WATER SECURITY AND PRODUCTIVITY

Mercy Corps' Approach

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We work on the frontlines of securing water supplies and improving the productivity of water in its many uses. We support people in fragile and conflict-affected contexts to adapt water management to challenges and risks, while helping to build water secure communities and economies.

MERCY CORPS

Water is a fundamental ingredient for life. Water for household use, sanitation and hygiene is a basic human need and recognized as a human right. Water is also an essential input in agriculture, power production, commerce and industry. In the poor, fragile and often arid areas in which Mercy Corps works, natural hydrologic function, ample groundwater supplies and associated ecosystem services are critical to sustaining livelihoods and human well-being. Due to a lack of equitable access to water and the governance, technology and market systems to develop productive uses, household drinking water and community water systems remains a limiting factor for food security, development and conflict prevention.

WATER SECURITY

The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.

UN Water. 2013. Analytical Brief on Water Security and the Global Water Agenda. UNU: Hamilton.

The challenge presented by governing and managing water to meet human and environmental needs is enormous. As of 2017, the United Nations estimates that almost 850 million people remain without access to basic drinking water services and 73% of people in developing countries cannot wash their hands properly at home.[1] More than 2 billion people live in countries experiencing high water stress and 1.1 billion experience high water stress and shortage.[2] Increases in human population, per capita incomes and agricultural development are driving the demand for water ever higher. Decades of water resource development and investments in diverting, damming, pumping, conveying and treating water has led to the drying up and degradation of water quality in major aquifers, inland and coastal deltas, terminus lakes and other wetland systems. By 2050, the World Bank expects the depletion of fossil groundwater reserves in the Middle East and North Africa, and a 6 to 14% decline in the region's GDP due to climate change-induced water scarcity.[3] Increasing demand and worsening supply will drive up costs and make water less affordable as governments struggle to finance needed service delivery, through infrastructure and nature-based solutions, and halt the degradation of ecosystems and the exhaustion of groundwater reserves. Shortage of water supplies and dewatered ecosystems will increase migration and displacement. The water security and productivity challenge will only increase for the less well-off members of society.

At Mercy Corps, we harness our foundational approaches in community empowerment, market systems, good governance, peace-building and innovative technologies to establish and grow transformative and lasting water security solutions. We do so by taking a systems approach, working across scales, and facilitating unique partnerships between government, the private sector and communities.

WATER PRODUCTIVITY

Primarily for use in agriculture or industry, the term is used to compare uses of water in terms of their output in physical or economic terms, for example either kilograms or dollars produced per cubic meter of water.

Molden (1997) Accounting for Water Use and Productivity. Colombo: IIMI.

[1] UN. 2018. *Sustainable Development Goal 6: Synthesis Report 2018 on Water and Sanitation*. New York: United Nations.

[2] Idem; Kummu, M., J. H. A. Guillaume, et al. 2016. "The World's Road to Water Scarcity: Shortage and Stress in the 20th Century and Pathways towards Sustainability." *Scientific Reports* 6(1).

[3] Borgomeo, E., A. Jakerskog, et al. 2018. *The Water-Energy-Food Nexus in the Middle East and North Africa*. Washington DC: World Bank; World Bank. 2018. *High and Dry: Climate Change, Water and the Economy*. Washington DC: World Bank:

Our Principles

- **Empower local communities:** *Water is a local resource*. The withdrawal and use of water resources plays out at a local level; with household, productive and ecosystem uses varying from one watershed to the next. To secure local water supplies, Mercy Corps works with communities to understand the tradeoffs involved in using scarce water supplies, expand the capacity for advocacy, and implement flexible and adaptable governance structures.
- **Protect and conserve water:** *Water is a public resource*. Although water brings great benefits to private users putting it to productive uses, water flow and quality, as well as groundwater reserves provide a large number of public goods. Mercy Corps brings communities, partner NGOs, government authorities and interest groups together with private water users in collaborative institutional arrangements to secure human and environmental uses of water.
- **Apply economic thinking and align incentives:** *Water is an economic resource*. Water provides services to many, and the economic costs and benefits of these uses must be transparent and part of water allocation and management decisions. Mercy Corps applies economics to strengthen institutional arrangements and design market-based incentive systems so that water users conserve, reuse, store and trade water in order to increase the productivity of each drop.
- **Water for peace:** *Water is a shared resource*. Negotiations over scarce resources can bring people together or create conflict; participation, joint learning and debate are essential. Mercy Corps promotes dialogue, learning and planning at the local, national and transboundary scale to overcome fears and foster collective action, technological innovation, natural/built infrastructure and the finance necessary to promote water security and productivity.

Our Approach

Integrated management of water across users and uses requires an interdisciplinary approach and an understanding of biophysical and socioeconomic environments at different scales between field, farm and basin. Opening up management, investment and governance processes beyond closed technocratic and built infrastructure-centric conversations is critical to Mercy Corps' approach to water.

Our work in water security supports humanitarian and development progress by working with communities, government and the private sector to evolve our understanding, improve governance and transform water management across local, national, and transboundary scales. Given the fragile context in which Mercy Corps works, careful design that anticipates and addresses the risks of conflict, disaster and crisis is essential.

INCREASING EQUITABLE ACCESS TO WATER

Provide household and productive water supplies for those in need

Access to water for household and agricultural needs is a critical challenge for refugees, poor and food insecure households, and communities increasingly affected by conflict and vulnerable to climate change. Our approach is to provide flexible, scalable and climate-smart water systems that can be adapted to different uses and contexts based on a core set of engineering, management and financing approaches, alongside the necessary water monitoring, management and governance arrangements.

- **Utility-Scale Water Supply**: In the Democratic Republic of Congo, Mercy Corps has built infrastructure and a utility business to address chronic water shortages and hygiene in the rapidly expanding peri-urban areas around Goma. Lessons from this $50 million investment guide further investments in urban and autonomous systems, including those with blended finance.

- **Rural Water Access**: In Nepal, Mercy Corps engages with local government and vulnerable groups to develop small, affordable water systems for household and productive uses. In Iraq, Mercy Corps is working with local youth associations to develop solar-powered irrigation systems in order to alleviate unemployment, build marketable skills and build social cohesion.

ADOPTION OF WATER SAVING PRACTICES

Conserve water supplies, now and for the future.

As water grows scarcer, innovation in technologies that improve the efficiency of water capture, pumping, diversion, conveyance and application is on the rise. These technologies complement traditional, regenerative agricultural practices, which are water- and soil-conserving. Governance systems that promote and incentivize these water saving interventions complete the package. Our approach is to accelerate the spread of these proven and innovative approaches for improving water use efficiency, thereby saving water to meet other needs and future uses, while reducing household expenditure and raising agricultural returns.

- **Market Systems Development.** In Jordan, Mercy Corps engaged with equipment suppliers and large farmers in the highlands on the development of market systems for water efficient technologies, in particular low-water use emitters for drip irrigation. The program is on track to save 18 million cubic meters of water, water that will remain in the ground to meet future demands.

- **Groundwater Governance:** In sub-Saharan Africa, users extract just a small portion of the renewable groundwater supply. Meanwhile, in the Middle East and North Africa, users are rapidly mining groundwater reserves. Mercy Corps is developing lessons learned and guidance how best to measure, manage and govern groundwater in fragile and conflict affected areas.

SUSTAINING WATER-DEPENDENT ECOSYSTEMS

Secure environmental flows and groundwater reserves to underpin livelihoods.

Vulnerable communities disproportionally depend on natural resources. Large, wetland and water-dependent ecosystems often provide food, employment and other goods and service to local communities and serve as the foundation of regional economies. Threats to these systems in terms of changing climate, water resource development and land degradation are increasingly severe. Our approach is driven by data analysis and deep engagement in local contexts to better understand the impacts on rural livelihoods. We seek innovative methods for arriving at equitable and efficient balancing of natural and built infrastructure.

- **Integrating Earth Observation with Community Knowledge**: In Mali, Mercy Corps is working with NASA (as part of our global partnership) to better understand how water resource development and climate drivers intersect with natural resource management and agropastoral production. Lessons from this research inform and guide food security and peace-building programs.

- **Water Tenure**: Community and women's rights to customary uses of water are often not understood, recognized or officially permitted. As a result, they are not protected. By engaging with women's groups, pastoralists and other communities to understand and advocate for these rights, Mercy Corps aims to protect freshwater systems, ecosystem function and community uses of water.

FINANCING FOR WATER SOLUTIONS

Deliver finance for affordable, equitable and sustainable water investments.

The need for investment in built and natural infrastructure in the developing world is enormous. Public finance, fiscal policy, regulatory frameworks and business acumen to support necessary investment in infrastructure is particularly lacking in fragile contexts. However, households are willing to pay for clean water, and private capital is available for investment – including impact capital that forsakes high returns for development impact. Our approach is to develop public/private partnerships that leverage improved governance, market-based incentives, innovative data/analytic technologies and sustainable utility business models to reduce investment risk and leverage public funds with private capital.

- **Corporate Water Stewardship**: In Gaza, saline intrusion and poor hygienic practices limit drinkable water supply in Gaza and cause high levels of diarrheal diseases. Mercy Corps raised funds from Coca-Cola to build a desalination facility and conduct a household water quality-testing program, securing water and lowering disease incidence amongst 18,000 refugees.
- **Financial Inclusion**: In Jordan, Mercy Corps empowered local women-headed community-based organizations (CBOs) through a loan program to finance water saving household measures, in particular cisterns for rainwater harvesting. Using e-wallet technology, loan recipients will repay the funds to the CBOs, which will then recycle the funds back into further community investments.

IMPROVING FLOOD RESILIENCE

Reduce susceptibility to loss from flood events for rural and urban communities.

Households, farmers and businesses face loss of income and property, as well as loss of life, due to flooding. In many locations climate change is leading to more intense rain events, increasing flood height, overwhelming existing defenses and generally increasing flood incidence and damage. Meanwhile human encroachment onto floodplains is increasing, making communities more vulnerable to floods and amplifying the damage and loss suffered from the increase in flood risk. Our approach is to address increased community flood risk through stakeholder coordination and planning, the development of flood early warning systems and investment in flood mitigation and/or adaption.

- **Watershed Management**: In Indonesia, Mercy Corps evolved its successful programming on flood preparedness and response, to address the root causes of flooding. The program built coordination platforms across the basin through the establishment of a transboundary forum using ecosystem modeling to inform a strengthened approach to coordinated flood risk reduction investments.
- **Flood Resilience Financing**: As a member of the Zurich Flood Resilience Alliance, Mercy Corps is preparing an innovative impact bond to improve flood resilience. In this pilot program, investors will provide financing for flood resilience interventions (e.g., planting of mangroves) and receive a return if agreed-upon outcomes are achieved by the service provider within a pre-defined period.

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About Mercy Corps
Mercy Corps is a leading global organization powered by the belief that a better world is possible. In disaster, in hardship, in more than 40 countries around the world, we partner to put bold solutions into action — helping people triumph over adversity and build stronger communities from within.
Now, and for the future.

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