SIEMENS | Stiftung

Position Paper on Water

From Water Scarcity to Water Security: A Systemic Approach Powered by Social Entrepreneurship and Partnerships

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Introduction

Siemens Stiftung is an international operative foundation. Since its establishment in 2008/09, Siemens Stiftung has been committed to reliable and affordable drinking-water supply. This is based on social entrepreneurship, technological innovation, local capacity and competence building, and strong involvement of rural communities in East Africa.

Worldwide, 2.1 billion people lack access to safely managed drinking water. Water serves as a cross-system key resource and is therefore a central element in achieving the United Nations Sustainable Development Goals (SDGs).

Through its engagement, Siemens Stiftung primarily addresses SDG 6 on Clean Water and Sanitation. However, because SDG 6 is systemically relevant, the achievement of numerous other SDGs is also affected, including SDG 3 – Good Health and Well-being, SDG 4 – Quality Education, SDG 5 – Gender Equality, SDG 8 – Decent Work and Economic Growth, and SDG 13 – Climate Action.

Why water matters

Water is essential to life and, as such, an internationally recognized human right[1]:
SDG 6 Clean Water and Sanitation
Water is the foundation of all life and indispensable for health, nutrition, hygiene, and dignified living conditions. Access to clean drinking water and sanitation is therefore internationally recognized as a human right and must not be denied to anyone. Yet access remains unequally distributed worldwide and is increasingly at risk. Securing water justice is a key prerequisite for sustainable development, security, and social participation.

Safe drinking water enables health and hygiene -
SDG 3 Good Health and Well-being
The availability of clean drinking water and adequate sanitation significantly reduces the spread of water-related diseases such as cholera and typhoid and, in particular, lowers child mortality[2]. At the same time, water forms the basis for basic hygiene measures that interrupt chains of infection and strengthen public health. Lack of access forces many people to use unsafe water sources, increasing health risks and exacerbating social inequalities. Investment in safe water supply and hygiene infrastructure is therefore a decisive lever for health promotion.

Water security and climate resilience are closely intertwined -
SDG 13 Climate Action
At its core, climate change is a water crisis[3]: droughts, floods, changing precipitation patterns, and rising temperatures have a direct impact on the availability, quality, and reliability of water resources. At the same time, sustainable and resource-efficient water management is an essential prerequisite for strengthening the resilience of societies and ecosystems to climate-related risks.

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[1] On July 28, 2010, the UN General Assembly adopted Resolution A/RES/64/292, recognizing the right to clean and safe drinking water and sanitation as a human right [digitallib...ary.un.org], [paho.org]. Since 2015, the right to water and the right to sanitation have been recognized internationally as distinct, albeit closely related, human rights. [ohchr.org]

[2] Worldwide, around 395,000 deaths of children under five each year are attributable to inadequate water, sanitation, and hygiene services. Burden of disease attributable to unsafe drinking-water, sanitation and hygiene: 2019 update

[3] 90% of climate-related disasters are directly linked to water (droughts, floods, storms). Mise en page 1

Water supply as a gender and justice issue[4] -
SDG 5 Gender Equality and SDG 4 Quality Education
The global evidence is clear: water scarcity and inadequate sanitation disproportionately affect women and girls. In most countries in Sub-Saharan Africa, women and girls are primarily responsible for collecting drinking water. As a result, they lose considerable time that could otherwise be used for education, training, paid work, income generation, and social participation. Lack of water supply is therefore a structural driver of gender inequality.

Water is central to food security, but also an economic lever -
SDG 8 Decent Work and Economic Growth
Water is a major economic lever and a decisive factor of production and location[5]: the availability of water is essential for agriculture and food supply. Overall, productivity losses caused by inadequate water supply cost Sub-Saharan Africa around 5% of annual GDP. At the same time, the long-term availability of water is also a major factor shaping the competitiveness and investment decisions of enterprises. A forward-looking water strategy thus becomes a prerequisite for food security, productivity, and economic growth.

Water has cross-system impact and is the most important resource of the 21st century

Water is becoming the most important resource of the 21st century because, across systems, it forms the basis for health, food security, economic development, and functioning biological ecosystems.[6] At the same time, climate change, environmental degradation, population growth, and rising demand are intensifying pressure on available water resources worldwide. Water scarcity can exacerbate existing social, economic, and political tensions. Competition over limited water resources may contribute to local conflicts, displacement, and regional instability, particularly in vulnerable contexts. The sustainable safeguarding and equitable distribution of water is therefore becoming a central challenge and a key prerequisite for stability, security, and prosperity.

Challenges and structural causes

These challenges arise less from technological limitations than from structural and systemic shortcomings, due to:

- A lack of alignment among actors along the entire value chain - locally, nationally, and across borders
- A focus on short-term project financing instead of structural capacity building
- Dependence on external financing without sustainable operating models
- A highly fragmented, short-lived, and unstable water sector that is not designed for long-term reliability.
- In many countries, existing public water infrastructure and service delivery systems remain inadequate to provide reliable access to safe drinking water for all citizens.

What is needed now: Key levers for sustainable impact

Addressing systemic failures in the water sector requires actors that can connect the public mandate for water supply, market-based approaches, and community needs. Social enterprises are uniquely positioned to play this role and can therefore become key drivers of sustainable and scalable solutions.

- **Social enterprises as system integrators**
  Social enterprises can act as system integrators because they are able to develop innovations flexibly while simultaneously promoting their scaling in collaboration with municipal utility providers. In addition, they serve as an important interface between market dynamics,

[4] 1.7 billion people lack access to basic hygiene facilities; this shortage particularly affects women and girls, especially in the context of menstrual hygiene. Hygiene and Hand Washing Statistics- UNICEF DATA
[5] The UN estimates that inadequate WaSH provision costs Sub-Saharan Africa around 5% of GDP annually - more than the continent receives in development aid. https://futures.issafrica.org/thematic/05-health-and-wash/#impact-gdp
[6] Water | United Nations , UN-Water_Water_Facts_one_pager_January_2025.pdf

technological innovation, and the public mandate, helping to ensure that solutions are more strongly oriented toward the common good. This leads to a better balance between efficiency, sustainability, and social benefit.

- **Viable business models instead of permanent dependence on donor funding**
  Sustainable business models make it possible to finance necessary investments over the long term without being permanently dependent on external funding. They ensure cost-effective financing of the required investments and cover operating costs in the medium term. At the same time, clearly defined responsibilities within social enterprise structures create greater stability and transparency in operations.

- **Public-private partnerships (PPPs) as a lever for growth**
  Public-private partnerships can contribute to the expansion and long-term sustainability of water supply systems, thereby promoting economic growth. However, the fundamental prerequisites for this are legal stability and investment security for all stakeholders involved. Clearly defined governance structures and oversight mechanisms make collaboration more efficient and trustworthy. Furthermore, PPPs enable the pooling of public and private resources, making larger-scale and long-term projects feasible in the first place.

- **Water as a holistic system rather than a project logic**
  A holistic approach in the water sector improves coordination among public, private, and civil society actors and prevents isolated, fragmented solutions. Regional cooperation, for example in water management, helps ensure that resources are used more sustainably and efficiently. In addition, shared objectives for service areas support the long-term, coordinated, and resilient development of water infrastructure.

Key role of local social enterprises and SMEs (small and medium-sized enterprises)

Social enterprises and SMEs play a key role:

- **Long-term presence and accountability:** Social enterprises are often embedded in the communities they serve and therefore have a strong vested interest in developing sustainable solutions and maintaining consistent service quality over time.

- **Closing service gaps:** With deep knowledge of local social, cultural, and economic conditions, they are well positioned to extend water services to underserved areas where public capacities are limited and purely commercial actors lack incentives.

- **Demand-driven and accepted solutions:** Their close proximity to users enables them to design tailored, practical solutions based on real needs, continuously adapt them, and foster a high level of acceptance within communities.

- **Efficiency, scalability, and innovation:** By combining entrepreneurial efficiency with a social mission, they develop cost-effective, innovative business models that can be replicated and scaled across different regions.

- **Strengthening local systems:** They contribute to job creation, build technical and managerial capacities, and support the development of local markets and value chains.

- **Resource mobilization and resilience:** By blending diverse funding sources, they reduce dependence on external aid while enhancing the resilience and adaptability of water systems through their strong local presence.

Sustainable growth and scaling prospects emerge particularly through cooperation with municipal water utilities. Water supply does not fail only because of technology or capital, but also because of a lack of integration of governance, operations, financing, and expertise. Local social enterprises combine practical proximity with innovative strength. Their flexibility, closeness to people, and scaling potential make them particularly effective actors. Sustainability can only emerge when water supply is

understood as a socio-technical system that is viable over the long term. Without this understanding, impact remains temporary.

Siemens Stiftung's position: What we work on and how we work

The private sector and philanthropy in particular can make a significant contribution to promoting and actively supporting access to drinking water and sanitation infrastructure in cooperation with local partners.

In line with its core principles, Siemens Stiftung is committed to:

- Access to essential services as a prerequisite for social development
- Technology as part of the solution, not as an end in itself
- Entrepreneurship that combines economic viability with social impact
- Know-how transfer and competence building for long-term solutions

This will improve sustainable access to safe and affordable drinking water in rural regions of East Africa.

The focus is on strengthening local water providers - especially social enterprises and smaller utilities to increase their performance, economic viability, and scalability. The aim is to overcome existing structural market deficiencies, close supply gaps, build climate-resilient and future-ready water systems, and develop a supportive ecosystem of relevant actors.

In this way, independent and viable supply structures are to be created over the long term, improving health, promoting economic development, and strengthening the resilience of rural communities.

Components for supporting social enterprises and SMEs

The "Missing Middle": A driver of innovation and a critical financing gap

Financing the so-called "Missing Middle" is a decisive lever for developing viable solutions in the water sector: numerous innovative social enterprises fail because they find themselves between early-stage support and commercial investment readiness. They often lack access to sufficient capital. The following measures can enable enterprises to stabilize their business models, scale impact, and achieve investment readiness:

- Targeted, flexible financing instruments
- Technical support
- Advisory services
- Active implementation support

This closes a critical financing gap, reduces the risk for follow-on investments, and, over the long term, enables the development of market-ready water-supply solutions.

Professionalization, capacity building, and long-term monitoring as success factors

The professionalization of social enterprises through capacity building and long-term monitoring are central success factors for the sustainable functioning of decentralized water-supply systems. They not only ensure technical quality and operational capability, but also strengthen local competences, institutional structures, and local ownership. Therefore, in addition to financial support, non-financial support such as coaching, advisory services, and mentoring can also play a key positive role.

Professionalization and long-term monitoring form the basis for scalable and permanently viable solutions in the water sector.

Building a strong ecosystem is a strategic task

We strengthen social enterprises by creating platforms and networks of local and international stakeholders that enable cooperation, knowledge exchange, and visibility, while building trust in these actors. Public-private partnerships (PPPs) are made possible through the development of local

networks. They have a strategic role: they pool public and private resources, scale innovative solutions, and thereby improve long-term security of supply, efficiency, and resilience to crises.

Networking, exchange, and cooperation play a central role, especially in the development of holistic solutions, by offering opportunities for synergies and fostering resilient, sustainable structures.

Our mission: Together for greater impact

Siemens Stiftung is committed to targeted international cooperation to address global challenges such as water scarcity. We consistently understand water as a connected system - not as isolated individual measures. To this end, we connect decision-makers and knowledge holders in a strong ecosystem approach, thereby creating the basis for collaboratively coordinated, effective solutions. We strengthen social enterprises because they perform a bridging function between market logic and the common good, developing economic, ecological, and social solutions. We promote participation by actively involving people in processes of change. We also create opportunities for people with lived experience and those from underprivileged communities to be seen and heard. Their experience and perspectives are essential to the development of sustainable solutions and must be included in the global dialogue and decision-making.