



ASHOKA INNOVATORS FOR THE PUBLIC

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Transformational Opportunities in Africa: Farming Water

-- Discussion Draft --

Introduction

Social entrepreneurs in the developing world tend to get excited when talking about water. Eyes brighten, pitch of conversations increases, and fervent ideas and examples take over. They discuss and debate agriculture, diseases and public health, ending abuse of women, keeping children in schools, micro enterprise opportunities, municipal finance, forest conservation and much more. They don't actually end up talking much about water.

While others often discuss water as an “integrator issue” between distinct interest groups, how it is essential for life but is at risk, and how technical solutions exist for most water problems – all of which is true and important – social entrepreneurs tend to focus on a different aspect: the power of water to unlock changes in society on other topics like those listed above.

We assume this is why a survey of Ashoka Fellowsⁱ in 2003 ranked water as the top priority. Even then, before some popular development and political circles began to call out water as an impending global crisis, Ashoka Fellows were focusing on it intensively. They understand and presaged its potential in powerful solutions to numerous challenges in society.

As a brief example, women who spend hours per day fetching water for their homes, and are sometimes exploited economically and sexually in the process, tend to be super-motivated when they identify quicker or easier water access: it saves them substantial time and turmoil, enabling more focus on family or economic activity. This often reduces dependency and can lead to more rights and roles in society, with implications for children, education, economics, and politics. And there are literally hundreds of millions of women in this situation in the world.

Similarly, when rural farmers can stabilize and increase their water supply – as discussed later in this note – they can reorient towards circumstances of opportunity rather than dependency. They may increase food production, for consumption or commerce; increase nutrition in broader populations; reduce water-borne disease; conserve and restore the natural environment; and gain local ability to manage the risks of changing climate and rainfall patterns. And in doing this, they often begin to drive their own social and economic development.ⁱⁱ

Ashoka's ongoing learning in Africa re-emphasizes this point continuously. We cannot



escape it. Water runs through the three largest opportunities for rural transformation that Ashoka has identified:

- Focusing agricultural systems on producing and measuring nutrients and populations of nutrient-replete people, rather than focusing on volumes of “food;”
- Fostering champions in maternal health to propel social and economic development; and
- Stimulating young entrepreneurs and widespread youth employment.

These three strategies stand out not only for their worthy direct impact, but because of their potential to trigger “multiplier effects” and locally-driven social and economic development in society. Each enables groups of citizens at exceptionally high leverage points, in terms of Africa’s development, to engage in society more actively, and to drive healthy and systemic change.ⁱⁱⁱ

Ashoka’s collaborations with leading social entrepreneurs have identified water as a key to helping unlock the immense potential of each of these higher level ideas.

Core Concept: “Farming Water”

Ultimately the idea at play is not only that millions of people can cultivate more clean water for their own use, but that doing so represents a tremendous opportunity for development and for enabling local communities to mitigate health, food and environmental risks posed by changing climate and rainfall patterns.

This can be at the small scale of a rural household or the larger scale of a village or entire watershed region. The combination of direct impact, underlying ecological health, and subsequent opportunity and choice people begin to realize from “cultivating” their own water can be huge. Furthermore, these forces also open the door for these communities to take leadership roles in wider regional and national development.

This compelling vision is based in practical opportunity, when seen from the perspective and experience of social entrepreneurship. Our foremost question now is not whether it is feasible in a community, but how to achieve it systemically and pervasively throughout society.^{iv}

From a technical perspective, we have in mind what might best be described as “water farming:” individuals, households, and enterprises each doing smart things which stabilize and expand overall water supply. Proven technical approaches include the following: increasing the capture or harvest of rainwater, often reducing topsoil erosion and river siltation and increasing vegetation and local biodiversity in the process, via gutters or trenches or strategic tree planting



or other techniques that store water in tanks or increase absorption into the ground itself; reducing water pollution and again increasing the earth's natural rainwater capture through changes in livestock grazing and management; eliminating water pollution caused by sewage, and producing useful compost for plants, with different types of toilet systems; reducing water pollution and creating valuable fertilizers and biogas for electricity or other uses (and reducing greenhouse gas emissions) by converting waste from agriculture, livestock and humans; increasing clean drinking water with purification technologies (readily available solar, reverse osmosis, filtering, or others), at small scale in residences and at larger scale in community water enterprises; wasting less water with new irrigation approaches; and other actions which, in effect, stabilize and increase water supplies.

These and other technical approaches are well known in some circles, although others continue being developed. For example, Biplab Paul of India was recently elected as an Ashoka Fellow for his innovative work storing rainwater underground in areas of high saline soil, and then pumping it back out again in the dry season but before the salt and fresh water mix – which has created ability to farm in the dry season (which is now done mostly by women).^v In recent years Ashoka, in collaboration with 32 Fellows worldwide, also identified seven underlying “design principles” for making such practices sustainable rather than “one-off” in nature.^{vi}

The end result of these approaches is more water for people, more local control over water supply, and a healthier ecosystem evidenced by increasing vegetation each year. These circumstances, in turn, usually foster choice and self-determination for people, by increasing their quantity and quality of food crops; increasing economic development through commercial agriculture, small business development and sometimes tourism (per the example below); increasing local ability to manage risks posed by climate change; freeing up time and increasing security for women who fetch water for hours daily; retaining children in schools that have hygienic facilities; reducing cholera which hurts people and the economy; and more.

With these technical approaches and downstream impacts in mind, we have begun to envision vibrant rural lifestyles, with healthy people and 21st century “smart farmers” driving local and broader development.

The essential social and economic questions remain, however: How to trigger this transformation? What types of action or intervention will spread this “water farming” vision widely, beyond single cases or models which require intensive supervision by others?

Ashoka Insight: People Who See and Manage Water as an Output, Not an Input

Having learned to articulate water's potential this way, we are now tackling these essential questions with Ashoka Fellows.



At the level of underlying principle, we know that the answer must enable people to see and seize opportunity, rather than to dwell on problems or wait for other people to solve them. It must thus enable large numbers of people in becoming active change-makers. Only then can a citizen-led approach like this spread widely, deeply and adaptably.

By combining the “water farming” vision with this principle, and looking hard at the successes of Ashoka Fellows, we have identified three requirements for action:

1. Manage water as an output to cultivate, not as an input to depend upon: People vested in each rural community (residents, emigrants, or others) must see water as something they can control, and therefore leverage for their own health, economic, security, leisure or other benefit. This fundamental shift in mindset about water opens the door for people to seek out, recognize and take ownership of the wide range of technical solutions like those listed above.
2. Trigger this “water farming” idea with the right people in a community. These might be farmers, herdsmen, women who carry water daily, village leaders, local business entrepreneurs, unemployed young people, family members who have/had migrated to urban areas, governance councils, or others positioned to see and act on the opportunity. For whoever it is in a location, something must grab their attention initially, be it a demonstration, training, business initiative or other factor.
3. Build learning mechanisms and spread strategy into the technical implementation. In a new setting, technical approaches must be designed to enable and spread the social transformation. For example, constructing potato plant-lined trenches around fields to prevent soil erosion and increase groundwater absorption during rains (and produce a crop!), or installing compost toilets to prevent sewage runoff, must be done in a way which envisions and promotes the social transformation. Citizen-based spread strategies we’ve seen include neighbors-copying-neighbors (thus focus intensively on one homestead for a whole community to see, mimic and adapt), working through coalitions of women who enable each other’s independence and security (backed up by new economic opportunities), using local labor rather than mechanical equipment at times to expose people to opportunistic ideas, involving youths and schools in formal ways^{vii}, and others. The point is to implement around the social transformation that rather than just the technical approach.

Ultimately the practical and powerful water farming notion is to manage water as an output that you can cultivate, not just as an input which you depend upon.



Examples

Two practical examples from recent visits of Ashoka staff and Fellows to rural villages or “farmscapes” in southern Africa illustrate this water farming vision.

#1: Mambulu Village, KwaZulu Natal, South Africa (see photos in Attachment B)

What is triggering new water management? Creation of a community vegetable farm, operated by 80 women, where previous household gardens failed to meet subsistence needs. This increases local food security and quality, reduces costs including travel away for work and food purchase. The women benefit and begin to shift social behaviors and priorities. This was initiated by villager who had migrated away for employment, met and Ashoka Fellow Paul Cohen, and then returned to Mambulu with new ideas.

Setting: A remote, traditional Zulu village of 2,000 people, organized by a tiny mountain river. Duration of rainy seasons changing and intensity of weather increasing over time. Women and children haul water in buckets from the river to homesteads and to the farm. Very little local economy, leading people an hour away for jobs, or to migrate permanently. Little local agriculture, even for subsistence. Endemic cholera. Culture of free range livestock grazing, leading to water pollution, loss of vegetation, and soil erosion and reduction in groundwater absorption during rains. Long history of villagers moving down the hillsides into the valley, presumably as water resources, loss of vegetation and erosion worsened higher up.

Technical solutions subsequently initiated: Various agricultural techniques suited to local conditions; construction of dry compost toilet to reduce sewage pollution (and create compost); rainwater capture from the new community toilet roof into storage tanks; digging of lateral trenches uphill from the farm fields, planted with sweet potatoes and other usable vegetation, to capture water during intense rains, thus preventing erosion and increasing groundwater absorption; initial effort by at least one village family to construct their own dry compost toilet.

Additional technical opportunities: Vastly more erosion control, including gully farming” (planting with medical or food plants); changes in livestock grazing techniques to reduce erosion and water pollution; restoration of lost vegetation to increase biodiversity and rainwater absorption; production of some crops for commercial sale; extension of these practices from the communal garden to individual homesteads further up the hillsides; and more!

Potential for social transformation: Vast. Of note, traditional Zulu villages like this are influential in the regional and national politics of South Africa.

#2: Cata, Eastern Cape, South Africa (see photos in Attachment B)

What is triggering new water management? Development of small scale cultural and eco-tourism. Villagers now see potential to make some money if they protect their land



and water, and they gain a sense of value in their cultural heritage which stimulates further rural initiative.

Setting: A former farming region at the base of wild forested mountains, reorganized forcibly during apartheid into a condensed town, with farming and other economic activity destroyed and now largely abandoned. Little job opportunity other than government programs. Traditional gender roles disempower women. Substantial clean river flows from the mountains, threatened by erosion and some pollution from traditional free-range livestock grazing and by thousands of invasive water-hungry Australian wattle trees. Amongst other activities, Ashoka Fellow Ashley Westaway created a cultural museum and heritage trail through pre-apartheid homesteads, built a tourist lodge and has initiated (with community leaders and school children) eco-tourism including bird watching and recreational fishing, which now draws attention to the water issues.

Technical solutions subsequently initiated: Erosion control via planting vegetation on mountainsides near tourist sites to keep them attractive; marketing eco- and cultural-tourism and training local guides; removing thousands of invasive trees; construction of dry compost toilet at village school near the river.

Additional technical opportunities: “Gully farming” to plant eroded gullies with crop or medicinal plants to reduce erosion, increase groundwater absorption, and raise a useful crop at the same time; changes in livestock free-range practices to reduce erosion and allow biodiversity to reestablish; spread of small-scale farming for local consumption and to some local commerce; further eradicate invasive trees; spread of dry compost toilets to households in the village.

Potential for social transformation: Vast. Successes have created an environment of goodwill for new initiatives, and Cata is already a model of new rural governance structures in South Africa. The school and children are also carefully integrated into each new village project in order to expose village youth to new ideas and entrepreneurial attitudes.

Next Steps

Ashoka is eager to see a 21st century model of water farming in rural Africa. We must continue to sharpen our understanding of the economic, social and environmental conditions which create opportunity for water farming in a community, and approaches for “triggering” those conditions to action far and wide. This includes the following steps and aspirations:

- Continuing to compile leading ideas and best practices for anyone to use in the field, drawing particularly on social entrepreneurs who are incessantly trying out new approaches. For example, we’ve started organizing a list of environmental, social and economic factors to scan first when looking for a “trigger point” in a community. We’ve also identified a range of “value propositions” that might engage possible local



change-makers, such as increasing agricultural production, mitigating risks of climate change, developing tourism economies, becoming “carbon farmers” for revenue, etc.

- Collaborating with Ashoka Fellows to demonstrate these ideas in practice, achieving immediate impact while further developing the overall framework and tools. We want to connect this framework, for example, to 15 additional Fellows in various parts of Africa.

In addition, Fellows Ashley Westaway, Paul Cohen and Osmond Mugweni are already eager to combine approaches and skills in their home territories in Zimbabwe and South Africa, and to help Ashoka develop the overall model in the process:

- Ashley wants to focus with Paul and Osmond on livestock management in Cata (see above and photos), leveraging the new tourism “trigger” to drive changes in livestock management for economic and environmental gain.
 - Paul wants Ashley and Osmond’s help developing a neighbors-copying-neighbors approach to rainwater capture and erosion control in Mambulu Village (see above and photos), focusing first on rainwater capture for direct use and erosion control, and eventually on the community farm and livestock practices which have degraded carrying capacity of the land broadly.
 - Osmond wants to transfer the wider water farming lessons back to the site in Zimbabwe where he has already implemented a wide range of livestock management changes in local villages.
- Pulling together other innovative ideas to help initiate water farming more broadly, such as notions like these (from our recent field work with Paul, Ashley and Osmond): launching small local agricultural supply stores that provide tools and community opportunity around this water-farming (and nutrient-farming) business model, in contrast to traditional agricultural supply stores; developing revenue-generating “carbon farms” in the rural African context, aimed to leverage water, biodiversity and tourism goals; and leveraging popular television and airline move “trailers” in the region to convey this 21st century opportunity (as is currently being done around innovations in re-establishing Gorongosa National Park after local civil war.)

We now seek feedback and resources to move these ideas forward.

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Notes

ⁱ Ashoka Fellows are leading social entrepreneurs recognized to have actual, innovative solutions to social problems and the potential to change patterns across society. They demonstrate unrivaled commitment to bold new ideas and prove that creativity, collaboration and compassion are tremendous forces for change. In 30 years, Ashoka has applied its rigorous search and selection process to identify just under 3,000 of these unique people in 63 countries.

ⁱⁱ This short, colorful writeup from the University of Arizona illustrates the unconventional water management techniques and powerful results of rural Zimbabwe farmer Zepheniah Phiri Maseko, who was elected as an Ashoka Fellow in 1997: <http://ag.arizona.edu/oals/ALN/aln46/lancaster.html>

ⁱⁱⁱ For more information on these three transformative opportunities in Africa, contact Ashoka's Bill Carter. His contact information is listed at the end of this note.

^{iv} One practical lesson we're learning is that these ideas are especially relevant in marginally productive "farmscapes" – meaning locations with some but not abundant natural resources (particularly soil and water quality), and where the ecological system is often going into decline; where people often struggle to subsist, but are not destitute. In these locations the combination of technical options to increase water availability and the social motivators for doing so seem to be greatest. We're also seeing a number of interesting innovations develop where such marginal landscapes overlap with cultural heritage/history and/or environmental conservation goals. For example, at Cata in South Africa, the combination of marginal agricultural potential, a poignant cultural history in the community, and proximity to wild natural forests and animals have led to some interesting solutions which are dependent on all three; neither agriculture, land conservation or cultural preservation would sustain the local economy on their own, but when combined a number of very interesting enterprises and opportunities are developing in each of the three sectors. And we're seeing similar results elsewhere in the world; for example, on marginal farming lands in Ireland which also have cultural significance.

^v Interestingly, the new dry season farming is managed primarily by local women who are most motivated and available to seize and benefit from the opportunity. See http://www.ashoka.org/biplab_paul for more information.

^{vi} These seven high level design principles reflect the forces the Ashoka Fellows have put into play to achieve systemic and sustainable change, rather than just one-time direct impact with their projects. Attachment A to this note provides additional information and examples:

- Turn "waste" into productive use (thus creating a new small economy which eliminates the waste)
- Instigate and engrain community stewardship through simple mechanisms
- Integrate across traditional geographic, sectoral, or financial "siloes" (liberating ideas and resources)
- Cluster clean water enterprises into other businesses rather than as stand-alones
- Develop economy based on conserving rather than consuming water
- Demonstrate new approaches which raise standards for governments and aid projects to perform at
- Develop the demand and supply side of new market models in parallel

^{vii} For example, in the village of Cata, South Africa, Ashoka Fellow Ashley Westaway has integrated the new tourism project, removal of invasive trees along the river, building new dry-compost toilets, and other new community development initiatives with the local school. These are taught about in class, children participate, and older students have been recruited, for example, to be trained as tourist guides.

^{viii} Ashoka's understanding and framing of many ideas in this note developed through group entrepreneurship work that David Strelneck led with 32 Ashoka Fellows and several Ashoka staff around the world between 2006-2010. David remains involved and can be reached at Strelneck@yahoo.com.