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| WATER, SANITATION AND HYGIENE:  THE CORNERSTONE OF DEVELOPMENT |
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# Abstract

Safe drinking water, sanitation, and hygiene (WASH) are at the core of sustainable development and are fundamental to improved living standards. The outputs realised by WASH are not solely contained at the level of water, sanitation and hygiene. Benefits are far-reaching and impact on an array of seemingly unrelated developmental goals, notably; the protection of health, growth of local & national economy, improved educational outcomes, greater gender equality and reduction in poverty.

The importance of the role of WASH in reducing poverty, promoting equality, and supporting socioeconomic development has been identified at the highest level and, as a result, it is now incorporated in the Sustainable Development Goals (SDGs) to achieve universal access to WASH by 2030. Despite all of this, there is still a huge amount to be done to bring WASH to the forefront and truly understand its role as the cornerstone, underpinning the success of so many separate elements of sustainable development.

The following research paper will clearly demonstrate that appropriately directed WASH policies can support and increase the effectiveness of a vast array of other development-led investments. In understanding the extent to which the outcomes of WASH are intertwined with the success of other key areas, there is hope that we can identify better and more productive ways of delivering sustainable investment in development.

# Acknowledgements

To my husband – Marc. My inspiration. Thank you for supporting me in every way possible.

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# Abbreviations

DALY - Disability Adjusted Life Year

DFID – Department for International Development

MDG – Millennium Development Goal

SDG – Sustainable Development Goal

UN – United Nations

UNICEF – United Nations International Children's Emergency Fund

WASH – Water, Sanitation and Hygiene

WHO – World Health Organisation.

# Definition of Terms

Hygiene - behaviours that encourage the widespread adoption of safe hygiene practices in order to keep people and their environment clean, enhance dignity, prevent spread of diseases, reduce under-nutrition and maintain health. Key hygiene behaviours include i) handwashing with soap at critical moments, ii) safe and hygienic management of human excreta and cleanliness of sanitation facilities, iii) safe domestic water management from source to the point of consumption, iv) food hygiene, and v) menstrual hygiene and its management.

Sanitation - promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage or wastewater. Hazards can be physical, microbiological, biological or chemical agents of disease. Sanitation covers a broad area and encompasses excreta disposal, vector control, solid and medical waste management and drainage.

Sustainable development - development that meets the needs of the present without compromising the ability of future generations to meet their own needs

Sustainable Development Goals: The Sustainable Development Goals (SDGs), are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. These 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities. The goals are interconnected – often the key to success on one will involve tackling issues more commonly associated with another.

Water - a clean water supply for domestic purposes - in particular, water that is not polluted with [faecal](https://en.wikipedia.org/wiki/Faeces) matter from lack of [sanitation](https://en.wikipedia.org/wiki/Sanitation)

# Chapter 1: Context

Access to Water, Sanitation and Hygiene (WASH) is a basic human right and is the cornerstone of broader national development. The implementation of targeted WASH investments can be intrinsically linked to an array of development goals; health (reducing the global disease burden), economic growth (triggering economic growth and livelihood development), education (improving access to education) and reducing the gender gap (empowering women).

This paper will look at different strands of development and identify how WASH has an invaluable influence on achieving developmental goals in each sector.

**1.1 Introduction**

WASH is enshrined in the Sustainable Development Goals and is a cornerstone in the pursuit of sustainable development; an absence of water and sanitation coupled with the presence of poor hygiene severely limits the impact of other development interventions in education, health, gender, poverty and economic development.

Whilst the profile and importance of WASH has been acknowledged and referenced internationally in recent years, the need for advocacy at all levels remains – comprehensively understanding the extensive effects of WASH across development sectors is a must. Knowledge and understanding are key in identifying effective ways of embedding and promoting WASH in development.

This research paper will clearly demonstrate that appropriately directed WASH policies can support and increase the effectiveness of all other development-led investments.

**1.2 Why this paper on WASH in development?**

Improving global access to clean drinking water and safe sanitation is one of the least expensive and most effective means to improve public health and save lives (Montgomery 2007). In addition to this, WASH investments can have significant health, economic and development benefits in other areas of investment. This research paper will aim to delve into the true extent of how fundamental WASH is in the context of development, understanding in turn how WASH influences different areas within development and finally determining the future impact of WASH in development.

**1.3 Scope**

This paper will comprise of desk-based research to identify the influence of WASH on five key development areas:

* Health
* Economic growth
* Gender
* Education
* Poverty reduction

Although it is appreciated that WASH impacts on other areas beyond the five listed, those areas will be out with the remit of this paper.

# Chapter 2: WASH - The Cornerstone of Development

This Chapter will explore five areas of development whose successes are directly influenced by the presence of appropriately directed WASH policies.

**2.1 WASH and Health**

Increasing access to WASH can significantly improving health outcomes. The UN estimates that half of all hospital beds in developing countries are filled by people with illnesses that would be preventable through basic improvements in WASH (UNDP 2006).

Integrated WASH and health approaches are particularly beneficial to efforts aimed at reducing the burden of disease, malnutrition and relieving pressure on the healthcare system. Combining health interventions with WASH interventions is highly cost-effective; a study by the World Bank shows that hygiene promotion saves an estimated 333 disability-adjusted life years for every $1,000 invested (World Bank. 2006).

Malnutrition: The WHO estimates that 50% of malnutrition is associated with repeated diarrhoea or intestinal infections, as a result of unsafe water, inadequate sanitation or insufficient hygiene (WHO. 2008). The provision of WASH policies can be crucial in breaking a vicious cycle where chronically malnourished individuals are more susceptible to infections generated by inadequate WASH, and in turn become even less capable of absorbing vital nutrients.

Infant Mortality: Lack of basic sanitation puts millions of lives at risk and is responsible for a quarter of all child deaths in developing countries every year (Prüss-Üstün, et al. 2008). It is currently estimated that 1.1 billion people in the world lack access to improved water supplies and 2.6 billion people lack adequate sanitation (UNICEF et al. 2004). The global health burden associated with these conditions is staggering, with an estimated 4000–6000 children dying each day from diseases associated with lack of access to safe drinking water, inadequate sanitation and poor hygiene (WSSCC 2004).

Maternal Mortality: High maternal and newborn mortality rates persist in low-resource settings globally due to limited healthcare infrastructure compromising the ability to provide safe and quality care to women. Sepsis, which causes 11 per cent of maternal deaths, can be mostly prevented if women give birth in a location with sufficient water and soap for washing and a trained assistant is available to provide quality care (Say et al 2014).

Major Diseases: Safe drinking water and basic sanitation help prevent water-related diseases, including diarrhoeal diseases, schistosomiasis, filariasis and trachoma. Globally, approximately 1.7 million people die every year from diarrhoeal diseases; eighty-eight percent of cases of diarrhoeal diseases worldwide are attributable to unsafe water, inadequate sanitation, and poor hygiene (WHO. 2009) Improved water supply reduces diarrhoea morbidity by 21%; improved sanitation reduces diarrhoea morbidity by 37.5%; hand washing can reduce the number of diarrhoeal cases by up to 35%; additional improvements in drinking water quality, such as [point of use disinfection](https://sswm.info/water-nutrient-cycle/water-purification/hardwares/point-use-water-treatment/household-water-treatment-and-safe-storage-%28hwts%29), would reduce diarrhoeal episodes by 45% (Tratschin 2018). Not being able to wash and keep clean is also clearly associated with a wide range of skin infections and infestation with fleas, lice and mites, some of which are carriers of diseases such as typhus and plague.

Parasitic worm infections: These infections, which are associated with inadequate water and sanitation, may limit growth and cognitive development while hookworm and roundworm can also cause maternal anaemia and low birthweight (Brooker et al., 2008; Noronha et al., 2012).

Disability: Access to water and sanitation is as much a human right for people with a disability as it is for the wider population, however, people within this demographic are reportedly at a higher risk of having inadequate access to WASH facilities (OHCHR, 2011). Issues arise around the inability to carry out day-to-day tasks and household chores – such as washing clothes or dishes or due to environmental barriers including inaccessible physical infrastructure or the environment, making it difficult to access water sources and sanitation facilities.

**2.2 WASH and Economic Growth**

Water and economy are inextricably linked, with access to water directly affecting a countries overall development strategy and macroeconomic policies. Improving access to WASH infrastructure boosts countries’ overall economic growth and development while also contributing to poverty eradication. For every $1 invested in water and sanitation, $4 is returned in economic returns (Hutton, 2012).

Poor sanitation causes economic losses associated with the direct costs of treating sanitation-related illnesses and lost income through reduced or lost productivity. In addition, poor sanitation also leads to time and effort losses due to distant or inadequate sanitation facilities, lower product quality resulting from poor water quality, reduced income from tourism (due to a high risk of contamination and disease), and clean-up costs (WHO 2008(1)). An example of the direct impact WASH can have on an economy is shown in a study in Cambodia where poor sanitation led to economic losses of US$448 million per year, which translates into per capita loss of approximately US$32. The economic losses were equivalent to 7.2% of Cambodia’s GDP in 2005. This amount was roughly equivalent to the contribution of the fishery sector to the GDP, or twice the forestry sector’s contribution (Kov et al. 2008).

It is clear that by providing targeted WASH policies, multiple economic benefits are realised both directly (avoiding illnesses & associated healthcare costs) and indirectly (decrease in work days lost to illness and a longer lifespan)

**2.3 WASH and Poverty**

Nearly half of the human race lacks access to sanitation facilities; it’s certainly not the richer half (DFID. 2007). Inadequate sanitation is a known hallmark of poverty, the basis of the social stigma associated with poverty is around hygiene and sanitation. Improving access to WASH is critical to increasing the income of individuals and households living in poverty. Better health and nutrition enable people to work more productively at home, in school and in the workplace, maximising their earning potential. Reducing the time spent collecting water is a critical first step in the economic empowerment of poor women and girls. This reduction in time spent collecting water can be invested in growing nutritious food, such as fruit, vegetable and pulses. This improves household food security, and where a surplus is available, can provide additional income.

The disease and time burden associated with lack of access to WASH prevents many adults from earning a living or fulfilling their potential in the professional arena. By providing access to WASH and reducing the disease burden and freeing up time to do more productive activities, the way is paved for the establishment and maintenance of better services while also creating associated employment.

It is clear that access to clean water, sanitation and hygiene practices is a key component in breaking the poverty cycle.

**2.4 WASH and Education**

The implications on school attendance when adequate WASH facilities are not in place are clear. Many children in low-income communities, with limited or no access to WASH, are unable to attend class because they are sick with a diarrhoeal disease, looking after sick relatives, or particularly in the case of girls in rural areas, because they must spend large parts of each day fetching water for their family.

Globally, approximately one-third of schools have no safe water supply or adequate sanitation (UN Water. 2018), forcing pupils to use inadequate latrines or go to the toilet outside in the school grounds. When girls begin puberty and start to menstruate, they are disproportionately affected by a lack of safe water and sanitation because they are unable to attend to their hygiene needs at school. They must miss class for long periods, skip roughly one quarter of school days, and many drop out of school altogether (Mills et al. 2016). For adolescent girls, the presence of a safe water supply and clean, functioning, private toilet facilities can be the difference between dropping out and getting an education. (UN Water 2018). The cycle is further worsened as teachers avoid being posted to communities which lack sanitation in favour of schools with adequate WASH facilities. Schools are the ideal institutions to spread habits of hygiene and use of sanitation; a school without sanitation misses this opportunity for a generation.

When children are unable to attend school and get an education, the workforce of the entire country is affected, and nations looking to emerge from widespread poverty find this obstacle very difficult to overcome.

**2.5 WASH and Gender**

It is a well-known fact that women bear the heaviest burden when there is no access to water and sanitation. In most areas that lack access to WASH resources, women and children are responsible for retrieving water for their families and caring for relatives made sick by lack of WASH, often spending several hours each day travelling and waiting at a water point. It is women who often miss out on education due to the domestic roles assigned to them. Lack of access to WASH infrastructure exacerbates the marginalisation of females by locking them into a cycle of poverty, which as mentioned in Section 2.3 has wider consequences for society and national economies.

Gender division of labour: Gender and social norms in most developing country contexts mean that women and girls are responsible for sourcing and collecting water for cooking, cleaning, hygiene and sanitation within the household, while men are seen as the consumers. A WHO survey of 45 developing countries identified that 72 percent of day-to-day responsibility for collecting and managing water in the household falls to women and girls (WHO/UNICEF 2017). This gender division of labour means that often it is the females in the community who are disadvantaged, impacting on physical health and time for economic, social and leisure activities. These disadvantages can increase exponentially in times of conflict, humanitarian crisis or natural disaster. In contrast, at a community level, women may have little input into WASH resource planning and management. The result can be poor planning decisions, sub-optimal outcomes, failed projects and further marginalisation of women from decision-making over issues that profoundly affect women themselves, their families and their communities (Gender and Development Network 2016).

Violence against women: Where WASH resources are absent or located a great distance from home, women risk experiencing sexual violence, stigma, loss of dignity or bullying. Providing access to adequate resources significantly reduces the risk of violence towards women and related health consequences.

Menstrual hygiene: Social stigma and norms around menstruation, and often male-dominated WASH decision making, mean that the social and physical needs of women and girls in relation to menstrual hygiene often go unmet (Winkler et al. 2015). Although it is an integral part of WASH requirements, menstrual hygiene is still largely absent from the discourse, policy and practice in WASH.

Gender equality can be greatly enhanced through the implementation of WASH policies utilising a participatory approach where men and women play an equal role in the provision, management, and safeguarding of water. Women must be considered and acknowledged, they must have economic access, opportunities for leadership and employment and the chance to be innovators of solutions; empowerment is essential to poverty eradication and environmental regeneration. (Soroptimist International. 2018.)

**2.6 WASH and Sustainable Development Goals**

In 2015, at the end of the Millennium Development Goals (MDGs), a third of the world still defecated in the open or used unsafe or shared toilets (ODI. 2017). The new Sustainable Development Goals (SDGs) are much more ambitious. For sanitation, everyone needs access not only to a toilet but also to a sanitation system that safely captures and manages waste. Over 60% of the world, 4.5 billion people, currently lack access to sanitation while at least 2.5 billion more people are in need of a reliable water supply service that is available at home and free from contamination (WHO/UNICEF. 2017).

Improved WASH access is fundamental to reducing poverty, promoting equality, and supporting socioeconomic development. For these reasons, drinking water and sanitation were included as targets in the Millennium Development Goals (MDGs) and are now incorporated under the Sustainable Development Goals (SDGs) which have recognised water and sanitation as human rights and have set targets on ‘universal’ and ‘equitable’ access to water, sanitation and hygiene by 2030. But this is not the only SDG that incorporates WASH, closer inspection determines that the outcome of multiple SDGs will be determined by access and implementation of adequate WASH policies:

3.3 by 2030 end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases.

3.9 by 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination.

6.1 by 2030 achieve universal and equitable access to safe and affordable drinking water for all.

6.2 by 2030 achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

6.a by 2030 expand international cooperation and capacity-building support to developing countries in water and sanitation related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.

6.b support and strengthen the participation of local communities for improving water and sanitation management

As demonstrated above, access to WASH will help drive progress towards the SDGs concerned with poverty, work and economic growth, while promoting gender equity.

**2.7 Conclusion**

Chapter 2 has clearly demonstrated multiple areas within development whose successes are directly influenced by the presence of appropriately directed WASH policies. There are great opportunities to make huge strides across health, economy, poverty, education and gender equality by implementing integrated approaches to WASH and understanding fully the potential additional impacts on wider development.

The presence of the Sustainable Development Goals is a good focal point for driving progress across multiple areas and promoting the values of WASH as the cornerstone to development.

# Chapter 3: The Future of WASH

“Water and sanitation will play a defining role in progressing development goals; from eliminating poverty and hunger to tackling climate change, water is central to tackling our biggest sustainable development challenges” ODI. 2017

**3.1 Where are we going?**

In the future, pressures on water resources will become more pronounced - increasing demand from growing populations and economies exacerbated by increasing levels of climate change will reduce water availability in many regions, costing as much as 6-14% of growth (World Bank. 2016) Conflict will continue to drive population movements, putting pressure on water resources and services in countries that already struggle to cope. WASH policymakers will need to continue to look towards new and innovative ways of working to counteract the negatives.

A key starting point has been a more joined-up approach which is supported by the SDGs but additional opportunities also lie within WASH itself. An integrated approach between emergency and long-term investment in WASH would reduce duplicated efforts, contradictory approaches and importantly, promote knowledge sharing to encourage best practice across the sector. OECD figures show that over $700 million was spent on long-term water and sanitation projects in fragile countries and territories in 2015. In the same countries, around $400 million was spent on emergency water and sanitation (OECD. 2015) To make money go further, emergency relief and longer-term development needs must be approached in a joined-up way.

As the world changes and behaviours and patterns shift, important opportunities will begin to appear. Policy planners and WASH specialists will need to work hard to understand the changing context and possibilities to affect wider developmental goals by moving away from SILO ways of working. An integrated approach is key to knowledge sharing and avoidance of repetition and wasted expenditure. If development is to be sustainable and efficient, more efficient and smarter ways of working will be key in achieving outputs.

**3.2 The Key Challenges**

Water stress: The importance of WASH has come to the forefront in recent years, however water as a resource has experienced unprecedented levels of stress caused by multiple factors. Conflict, unsustainable water extraction together with competing demands, population growth and migration, water pollution from the release of untreated sewage and wastewater, climate change and climate variability all add very significant pressures on water supply systems.

Water quality: Poor water quality affects not just surface water but also major groundwater reserves; a developing problem that is difficult to treat. Figures show in South Asia, over half of the groundwater potentially available in the Indo-Gangetic basin is contaminated with salt or arsenic, down to a depth of 200m (MacDonald et al. 2016). As urbanisation continues and huge portions of populations continue to be displaced, the risk to water quality continues to increase. Efforts to meet demand need to be balanced and considerate with a view to sustainable management of a finite resource. Given pressures, emotional connection and difficulty of substitution, pollution of water, and particularly groundwater, may yet become the next decade’s big environmental concern (ODI. 2017)

Water governance: Sustainability remains a serious challenge in the governance of water resources. Deficient institutional and administrative structures, lack of political will, accountability and lack of stakeholder engagement are part of the problem (DFID. 2007).

Cost-efficient investments: Making programmes cost-efficient is an important challenge. Policy makers need to understand the requirement for sustainable development and future proofing resources. Knowledge sharing across the sector and the implementation of coordinated approaches will introduce cost-efficient ways of working, improve knowledge sharing and help achieve broader development goals.

Financing and budgeting: Insufficient financing and need for improved targeting and budgeting processes, possibly due to poor absorption capacity – i.e. difficulties in spending funds that are received. Generally, the national budget allocations to sanitation and drinking water are insufficient to meet government targets to provide services to the unserved as well as to maintain existing services (Hutton. 2012). In addition, investment decisions often do not respond to needs, and issues of equity are often not addressed. Generating revenue through tariffs is often difficult. In most developing countries tariff structures for water are insufficient to cover basic operation and maintenance. Funding is not always targeted to those in need: just one-third of countries consistently applies equity criteria in funding allocations for sanitation and drinking water (DFID. 2009). Improved priority-setting and targeting of development aid remains a challenge and budget allocation tends to favour urban areas.

**3.3 Conclusion**

The changes identified in this chapter will have important consequences not only for how we use and manage water and sanitation but for the success, cohesion and resilience of wider development initiatives. The importance of the role of WASH in reducing poverty, promoting equality, and supporting socioeconomic development has been but there is still a huge amount to be done to bring WASH to the forefront and truly understand its role as the cornerstone to development; underpinning the success of so many separate elements of sustainable development. Challenges need to be overcome to achieve success but it is clear that we are on the right path and there is no argument against the important role WASH will play in the future of development.

# Chapter 4: Conclusion

**4.1 Summary**

Sanitation and hygiene policies - appropriately directed - will support and increase the effectiveness of all other development-led investments (DFID. 2007. Pg 7) We must not only provide “improved” water and “basic” sanitation to those who currently lack these fundamental services, but also ensure that these services provide: safe drinking water, adequate quantities of water for health, hygiene, agriculture and development sustainable sanitation approaches to protect health and the environment. As we move forward to meet this challenge, it is critical that we understand the whole picture and identify creative new approaches to provide sustainable water and sanitation while supporting the wider development context.

**4.2 Conclusion**

This paper aimed to show that sanitation is fundamental to both good health, social and economic development. Given the current state of knowledge, water, sanitation and hygiene are undeniably a worthwhile investment, providing a strong return. Achieving the SDG sanitation target will not only save lives, but also stimulates gender equality, supports environmental safety, bolsters education, and provides a firm foundation for economic growth.

This research paper has well-documented an intricate link between WASH and wider development; policymakers, development partners, as well as the general population, should act now to improve the current sanitation situation, especially in developing countries (DFID. 2007).

Inaction on sanitation is not a viable option. Failure to invest in improving hygiene conditions undermines efforts to promote economic growth and poverty reduction. Conversely, investment in sanitation and hygiene yields very favourable economic returns and social benefits. Equally importantly, sanitation provides the simple right to dignity and safety through adequate facilities for personal hygiene and a clean and healthy living environment for every individual, but particularly for adolescent girls, children and women.

**4.3 Recommendations**

Cross-sectoral knowledge sharing is key to achieving wider developmental goals. As demonstrated in this paper, WASH is fundamental in realising an extensive number of separate development targets in a cost-effective way. The acceptance and understanding of the intertwined nature of WASH on other developmental areas such as health, economy, poverty, education and gender will be key in identifying new and innovative, integrated approaches to development.

Ensuring water resources are developed and managed in a way that is resilient in the face of accelerating demand, variable supply and limited quality will be critical for poverty reduction and growth.

Managing the additional pressures on water from migration could help avoid increasing competition and conflict.

Committing to increased levels and provision of drinking water and sanitation will contribute to people’s health, well-being and education, while putting poor and excluded people first will support wider social inclusion and reduced inequality.

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