Quenching the Thirst of Generations: The Ali Asghar Water Appeal's Journey Towards Sustainable Change

Water is a fundamental need for every human being. However, it remains a distant dream for billions of people worldwide, where access to clean, safe drinking water is severely limited. The Ali Asghar Water Appeal (AAWA) is named in honour of Ali Asghar (a.s.), the youngest son of Imam Hussain, and the youngest martyr of the Battle of Karbala. This appeal represents the poignant symbolism of his story to raise awareness and mobilise resources to tackle clean water scarcity in underdeveloped countries.

The humanitarian arm of The World Federation (WF-AID) has long been involved in addressing critical needs in disaster-stricken regions. At WF-AID, the project life cycle is designed to ensure the effective and efficient delivery of humanitarian initiatives. The process typically begins with the identification of needs through assessments and consultations with local partners. This is followed by detailed project planning, which includes setting clear objectives, budgeting, and resource allocation. Once the project is initiated, WF-AID closely monitors progress to ensure timely and impactful delivery. Regular reporting and evaluations are conducted to assess outcomes and sustainability. Finally, the project concludes with a review phase, where lessons learned are documented to improve future efforts.

Through AAWA, WF-AID addresses the immediate need for potable water, but also seeks to generate sustainable solutions to provide long-term opportunities and growth for entire communities.

Allah says in The Qur'an, "And We made from water every living thing". (Surah Al-Anbiya, verse 30)

This verse sets forth the idea that the life of all living things, whether referring to plants, animals or humans, depends on water. An Islamic report explores a conversation with Imam Sadiq (a.s.) when asked about the taste of water. The Imam replied, “The taste of water is the taste of life” (al-islam.org, 2014). This report implies that when someone who has tolerated the feeling of thirst takes the first few sips of fresh water, they feel the spirit of life blown into their body. It is for this reason that it is so important that vulnerable communities have secure access to water.

The urgency to provide clean water is underscored by staggering statistics – according to a report by UNICEF and The World Health Organisation (WHO) in 2019, approximately 1 in 3 people globally lack access to safe drinking water, amounting to a total of 2.2 billion people (UNICEF, 2019). Additionally, 4.2 billion people lack access to safely managed sanitation services (UNICEF, 2019). The Ali Asghar Water Appeal aspires to take strides towards reducing the number of people without access to potable water. This article will examine the methodology and impact of the Ali Asghar Water Appeal, offering insights into the effectiveness of water projects and exploring opportunities to enhance future projects.

Ali Asghar at Karbala

On the Day of Ashura, with the scorching sun overhead and the blazing sands of the desert understood, the family of Imam Husayn was in desperate need of water. Access to the Euphrates River had been cut off by the opposing army of Yazid ibn Muawiyah. Imam Hussain’s 6-month-old son, Ali Asghar, was suffering from severe dehydration.

In a final plea for sympathy, it is narrated that Imam Hussain cradled Ali Asghar in his arms, and approached enemy lines. He hoped, by appealing to the hearts of the soldiers in Yazid’s army, they would provide water for his dying child. He implored them, stating that if they believed he would consume the water himself, they could at least come and quench Ali Asghar ‘s thirst themselves.

However, instead of receiving water, Harmalah, one of the archers in Yazid's army, was ordered by the commander Umar ibn Sa'd to silence the Imam's plea. Hurmala aimed and fired a three-pronged arrow, striking Ali Asghar and fatally wounding him as he lay in his father's arms (Al-Islam.org, n.d.).

This heart-breaking story holds a deep symbolic connection with water. Ali Asghar's life unfolded under the harshest conditions of deprivation. This moment is etched in the collective memory as the ultimate emblem of innocence and vulnerability confronted by heartless denial. The refusal of water to Ali Asghar and the subsequent tragic martyrdom it inflicted painfully underscores the essential sanctity of water as a gift of life that should never be withheld.

The narrative of Ali Asghar at Karbala is not just a story of tragic suffering; it serves as a continual reminder of the struggles many still face in securing access to clean water. It is a call to action, symbolising the duty to ensure that no individual ever suffers from a lack of water. AAWA is a direct response to this call, embodying the values of compassion, justice, and human dignity. It stands as a beacon of hope, striving to alleviate the suffering of those who are most in need, ensuring that the water is made accessible to all as both a right and a sacred trust.

Objectives of The Ali Asghar Water Appeal

The main goal of the Ali Asghar Water Appeal is to provide accessible, clean and safe drinking water to vulnerable communities worldwide. In 2024, WF-AID is focusing on sustainable water solutions to transform lives in Turkey, Bangladesh, Tanzania, Kenya, Pakistan, and India. Providing clean water that is easily accessible has the direct effect of improving health, but this also has indirect effects on two fronts: education and economic development.

Health

First, access to clean water dramatically improves health outcomes in impoverished regions. According to the WHO, safe water supplies and

sanitation are essential for preventing waterborne diseases, which remain a concerning issue in underdeveloped countries. Contaminated water is responsible for nearly 1.7 billion cases of childhood diarrheal disease every year, killing around 443,832 children under 5 annually (World Health Organization, 2024). Studies have demonstrated that improving a community's water sources, sanitation and hygiene could reduce the global diarrheal disease burden by 9.1% and reduce mortalities by 6.3% (Meki, Ncube and Voyi ,2022). A reduction in disease is significant in low resource settings for the future of a community. In addition to combating health defects, providing clean water will also free up time, especially for women and children, who often carry the burden of traveling long distances to find easy access to water.

Education

The linkage between water accessibility and education is profound. UNICEFs 2019 report highlights that children in regions with poor facilities often miss school to fetch water, affecting their educational progress, particularly for girls (www.unicef.org, 2023). There is not enough time in the day for children to go to school, while also fetching the water. The access points for clean water are very sparse, not to mention the buckets to carry the water are very heavy. It will take many hours for a child to travel to the access point and back home. This takes a severe toll on the community's long-term development and sustainability; students will not be able to develop the skills required for higher paying and more advanced jobs in the future. Jasper, Le and Bartram (2012) found that schools with adequate water and sanitation facilities saw an increase in student attendance, with the greatest impact among female students. The need to improve the access to clean water is evident, with the objective of increasing attendance in school across all ages.

Economic Development

The economic advantages of water accessibility extend beyond immediate health and educational impacts. The provision of clean water can also have significant impacts for a community's economic development. In 2013, it was

found that developing countries lose $260 billion annually due to a lack of basic water and sanitation (Hutton, 2013). However, The World Bank has calculated that every dollar invested in water and sanitation yields a fourfold return in terms of reduced healthcare costs and increased productivity (Hutton, 2013). One of the approaches to these increased productivities comes in the form of agricultural farming, through which a large proportion of people in underdeveloped countries earn their income. Reliable irrigation increases agricultural yield by stabilising production and enabling year-round farming, which boosts food security and income (Namara, Core and Talbi, 2023). Additionally, communities which exhibit robust water infrastructure will naturally be more appealing for both local and foreign investment, which is crucial for sustained economic growth.

Providing access to clean water is a transformative intervention that catalyzes improvements in health, education and economic development in underdeveloped countries. This multidimensional impact demonstrates that water is not merely a basic human need but a foundational element for comprehensive and sustainable development. The continued investment in water infrastructure is not just beneficial but essential for breaking the cycles of poverty and enabling communities to thrive.

Mapping the Waters: Harnessing Sustainable Solutions

In efforts to provide sustainable solutions to water scarcity, a variety of water projects are implemented across different geographical regions, each tailored to meet the environmental conditions and community needs. However, all water projects fall into at least one of the three key functions: extraction of water, purification of water and storage of water. Through these three functions, water projects play a crucial role in addressing global water scarcity.

Extracting Water from The Earth

The extraction of groundwater is a crucial process in providing clean water

solutions, most of the world's drinking water most likely comes from groundwater sources. The need for groundwater solutions is even more important in areas where surface water is scarce or contaminated.

Groundwater exists in the cracks, pores and spaces of rocks and soil below the earth's surface. The water is stored in natural stores of water known as aquifers (National Geographic). These aquifers can be accessed through several methods commonly used in underdeveloped countries. Often, the method used to access these aquifers will depend on the depth of the aquifer that it targets. For example, shallow wells might access water just below the ground surface. On the other hand, deep wells can go several hundred meters below the ground to access deeper aquifers. During construction, a drill is used to create a path for the water to travel through. This path is drilled until the water table is hit. The water table refers to the level below which the ground is saturated with water (National Geographic). Groundwater wells come in the form of traditional water wells, boreholes, tubewells, and submersible pumps.

Purifying Groundwater

Groundwater is often viewed as a cleaner alternative to surface water due to the natural filtration in the soil and rock layers. However, this still requires purification due to possible contamination through natural processes and human activities. These contaminants are harmful to human health if consumed in excessive amounts. Therefore, it is crucial to effectively purify the water before it can be consumed. At WF-AID, there are three strategies commonly used to ensure beneficiaries are receiving clean drinking water from a potable source.

- Reverse Osmosis: this process removes dissolved inorganic solids by forcing water through a semipermeable membrane that only allows certain water molecules to pass, while blocking the large molecules and ions, such as salts, heavy metals and organic contaminants. This strategy is very effective in regions where the groundwater exhibits high levels of salinity or dissolved chemicals (Helmenstine, 2022).

- Filtration: filtration passes groundwater through several filters to remove particles, microorganisms, and dissolved impurities. The water will be passed through several layers that have various levels of permeability. This process will allow contaminants and unwanted particles to be filtered out, and for the clean water to pass through.
- Chemical Treatment: this involves the addition of chemicals to the groundwater to achieve disinfection. Chemical treatment plants often use chlorine, chloramines and ozone to kill viruses, and other pathogens (Brandt et al., 2016). This strategy is most useful in eliminating biological contaminants. In addition, some chemicals are utilized to remove suspended particles, encouraging them to clump together in the water. This eases the process of filtration (Brandt et al., 2016).

Water Storage

Water storage provides communities with the opportunity to ensure the availability of water during off seasons and periods of scarcity. This will maintain the balance in the water cycle. The planned storage of water allows communities to mitigate the mismatch between supply and demand of clean water for drinking, hygiene, or agriculture. During rainy seasons, large amounts of water can be collected and stored and then released for use in the dry seasons.

Water is stored in different forms, each suited to different needs and environmental conditions. In regions where the volume of rainfall is dependent on the season, traditional water storage solutions are important for facilitating stable water supply throughout the year. For example, in Kenya, water pans are a traditional solution to the arid lands, while water tanks are a more innovative and universal solution that can be used in various landscapes.

Water pans are shallow depressions in land, designed to collect and store rainwater. These styles of water storage are more common in rural areas, where water is essential for agricultural, as well as domestic, use (Centres of Health & Education Programmes, 2024). The water pans are constructed by excavating

soil that creates a basin to capture any water runoff during the wet seasons. Water pans are lined with impermeable rocks or materials to prevent water penetrating the soil and forming an aquifer below the surface (Centres of Health & Education Programmes, 2024). The advantage of utilising water pans for water storage is its low-cost nature due to utilisation of natural materials, requiring non-external energy sources or complex terminology. However, in hot climates, water stored in the pans can be susceptible to high levels of evaporation. Additionally, it is common for water pans to get filled with sediment over time, which reduces the storage capacity and effectiveness of storing clean water. Like groundwater, water held in water pans will need to be purified from any contamination before it can be used as a source for agriculture, sanitation, or consumption.

Water tanks are large containers that store water, which can be used in any climate. Water tanks provide a more controlled environment for storing water, because it is protected from any contamination and the risks of losing water to evaporation. Similar to water tanks, water coolers are a universal solution for water storage and for the provision of chilled drinking water in various settings such as offices, schools, public buildings and homes. This type of water storage is extremely useful in hot climates, where access to cool water increases hydration.

Effective water storage is crucial for ensuring water storage and sustainability, especially in regions vulnerable to fluctuations in water availability due to seasonal changes or changes in climate. From traditional water pans in rural Kenya to sophisticated water tanks and energy-efficient water coolers, each storage system offers unique benefits tailored to specific environmental and societal needs. While water pans provide cost-effective storage in wide-open areas, tanks offer reliability and scalability in diverse settings, and coolers deliver convenience and enhanced water quality in communal spaces. The successful implementation of water storage systems not only supports the direct needs of communities but also contributes to broader goals of ecological preservation and sustainable water management.

A Case Study of North Gaza, Palestine

The regions of Izbat Beit Hanoun and Al Jamarek in North Gaza, characterized by severe infrastructural deficits and socio-economic challenges, have long faced acute weather scarcity (Al-Adham Association for Development, 2020, 2021 & 2023). The complexities of the local context, exacerbated by prolonged Israeli aggression and restrictions on resource flow, make these areas emblematic cases for studying the impact of innovative water provision projects. Initiated by WF-AID in 2020, this comprehensive water project aimed to tackle the pressing need for clean, accessible water through sustainable solutions.

Project Background

Izbat Beit Hanoun and Al Jamarek are among the poorest and most densely populated areas in the Gaza Strip, which has an overall population just above 2 million people, with a significant number of residents living in substandard conditions, primarily relying on agriculture and livestock for their livelihood (Al-Adham Association for Development, 2020, 2021 & 2023). The Israeli blockades have severely restricted material supplies, crippling the ability to repair damaged water infrastructure or develop new water sources, compounding the water crisis driven by natural resource depletion and contamination (Al-Adham Association for Development, 2020, 2021 & 2023). Prior to 2020, virtually no water in the region was potable water, creating a serious risk to health and everyday life (Al-Adham Association for Development, 2020, 2021 & 2023).

Project Description & Implementation

WF-AID's project was designed as a multi-faceted intervention comprising three main components:

1. Water well construction – a deep water well was drilled to a depth of 65 metres below the Earth's surface to tap into the underground aquifers. For this project, groundwater was the primary source of water extraction in Northern Gaza.

2. Solar-powered desalination plant – following the extraction of groundwater, due to the high level of salinity and unwanted minerals, a solar power desalination plant was built to purify the water and make it potable. Recognising the frequent electricity outages in Gaza, solar power was utilised to ensure a consistent and eco-friendly purification process.
3. Water Distribution System – finally, post-purification, the water was stored in large, sanitary tanks and then distributed via water trucks. This mobile distribution was particularly effective in reaching a wider population in North Gaza. Each benefiting family received a personal water tank, significantly reducing their daily struggles for clean water.

Closing the Tap: Final Thoughts

The Ali Asghar Water Appeal, inspired by the poignant story of Imam Hussain's youngest son, stands as a beacon of hope in the face of global water scarcity. By addressing the critical need for clean and accessible water in underdeveloped countries, AAWA has translated a symbolic meaning into tangible action.

Through its multi-faceted approach of water extraction, purification, and storage, AAWA is tackling the water crisis head-on. This comprehensive strategy ensures that the impact of these water projects extends far beyond the immediate provision of water by also providing long-term benefits in health, education and economic development. The case study in North Gaza exemplifies AAWA's innovative, tactical and adaptive approach, demonstrating how tailored solutions, like the utilisation of solar-powered desalination, can make a significant difference even in the most challenging environments.

The success of projects like those in Turkey, Bangladesh, Tanzania, Kenya, Pakistan, Palestine and India offers a roadmap for addressing water scarcity globally. Looking to the future, WF-AID can build on AAWA's success and expand its impact even further. The areas for potential growth include:

1. Collaborating closely with more local governments and organisations to increase AAWA's reach and ensure projects align seamlessly with regional development plans.
2. Given AAWA's success with solar-powered desalination, further investment in cutting-edge water technologies could yield even more efficient and sustainable solutions.
3. As climate change intensifies water stress globally, AAWA will look to play a pivotal role in helping communities to adapt through climate-resilient water management strategies.

These areas for growth represent exciting opportunities for WF-AID to enhance its already significant impact through AAWA. The organisation's track record of success provides a strong foundation for these future endeavours.

The story of Ali Asghar reminds us that water is not just a resource – it's a fundamental right and a sacred trust. As we face the global water crisis, let us draw inspiration from AAWA's mission. Each of us has a role to play in ensuring that no community suffers from lack of water. You can make a difference by donating to http://www.donate.wf or get in touch with the team at WF-AID to find out about other ways your can use your skills to make an impact! Together, we can turn the tide on water scarcity and create lasting change for generations to come.

By supporting initiatives like the Ali Asghar Water Appeal, we can help ensure that this life-giving resource reaches those who need it most, creating ripples of positive change that will be felt for generations to come.