronze Age (3300–1300 BCE). Sanitation in ancient Rome was quite extensive. These systems consisted of stone and wooden drains to collect and remove wastewater from populated areas—see for instance the Cloaca Maxima into the River Tiber in Rome. The first sewers of ancient Rome were built between 800 and 735 BCE.[67]

By country

[edit]

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Water supply and sanitation by country

- Afghanistan
- Algeria
- Angola
- Argentina
- Australia
- Azerbaijan
- Bangladesh
- Belgium
- Belize
- Benin
- Bhutan
- Bolivia
- Bosnia and Herzegovina
- Brazil
- Burkina Faso
- Cambodia
- Canada
- Chile
- China
- Colombia
- Costa Rica
- Cuba
- Democratic Republic of the Congo
- Denmark
- Dominican Republic
- Ecuador
- Egypt
- El Salvador
- Ethiopia
- France
- Georgia
- Germany
- Ghana
- Greece
- Grenada
- Guatemala
- Guyana
- Haiti
- Honduras
- India
- Indonesia
- Iran
- Iraq
- Ireland
- Israel
- Italy
- Jamaica
- Japan
- Jordan
- Kenya

Society and culture

[edit]

There is a vast number of professions that are involved in the field of sanitation, for example on the technical and operations side: sanitation workers, waste collectors, sanitary engineers.

See also

[edit]

- List of abbreviations used in sanitation
- List of countries by proportion of the population using improved sanitation facilities
- List of water supply and sanitation by country
- Environmental health
- Water pollution
- Water security
- Self-supply of water and sanitation
- Sustainable Sanitation Alliance
- World Toilet Day

References

[edit]

1. **^** *"sanitation | Definition of sanitation in English by Oxford Dictionaries". Oxford Dictionaries | English. Archived from the original on November 17, 2017. Retrieved 2017-11-17.*
2. **^** SuSanA (2008). Towards more sustainable sanitation solutions Archived 2017-10-12 at the Wayback Machine. Sustainable Sanitation Alliance (SuSanA)
3. **^** *"Diarrhoeal disease". World Health Organization. Archived from the original on 2014-04-01. Retrieved 2017-11-17.*
4. **^** *Gates Foundation (2010). "Water Sanitation Hygiene Fact Sheet 2010" (PDF). Gates Foundation. Archived (PDF) from the original on 2020-10-21. Retrieved 2017-11-17.*
5. **^** *Paranipe, Nitin (19 September 2017). "The rise of the sanitation economy: how business can help solve a global crisis". Thomson Reuters Foundation News. Archived from the original on 29 December 2019. Retrieved November 13, 2017.*
6. **^** *Introducing the Sanitation Economy (PDF). Toilet Board Coalition. 2017. Archived (PDF) from the original on 2018-07-31. Retrieved 2017-12-19.*
7. **^** World Bank, ILO, WaterAid, and WHO (2019). Health, Safety and Dignity of Sanitation Workers: An Initial Assessment Archived 2022-12-11 at the Wayback Machine. World Bank, Washington, DC.
8. ^ ***a b*** *"Sanitation | JMP". washdata.org. Archived from the original on 2021-07-21. Retrieved 2017-11-17.*

9. ^ ***a b c d e f g*** WHO and UNICEF (2017) Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines Archived 2019-07-25 at the Wayback Machine. Geneva: World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), 2017
10. **^** *"Urban sanitation facilities vs. rural sanitation facilities". Our World in Data. Archived from the original on 19 September 2020. Retrieved 6 March 2020.*
11. **^** *"Sanitation". Health topics. World Health Organization. Archived from the original on 2020-06-06. Retrieved 2020-10-05.*
12. ^ ***a b*** Sphere Association (2018) The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response Archived 2019-05-12 at the Wayback Machine, fourth edition, Geneva, Switzerland, 2018.
13. **^** Evans, B., van der Voorden, C., Peal, A. (2009). Public Funding for Sanitation - The many faces of sanitation subsidies Archived 2017-10-11 at the Wayback Machine. Water Supply and Sanitation Collaborative Council (WSSCC), Geneva, Switzerland, p. 35
14. **^** WELL (1998) DFID guidance manual on water supply and sanitation programmes Archived 2022-01-20 at the Wayback Machine WELL Loughborough University UK
15. **^** PRIA (2019): Lived Realities of Women Sanitation Workers in India: Insights from a Participatory Research Conducted in Three Cities of India Archived 2022-12-11 at the Wayback Machine. Participatory Research in Asia, New Delhi, India
16. **^** *"General Assembly" (PDF). Archived (PDF) from the original on 2017-03-19. Retrieved 2019-11-25.*
17. **^** Human Rights Council resolution 15/9, *Human rights and access to safe drinking water and sanitation*, (6 October 2010), available from http://www.right2water.eu/sites/water/files/UNHRC%20Resolution%2015-9.pdf Archived 2017-05-17 at the Wayback Machine
18. **^** *"The human rights to safe drinking water and sanitation". Archived from the original (PDF) on 2017-08-25. Retrieved 2019-11-25.*
19. **^** Right to water and sanitation derive from the right to an adequate standard of living. http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=10403&LangID=E Archived 2022-03-06 at the Wayback Machine
20. **^** Thor Axel Stenström (2005) Breaking the sanitation barriers; WHO Guidelines for excreta use as a baseline for environmental health Archived 2008-11-22 at the Wayback Machine, Ecosan Conference, Durban, South Africa
21. **^** *Conant, Jeff (2005). Sanitation and Cleanliness for a Healthy Environment (PDF). Berkeley, California, USA: The Hesperian Foundation in collaboration with the United Nations Development Programme (UNDP), Sida. p. 6. Archived from the original (PDF) on 2014-10-21.*
22. ^ ***a b c*** Tilley, E., Ulrich, L., Lüthi, C., Reymond, Ph. and Zurbrügg, C. (2014). Compendium of Sanitation Systems and Technologies. 2nd Revised Edition Archived 2021-08-28 at the Wayback Machine. Swiss Federal Institute of Aquatic Science and Technology (Eawag), Duebendorf, Switzerland
23. **^** *WWAP (United Nations World Water Assessment Programme) (2017). The United Nations World Water Development Report 2017. Wastewater: The Untapped Resource. Paris. ISBN 978-92-3-100201-4. Archived from the original on 2017-04-08.*

cite book: CS1 maint: location missing publisher (link)
24. ^ ***a b c*** *WSP (2011). The economic Impacts of Inadequate Sanitation in India. Water and Sanitation Programme, The World Bank.*
25. **^** *Gius, Mark; Subramanian, Ramesh (2015). "The Relationship between Inadequate Sanitation Facilities and the Economic Well-Being of Women in India". Journal of Economics and Development Studies.* ***3*** *(1). doi:10.15640/jeds.v3n1a2 (inactive 12 July 2025). ISSN 2334-2382.*cite journal: CS1 maint: DOI inactive as of July 2025 (link)
26. **^** *WWAP (United Nations World Water Assessment Programme) (2017). The United Nations World Water Development Report 2017. Wastewater: The Untapped Resource. Paris. ISBN 978-92-3-100201-4. Archived from the original on 2017-04-08.* cite book: CS1 maint: location missing publisher (link)
27. **^** *Tilmans, Sebastien; Russel, Kory; Sklar, Rachel; Page, Leah; Kramer, Sasha; Davis, Jennifer (2015-04-13). "Container-based sanitation: assessing costs and effectiveness of excreta management in Cap Haitien, Haiti". Environment and Urbanization.* ***27*** *(1): 89–104. Bibcode:2015EnUrb..27...89T. doi:10.1177/0956247815572746. PMC 4461065. PMID 26097288.*
28. **^** *Shepard, J.; Stevens, C.; Mikhael, G. (2017). The world can't wait for sewers; Advancing container-based sanitation businesses as a viable answer to the global sanitation crisis. EY, WSUP.*
29. **^** Platzer, C., Hoffmann, H., Ticona, E. (2008). Alternatives to waterborne sanitation – a comparative study – limits and potentials Archived 2017-10-09 at the Wayback Machine. IRC Symposium: Sanitation for the urban poor – partnerships and governance, Delft, The Netherlands
30. **^** Flores, A. (2010). *Towards sustainable sanitation: evaluating the sustainability of resource-oriented sanitation* Archived 2017-06-29 at the Wayback Machine. PhD Thesis, University of Cambridge, UK
31. **^** *GTZ, IWA (2003). Ecosan - closing the loop - Proceedings of the 2nd international symposium, 7th–11th April 2003, Lübeck, Germany. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH and International Water Association (IWA).*
32. ^ ***a b*** *Harvey, Peter; et al. (2007). Excreta disposal in emergencies a field manual: an inter-agency publication. Loughborough: Loughborough university. Water, engineering and development centre (WEDC). p. 250. ISBN 978-1-84380-113-9.*
33. **^** *Velkushanova, Konstantina; Strande, Linda; Ronteltap, Mariska; Koottatep, Thammarat; Brdjanovic, Damir; Buckley, Chris, eds. (2021). Methods for Faecal Sludge Analysis. IWA Publishing. doi:10.2166/9781780409122. ISBN 978-1780409122.* Image not found or type unknown Text was copied from this source, which is available under a Creative Commons Attribution 4.0 International License.
34. **^** WHO and UNICEF (2017) Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines. Geneva: World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), 2017
35. **^** *Mara, Duncan (2017). "The elimination of open defecation and its adverse health effects: a moral imperative for governments and development professionals". Journal of Water Sanitation and Hygiene for Development.* ***7*** *(1): 1–12.*

Bibcode:2017JWSHD...7....1M. doi:10.2166/washdev.2017.027. ISSN 2043-9083. Archived from the original on 2018-06-21. Retrieved 2017-08-17.

36. ^ ***a b c*** WHO and UNICEF *Progress on Sanitation and Drinking-water: 2015 Update Archived 2021-02-12 at the Wayback Machine*, WHO, Geneva and UNICEF, New York
37. ^ ***a b*** *European Investment Bank (2019). On Water. Publications Office. doi:10.2867/509830. ISBN 9789286143199. Archived from the original on 2020-11-29 . Retrieved 2020-12-07.* cite book: |website= ignored (help)
38. ^ ***a b c d*** *Cheng, Shikun; Long, Jinyun; Evans, Barbara; Zhan, Zhe; Li, Tianxin; Chen, Cong; Mang, Heinz-Peter; Li, Zifu (2022). "Non-negligible greenhouse gas emissions from non-sewered sanitation systems: A meta-analysis". Environmental Research.* ***212*** *(Pt D): 113468. Bibcode:2022ER....21213468C. doi: 10.1016/j.envres.2022.113468. PMC 9227720. PMID 35597295.* Image not found or type unknown Text was copied from this source, which is available under a Creative Commons Attribution 4.0 International License Archived 2017-10-16 at the Wayback Machine
39. **^** Ritchie, Roser, Mispy, Ortiz-Ospina (2018) "Measuring progress towards the Sustainable Development Goals." (SDG 6) Archived 2020-11-01 at the Wayback Machine *SDG-Tracker.org, website*
40. **^** *"JMP - Sanitation". washdata.org. Joint Monitoring Programme of UNICEF and WHO. Archived from the original on 21 July 2021. Retrieved 25 February 2021.*
41. ^ ***a b*** *"Indicator 6.2.1 - Proportion of population using safely managed sanitation services, including a handwashing facility with soap and water". sdg6monitoring.org. UN Water. Archived from the original on 3 March 2021. Retrieved 25 February 2021.*
42. **^** Tilley, E., Ulrich, L., Lüthi, C., Reymond, Ph. and Zurbrügg, C. (2014). Compendium of Sanitation Systems and Technologies. 2nd Revised Edition. Swiss Federal Institute of Aquatic Science and Technology (Eawag), Duebendorf, Switzerland
43. **^** SuSanA (2008). Towards more sustainable sanitation solutions - SuSanA Vision Document. Sustainable Sanitation Alliance (SuSanA)
44. **^** *Environmental Biotechnology: Advancement in Water And Wastewater Application*, edited by Z. Ujang, IWA Proceedings, Malaysia (2003)
45. **^** George Tchobanoglous and Frank Kreith *Handbook of Solid Waste Management*, McGraw Hill (2002)
46. **^** William D. Robinson, *The Solid Waste Handbook: A Practical Guide*, John Wiley and sons (1986)
47. **^** *Japan External Trade Organization. "Food Sanitation Law in Japan" (PDF). Archived from the original (PDF) on 9 April 2008. Retrieved 1 March 2008.*
48. **^** Treatment of deadleg plumbing areas
49. **^** *Reed, Brian; Bevan, Jane (2014). Managing hygiene promotion in WASH programmes. Leicestershire, UK: Water, Engineering and Development Centre (WEDC), Loughborough University. ISBN 978-1-84380-168-9.*
50. **^** *"2021 water, sanitation and hygiene barometer" (PDF). SOLIDARITÉS INTERNATIONAL. 2021. Archived (PDF) from the original on 2021-03-25. Retrieved 2021-04-13.*
51. ^ ***a b*** WHO (2023) Burden of disease attributable to unsafe drinking-water, sanitation and hygiene, 2019 update. Geneva: World Health Organization; 2023. Licence: CC

BY-NC-SA 3.0 IGO.
52. **^** *"Goal 6: Ensure access to water and sanitation for all". Archived from the original on 2019-04-16. Retrieved 2017-11-17.*
53. **^** *UN. "Water and Sanitation". United Nations Sustainable Development. Archived from the original on 2019-04-16. Retrieved 2021-01-04.*
54. **^** *Kurian, Mathew; McCarney, Patricia, eds. (2010). Peri-urban Water and Sanitation Services. Springer. doi:10.1007/978-90-481-9425-4. ISBN 978-90-481-9424-7. Archived from the original on 2022-12-11. Retrieved 2017-09-11.*
55. **^** *Abellán, Javier; Alonso, José Antonio (2022). "Promoting global access to water and sanitation: A supply and demand perspective". Water Resources and Economics.* ***38*** *100194. Bibcode:2022WRE....3800194A. doi:10.1016/j.wre.2022.100194. S2CID 246261266.*
56. **^** WHO and UNICEF types of improved drinking-water source on the JMP website, WHO, Geneva and UNICEF, New York, accessed on June 10, 2012
57. **^** BMGF (2012). Reinvent the Toilet Challenge Archived 2022-11-11 at the Wayback Machine (RTTC, Round 1 and 2), Grand Challenges Explorations (Round 6 and 7) - Request for proposals, grant conditions, Seattle exhibition fair program and exhibitor guide. Bill & Melinda Gates Foundation, Seattle, USA
58. **^** BMGF (2015). Building demand for sanitation - a 2015 portfolio update and overview - Water, sanitation, and hygiene strategy Archived 2022-11-12 at the Wayback Machine, June 2015. Bill & Melinda Gates Foundation, Seattle, Washington, USA
59. **^** Spuhler, D., McCreary, C., Fogde, M., Jenssen, P. D. (2012). Capacity development for sustainable sanitation - Factsheet of Working Group 1 Archived 2022-08-13 at the Wayback Machine. Sustainable Sanitation Alliance (SuSanA)
60. **^** *"About SCBP | SCBP". www.niua.org. Archived from the original on 2021-08-03. Retrieved 2021-06-09.*
61. **^** Kapur, D. (2020) UNDERSTANDING EFFECTIVENESS OF CAPACITY DEVELOPMENT: Lessons from Sanitation Capacity Building Platform, Part 1: Journey of Urban Sanitation Capacity Development in India Archived 2022-01-19 at the Wayback Machine, National Institute of Urban Affairs (NIUA), India
62. ^ ***a b c*** Kapur, D. (2021) UNDERSTANDING EFFECTIVENESS OF CAPACITY DEVELOPMENT : Lessons from Sanitation Capacity Building Platform (SCBP), Part III : Capacity Development Effectiveness Ladder (CDEL) Framework Archived 2022-01-20 at the Wayback Machine, NATIONAL INSTITUTE OF URBAN AFFAIRS, India
63. **^** Jyoti Dash and Depinder Kapur (2021) UNDERSTANDING EFFECTIVENESS OF CAPACITY DEVELOPMENT : Lessons from Sanitation Capacity Building Platform (SCBP) Part II : Sanitation Capacity Building Platform: Understanding the Process and Effectiveness Archived 2021-09-20 at the Wayback Machine
64. ^ ***a b*** *Daudey, Loïc (2018). "The cost of urban sanitation solutions: a literature review". Journal of Water Sanitation and Hygiene for Development.* ***8*** *(2): 176–195. Bibcode:2018JWSHD...8..176D. doi:10.2166/washdev.2017.058. ISSN 2043-9083.*
65. **^** *Patel, Sheela (2015-04-01). "The 20-year sanitation partnership of Mumbai and the Indian Alliance". Environment and Urbanization.* ***27*** *(1): 55–72. Bibcode:2015EnUrb..27...55P. doi:10.1177/0956247815569698. ISSN 0956-2478.*

S2CID 110444813.
66. **^** *"The Art of Plumbing as Recorded through History". www.academia.edu. Archived from the original on 2020-04-09. Retrieved 2016-03-10.*
67. **^** Farnsworth Gray, Harold. "Sewerage in Ancient and Mediaeval Times." Sewage Works Journal Vol.12.5 (1940): 939–46

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- Sanitation and Wastewater Atlas of Africa
- Florence Nightingale (1863), *Sanitary Statistics of Native Colonial Schools and Hospitals*

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Public health

General

- Auxology
- Biological hazard
- Chief medical officer
- Cultural competence
- Deviance
- Environmental health
- Eugenics
  - History of
  - Liberal
- Euthenics
- Genomics
- Globalization and disease
- Harm reduction
- Health economics
- Health literacy
- Health policy
  - Health system
  - Health care reform
- Housing First
- Human right to water and sanitation
- Management of depression
  - Public health law
  - National public health institute
- Health politics
- Labor rights
- Maternal health
- Medical anthropology
- Medical sociology
- Mental health (Ministers)
- Occupational safety and health
- Pharmaceutical policy
- Pollution
  - Air
  - Water
  - Soil
  - Radiation
  - Light
- Prisoners' rights
- Public health intervention
- Public health laboratory
- Right to food
- Right to health
- Right to a healthy environment
- Right to housing
- Right to rest and leisure
- Right to sit
- Security of person
- Sexual and reproductive health
- Social psychology
- Sociology of health and illness

Preventive healthcare

- Behavior change
  - Theories
- Drug checking
- Family planning
- Harm reduction
- Health promotion
- Human nutrition
  - Healthy diet
  - Preventive nutrition
- Hygiene
  - Food safety
  - Hand washing
  - Infection control
  - Oral hygiene
- Needle and syringe programmes
- Occupational safety and health
  - Human factors and ergonomics
  - Hygiene
  - Controlled Drugs
  - Injury prevention
  - Medicine
  - Nursing
- Patient safety
  - Organization
- Pharmacovigilance
- Reagent testing
- Safe sex
- Sanitation
  - Emergency
  - Fecal–oral transmission
  - Open defecation
  - Sanitary sewer
  - Waterborne diseases
  - Worker
- School hygiene
- Smoking cessation
- Supervised injection site
- Vaccination
- Vector control

Population health	○ Biostatistics
	○ Child mortality
	○ Community health
	○ Epidemiology
	○ Global health
	○ Health impact assessment
	○ Health system
	○ Infant mortality
	○ Open-source healthcare software
	○ Multimorbidity
	○ Public health informatics
	○ Social determinants of health
	  ○ Commercial determinants of health
	  ○ Health equity
	  ○ Race and health
	○ Social medicine

Biological and epidemiological statistics	○ Case–control study
	○ Randomized controlled trial
	○ Relative risk
	○ Statistical hypothesis testing
	  ○ Analysis of variance (ANOVA)
	  ○ Regression analysis
	  ○ ROC curve
	  ○ Student's *t*-test
	  ○ *Z*-test
	○ Statistical software

Infectious and epidemic disease prevention	○ Asymptomatic carrier
	○ Epidemics
	  ○ List
	○ Notifiable diseases
	  ○ List
	○ Public health surveillance
	  ○ Disease surveillance
	○ Quarantine
	○ Sexually transmitted infection
	○ Social distancing
	○ Tropical disease
	○ Vaccine trial
	○ WASH

Food hygiene and safety management	○ Food
	  ○ Additive
	  ○ Chemistry
	  ○ Engineering
	  ○ Microbiology
	  ○ Processing
	  ○ Safety
	  ○ Safety scandals
	○ Good agricultural practice
	○ Good manufacturing practice
	  ○ HACCP
	  ○ ISO 22000

Health behavioral sciences	○ Diffusion of innovations ○ Health belief model ○ Health communication ○ Health psychology ○ Positive deviance ○ PRECEDE–PROCEED model ○ Social cognitive theory ○ Social norms approach ○ Theory of planned behavior ○ Transtheoretical model

Organizations, education and history

Organizations

- Caribbean
  - Caribbean Public Health Agency
- China
  - Center for Disease Control and Prevention
- Europe
  - Centre for Disease Prevention and Control
  - Committee on the Environment, Public Health and Food Safety
- Russia
  - Rospotrebnadzor
- India
  - Ministry of Health and Family Welfare
- Canada
  - Health Canada
  - Public Health Agency
- U.S.
  - Centers for Disease Control and Prevention
  - Health departments in the United States
  - Council on Education for Public Health
  - Public Health Service
- World Health Organization
- World Toilet Organization
- (Full list)

Education

- Health education
- Higher education
  - Bachelor of Science in Public Health
  - Doctor of Public Health
  - Professional degrees of public health
  - Schools of public health

History

- History of public health in the United Kingdom
- History of public health in the United States
- History of public health in Australia
- Sara Josephine Baker
- Samuel Jay Crumbine
- Carl Rogers Darnall
- Joseph Lister
- Margaret Sanger
- John Snow
- Typhoid Mary
- Radium Girls
- Germ theory of disease
- Social hygiene movement

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