

Water Use Efficiency in Action

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Multi-stakeholder Perspectives on the Water and Productivity Project in Pakistan

Bracing for the scorching July heat in Pakistan, thirty-five-year-old Tehmina stands barefoot for eight to twelve hours a day transplanting rice seedlings in the paddies of Punjab Province. Her two daughters, ages fourteen and twelve, work at her side in the humid conditions while her three younger children, ages five, seven, and ten, linger on the field's periphery under the supervision of her mother-in-law.

Some of the other mothers who do not have childcare assistance are forced to bring their babies into the field, exposing them to the extreme heat. With no safety measures to protect field workers, women frequently suffer from sunstrokes, leech bites, dehydration, and other illnesses brought on by the punishing work environment.

For 45 days each year, approximately 15,000 women like Tehmina transplant rice over hundreds of thousands of acres in Pakistan's Punjab Province. While extremely demanding and hazardous, transplanting pays better than other temporary jobs such as strawberry picking, vegetable production, and brick kiln operation. Transplanting represents a critical source of household income.



Water Productivity Defined

Water productivity refers to the ratio between the amount or value of a crop and the amount of water applied for its production. Increasing water productivity means a) to decrease the amount of water for production while keeping or increasing the level of yield/income from the crop, or b) to increase yields/value of a crop, while keeping or decreasing the amount of water used. More efficient rice growing technologies with higher water productivity include Direct Seeded Rice (DSR), Alternate Wetting & Drying (AWD), and laser leveling.

However, there exist safer and more efficient ways to cultivate rice; approaches that can mitigate both the environmental and human impacts of agriculture. As climate change advances, so too does the scarcity of water, which threatens the already precarious state of agriculture in many countries and increases the risk of conflict over water rights. The Water and Productivity Project (WAPRO), launched in 2015, sets out to address this challenge by focusing on water efficiency in South Asian rice and cotton production.

While the introduction of new water-saving technologies represents tremendous opportunity, WAPRO innovations would also result in the unintended consequence of putting women transplanters out of work, thereby dramatically reducing household income.

Finding widespread acceptance of technological innovations from local farmers, policymakers, buyers, and the private sector is a complex challenge that cannot be tackled by individual actors. Two WAPRO coalition members, HELVETAS Swiss Intercooperation, a Swiss-based international nonprofit whose work for WAPRO is financed by the Swiss Agency for Development and Cooperation, and Mars Food have collaborated to address this challenge by applying the WAPRO approach to identify and manage water-related risks in a holistic way. This methodology involves understanding and mitigating adverse impacts on ecosystems and communities. At the

same time, the project is strategic to the Mars business model given that rice is the top material sourced by Mars Food.

Below, Luc Beerens of Mars Food and Arjumand Nizami of HELVETAS describe the win-win WAPRO approach to explain why complex issues require the perspectives of diverse actors and why it's crucial to be mindful of unintended consequences.

Mars Food: Sustainable Agriculture is Good for Business

By: Luc Beerens, Global Sustainable Sourcing Director at MARS

Mars Food is committed to improving the sustainability of the world's rice supply and sustainably sourcing 100 percent of our rice by 2020. This ambitious commitment is grounded in our Purpose – Better Food Today. A Better World Tomorrow – and Mars' Five Principles: Quality, Responsibility, Mutuality, Efficiency, and Freedom.

Rice is the top material sourced by Mars Food and is the most consumed cereal grain in the world. It is estimated that rice is the staple food for over half the world's population, providing around one-fifth of the total calories consumed by humans. We use rice in many brands, including UNCLE BEN'S® — the world's largest global rice brand – and other brands such as SEEDS OF CHANGE®, RARIS®, and ABU SIOUF®. Given how important rice is to our business and to meeting the nutritional needs of a growing global population, we believe we have a responsibility to help minimize the environmental impact of rice production and improve yields for future generations. Our approach is designed to ensure a win-win outcome for our suppliers, our farmers, and the communities where we live and work.



Water Stewardship Defined

Water stewardship is crucial to effectively introduce new irrigation techniques and achieve water savings. WAPRO's policy component is strongly based on water stewardship: water users—

farmers that need water for agriculture, but also villagers that need water for household purposes—jointly agree on a reasonable way to share available water resources and on plans to improve the local water situation.

To achieve this, we are making sourcing sustainable. Going beyond economic considerations to take into account environmental, social, and ethical factors is a fundamental part of our business ethos. In a participatory process with stakeholders, we identified five areas where we can have the greatest impact: greenhouse gas (GHG) emissions, water, land use, income, and human rights. We are now working through the Sustainable Rice Platform – a global coalition of industry and leading NGOs, to use its first-ever global standard for sustainable rice to map our supply chain, identify areas where we need to do more, and develop programs to help address those gaps.

Collaboration is Key

We believe that collaboration between international NGOs and a local network of grassroots organizations is key for achieving a lasting impact. Moreover, locally recognized and impartial partners, like HELVETAS, are well positioned to lead the conversation with local stakeholders and government bodies in the context of water stewardship. A strong example of a multi-stakeholder approach is the collaboration with the WAPRO program in Pakistan. Our strategic partner, Better Grain, is promoting water saving and yield improvement technologies among farmers while Mars Food and other companies source the sustainable rice. Meanwhile, HELVETAS works to improve water regulations. We have found that multi-stakeholder approaches like this are the most effective way to reach our goals.

This collaborative approach is evident in the program’s holistic “Push-Pull-Policy” foundation. The PUSH component addresses the knowledge gap of farmers using modern irrigation techniques and tries to remove the stumbling blocks associated with exploring new practices. The PULL element incentivizes a change in production and irrigation practices. Buyers support new practices by choosing to buy rice cultivated using water efficient practices or even offer to pay a direct premium for the cause of water efficiency. The POLICY component uses a stewardship approach that brings water users together to agree on a joint action and water use plan. WAPRO strongly believes that all three components have to be in place to lay the groundwork for innovation. In addition to HELVETAS and Mars, other WAPRO partners include the Swiss Agency for Development and Cooperation, the Alliance for Water Stewardship, Coop, a major Swiss retailer, the Better Cotton Initiative, and the Sustainable Rice Platform.



We believe that social, economic, and environmental benefits are equally important. The solutions we seek must be mutually beneficial for all stakeholders. By taking steps to strengthen livelihoods and advance empowerment of women in our supply chain communities, we believe that resulting increases in incomes for women will translate into notable benefits for the communities in which they live.

HELVETAS: Understanding Community Impact

By: Arjumand Nizami, HELVETAS Country Director, Pakistan

One of the water stewardship challenges that Mars Food and HELVETAS encountered in Pakistan was how to address the unintended adverse impact of more effective production methods on income opportunities for the local population. In Pakistan, traditional rice production methods include water-intensive rice transplantation, a method that will become obsolete with the introduction of water-efficient approaches. Mars Food and HELVETAS wanted to know what this would imply for the income and lives of the affected women.

A HELVETAS study to assess the role of women in the rice value chain, financed by Mars Food, looked at two main questions: First, how will adopting water-productive systems impact the overall situation of women in rice value chains? Second, how do women workers feel about this shift? The study was conducted in seventeen villages by a team of eight professionals that used focus group discussions for data collection to allow participants to agree or disagree with each other. This method offers better insight into how a group perceives an issue. In total, 320 women — 251 married with children, 19 widows, and 50 unmarried — participated in 10 discussions; 5 discussions took place in control villages.

The main outcomes of the study include:

- The women's income is considered part of family income. The family works together as a unit, beginning with transplantation and followed by the next steps in the rice production

process. The average monthly income for such families ranges from \$38 to \$76. Most of the time, these families must borrow an additional \$19 to \$191 every 2-3 months to cover their expenses. All wages are received by the head of the family on a per-acre basis. For women, however, this system is acceptable since they work in a self-determined way in the rice paddies with the men on the peripheries. This gives women a sense of protection against any potential harassment. In the past, there have been incidents where young rice transplanter women were harassed when working alone in the field. They are vulnerable to such risks due to their economic and social status as well as a lack of access to any judicial system when such events occur.

- Overwhelmingly, the women commented on two key themes: health and education. The study found that while money earned through rice transplantation typically contributes to half of the family income, families often spend a large portion of that income on healthcare costs to treat conditions stemming from transplantation work. Since medical facilities are unavailable in the region, these women often self-medicate until a medical situation becomes dire. According to reports, two pregnant women lost their full trimester babies when they could not reach the hospital in time due to long distance.

One transplanter woman, Nagina, said, “During the entire season, we keep on working and cannot afford to lay down sick. If we do so, the farmer will replace us with someone else. So we work even if we are sick and we take rest only after transplantation is over.”

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The study found that the original assumption that women would want to keep their jobs to secure incomes is not true under certain circumstances. Transplanters generally accept that the gradual integration of other technologies will eventually force them to find other employment opportunities. Most women are already seeking to escape transplantation work by developing new skills that qualify them for better jobs. Most importantly, women want greater access to secondary education for their daughters so that they may have work opportunities beyond the rice paddies.

In addition to the benefit of the data analysis, the study gave the participating women a feeling of empowerment and a perceived ability to shape their livelihood conditions. For them, it was a new experience to express their priorities and talk about their concerns. They appreciated the opportunity to participate not only in the study itself, but also to be a part of the WAPRO project and its corresponding rice value chain.

In the next three years, hundreds of farmers will see their fields leveled and will be introduced to DSR and AWD technologies. These modifications will result in higher yields, reduced water use, and corresponding increases in income. The extent to which these interventions will affect ecosystems and communities, as well as how they mitigate adverse social impacts by encouraging new skills development, remains to be seen. However, expectations of increased social and environmental welfare as a result of the multi-stakeholder approach are high. Together we are on a journey to transform rice cultivation in Pakistan.
