

Water 4 Mercy Concept Note WAMSA

WAMSA Overview

The Water 4 Mercy Schools of Agriculture (WAMSA)	For implementation with 102 Don Bosco Technical Institutes of Africa (DBTAfrica)
WAMSA Overview:	
<p>Focusing on agricultural and water sectors, WAMSA teaches innovative solutions for knowledge development, nutrition sensitivity, climate resilience, income generation, teacher training, and youth empowerment. Complementing DBTAfrica's hands-on curriculum, students, alongside local farmers and extension workers/agents learn best-practices in horticulture and animal husbandry from skilled agronomists, improving undernourished communities' health.</p>	
WAMSA Summary	
<p>WAMSA incorporates the collaborative expertise of Don Bosco Tech Africa(DBTAfrica), CultivAid, Innovation:Africa and Water4Mercy; partners who share the same "Heart" and commitment to help the most vulnerable. Lead organization DBTAfrica is an established presence in Global South Africa focused on providing Technical Vocational Education and Training(TVET) for marginalized male and female students. WAMSA's sustainable methods of innovative horticulture and animal husbandry are implemented within a 'profit-center' model where students are taught, tested, and encouraged to apply their skills to generate income and become self-sufficient. Complementing DBTAfrica's hands-on curriculum, WAMSA also provides a means for improving nutritional food options for surrounding communities. WAMSA's Training, Demonstration and Research (WATDR) 'practicum' sites are equipped with drip irrigation, sprinklers, and greenhouses utilizing advanced agro-techniques. Alongside students, farmers and extension agents are introduced to business fundamentals, modern agricultural technology and proven best practices to improve overall nutrition. Knowledgeable and skilled agronomists teach climate-change resistant solutions through applied technology and practical skills. WAMSA is designed to be replicable and scalable throughout 102 DBTAfrica centers. WAMSA will transform and optimize the water/agricultural sectors and allow capacity building with ongoing training and logistical support. Certified graduates will receive one hectare of land to cultivate in 'Co-Op/profit-sharing' ventures overseen by WAMSA, encouraging sustainable economic opportunities and accelerating graduates' journeys to self-reliance. WAMSA includes gender studies components, providing equal access to young women/men for a new generation of growers and/or teachers within DBTAfrica. Co-Impact funds will enable scaling up WAMSA to multiple TVET locations simultaneously for greater systems impact.</p>	

Overview of WAMSA's systems changes:

Overview of the problem WAMSA aims to address.

Over 25% of Tanzanians and 23% of Ethiopians live in poverty and lack access to clean water and proper nutrition. Both countries suffer from high rates of malnutrition, disproportionately affecting women and children. Over 34% of children under five are stunted in Tanzania; in Ethiopia 37%. Nearly 45% of reproductive age women in Tanzania are anemic; in Ethiopia 23.4%. Maternal malnutrition can be associated with higher risk of maternal mortality, low infant birth weights, and infant mortality. Country horticulture is primarily focused on several major crops with high market potential. These include vineyards, oil seeds (sunflower, sesame, cotton, groundnuts), sorghum, cassava, various fruits and vegetables. This narrow production mindset prevents populations from eating a nutritionally diverse diet and thus contributes to widespread malnutrition. These are major health concerns suggesting a tremendous need for improving food production, nutritional diversity and agricultural methods encompassing horticulture and animal husbandry.

Tanzania suffers from low quality production due to poor access to agricultural inputs such as improved seed variety, fertilizers, chemicals, irrigation technology, hen nesting boxes, etc. having a poor knowledge infrastructure with noneffective agricultural extension workers and a lack of market linkages. Low prices, poor standards and a lack of consistency for agricultural products are often due to an unfair power balance against farmers who are burdened by strong middlemen and weak mechanisms for accreditation.

The great majority of Tanzania's population engaged in agriculture is mostly at a subsistence or small commercial level. New technologies and organizations of production are needed to promote mechanization, agro-processing, assembly, manufacturing and equipment operations. Agricultural-processing industries are underdeveloped and are a critical link towards achieving the country's goal of becoming a middle-income economy through inclusive industrialization led agricultural growth.

In Tanzania, the government has a clear understanding that existing agricultural extension services are not producing the required results. The Minister of Agriculture has stressed an urgent need for technical backstopping and an upgrade to the knowledge of extension workers/agents. There is a desire by national programs for the private sector to take on a larger role in providing agricultural extension services.

The first WAMSA is at Don Bosco Technical Institute(DBDodoma) located in the city of Dodoma, Tanzania, within the region of Dodoma which covers 40,000 square kilometers with 2.5 million in estimated population.

WAMSA's team has strong and deep ties within the public and private sectors in Tanzania and Ethiopia; here, optimal and expeditious scale-up is expected.

WAMSA's Systems Change Strategy

WAMSA's team provides expertise in advanced solar and water technologies, innovative agricultural solutions and sound business and education practices, all for the purpose of improving the health and prosperity of persons suffering from thirst, malnutrition, and poverty. WAMSA's Training, Demonstration and Research(WATDR) sites are incorporated within DBTAfrica's vocational hands-on curriculum, to promote capacity building through ongoing trainings and logistical support for local farmers and agricultural extension workers/agents.

WAMSA aims for sustainable development and expansion by promoting private sector infrastructure, investment, and growth to significantly impact the entire value chain. WAMSA's main objectives include: improved nutrition, knowledge development, teacher training, youth empowerment, job creation, income generation. WAMSA sets a multi-sectoral systems-based approach aimed at strengthening the agricultural knowledge infrastructure and engaging the private sector through expert-driven, hands-on training directly related to improvements in health and nutrition with crop diversification and agricultural innovations.

The "fulcrum" identified for maximum impact is utilizing DBTAfrica's network of TVETs for WATDR sites with the intent of demonstrating to the students and the average farmer how to maximize yields and revenues from a piece of land similar in size. Knowledge is transferred and developed under the supervision of CultivAid agronomists. Students, alongside agricultural extension workers and local farmers, practice and implement innovative agricultural techniques that will enhance local knowledge and bolster the area's economy while introducing more diversity into the diets of surrounding communities. The approach introduces technology while emphasizing the need for continued capacity building through knowledge-sharing and teacher training. Newly empowered local experts are the key to sustainable community development and long-term functionality. Through applied curriculum and hands-on training, participants will learn practical skills they can apply to generate income and invest in their communities. Graduates can become entrepreneurs and/or teachers, sustaining the diffusion of knowledge and development within the local economies. In DBTAfrica centers, young women and men are given equal opportunity to explore technical fields. Recently, the enrollment of young women at DBDodoma has increased from 6% to 34%. We expect that proportion to increase as we emphasize the nutritional benefits that the skills learned at WAMSA can have on their families and communities.

WAMSA has the potential to impact thousands of students and millions of people living in cities and villages around the DBTAfrica centers. With the skills learned at WAMSA, students and participants will become agents of change, and contribute to the development of their communities, their countries, and the world.

WAMSA Results

WAMSA is multi-faceted, aiming to support current infrastructures and provide trainings and workshops to farmers, the Bureau of Agriculture, research institutes, technical/vocational colleges, universities, NGOs and private enterprises. Moreover, WAMSA's high-quality hands-on curriculum was designed with DBTAfrica so that certified graduates are well prepared to enter and remain in quality, income-earning jobs in agriculture fields, either as employees, or self-employed. WAMSA's facilities and Training, Demonstration and Research sites(WATDR) enable students, alongside locals, to attain the required experience and to develop and apply modern agricultural skills and innovations to sustain a business. WAMSA encourages “deeper learning skills,” including how to critically approach, analyze and resolve issues that arise to enhance the resilience of the community. Nutrition-sensitive agriculture is emphasized for diet diversification and the cultivation of nutritious foods to improve community health and thus reduce the rates of stunting and wasting of young children.

Women of reproductive age will benefit from improved and diversified diets which will lower rates of anemia, maternal mortality, low birth weight babies and infant mortality. Children will benefit from improved nutrition which will reduce rates of stunting and wasting and encourage healthy cognitive and physical development. The community will benefit economically as more young women and men are skilled, employable and income-producing, directly addressing current critical problems of high unemployment. Furthermore, agricultural processing development will increase the value of production and establish new market linkages.

Success will be reflected in lower rates of unemployment and fewer cases of stunting, wasting and anemia. Another measure of success will be empowered farmers cultivating beyond the level of subsistence; they will flourish economically! WAMSA's intent is to transition operations, maintenance and education to DBTAfrica after 3-5 years, ensuring the sustainability of the program with the cycle of certified graduates and extension workers/agents who teach their communities agricultural techniques learned.

WAMSA's Approach

WAMSA's Partnerships and a “Winning Coalition”

Water4Mercy, CultivAid and Innovation: Africa have successfully implemented sustainable solutions together, providing permanent clean water and healthy food systems in remote Africa. Don Bosco Tech Africa's network of centers(DBTAfrica) has been serving marginalized youth in Africa for decades and provide a high standard academic infrastructure through which WAMSA's facilities and Training, Demonstration and Research sites(WATDR) will transfer innovative Israeli knowledge and technology to students and local participants. A significant component in DBTAfrica's curriculum is job placement and many centers have existing partnerships with private companies and local government agencies.

Especially in Ethiopia and Tanzania, WAMSA's partners have deep ties within the private and public sectors, including government partnerships. Ongoing discussions with other countries are being explored to encourage legislators to integrate WAMSA's model into national legislative activities.

Political Economy and Governance

WAMSA's team (Water 4 Mercy, CultivAid, Innovation:Africa, DBTAfrica) have ties within civic and political governance in a multitude of Global South countries. Independently, each have successfully demonstrated meaningful systems changes and there is tremendous governmental support (local/municipal/regional/country), especially in Tanzania and Ethiopia. WAMSA aligns well with National Multisectoral Nutrition Action Plan(NMNAP), Tanzania's national commitment to address unacceptably high levels of malnutrition. WAMSA incorporates scalable nutrition interventions so that "...Tanzanians are better nourished leading to healthier and more productive lives that contribute to economic growth and sustainable development" (from NMNAP).

WAMSA is collaborating with national Ministries of Agriculture/Education/Water and creating partnerships to enhance existing programs. WAMSA's facilities and Training, Demonstration and Research sites(WATDR) enable trainings and work opportunities in conjunction with government priorities. WAMSA will offer robust agricultural extension programs, a solution for the government's unsuccessful efforts to support struggling farmers. Knowledge is transferred to young women and men who will support the government's goal of becoming a middle-income economy through inclusive industrialization-led agricultural growth.

CultivAid's involvement with the Ethiopian government's Seqota Declaration (end stunting among children under two years) is innovative and is the foundation of WAMSA's cross-sectoral, nutrition-sensitive principles. WAMSA's intent is to transition operations, maintenance and education to DBTAfrica graduates/staff after 3-5yrs.

Gender and Other Disadvantaged Groups

WAMSA's curriculum incorporates Gender Studies as a graduation requirement to dispel current misunderstandings regarding the roles and capabilities of each gender. WAMSA aligns with the mission of DBTAfrica's network of centers: "to create partnerships to develop and manage empowerment programs that impact positively the lives of underprivileged youth". Business development and leadership courses are offered to all students, equally encouraging young women/men to master the skills necessary to manage a successful agricultural business.

With open discussion around gender issues, DBTAfrica centers encourage young women to explore vocational fields. WAMSA is complementary and adds opportunities for skills acquisition and career advancement. In 2016, DBTAfrica centers sought to increase female enrollment by changing the attitudes of young women and society toward vocational education; by 2019, female enrollment increased by 28%. Outcome measurements by gender will include: enrollment and graduation rates, scholastic achievement, and post-graduation achievement. Furthermore, WAMSA's facilities and Training, Demonstration and Research sites(WATDR) support local farmers and agricultural extension workers/agents, a disadvantaged group that is often overlooked.

Measurement and Learning

Please describe your approach to learning in this initiative. How do you plan to track progress? How do you intend to learn and adapt?

WAMSA's curriculum adheres to DBTAfrica's high standard and rigors for certification. Crops, seedlings, egg production and other agricultural outputs will be monitored through seasonal reports that will collect data on production and productivity. Lessons learned will be incorporated, and operations adapted for the following season(s).

WAMSA participants will be members of a network to encourage active communication, knowledge sharing, peer-to-peer and mentor-to-peer support, and to promote accountability. Working alongside the students, agricultural extension workers/agents will regularly conduct monitoring and evaluation assessments to ensure that the skills provided through WAMSA are serving the developmental needs of communities and meeting market requirements of the region.

WAMSA's Track Record

Water4Mercy's mission is to 'transform the world with Israel's innovative and advanced water and agricultural solutions'. Partnered with Innovation:Africa and CultivAid, Water4Mercy villages have access to revolutionary drip irrigation, practical farming techniques and award-winning remote monitoring technology. Each project is tracked live and 100% successful. In the past 12 years, Innovation:Africa has brought Israeli solar, agricultural and water technologies to over 300 projects in 10 countries across Africa, benefitting and empowering over 2 million people.

CultivAid focuses on the agricultural and water sectors, specializing in capacity building and knowledge and technology transfer initiatives. As part of Engineers Without Borders-Israel (EWB-IL), CultivAid co-founders successfully developed a 0.5-hectare demonstration site in 2013 in Mekelle, Tigray, Ethiopia. Separating from EWB-IL, CultivAid was founded in 2016 and has successfully established over a dozen different projects throughout Ethiopia with local organizations, government agencies, private farms, companies and universities to develop the knowledge infrastructure within developing countries. CultivAid's different activities are operated through field staff of Israeli and local agronomists and engineers who support the demonstration and training sites' day-to-day operations. CultivAid and Innovation:Africa are technical partners for Federal Government of Ethiopia's multi-sectoral program, The Seqota Declaration, which aims to end child malnutrition by 2030. DBTAfrica's centers have successfully taught thousands of students for decades; Don Bosco Technical Institute, Dodoma (DBDodoma) receives scholarships via a governmental partnership.

DBDodoma's partnership with the Tanzanian government has supported over 3500 students; in 2018, 93% of the marginalized youth who participated graduated. Encouraging girls to pursue technical training has been a core component of DBTAfrica's programs; they've successfully increased the enrollment of girls in their vocational training centers. Water4Mercy, Innovation:Africa and CultivAid are successfully working together in Mwinyi and Huzi Villages, located in Dodoma Region, Tanzania. Collaborative efforts are under way implementing WAMSA and Demonstration/Training/Research site (WADTR) in DBDodoma.

Budget Narrative / Co-Investment and Leverage

<p>Key cost drivers per WAMSA: Phase I: \$500,000 in Horticultural-Initial costs for capital/design/training/irrigation/greenhouses/nursery, plus CultivAid's experienced staff/agronomists. DBTAfrica centers will incur \$204,000 in costs to remodel existing buildings for new classrooms, construct farmhouse for generator, equipment storage, washrooms, pump room, reception area, perimeter fencing and WAMSA staff. (DBTAfrica will donate approximately 16% of their costs in labor for remodeling/construction.) Annual costs (Phase I) are \$10,000 for seeds/fertilizer/pest control and \$70,000 for support staff/training supplies.</p> <p>Phase II: \$145,000 in poultry production capital costs for coops/certifications/equipment and potential infrastructure costs for roads/drainage. Annual costs for staffing plus pullets/feed/poultry vaccines estimated at \$80,000.</p> <p>Over 50% of Phase I first year costs towards DBDodoma have been committed. Initial Co-Impact resources would provide the balance needed to complete Dodoma's Center of Excellence and establish WAMSA at multiple DBTAfrica schools. In years 3-5, each WAMSA Training, Demonstration and Research site(WATDR) will function as profit-making sustainable farms, allowing expansions.</p>
<p>Co-Investment and Leverage</p>
<p>DBDodoma, has committed resources covering 50% of Phase 1. Conversations are ongoing with additional potential funders. DBTAfrica and Tanzania's government have committed to providing thousands of hectares of land for WAMSA's uses.</p>

WAMSA's Team / Biographies of Key Staff

Full Name	Gender Identity	Nationality/ies held
Nermine K. Rubin	Female	USA
Title	Organization	Country where based
Founder and CEO	Water 4 Mercy, Inc.	USA
Biography		
<p>Nermine Khouzam Rubin is WAMSA's visionary. After observing firsthand persons in remote Africa dying of thirst and hunger-having lost all hope, Nermine researched extensively for an optimal solution. She deduced that permanent clean water and innovative agricultural solutions are THE ANSWER to permanently breaking the vicious cycles of poverty. Nermine is the Founder and CEO of Water4Mercy and holds a Master in Business Administration (MBA) and Master of Health Science (MHS) from the University of Florida. She sits on multiple committees and organizational boards, including Clearwater Central Catholic High School, Florida Bar Grievance Committee, Leadership Pinellas, and Mainstreet Economics.</p>		

Full Name	Gender Identity	Nationality/ies held
Fr. George Tharaniyil	Male	Indian
Title	Organization	Country where based
Director of DBTAfrica	Don Bosco Tech, Africa	Kenya
Biography		

Fr. George Tharaniyil is the Executive Director of Don Bosco Tech Africa (DBTAfrica), the coordinating body for all the Don Bosco Technical Schools in Africa and Madagascar region. He is the current secretary of the Board of DBTAfrica and influences policies that enhance technological, social, environmental and economic development in Africa by contributing to the advancement of the marginalized youth through quality TVET Systems. He attended Strathmore University Business School in Nairobi, Kenya, where he currently resides and works. He was born and raised in Kanhangad, Kerala, India and attended Don Bosco High School in Mannuthy, Kerala, India.

Full Name	Gender Identity	Nationality/ies held
Tomer Malchi	Male	Israeli
Title	Organization	Country where based
Executive Director and Co-Founder	CultivAid	Israel

Biography

Tomer Malchi is the Executive Director and Co-founder of CultivAid, an Israeli development organization working on sustainable agriculture, water and energy initiatives. Tomer is finalizing his Ph.D. studies at the Faculty of Agriculture, Food and Environment, Hebrew University where he completed a B.Sc. and M.Sc. in soil and water science. Tomer also holds a degree in Industrial Labor Relations from Cornell University. He has a rich background in various fields of development addressing agricultural, water, social, environmental and economic issues. He is a board member of Israel's Society for International Development and a leading figure in Israel's international development community.

Full Name	Gender Identity	Nationality/ies held
Sivan Ya'ari	Female	Israeli
Title	Organization	Country where based
Founder and CEO	Innovation: Africa	USA

Biography

Sivan Ya'ari is the founder and CEO of Innovation: Africa, a non-profit organization that brings Israeli solar, agricultural and water technologies to African villages. She has a master's degree in Energy Management and Policy from Columbia University. Sivan has been working in Africa for over 20 years, and in the past decade has brought clean water and light to over 1.8 million people across 10 African countries. Sivan and Innovation: Africa have received several prestigious awards, including the Innovation Award from the United Nations and most recently the Innovation Diplomacy Award from the Abba Eban Institute.

Final Thoughts

The COVID-19 crisis has demonstrated that building the local capacity of developing communities safeguards water and food security and is the key to transforming Africa's agricultural sector and developing self-sustaining ecosystems. Local teams of skilled agronomists who maintain the WAMSA Training, Demonstration and Research(WATDR) sites will guarantee that the growth of healthy and nutritious food continues in challenging times, especially when external partners are not able to be in the field. Current global events highlight the importance of introducing innovative technology and empowering communities by sharing knowledge and further developing agricultural value chains: this is long overdue and more urgent than ever.

Due to the unprecedented and largely unknown impacts of COVID-19, funds that were previously committed to Phase II (poultry production/animal husbandry) at DBDodoma have been deferred. It is the hope that WAMSA's fundamental design to utilize WATDR sites for sharing and transferring knowledge to students and also for farmers, locals and agricultural extension workers/agents will demonstrate to Co-Impact our winning large-scale systems change approach.