

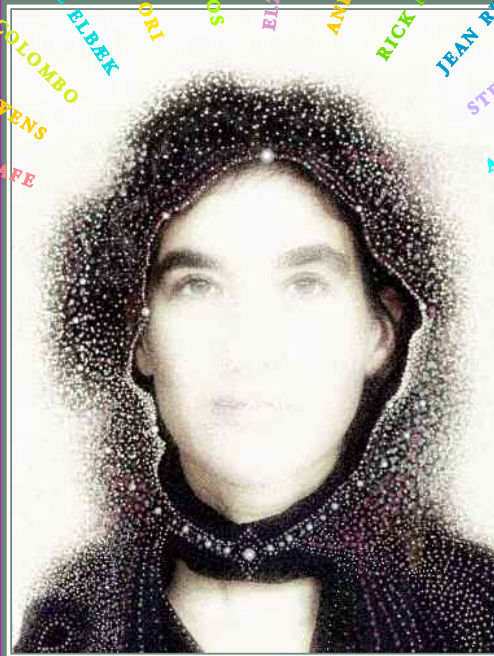
# SPANDA JOURNAL

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INNOVATION  
 &  
 HUMAN  
 DEVELOPMENT

\*

EDITED BY  
SAHLAN MOMO



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# MICRO-PROJECTS IN A MACRO WORLD:

## HOW TO ENSURE NON-PROFIT INTERNATIONAL DEVELOPMENT PROJECTS SUCCEED WHERE OTHERS FAIL

RICK MCKENNY



*Rick is passionate about implementing large-scale change in our society for social and economic justice, including the interaction between economics, politics, for local and developing world economies.*

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**A** APPROPRIATE TECHNOLOGY HAS LONG BEEN the favoured approach of International Development groups working with the poorest communities, but appropriate technology is not a panacea. Many such projects have failed. Introducing technological solutions to social problems is more likely to succeed if the technology serves social needs, addresses constraints, and enlivens the cultures of local communities. How, then, can appropriate technology be successfully introduced to a community that might otherwise be resistant to something new and unfamiliar but potentially beneficial? In this paper, we discuss a development project introducing energy-efficient cookstoves (La Mazateca) in rural Mexico and explore the causes of challenges we encountered – and successfully resolved – through a partnership with

another NGO. We conclude that such strategic partnerships can create synergistic relationships that make possible that which would be impossible for either to achieve independently.

### BACKGROUND

The Sierra Mazateca region of north-eastern Oaxaca, Mexico<sup>1</sup> (2400 km<sup>2</sup>) is home to the indigenous Mazatec people<sup>2</sup> living in 1,000 mountain communities nestled in a remote rainforest. They first moved into the region in the 16th century to escape the Aztecs and the Spanish conquistadores. Once settled, they farmed, clearing the steep forest to plant corn and beans. However, as their population increased and colonial rule introduced taxes and forced labour in the region, more forest had to be cleared to sustain the growing communities. After Mexico's independence from Spain, another wave of these immigrants moved there when they could not secure land rights under the new Mexican government.

Given the steep terrain, poor soil, and geographical isolation, the inhabitants of the region relied on subsistence farming and cash-crop coffee production for their economic survival. Prior to the 1970s, the quality and quantity of coffee produced in the region was considered excellent. In the late 1970s, the International Monetary Fund (IMF) and the World Bank shifted their focus to non-traditional coffee growing regions in Southeast Asia and sub-Saharan Africa. Central America was not included in this program. Consequently, the region was left behind with a low-quality product for which there was little demand.

Given this history of both neglect and unfavourable policies made by distant rulers- governments, it is no surprise that in the early 21st century, residents distrusted outsiders.

In 2012, Water for Humans (WFH) met The Hunger Project (THP) and learned about their ongoing work in the Mazateca. The region is one of the more impoverished places in the world. Mexico's rising tide of economic development has passed it by. Modern infrastructure is virtually non-existent: many inhabitants have no access to electricity and year-round water. None have internet, telephones, cell phones, or computers. Few speak Spanish and few are literate. Nearly 80% of the community income comes from government aid. Coffee



is still the primary cash crop, despite greatly reduced quality. The educational system offers limited instruction beyond the basics, and little accurate information reaches the community about the rest of the world. In short, the Mazatec we encountered were a people left behind.

It was in this history of betrayal by outsiders that we set out to address the problem of deforestation. The continued reliance on the forested terrain for corn, bean and livestock farming had contributed to deforestation in the region, and the use of firewood for cooking was taking an even greater toll on the tropical forests – and on human health. Women and girls cooked over traditional open, three-stone fires fuelled by wood and suffered chronic respiratory health problems. Because the Mazateca dry season can last up to 4 months, and coffee production is an important source of income, maintaining an intact forest canopy is critical for retaining groundwater and for effective coffee production. During the dry season community members hike up to 2 hours, each way, over treacherous mountain terrain to collect their daily water.

Our approach was straightforward: if we could successfully introduce an innovative cook-stove that required less fuel wood, we could decrease deforestation and increase the forest's groundwater during the annual four-month drought. High efficiency clean cook-stoves could also reduce the amount of time women spent cutting and gathering wood and reduce respiratory disorders among the families – if we could encourage them to adopt the new technology.

Even with the long history of distrust of outsiders, we hoped to co-create, demonstrate, and subsequently persuade the communities to adopt better technology and continue to use the stoves long after they were built. Our task was a challenge. Our own resources were limited, and our expertise in the region was scant. However, in less than 6 months, 89 La Mazateca stoves were in use in 4 micro-project communities. Women were satisfied and reported spending half as much time gathering wood and that their health had improved significantly. The La Mazateca cook-stove can boil 5 litres of water in 13-18 minutes on less than 600gm of firewood, as compared boiling the same amount of water in 45-60 minutes using 1.5-2 kg of firewood. We also addressed drinking water safety and groundwater contamination challenges by introducing urine-diverting composting latrines, rainwater harvesting, and bio-sand water filters.

What made the project successful went far beyond appropriate cook-stove technology. Success was rooted in the value of the partnership we had established with another NGO. This NGO has a solid

record of accomplishment of empowering people worldwide. In this paper, we discuss how we forged the partnership that enabled us to achieve what neither organization could have achieved on its own, and in so doing, successfully work with these Mazatec communities.

#### THE PARTNERSHIP

Water for Humans is a Seattle-based not-for-profit organization incorporated in 2008 with the mission of providing low-cost clean water and sanitation solutions to underserved populations in order to ensure that water remains a local, public resource. We have been working in Mexico since 2009. Our current partners are the Institute for Nature and Society Oaxaca (INSO), The Hunger Project – Mexico (THP), and four communities of the San Jose Tenango region<sup>3</sup> (144 km<sup>2</sup>) of the Mazateca. Our programme areas are determined by issues identified by the communities with whom we work.

Our organization excels at designing appropriate technologies and developing and conducting workshops on their use. But in this case, we lacked both ties to other stakeholders and the cultural background necessary to work in this region. When we began collaborating with THP to co-create a community project, we knew that working in the Mazateca would be extremely challenging.

The THP was established in 1977 as a global non-profit organization and has been working globally since then to alleviate poverty and hunger through local empowerment. THP's partners include Oxfam, The World Bank, and the United Nations. In addition, ten partner countries conduct extensive fundraising efforts to support THP's global programs. THP's Global Council consists of public personalities committed to ending poverty, such as Nobel Laureate (1998) Amartya Sen, former Secretary General of the UN Javier Perez de Cuellar, and Princess Noor of Jordan.

When we first met, THP had been working in the country for nearly three decades. In 2010, they began work in the region surrounding the municipality of San Jose Tenango, in the Mazateca, with the support of the Priority Areas Care Program under the Ministry of Social Development. THP then helped facilitate participatory development exercises with 20 communities (of more than 150) in order to assess the local social and cultural context. The exercises revealed divisions within each community, a long history of gender discrimination that marginalized women, and an exodus of young people fleeing their rural communities for education and jobs.

THP's follow-up Participatory Rural Appraisal (PRA) revealed that the communities were most concerned

about access to water, nutrition, shelter, and infrastructure. THP's continued presence had gone far to establish rapport with the people and provide insights about how their culture and belief systems could either impede or facilitate development. THP also understood the need to provide communities with tangible projects that could help pull them out of poverty. However, THP lacked the technical capacity to adequately address this need. A technological solution was what WFH could provide.

#### OUR PROJECT

We decided to launch a pilot project in four of the communities where THP had focused its efforts. Given THP's experience and knowledge of local power relations, they organized a series of meetings with community leaders – including women. We understood that women would be required to plan and implement the project for three reasons:

- 1 - Women were the primary collectors and users of firewood;
- 2 - Women had been marginalized by the long-standing system of patriarchy;
- 3 - Decades of failed development projects demonstrated that the absence of women<sup>4</sup> in a project is likely to cause failure, because they tend to control the domestic economy.

After leading focus groups, community meetings, and ethnographic assessments, better cook-stoves were chosen as the appropriate starting point. Previous efforts to provide appropriate technology cook-stoves had failed. Those stoves were poorly constructed, cooked inefficiently, became infested with nesting insects, and could not be repaired with local expertise. In addition, to avoid the flaws of past efforts, women wanted to save fuel, funnel smoke out of their homes, and prevent children from being burned.

WFH, THP and community members decided to start with the construction of two demonstration stoves to allow women to assess their effectiveness. WFH designed a stove to meet community criteria. WFH consulted with the women before, during, and after building the demonstration stoves. One example of this is the proposal to build stoves so that the cooking surface would be at waist height for the average Mazatec woman – much like the average US or European stove. However, the women said that they wanted the surfaces much higher – even if they could not see inside their taller pots. We created a mock-up so that they could stand in front of it and determine the correct height. Much to our surprise, they wanted their cooking surfaces at the

higher level. The women approved the design, along with other modifications to meet their needs. From this experience, we learned to assume as little as possible and to demonstrate as much as possible. Subsequently, 89 families from the four communities came together to acquire the financial resources to build the stoves. To enable the communities to continue any financial relationships after international project leaders stepped back, they were provided practical training to develop confidence and exposure to the outside financial world. The communities took on ownership of the project by organizing to meet with officers from Mexico's HSBC bank. One of the steps was a Skype meeting, but this Skype meeting was unlike any Skype meeting in which readers of this article might participate. Prior to their presentation, the representatives, both male and female, spent hours preparing the arguments that would allow them to articulate their needs, strategies, and commitments. To attend the Skype meeting, participants had to leave their families and fields for a full day of travel to get to a location with a fast, reliable internet connection. This required a pre-dawn hike out to the nearest dirt road, taking the local *colectivo taxi*, and then a bus ride.

After funding was approved, we began assembling suppliers and materials and a schedule for the construction workshops. The communities nominated 14 "Promoters" (stove builders) that included both women and men. The Promoters were trained and subsequently paid to construct the new stoves. All the materials were locally sourced. Two training workshops, 4-5 days each, were scheduled, and a distribution and storage network was established to transport the materials to the individual households where each stove was to be built.

Guided by the experience and expertise of THP, we evaluated the project in its early, middle and late stages using specific criteria or markers. We knew that "success" could be defined in many ways. By expanding on the "Toyota 5 Whys" principle<sup>5</sup>, we established the following markers and determined that when they had occurred, we could continue to next steps:

- Effective process for the community and for us;
- Effective visioning and prioritizing workshops;
- Did commitments of the community members' waiver, when and why;
- Effective funding procurement process;
- Effective collaboration of NGO's and community;
- Ability to inventory and track all of the material;
- Process to deal with lost, stolen or misplaced materials;
- Effective logistical plan for distribution;



- ~ Successful training exercises;
- ~ Mutual accountability of team members;
- ~ Sufficient training for trainees, families and end users;
- ~ Acceptance of technology by end users.

These markers were reviewed at several stages in the process. The resulting information enabled us to take corrective action and keep the project moving ahead.

#### LESSONS LEARNED

To suggest that this project was smooth and had minimal upsets would oversimplify our experience. We encountered a number of unanticipated impediments that would have resulted in failure had it not been for the cultural fluency of THP planners, the technological capabilities of the WFH team, and the enthusiasm and perseverance of the community members.

For example, we knew that success was contingent on building a reliable and robust supply chain. There were many obstacles. Delivery of supplies could be hampered by any number of factors: communities were remote; roads were inadequate for large trucks to navigate; and secure storage and distribution facilities had to be found for the supplies. We had to design a distribution process that would reach the communities and individual households, while protecting the materials from rain and inventory control problems since materials could be ruined or pilfered all along the way. By implementing an accurate inventory system and keeping both our team members and community members accountable for all the supplies, we were able to ensure that everything arrived properly.

Any implementation team needs to also evaluate the interests and capacities of community installation partners. If supplies are sourced locally, one must constantly evaluate the pricing structure and reliability of the individual suppliers, as well as how much confidence the community has in them. Given the tenuous nature of many business enterprises in the developing world, it is necessary to have multiple sources available at all times to accommodate unexpected disruptions. In addition, all suppliers must understand that they are a critical part of a larger program, and if they are not fully committed to the project, they can be replaced.

The timing of the initial introduction of the new technology is also key for successful implementation. By involving community members in all phases of planning, the members are able to learn and understand how the new system operates and why it is useful. In many cases, persuading people to adopt new technologies will require challenging

the existing cultural norms, historical practices, and preconceived notions and ideas. For appropriate technology implementation, the entire team needs to also work closely with all members who may be indirectly involved in, and/or resistant to, the project. During the Mazateca micro-project, we revisited each household to ensure they were using the technologies appropriately. We listened closely to the feedback of family members regarding their expectations. In the process, the best outcome occurred when several community members were trained in the proper use of the technology and then shared their skills with other community members.

The team must also define what success means to them. Pilot projects are critical to assessing the systems and readiness of the community to proceed. Success is not necessarily measured by the acceptance of a specific technology; a successful outcome may be the bridging of the socio-political boundaries in order to work collaboratively. Pilot projects allow both NGOs and community members to better understand the strengths and weaknesses of the project and to plan for future projects. Pilots also enable the team to better understand the constraints and opportunities in the community. After implementation of a pilot project, the team must allow sufficient time to let the community gauge its effectiveness and identify modifications to be made.

#### ISOLATED ECONOMIES

Because isolated communities typically lack effective means of accessing markets, their ability to export goods and services that would provide cash income is severely limited. In a cash-based economic system, imports and exports must be balanced to be sustainable. Specifically, the money, goods, or services that leave a local economic system must be matched by the money, goods or services entering the community. In addition, isolated communities often lack the infrastructure to develop and expand export opportunities. In the Mazateca, a significant portion of cash income comes from government support. This money is then spent on goods and services from outside the community, such as food and transportation. However, the community does not export sufficient goods and services to bring 'new cash' into the community. In order to grow economically, small communities must increase their ability to export value-added goods such as coffee, harvested herbal medicine, and services.

In addition to the cash-based economy, there is a strong shadow economy (non-cash-based economy, including illicit trade), where goods and services

are directly traded among community members. Development workers can gain a better understanding of how a shadow economy might affect project success by being aware of its existence and forging social ties with the local community and professionals with deep knowledge of the area.

Leverage points exist for improving livelihoods in rural communities. These leverage points include increasing the community's ability to export high-value goods or services such as herbal medicine, eco-tourism, and sustainable natural resources. Another is providing skilled jobs for individuals. For example, the La Mazateca stoves were built on-site with local materials and local labour, instead of being produced in a large economic centre and importing the finished product to the community. Our stove design used local materials, such as volcanic perlite that is abundant in Mexico. By employing local labour, using local materials and transport, and constructing the stoves on site, we injected cash that could then circulate in the community and reduce economic leakages.

However, as the local economy improves, economic inequalities may ensue. Organizations must take into account that creation of new employment and cash flow may disrupt the community status quo. For example, the newly employed Promoters may have personal cash for the first time in their lives with no safe place to store it. In addition, the team must be sensitive when employing women in male-dominated societies. Women must be able to control and safely store their income.

Another common issue is the use of volunteer labour, such as adults or teenagers on holiday who pay an organization for the cultural and educational opportunities of working in a foreign community. While volunteers may be helpful in promoting an organization in its home region and lowering project costs, their use can have negative effects. Their generous service may decrease local employment opportunities and reduce self-reliance within the community. Because one of our goals is to provide sustainable economic opportunities, we do not use volunteers for any tasks that can be done by community members. Community members may already possess or want to learn skills such as photography or conducting video interviews; assisting the NGO in documenting their process or training other community members. Thus it is imperative to engage community members rather than foreign volunteers.

## DISCUSSION

WFH's successful work with La Mazateca stoves has set the stage for significant change in the Mazateca. Teaming with THP allowed WFH to achieve its overall

goals: 1) protection of the watershed; and 2) greater self-sufficiency within the Mazatec community towards ending the cycle of poverty that has prevailed for generations.

Both THP and WFH projects are built on the premise that collaborating organizations must co-create the community engagement process. We encourage strengthening community capacity building, and support them with technological expertise and facilitate exploration and understanding of potential technological solutions. Many communities, long accustomed to rudimentary technologies that no longer serve current cultural and environmental demands, may not realize the scope of possible solutions. Those who have always lived with barriers and misinformation perceive them as normal, unchanging parts of life, rather than problems to be solved. Many lack an informed understanding of how the current urban and professional sectors function; their experience with poorly executed past projects has left them distrustful and cynical; and most lack awareness of emerging technologies. Therefore, throughout the visioning process, we introduced new technologies to help them understand that some familiar technologies no longer served them well. Next, by working in a participatory framework, we co-created better alternatives.

Many cultures define 'success' as obtaining physical goods that others who are higher in the economic pyramid have acquired, i.e. they want a flush toilet, not a composting latrine. This can be one of the biggest barriers to introducing culturally appropriate technologies. Consequently, when we introduce new technologies, we take great care to listen to community feedback and carefully demonstrate some of the advantages to changing the customary way of life. One effective tool to help achieve this end is a video presentation demonstrating the proposed technology. Community members actually see how it works, as well as listen to testimonials from other users so they can envision their own use of it. In addition, bringing new users to meet with the existing users and actually trying the technology is ideal. It then becomes far easier to encourage them to embrace a new product or lifestyle. Once other women watched Agripina – the owner of one of the pilot stoves – cook on her new La Mazateca stove, they understood its value for better health, ease of cooking, and reduced use of firewood.

During the entire piloting process we learned that we must listen, observe and learn, and not insist that our ideas be accepted. Given a history of forced change from outsiders, solutions may not be accepted even if it is known that potential opportunities for change could greatly enhance the community's standard of living. It is crucial to let the community see and accept the

solutions for themselves if true acceptance is to be realized. Otherwise, apparent tenuous support may well be actual resistance if the people are not supportive of the project, but are being agreeable in order to diffuse tensions and placate the outsiders.

We faced this kind of challenge with the introduction of composting latrines, which we promoted in tandem with the La Mazateca stoves. We in the ‘developed nations’ think of composting latrines as having the following attributes:

- 1 ~ The structure is a clean and safe environment;
- 2 ~ Disease vectors are reduced or eliminated;
- 3 ~ Humanure compost is produced for agricultural use.

However, many of the populations we worked with did not understand or appreciate the need for a clean and safe building, nor the reason for the reduction of disease vectors.

Despite these obstacles, we hope the communities will eventually understand the value of the composting latrine when they see the effect of the humanure compost on their improved agriculture. Unfortunately, because it takes 12 to 18 months to produce high-quality safe humanure compost, such an introduction requires constant encouragement to entice family members to use the system and to be patient as they await the visible outcome in their crop yields.

#### LISTEN AND COLLABORATE

Robert Chambers<sup>6</sup> (1983) long ago advised that when exploring technological solutions, it is critical that organizations *listen and collaborate* with community members to develop solutions that are culturally appropriate and meet their expectations. Yet his call for inclusion remains unheeded by many development planners, who have received funding budgets to implement projects that have already been designed and identified as ‘appropriate’ by outsiders. Listening in such cases becomes little more than a polite gesture to accommodate the local community’s interest in being heard. In addition, many marginalized cultural groups interpret outside organizations as experts. They do not want to offend the ‘experts’ by contradicting or rejecting their ideas and plans because they are afraid that if they do so, the organization will then not provide them with any benefits at all.

The process of listening and truly understanding the desires, needs, and fears of the community and its individuals requires *persistent presence* in the community to build required trust. It is critical that all conversations be held at convenient times and in places where participants can speak openly about their ideas and expectations. When holding

these conversations, organizations must be acutely aware of the cultural dynamics that play a critical role in what information is disclosed and what is withheld. For example, because many societies and cultures have a history of male domination, few females will ever speak openly and candidly in public when males are present. In such cases, it is important to hold conversations with males and females separately so women will bring their thoughts and ideas forward. In other cases, ethnic, religious or class differences may contribute to tensions that leave one group hesitant to speak openly in the presence of another. Finally, a distinct dynamic may occur when the whole community is together in one place listening and discussing the project. One must constantly adapt to a trust-building process, and have a toolbox full of creative solutions, as well as the ability to modify the technology to meet all cultural needs. What is appropriate for one community may be inappropriate for another. The only way to know if this is true is to listen, observe, and continue to listen.

In addition, flexibility in project planning and implementation is critical to success. If the community wants to go in a different direction, one must be willing to let go of one’s own ideas. Organizations must be willing to expend extra effort to uncover the truth and get the community to accurately express themselves. It may be necessary to help community members understand that some of their expectations may be out of the scope of current possibilities due to larger legal and political factors, or community capacity constraints. Decisions are reached by discussion and by remaining flexible while at the same time advising the community of what is possible. As trust builds, communities will be more likely to participate in smaller projects that will strengthen their willingness and ability to implement larger and more complex projects in the future.

There are many challenges to working in remote locations. However, the success of any technological implementation hinges on many other factors besides accessibility. These factors include establishing a local and effective supply chain, training community members to diagnose and repair simple technological problems, and making it possible for them to obtain any required replacement parts. Successful pilots and micro-projects must also be backed up with skilled technicians who know how to repair the technology, and more importantly, receive economic support for their work. In rural areas, residents are likely to have multiple economic activities. In addition to an occupation, they may farm land, care for family members, or engage in service or healing activities, etc. Thus, if a technician is harvesting coffee

and a community member needs their services to repair a stove, there must be sufficient financial incentive for the technician to do so. This economic incentive must be built into a primary business model for the technology program to be successful.

Finally, when introducing new concepts and technologies, one needs to be prepared for distrust and outright rejection. Distrust can be addressed by working with the community over a long period of time; learning the local language; knowing the history of the group and its cultural values, traditions and power relationships; accepting responsibility for mistakes when appropriate; and not misleading or lying to the community. When a team is unable to devote the time and attention to establishing the *cultural expertise* that is necessary for establishing trust, working with trusted local organizations is invaluable. WFH did so when collaborating with THP in order to introduce an appropriate technology that could benefit the community as well as further the global interest in preserving tropical forests.

Sometimes no amount of cultural sensitivity can convince a community to adopt a new technology. When that happens, coercing or compelling a community to accept the technology is bound to meet with what James Scott terms, "The Weapons of the Weak"<sup>27</sup>. The community will refuse to use the technologies; they will mislead and deceive project planners; and they will sabotage projects. Colonial reign revealed that sometimes the poor and powerless do not want outsiders telling them how to live. In our case, because the Mazatec welcomed us into their communities to listen to their concerns, we could bring them some new technologies. And they helped us arrive at a better understanding of what *appropriate* technology truly means.

We have found that prior to implementing our projects, everyone needs to understand the working styles and expectations of the various team members. Working in remote communities is extremely stressful for those from the outside. Social and environmental living conditions can be challenging and intensified by cultural and linguistic differences. There must be an agreed upon process by which team members can openly discuss stressful issues that each team member faces. For those who are unfamiliar with the local culture, it is important that they understand in advance some of the basic cultural norms that they will encounter and how they are expected to react. As boring and mundane as it may sound, it is critical that a document be created and agreed upon by all parties. Our written agreement was not so much a legal document but a way to structure a safe conversation when things were not going smoothly. It also allowed both parties to reflect on what was agreed upon, eliminating the potential for disagreements.

*Assessments and evaluations* are extremely important to guide current and future actions, ultimately assuring that our projects are effective. The development team must be willing and able to change priorities, schedules and technologies to meet the cultural needs and expectations of community members, as well as adapt to other unforeseen events. The team must always listen to community members for constructive feedback. Rather than misunderstanding community resistance or misinterpreting differing views, team members must recognize such obstacles as an opportunity to improve the project, not abandon it, or worse, force it on a community that does not want it and will not use it.

Moreover, technology providers are typically enamored with technology. In many isolated communities, however, the most *appropriate technology* may be a low-tech solution. The community must decide what is best. The provider must be very frank about the merits, drawbacks and practicality of various solutions. Our experience with urine-diverting composting latrines and bio-sand water filters is an example of this. Both of these simple technologies produce excellent results with no moving parts. There are many technologically intensive solutions to human sanitation and water filtration and purification but, in remote locations, it is extremely difficult to keep complex systems operational. Thus, simplicity equals effectiveness.

In designing and implementing culturally appropriate *social enterprises*, one must transition from being a technology provider to being a business advisor. Organizations must be able to step back from directly managing projects and become mentors and advisors to the social enterprise while concurrently working with the members to refine and develop new technologies. The social enterprise (business) members need to have the flexibility to define the distribution and implementation of the technology program. The enterprise should strive for independence from the advisors, while the advisors need to ensure its overall success.

In order to *alleviate poverty*, there must be mechanisms in place for the social enterprises to have local control over the profits. Adequate financial services must be available to support business development, and the enterprises must know how to use them. This includes access to secure deposits, affordable financing, and, in many cases, the creation of micro-finance opportunities for workers and customers.

## C O N C L U S I O N

A key factor in NGO partnerships is to ensure that all parties have common values and a willingness to effectively communicate openly and honestly. Organizations must know when they are outside their areas of



expertise and must be willing to be humble. Had WFH gone into the Mazateca with the preconceived design for a stove, we would have failed. Moreover, had THP not been open to working with us and educating us about the cultural nuances that may have escaped our attention, they would have failed. However, because the development teams at both THP and WFH were acutely aware of our respective limitations and expertise, we were able to forge a synergistic partnership that produced far more than either of us could have achieved on our own.

Our experience demonstrates that NGOs can successfully complete pilot and micro-projects in the international arena, if they strategically partner with local complementary NGOs. As a technology partner and innovator, we are acutely aware that our success is based solely on the success of our local social worker partner. Many technological innovators perceive solutions to problems as strictly technological. However, when working with marginalized and isolated communities, most of the challenges that development planners encounter stem from social, cultural and political factors. While technology solutions can be engineered to solve almost any challenge, the solution is only as good as the cultural acceptance of the technology. If development projects are to succeed, those who plan and put them into action must make efforts to understand the local history and culture. Because it takes years to do so, however, partnering with local organizations that have already established relationships, built trust, and learned to negotiate complex cultural networks can facilitate more successful outcomes.

Our goal to build capacity within marginalized communities is intended to better position them to continue their journey out of poverty after we step back. To do this, the community has to be involved with every step of the process to gain the experience and training to lead themselves into the future.

Water for Humans is looking forward to continuing its work with The Hunger Project-Mexico to bring technological solutions to other marginalized communities in Mexico. We are already planning to develop and co-create a social enterprise for the La Mazateca clean cook-stove builders. Our success and completion of this micro-project in the Mazateca prepared several remote marginalized communities to increase their capacity to collaborate and bring themselves one-step closer to ending the cycle of poverty. Currently, WFH is developing similar opportunities for the underserved throughout Latin America in collaboration with THP and other local experts in social work.



<sup>1</sup> Sierra Mazateca, < <http://bit.ly/R1qpWQ> >.

<sup>2</sup> Mazatec People, < <http://bit.ly/1hcjW45> >.

<sup>3</sup> San José Tenango, < <http://bit.ly/PPWXJu> >.

<sup>4</sup> Women and International Development (WID).

<sup>5</sup> *Toyota 5 Whys* < <http://bit.ly/1frkhJY> >.

<sup>6</sup> Chambers, R. (1983). *Putting the Last First* (New York: Routledge).

<sup>7</sup> Scott, J. C. (1987). *Weapons of the Weak: Everyday Forms of Peasant Resistance* (New Haven: Yale UP).



*The month of June* (detail).