

Cultivating Innovation

A Discovery Framework

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FRAMING QUESTION

How can we enable small farmers and rural citizens in India and Sub-Saharan Africa to sustainably improve their livelihood and benefit their community?

Agriculture has evolved over the last 10,000 years but the most rapid development has occurred in the most recent 250 years. The Industrial Revolution has resulted in greater power, mechanization, and fertilizers that drove higher crop yields. Before the Industrial Revolution, farming was local or regional.

Agriculture and food security are essential to economic, cultural, and political stability, serving to guard against hunger, malnutrition, and poverty. Even though agriculture can comprise a relatively small portion of a country's gross domestic product, its stability is necessary for the success of an economy and its citizens.

Today, much of the rural population in India and Sub-Saharan Africa is dependent on local agriculture for income, employment, and food. And yet many small farm families struggle to provide enough food and income for themselves and their families. An estimated 53 percent of the world's poor, or nearly 900 million people living on less than a \$1 a day, currently live in rural Sub-Saharan Africa and South Asia, up from 43 percent a decade ago, according to the World Bank's 2008 World Development Report.

Through the unique lens of social entrepreneurship and innovation in sustainable development and agriculture, this analysis examines ways in which we can fight hunger, promote economic growth, and empower individuals in rural areas of India and Sub-Saharan Africa. We focused on entrepreneurial solutions for rural citizens and small-holder farmers that typically operate on 1 to 2 hectares of land—a population that's vital to creating a system of change in rural communities and protecting natural resources for future generations. For the purposes of this report, we also focused on rural women who can be particularly vulnerable to social and economic inequity in rural areas. In addition, we drew a line between sustainable rural agriculture and industrial agriculture, which includes chemical or factory farming. The latter can be capital- and skills-intensive, and not readily taken up at the community level.

This analysis is informed by the Ashoka's Changemakers "Cultivating Innovation: Solutions for Rural Communities" competition, a global, online competition designed to challenge the world's social entrepreneurs to use their talents in creating scalable solutions in sustainable rural development and agriculture, with a focus on sub-Saharan Africa and India. The competition, which occurred from February 25 through July 13, 2009, sourced over 430 entries from 55 countries around the world. A panel of expert judges evaluated the entries for their innovation, social impact, and sustainability, and selected a group of finalists that represent the future of the field. The Changemakers community, a worldwide group committed to social change, then voted for their favorite solutions. The top three initiatives that received the most votes were declared the winners.

The opinions reflected in this analysis represent the perspectives and experiences of the innovators, issue experts, community leaders, and small-holder farmers who participated in

the competition, are members of the Ashoka global community, or fit the Ashoka criteria with their innovative, systems-changing ideas. This analysis is not intended to represent any organizational perspectives of Ashoka.

BARRIERS

Barriers are core components of a problem that, if changed, could allow for true systems-change. Barriers are not underlying causes that merely describe a situation. They must be moveable and specific to the problem. The social entrepreneurs that we highlight are addressing these issues at key leverage points with pragmatic, innovative solutions.

1. People don't see farming as a viable, gratifying livelihood.

Many rural citizens believe small farming is not economically viable, nor is it socially equitable. A host of factors, including water scarcity, environmental degradation, and lack of access to markets to secure a decent income, have caused rural citizens to believe they're toiling under too much uncertainty, which is forcing migration to urban areas. For small farmers, agriculture is also simply hard physical labor. Without decent living conditions, people further believe that the agricultural lifestyle is not gratifying.

Key to the challenge is education—rural youth often aren't exposed to schools that teach the importance of agriculture. Risk-averse adult farmers are also not taught farming practices that would help them to achieve sustainable livelihoods (i.e., hard work could be managed with better training, information, seeds, and fertilizers, as well as mechanization).

“(Through) my experience as a Tanzanian student I grew up practicing agriculture the primitive way, which is sad to say, most people still use to this date. Most schools have stopped teaching the importance of agriculture even though the economy depends on it,” according to a Tanzanian farmer who entered the Changemakers “Cultivating Innovation: Solutions for Rural Communities” competition.

2. Assistance efforts are disconnected from local needs.

An era of charitable farming, agri-business, and extension programs has spread misinformation and led to a sense of dependency among many rural populations. Traditional approaches to rural development, for example, have tried to decide externally what's best for a country or rural population, and then implement a plan. But those plans can take a one-size-fits-all approach, failing to take into account local resources, culture, tradition, or knowledge.

In addition, some agricultural development projects have focused too much on increasing supply without addressing demand. For example, ineffective links to or ignorance of market forces sunk donor agency efforts after Kenya's independence. As a result, people can feel

highly adverse to new assistance efforts because of past failures. In other words, there's now an anti-NGO trend in some areas.

"The majority (of farmers) do not know how to improve their household income from farming activities. Most of them are heavily dependent on NGOs and donor programs without consideration for sustainability," said Catherine Komugisha Tindiwensi, managing director of Uganda-based Dathine Agricultural Consulting and a competition entrant.

3. Inadequate infrastructure prevents access to markets.

Rural citizens are typically isolated and live in remote locations. They may lack transportation or adequate roads to get them to markets to sell, trade, or buy goods. Without reliable access to markets, people are often subject to exploitative practices by middlemen or have to accept fire-sale prices for their goods. People often face malnutrition and health problems as a result.

Because of poor infrastructure, rural citizens also live without basic necessities such as safe drinking water, sanitation systems, and electricity, which would help power technology or tools that promote a better quality of life. An estimated two billion people worldwide remain without electricity or the immediate prospect of grid electrification. Social entrepreneurs work to de-centralize the delivery of power, sanitation systems, and water management.

"In India, it is a major challenge to develop micro-enterprises into small businesses; this is due to a variety of problems, including infrastructure deficiencies (sic) such as irregular power supply," according to Chetna Sinha, founder of the India-based Mann Deshi Foundation, an Ashoka fellow, and a competition entrant.

4. Advanced tools and technology remain out of reach of rural citizens.

In many rural areas, people lack access to a range of tools and technology that could improve their quality of life and income—including storage and refrigeration to preserve and prevent waste of farming production; tractors or machinery to improve efficiency; water-management tools and sanitation devices to improve health and productivity; and telephones and computers that could connect producers more efficiently to market or health information. Imported technologies are often too expensive for rural citizens and, even when they're affordable, they are rarely adopted by small farmers who are adverse to risk. People require training and education to adopt tools that might help their operation. Local innovations can be better than their imported counterparts, but often fail to reach broader markets.

Social innovators aiming to reach rural citizens with technology must consider infrastructure challenges (e.g., lack of electricity in some areas) and education needs. The most effective entrepreneurs use creative media approaches, such as visual aids or plays, to teach illiterate people about new technologies, or they incentivize trained farmers to share their knowledge with peers (i.e., establish a private market supply chain).

“The idea of agricultural and rural mechanization is not new, but as a domain for nearly the last 20 years it has not received any emphasis, input, or guidance from the traditional donors, aid agencies, international or national agriculture research institutes due to perceived failures of small farm mechanization efforts during the first Green Revolution. Due to this neglect...machinery inputs [were left] to whims of the private sector manufacturers and importers,” according to Scott Justice, founder of the Nepal-based National Agriculture and Environment Forum and a competition entrant.

“Agriculture is the main source of livelihood of over 90 million people inhabiting the rural areas of Nigeria. But agricultural extension services (have) collapsed, and the outcome is the unavailability of input materials needed for agricultural extension services such as (four-wheel drive) vehicles, demonstration kits, farmer field schools, and skills acquisition centers...(as well as) adequate market information,” according to Nnaemeka Ikegwuonu, executive director of the Nigeria-based Smallholders Foundation and a competition entrant.

5. There is a global deficiency in low-cost financial services.

Conventional banking services are often out of reach for poor rural citizens. Africa, for example, is one of the most undercapitalized continents in the world according to economists. If rural citizens need a loan, they may turn to the most readily available option—predatory lenders with high interest rates or unreasonable rates of return. Many rural families even hide their savings under mattresses because they lack access to affordable financial services—leaving them vulnerable to theft. Because of culture and convention, women are often excluded from the financial structures that could support their farms, businesses, and livelihoods. Finally, without insurance, rural citizens have no way to protect their income in the event of disease, injury, or unpredictable environmental disasters, such as floods, drought, or poor yields that could damage their income.

Effective micro-credit or rural banking projects emphasize literacy training, education for income generation, and social support through direct relationships between lender and individuals.

“The rural sector is not only neglected by the mainstream banks, but also by microfinance initiatives that have had a tendency to concentrate in urban areas. The few that are found in rural areas make the rural poor, especially women, poorer than they found them because they do not provide adequate training and support for participants,” according to Irene Wasike Muwanguzi, director for the Hunger Project in Sub-Saharan Africa and a competition entrant.

PRINCIPLES

Design principles are insights and strategies we distill from the work of leading social entrepreneurs. They do not encompass tools (like technology or education) nor do they name specific organization-level approaches. They are clarifying ideas and insights that identify levers of change.

1. Organize for market power.

Rural development efforts typically try to organize farmer collectives or self-help groups, but many such efforts have fallen apart, in part because they do not align common interests with a purpose, or they fail to train local leaders and promote buy-in at all levels of the community. Only by getting everyone involved will communities create change.

Effective social innovators organize local citizens around a common purpose or movement, build power through the involvement of all community stakeholders, and then advocate for change among associated partners, neighboring communities, private industry, or within local or national government. Their efforts may be to own the agriculture supply chain, to brand products more effectively and create an equitable market system, to promote health and nutrition in communities, or to start and own a local industry—but partnerships are key to achieving scale.

Most of the social entrepreneurs use sensitizing seminars and training workshops to call for groups within to join a movement of sustainable and equitable agriculture. Light Years IP, for example, focuses Ethiopian farmers on branding and owning the intellectual property of their crop, the coffee bean Harar. Its work has helped farmers change the power equation of distribution, taking the air out of middlemen and corporate interests. Helen Keller International promotes health and nutrition in schools and rural areas through the growth and propagation of the vitamin-rich orange sweet potato. The Green Belt Movement in Kenya establishes groups of women, each with their own tree nursery, and through economic incentives ensures that they spread seedlings to nearby communities.

“The key is to help people...see that they don't have to accept (their situation), and that it's time for them to stand up,” said Ron Layton, Ashoka Fellow and founder and CEO of Light Years IP, based in Washington, D.C.

2. Build a career path for rural citizens.

In developed countries, it has been estimated that people change careers as many as six times. In contrast, rural citizens and small farmers live a life without much choice.

Social innovators emphasize education, training, and mentorship for a multitude of new career options that would allow people to reap more value from agriculture or farm-related businesses—including starting a small business or taking positions in the management and operation of the agriculture supply chain. The result is that people feel more pride in their livelihood and local community, and they pass that knowledge on to future generations.

Lucy Kanu’s Idea Builders, for example, meets with informal groups of local women in Kenyan villages to talk about their individual desires and determine appropriate business projects, such as processing locally produced cassava root into sweet breads for a new bakery. India’s Business School for Rural Women provides literacy and job-skills training, as well as micro-loans and business networking services, to women in remote areas who may, for example, want to start a yogurt-distribution business from inside a dairy. Patrick Gathitu

of ETANG Kenya nurtures relationships with farmer inventors to identify new technologies that might benefit many communities.

“We need to empower the people who produce the goods being sold. Let the farmer who makes cassava be empowered to make flour for local dishes,” said Lucy Kanu, Ashoka Fellow and founder and executive director of the Nigeria-based nonprofit, Idea Builders.

3. Democratize data.

Information is power, and this can be most important in rural areas where citizens can be cut off from valuable information about the market. Hard infrastructure such as roads can improve market accessibility, but the free flow of information and knowledge sharing throughout the market can shift the power into the hands of rural citizens and farmers and cut out exploitative middlemen. On the flip side, transparent markets can give consumers the ability to demand higher standards of production and treatment of workers.

Beyond information, farmers also need to tap communication channels to achieve efficiencies that would improve their access to the market, such as securing bulk pricing on fertilizers and seeds. They require knowledge about how to access large volume buyers such as supermarkets through consistent quality, handling, and storage of goods. Social innovators address these issues by improving existing communications channels, formalizing data structures, or providing new markets of information that empower people to use data to their advantage.

For example, India’s ITC’s e-choupals are Internet-connected computers that enable small soybean farmers to bypass middlemen, trade directly with ITC, and earn higher price for soybeans. A single e-choupal is shared by an entire village and is usually installed in the home of a “sanchalak,” a literate farmer who receives a small commission in exchange for sharing the asset. Kenya-based Adrian Mukhebi is growing a rural network of market information centers where farmers can access up-to-the-minute data on commodities—either through rudimentary blackboards, Internet-connected computers, telephone hotlines, or text messages sent via cell phones. He’s also working to coordinate farmers so that they can get better prices on seeds and fertilizers.

“Farmers need to understand what the market wants, how crops should be harvested, handled, stored, and preserved so by time that a yield is sold it's good or high quality,” said Adrian Muhkebi, Ashoka Fellow and founder of KACE Kenya.

4. Legalize land.

Men and women in poor rural areas are often disenfranchised, without rights to land, property, or protections by economic or legal frameworks. If legal protections do exist, the rural poor often don’t have resources to fight abuses or exercise their rights. Land or property rights are also essential for rural citizens to gain economic security, procure loans to start a business, and build wealth. Without land rights or legal protections, people often don’t feel like stakeholders in society.

Social entrepreneurs address land titling and documentation issues, and many of them help shore up access to capital for property rights. They also take on deep prejudices, caste and class issues, and gender inequities to promote better livelihoods and an ownership stake in the community.

In India, for example, Sikha Roy helps organize women into a core group to advocate for rights to land. Mazdoor Kisan Shakti Sangathan (MKSS) works to combat corruption in India's public sector through a social justice movement that includes public hearings, which bring villagers and state officials together for focused discussions about the public monies owed to rural workers.

“Land ownership is not just an economic asset. It also has political, social, and cultural importance and allows the poor to have a voice in community,” according to Laurie Werner, director of U.S.-based nonprofit Agros International and a competition entrant.

5. Prioritize biodiversity and incentivize efficiency.

Less is more. That's the premise of many innovative programs that link economic incentives to such practices as efficient land use; preservation or conservation of natural resources; and organic farming with the use of natural pesticides or waste-as-fertilizer. Through these programs, social entrepreneurs around the world are exploring how to utilize agriculture and rural development efforts as a means to reduce the negative effects of climate change. Intensifying the use of land and resources, rather than expanding to new geographical regions, is the underlying agent of change, as well as the trend away from the influence of large industrial farms that use more land, chemical fertilizers, and heavy irrigation. Many of the approaches emphasize biodiversity—away from a culture of mono-cropping brought about by agri-business—to enhance production, diversify families' revenue, and improve waste and water management.

Honey Care, for example, offers cash up front to Tanzanian farmers to reforest barren lands; then it trains them in apiary, or bee farming. Farmers who take loans for the program can repay in the form of honey production. Community Markets for Conservation in Zambia attempts to reduce wildlife poaching in impoverished areas by training locals in organic farming practices, helping them to reap higher prices for fair-trade and organically produced goods. It engages consumers in the support of fair-trade goods.

“In the heart of eastern Zambia, where herds of elephant and antelope live alongside communities of farmers and hunters, residents have initiated a revolutionary change in lifestyle,” explains Kathryn Reidy, senior development officer of the Wildlife Conservation Society, whose Zambia-based nonprofit COMACO was a competition finalist, “They have collectively surrendered hundreds of guns and hunting snares in exchange for improved opportunities in food security and markets. To fight against the grinding poverty, illegal hunting, and environmental degradation that once dominated this region, communities have discovered a new kind of ammunition: conservation and sustainability.”

“CULTIVATING INNOVATION” DISCOVERY FRAMEWORK

Design Principles	Barriers				
	People don't see farming as a viable, gratifying livelihood.	Assistance efforts are disconnected from local needs.	Inadequate infrastructure prevents access to markets.	Advanced tools and technology remain out of reach of rural citizens.	There is a global deficiency in low-cost financial services.
Organize for market power.	ReSCOPE* Light Years IP+	Emmanuel Nehemiah+ IPM CRSP*	Ako Amadi+ Eat Orange!*	RUDI*	ECX
Build a career path for rural citizens.	Idea Builders+ Shama Fish & Bacon Co.*	Ass. of Women in Development Experts+	URDT** Business School for Rural Women**	ETANG Kenya+	AWFFI*
Democratize data.	Amol Goje**	E-choupal	Market for Convenience+	KACE Kenya+ Manobi Development Foundation	IRCED**
Legalize land.	MKSS	Sikha Roy**	Paromita Goswami**	COMAT	Rural Development Fund+
Prioritize biodiversity and incentivize efficiency.	NECOFA*	COMACO*	Blue Ventures**	IDE	Honey Care

+Ashoka Fellow

* “Cultivating Innovation: Solutions for Rural Communities” Competition entrant

OPPORTUNITIES

- **Enable the development of new local industries, built from the ground-up.**
 - **Lucy Kanu**, founder of Idea Builders in Nigeria, works with local women to identify their talents and capacity and launch their own business ventures. She then connects these organized groups of producers to new technologies, processes, and partnerships that allow the producers to markedly improve their output and earning ability
 - **The African Woman Food Farmer Initiative (AWFFI)**, a program of the Hunger Project based in rural communities across Africa, teaches rural women advanced financial literacy skills and assists them in forming officially-recognized, women-led rural banks, owned entirely by their members.
- **Support farmers' ownership of the agriculture supply chain.**
 - **Al Harris**, founder of Blue Ventures in Madagascar, has built a partnership between indigenous coastal communities and fisheries export companies to sustainably farm sea cucumbers and sell them at a fair price.
 - **Ron Layton**, founder of Light Years IP based in Washington, DC and Ethiopia helps rural farmers establish intellectual property and trademark rights for their products in order to enhance their negotiating power with buyers and distributors.
- **Improve, rather than increase, the supply of crops or production.**
 - **The Integrated Pest Management Collaborative Research Support Program**, based in India and Bangladesh, develops pest management programs with local communities that combine non-toxic fertilizers, crop rotation, application of bio-pesticides and other techniques. The results are significant increases in crop yields for rural farmers.
 - **Paul Polak**, founder of the International Development Enterprises (IDE), partners with small farmers in Africa and India to sell affordable, easy-to-use drip irrigation technologies which are used to improve the yield of crops and promote conservation.
- **Champion youth as leaders of agriculture and conservation.**
 - **The Regional Schools and College Permaculture (ReSCOPE) Programme** works with teachers, youth, and their families to transform empty and ornamental school grounds into veritable "food forests," while strengthening links between generations and promoting buy-in at all levels of the community.
 - **Samuel Muhunyu, founder of NECOFA**, an NGO based in Kenya, works to instill in young people positive values relating to food, agriculture, and the environment by teaching sustainable agriculture, nutrition, and providing youth with hands-on experiences in food production and other livelihood skills, which they are encouraged to replicate at home.

"In Kenya, agriculture is taught in a myriad of many sciences in primary and in secondary school, it is treated as a junior science and only weak students are encouraged to sit for it. Meanwhile the rural areas remain starved of vital

labour and youthful creativity,” according to Samuel Muhunyu, the founder of the Network for ECO-Farming in Africa and a competition entrant.

- **Use information to increase profitability of farming.**
 - **Patrick Gathitu’s ETANG Kenya** serves as an information clearinghouse that searches the market to discover the best local technologies while surveying farmers and citizen organizations to determine which technologies hold up to continued use.
 - **Adrian Muhkebi’s Kenya Agricultural Commodities Exchange (KACE)** facilitates the flow of information from small scale farmers and markets through the establishment of Market Information Points (MIPs) across rural Kenya and the creative use of modern information and communication to collect, process, and disseminate accurate and timely information on commodity prices, offers to sell and bids to buy, and available markets.

- **Require literacy training and financial education as part of all rural development efforts.**
 - **Mann Deshi’s Business School for Rural Women** provides literacy education, technical, marketing and general business training, as well as life skills and confidence-building courses, all with the aim of integrating women into the agriculture value chain.

- **Link agriculture to aggressive climate change policy.**
 - **COMACO**, a Zambian-based initiative of the Wildlife Conservation Society, works with local communities to adopt sustainable farming and lifestyle practices, such as composting, crop rotation, and human-elephant conflict resolution, to improve the natural resources of the area, curb illegal wildlife poaching, boost food production, and augment rural income.

 - **Ako Amadi**, founder of Community Conservation and Development Initiatives in Nigeria, conducts surveys of local needs and feasibility opportunities and then aids low-income rural communities in designing and implementing ecologically sound and locally suitable irrigation and water management techniques.

- **Make aid smarter by tracking governance practices and anti-corruption frameworks.**
 - **Sikha Roy**, founder of SRREOSHI, connects women-led community organizations with local, state, and national governments to change land policy and attain more legal rights for women, especially in landless communities.
 - In response to widespread practices of rural laborers being denied their wages, **Mazdoor Kisan Shakti Sangathan (MKSS)** in India, using street plays, songs, and posters, has organized public hearings—or social audits—to bring villagers and state officials together for focused discussions about the uses and distribution of public funding for local community development projects.

APPENDIX

AFRICA

1. Ashundep Ateba Ettanki, Rural Development Fund, (Ashoka fellow, 1997, Cameroon)

Ashundep Ateba Ettanki's Rural Development Fund uses several methods to shore up a lack of investment in rural communities. First, RDF works to ease regulatory burdens the state imposes on rural communities that depress access to financial services. He has met with numerous officials and succeeded in lowering regulatory hurdles, which has bolstered his ability to establish cooperative savings and investment groups across rural Cameroon. Before forming groups, Ettanki identifies a need in a particular community (e.g., how to quicken the pace of yam production) and then proposes a solution—a yam-processing machine—with an objective that clearly benefits the group. Ettanki then unites several villages together, with everyone's buy-in. That way, they scale up their efforts for greater profit, and he can help the organization register as a Common Initiative Group (CIG), a legal identity that allows the group to access tax advantages and credit from public and private sources. Through a partnership with a regional radio station, Ettanki broadcasts these efforts during a farmer-focused program, drawing attention to alternative methods of generating income and helping alleviate isolation in rural areas.

2. Community Markets for Conservation (COMACO), Zambia

In 2004, the Wildlife Conservation Society founded the nonprofit COMACO to form business partnerships with rural communities of eastern Zambia, where herds of elephant and antelope live alongside communities of farmers and hunters. COMACO works with local communities to adopt sustainable farming and lifestyle practices, such as composting, crop rotation, and human-elephant conflict resolution, to improve the natural resources of the area, curb illegal wildlife poaching, boost food production, and augment rural income. COMACO provides locals with training programs that enhance local capacity and promote crop diversity; and it processes local yields into branded "It's Wild" organic food products. COMACO involves consumers by educating them that they are buying higher priced goods with conservation in mind. After five years, COMACO operates as a stand-alone company with three regional trading centers and four more in development, which will nearly cover Zambia's entire Luangwa Valley. In that time, it has helped reduce poaching, diversify crops, and improve the incomes of more than 30,000 participating households.

3. Lucia Quachey, Association of Women in Development Experts, (Ashoka fellow, 1993, Ghana)

In Ghana, programs aimed at women's business groups tend to be ineffective, according to Lucia Quachey, founder of the Association of Women in Development Experts. Quachey believes she can assist her countrywomen by operating on the core principle that rural women know most of what they need to succeed but they need effective mentor relationships to realize their goals. She organizes established women entrepreneurs into volunteer groups that assist rural villagers. She then holds one- or two-day training sessions covering basic banking and marketing. Afterwards, attendees identify an enterprise they can support, create a business plan, and access funding from Quachey, among other sources. Quachey's model has helped women diversify their income sources, giving them access to more traditional financing outlets that typically offer lending amounts to fund larger

business ventures. Quachey considers this result her greatest achievement, because traditional financing grows enterprises beyond the start-up stage.

4. Patrick Gathitu – ETANG Kenya, (Ashoka fellow, 2004, Kenya)

Patrick Gathitu's ETANG Kenya acts as a kind of information and technology clearinghouse to address a dearth of employment opportunities and technology innovation in Kenya. It scouts trade shows and searches the market to discover the best local technologies and surveys farmers and citizen organizations to determine which technologies hold up to continued use. ETANG Kenya further nurtures a relationship with inventors to identify new technologies as they arise. The organization then markets its findings to farmers, attracting their interest with low prices achieved through partnerships with larger public sector groups. To sustain his customer base, he schedules training courses that offer more than simple instruction of technology—they also educate people on how to start and manage a small or mid-size business. In this way, ETANG Kenya cultivates a spirit of entrepreneurship and innovation among participants and customers.

5. Adrian Mukhebi (Ashoka fellow, 2005, Kenya)

Adrian Mukhebi believes strengthening existing information channels gives farmers leverage in the marketplace, a move that clearly improves their finances. He achieves this goal by maximizing the use of communication tools through his organization, the Kenya Agricultural Commodities Exchange (KACE). For example, he's growing a rural network of Market Information Points (MIPs), blackboards on which farmers post their products and their quantities. Each MIP is assigned a single manager who ensures up-to-the-minute data on market days. In villages with electricity, MIPs are further equipped with Internet-connected computers. Because there are numerous villages with neither electricity nor Internet access, Mukhebi ensures market information is available through other means—mainly, text messages sent via cell phones and Interactive Voice Response (IVR) hotlines accessed by telephone land lines. He forms creative partnerships with leading service providers to subsidize the cost of cell phones. Mukhebi's efforts are paying off;—at least one district shows 22 percent higher earnings from farmers.

6. Ako Amadi, Community Conservation and Development Initiatives (Ashoka fellow, 2001, Nigeria)

Although the percentage of Nigerian citizens with access to clean water has reached an all-time high (some estimates place the figure at 60 percent), the supply of clean water remains a critical issue to Nigeria's continued development because of the rise in waterborne diseases. Local government areas (LGAs) offer clean water, but at costs and distances prohibitive to the rural poor. Ako Amadi, founder of Community Conservation and Development Initiatives, aids poor rural and semi-rural communities in designing and implementing ecologically sound and locally suitable environmental initiatives. After conducting a feasibility study and surveying local needs, he designs a simple water collection and storage tank system for rainwater. Amadi's efforts demand community buy-in so the system will be locally owned and free to all users. Besides ensuring a clean and healthful water supply, the system and its initial construction teaches water resource management skills to those who use and maintain it. And it's the first time the country has seen rainwater harvested on a large scale.

7. Lucy Kanu, Idea Builders (Ashoka fellow, 2007, Nigeria)

Lucy Kanu believes in the personal touch as a way to combat years of failed development programs that take a more one-size-fits-all approach. Based on the belief that women anchor a village's growth and development, she meets with informal groups of women to determine their needs and the feasibility of various business ventures. (She also recognizes the psychosocial make-up of women villagers.) After the group selects a development direction—increasing livestock production, for example—Kanu helps connect the group to other initiatives that offer improved or new production technologies. Once the groups are operational, Kanu and Idea Builder volunteers teach the principles of accountability and transparency so the newly established groups can avoid the managerial missteps that cripple so many start-ups up in the region. Kanu also trains women on how to guide other groups to achieve the same success, suggesting they charge a fee for such services. Furthermore, she has created an Idea Builders national advisory board to ensure its spread across Nigeria.

8. Thomas Kumolu-Johnson, Market for Convenience (Ashoka fellow, 2002, Nigeria)

For many years now, the Nigerian Food and Drug Agency has been inactive, allowing sales of non-tested consumer foods to increase. Corrupt food producers and distributors have taken advantage of the situation and sold dangerous items. Thomas Kumolu-Johnson fights this problem through his organization, Market for Convenience. First, he organizes farmer cooperatives to sell their goods directly at markets and cornershops—most of whom are women trained to manage the venues. He then uses his minivan to help farmers near Lagos (where the markets and shops are located) transport their goods. Farmers farther away find this step more challenging, so Kumolu-Johnson prompts their participation by offering profit incentives. He also explains to consumers the risks involved with contaminated foods and ensures products sold at his markets and shops are fit for human consumption. Farmers who join his program find their earnings increase and new client bases opened to them, while consumers—who Kumolu-Johnson educates about food safety through media campaigns—find benefits to their pocketbooks and health.

9. Emmanuel Nehemiah, (Ashoka fellow, 2005, Nigeria)

During the 1970s Nigeria redirected its economic policies to focus on newly discovered crude oil at the expense of its agricultural sector. Lacking government subsidies and access to low-interest loans, rural economies collapsed, and villages saw their members migrate to cities in search of work. Emmanuel Nehemiah combats the problem of neglect by showing respect for local knowledge and expertise. He gets community buy-in by first approaching village leaders for their support and, once accepted into their fold, assists the villagers as they identify local resources that could be converted or otherwise woven into economic improvement or entrepreneurial schemes. The villagers then become one of many economic "units" that Nehemiah guides as they pool funds, elect leaders, and discover ways to increase productivity. For instance, he explains why concentrating on one or two lucrative crops may yield greater profits than scattering efforts across many traditional plantings. Nehemiah also schedules tech trainings to raise computer literacy rates; those who demonstrate special competency or interest are invited into mentor relationships that nurture their self-direction and community-mindedness. Finally, Nehemiah strengthens his efforts by locating his organizations in border towns that encompass more than one community so that his ideas spread more quickly among more groups.

10. Al Harris, Blue Ventures (Ashoka fellow, 2007, U.K./Madagascar)

Blue Ventures Corporation, which started the nonprofit Marine Conservation Social Enterprise in 2007, seeks to empower poor citizens of Madagascar through a sustainable

alternative livelihood—the farming of sea cucumbers. Prized by Asian markets, sea cucumbers are a marine invertebrate commonly found in sandy tropical environments. Blue Ventures’ project has built a partnership between indigenous coastal communities and fisheries export companies to farm these sea creatures in a way that sustains the environment and improves the livelihood of marginalized citizens. In each village, Blue Ventures supports families with the construction of sea cucumber pens and then absorbs the risk up front by purchasing the young cucumbers and deducting their price from the eventual sale. Blue Ventures helps community members become ‘trainers’ so they can pass knowledge onto other local people independently. And BV works with fisheries companies to provide communities with fair price for each year’s harvest. So far, networks of underwater pens have been built for 25 distinct family units in 4 villages.

11. School Garden Initiative, Network for ECO-Farming in Africa (NECOFA), Kenya

In Kenya, agriculture provides jobs to more than 70 percent of the workforce and yet it’s not emphasized in school curriculum. More than half of the youth leaving primary and secondary schools (that don’t continue with further education) live in rural areas born into—but unprepared for—a career as farmers. NECOFA, an NGO based in Kenya, works to instill in young people positive values related to food, agriculture, and the environment through local schools and school gardens. The organization teaches sustainable agriculture and nutrition, and provides youth with hands-on experience in food production and other livelihood skills, which they are encouraged to replicate at home. Harvests from the gardens supplement the school-feeding programs, and the project emphasizes financial self-sustainability through income-generation projects (selling tree seedlings) and local food fairs and agricultural shows. In the last three years, it has established school gardens that impact more than 400 students from across the highland and semi-arid regions of Kenya.

12. Joseph Ndungu, Shama Fish & Bacon Co., Kenya

Although fish is an important and accepted part of most African diets, few African countries (with the possible exception of Egypt) include significant or profitable aquaculture businesses. Shama Fish and Bacon Company is utilizing available natural resources (wetlands) to create employment, generate income, and reduce poverty through commercial fish farming. Using a workforce made up of unemployed local youth and community members, Shama Fish and Bacon Company sets up fish farming projects in the form of public-private partnerships. The communities own the projects in their areas, while the private company markets the fish at fair prices, sharing the proceeds with the farmers. The success of this enterprise has led to the creation of further food-generating enterprises under the Shama umbrella. Most recently, the Shama Academy—a mixed day and boarding school—found that it was producing more milk in its dairy than the students could drink each day. This overage led to the creation of a milk bar, which now accepts and resells milk from more than 1,500 local farmers, to whom it offers cattle feed, veterinary services, and other forms of support.

13. Uganda Rural Development and Training Programme (URDT), (Dr. Mwalimu Musheshe, Ashoka Fellow, 2001, Uganda)

The gap between impoverished individuals and the educated classes that guide policy, law, and finance seems unbridgeable to many rural Africans. For this reason, the Uganda Rural Development and Training Programme (URDT), a nonprofit organization based in Uganda, provides education, financing, advocacy, and support to traditionally underserved and undereducated rural populations. Its African Rural University, for example, provides a

baccalaureate program designed to create Africa's next generation of visionary leaders, entrepreneurs, and ecologically savvy agricultural developers. A Girls' School offers classes in traditional academic topics and a co-curriculum with hands-on experience in rural development, leadership, and income generation; classes include at-home projects designed to help girls provide income for their households. URDT also manages a community radio station, a land rights office that offers information and conflict resolution services, and publicly available computers with appropriate training. Today 35 program graduates have started businesses of their own, while the public radio station is reaching 4 million people with educational programs on business enterprise, agriculture, and health.

14. The Hunger Project, African Woman Food Farmer Initiative (AWFFI), Countries across Africa

An initiative of the Hunger Project, the African Woman Food Farmer Initiative (AWFFI) microfinance program is part of a proven methodology for economically empowering the women and men of rural communities across Africa in countries including Ethiopia, Senegal, and Malawi. The program offers direct credit to women who meet its criteria, which include formation of a solidarity group of 10 to 15, maintenance of a minimum savings account, attendance at literacy classes, and a promise to keep daughters in school. Interest rates vary by region but are typically well below those offered by commercial lenders. Unlike other microcredit programs, which typically focus on commerce because of its fast turnaround and resultant high profitability, AWFFI offers loans only for agricultural endeavors, which may include farming, livestock, and trade. The eventual goal of the microfinance program is to assist partners in forming officially recognized, women-led rural banks, owned entirely by their members. To date, 18 such banks have gained government recognition in seven different countries.

15. Honey Care, Kenya/Tanzania

Honey Care, founded as a social enterprise in 2000, promotes rural development through beekeeping, sourcing its honey from small-scale rural beekeepers. A contractual agreement with farmers requires the company to purchase the beekeeper's honey at a guaranteed and mutually agreed-upon price for two years or more. In turn, the beekeeper must attend Honey Care's intensive training and hive management programs, stoking his or hers sense of ownership and ensuring optimal honey yields, a positive economic outcome for both Honey Care and the beekeeper. Besides fueling long-term income support for more than 9,000 rural beekeepers since 2000, Honey Care also promotes ecological stewardship. Its "bees for trees" program offers free hives to beekeepers who reforest barren lands, and for poorer farmers without trees to plant but who wish to become beekeepers, the company has partnered with NGOs and microfinanciers to offer small loans for the farmers to purchase hives. The loans are repayable in honey production.

16. Manobi Development Foundation, Senegal

Senegal-based Manobi Development Foundation puts Internet-connected devices into the hands of the rural poor with the goal of protecting health, providing new opportunities for women and children, and raising income for small farmers. In West Africa, for example, Manobi provides commodity-price information to farmers for a small fee. Other projects include training midwives to register births into government registries so that proper services can be provided to infants and families. Manobi works directly with local governments and civil organizations, providing basic information and services such as land registration to prevent local conflicts based on property disputes, improved waste management monitoring, and other good governance practices. Manobi plans to extend its

services in West and Central Africa in partnership with international organizations and private foundations, with the goal of reaching 650,000 farmers by 2011.

17. Regional Schools & Colleges Permaculture Programme, ReSCOPE, Eastern and Southern Africa

Established in 2006, The Regional Schools and College Permaculture (ReSCOPE) Programme brings various educational groups together to share permaculture initiatives that are designed to transform schools and colleges in East and Southern Africa into community resource centers. ReSCOPE achieves this goal with its Integrated Land Use Design (ILUD) tool, an approach dependent on active community involvement. The program turns empty and ornamental school grounds into veritable “food forests,” among other objectives. By using schools as an entry point for introducing sustainability principles, practices, and technologies, ReSCOPE nourishes an audience less resistant to its ideas while building natural resource management skills. And because parents are invited to participate, the program strengthens links between generations and promotes buy-in at all levels of the community. This sense of ownership reinvigorates local pride and repairs relationships between development organizations and villagers. Harvests from school gardens can in turn be used to feed students at minimal ecological and financial cost.

18. Helen Keller International, “Eat Orange,” Sub-Saharan Africa

More than 42 percent of children under the age of five in sub-Saharan Africa are at risk of VAD, a type of malnutrition that can cause blindness and death. In 1997, Helen Keller International, a non-governmental organization, started a program called “Eat Orange” that promotes orange-fleshed sweet potatoes (OFSP), high in beta-carotene, to improve child nutrition and food security in Sub-Saharan Africa. More than just promoting a wonder crop, HKI collaborates with local and international organizations to increase nutritional awareness about the importance of vitamin A-rich foods. In this vein, it runs a comprehensive nutrition education campaign and collaborates with schools, white sweet potato producers, and women’s groups to disseminate the plants. Typically, it helps setup a village nursery in a school and it offers plant cuttings, planting materials, and training to groups of volunteers. Recently, the project trained nine nutrition extension workers in Mozambique who then trained an additional 1,200 women as community-based nutrition promoters.

19. Ethiopian Commodities Exchange, ECX, Ethiopia

Taking a page from the development of Chicago’s Commodities Exchange, Ethiopian economist Eleni Gabre-Madhin has pioneered a commodities exchange in Ethiopia, a futures market that allows small farmers to manage their risk in the production of crops and make better planting decisions. An organized trading platform, ECX connects buyers and sellers in the trade of commodities such as coffee and sesame seeds. ECX integrates all the pieces of the market, including a central trading system, warehouse delivery centers, product grade certification, a financial system for credit and payment, an arbitration tribunal, a market information system linking rural sites, remote electronic trading centers, and a secure data center to manage membership and market information. An overarching legal framework and a government regulatory agency ensure the viability of the system.

20. Ron Layton, Light Years IP (Ashoka fellow, 2004, Washington D.C.)

Farmers from Ethiopia's eastern highlands who grow the high-end coffee bean Harar at one time earned a collective \$1 per pound on their yield. Yet at U.S. retailers, the premium coffee

would fetch as much as \$24 a pound. Light Years IP, a Washington-based nongovernmental organization founded in 2004, works to alleviate poverty by helping rural farmers establish intellectual property and trademark rights for a host of products, including coffee and cashews. It aims to improve production quality of certain crops and engage with partners that can improve the negotiating power of farmers. In Ethiopia, it worked in partnership with local organizations such as the Oromia Coffee Farmers Cooperative Union to establish the brand name of Harar so that Ethiopian farmers could negotiate a better wholesale price from distributors. It also mobilized the support of an estimated 100,000 people, including the Ethiopian prime minister, lawmakers and students, to face powerful conglomerates such as Starbucks that didn't want to lose control of their negotiating power. Since 2004, Light Years IP has benefitted an estimated one million farmers in Ethiopia, and another 3 million small traders and distributors.

INDIA

21. The Mann Deshi Foundation, Business School for Rural Women (Chetna Sinha, Ashoka fellow, 1996, India)

The Mann Deshi Foundation, a non-governmental organization, pioneered the Business School for Rural Women, which is a local and mobile school in the area of Maharashtra, India. Catering to a marginalized population that has received little formal education, the school is designed to educate female day laborers and farmers (including sheep and goat herders, tea sellers, daily wage laborers, and homemakers) so that they grow into successful businesswomen. Founded in 2004, the school provides literacy education, technical, marketing and general business training, as well as life skills and confidence-building courses, all with the aim of integrating women into the agriculture value chain. Mann Deshi is especially committed to bringing women into the banking sector by providing financial literacy, vocational training, and access to financial services through the partner organization Mann Deshi Bank. So far, the business school has trained 9,900 women in business development; 60 percent of the women who have been trained have subsequently set up and successfully run their own enterprises.

22. SEWA Gram Mahila Haat, RUDI, India

SEWA Gram Mahila Haat is a non-profit women's association that set up its own private company, RUDI, to give farmers equity in the production system so that they could earn a fair income. Through RUDI, more than 36,000 small farmers have been organized into collectives and taken on roles as owners, managers, producers, and suppliers of the entire distribution network. SEWA Gram Mahila Haat (SGMH), which acts as a marketing organization, builds the capacity of the farmers through training and providing agriculture inputs, such as seeds and fertilizers. RUDI then procures the food grains from the small farmers locally, thereby eliminating exploitative traders and middlemen. In order to increase the collective strength and the bargaining power, RUDI also provides farmers with access to daily prices of the commodities through mobile text messages. The project started in the district of Gujarat covering 125 villages. Gradually, RUDI has spread to 14 districts of Gujarat and in 6 states of India, as well as within Afghanistan. Today, more than 265,000 farmers are shareholders in the for-profit company.

23. Sikha Roy, SRREOSHI, (Ashoka fellow, 2004, India)

Women in West Bengal are often denied rights to land, a condition that can lead to violence against them, reduce their income, and reinforce dependency and isolation. SRREOSHI, an NGO in India, enables women to secure land rights and use the land as collateral to improve their farming operations. Roy begins work in a village by teaching women about farming, animal husbandry, nutrition, and health. Later, after she's gained women's trust, she will start to form self-help groups of women to talk about local conditions and identify specific area needs. From these discussions she identifies eight to ten women in a village who serve as the core group for advocating for land rights. The organization works with government at local, state, and national levels to change land policy and attain more rights for women, especially in landless communities. It is also working to form seed banks, nurseries, and grain storage for local trade among women and their families to ensure food security. It aims to network with other groups locally and nationally to build up a movement for women's land and property rights.

24. Integrated Pest Management Collaborative Research Support Program (IPM CRSP), India

In India, use of chemical pesticides has caused pest outbreaks, pesticide resistance, environmental contamination, and public health risks. IMP CRSP, a non-profit research and development effort funded by USAID, works with the local farmers, the government, and NGOs in Bangladesh to develop and deliver pest-management programs that fit local needs. For example, it suggests controlling caterpillar pests of tomato and eggplant by mass release of predators such as *Trichogramma*. Using a participatory approach to encourage farmers to accept and implement the programs, it involves training of all levels of stakeholders, from farmers to government officials, to encourage awareness and develop relationships that will last after the program has ended. It also organizes farmer field schools where farmers share knowledge and experience with each other. Yield increases and pesticide reductions result in an average of 300 percent increase in income.

25. Kiran Kulkarni, Institute of Rural Credit & Entrepreneurship Development (IRCED) (Ashoka fellow, India, 1999)

Kiran Kulkarni's Institute of Rural Credit and Entrepreneurship Development (IRCED) alleviates food insecurity and reliance on high-interest moneylenders in rural areas by enabling villages to establish grain banks or trading centers for grain. It ensures locals' interest in the project by setting reasonable interest rates (25 percent compared to moneylenders' rates of 50 to 75 percent) and sensible repayment plans. Trading purely in grain, the banks give members access to a reliable food source and loosen the crushing grip moneylenders have over village economies. The IRCED model is also noteworthy for its cost-benefit ratio: it takes less than 16,000 rupees (US \$400) to found a grain bank, and at least 48 banks have a track record of 100 percent loan repayment and interest recovery rate. By 1999, more than 2,000 families in 80 villages had benefited from the program.

26. Mazdoor Kisan Shakti Sangathan (MKSS), India

Corruption often characterizes India's public sector, and rural workers at public development sites often fail to receive their full wage. When they demand compensation, bosses refer to official documents as proof that laborers didn't work the days they claimed they did. Without access to those government papers, villagers have no means to pursue justice and remain in poor economic straits. In 1990 the Mazdoor Kisan Shakti Sangathan (MKSS) created a social justice movement to address this inequity. It created public hearings—or social audits—to bring villagers and state officials together for focused

discussions about the public monies funding local community development projects. With slogans such as “the right to know, the right to live,” MKSS-sponsored campaigns have produced legal victories that force local officials to provide the documents to workers requesting proper pay. Often unable to explain their actions, public officials are exposed as corrupt, and villagers see justice served. MKSS ensures public attendance at hearings through street plays, songs, and posters. In 2005, the Indian government considered applying the “right to know” law nationwide.

27. ITC, Limited, e-choupal, India

In 2000, the International Business Division of ITC, one of India’s largest corporations, blended social altruism with financial self-interest to address market inefficiency in India by installing its first “e-choupal,” after the Hindi word for “gathering place.” ITC’s e-choupals are Internet-connected computers loaded with special software to enable small soybean farmers to bypass middlemen and trade directly with ITC. A single e-choupal is shared by an entire village and is usually installed in the home of a “sanchalak,” a literate farmer who receives a small commission in exchange for sharing the asset. The e-choupals now reach more than 1 million farmers in thousands of villages. Farmers typically receive a higher price for soybeans; and ITC buys a better-quality soybean. E-choupals are also improving the lives of small farming families, helping them to buy better quality seeds, fertilizer, and other goods, as well as procure insurance, credit, and even affordable healthcare.

28. Paromita Goswami (Ashoka Fellow, 2001), Shamrik Elgar / Elgar Pratisthan, India

Paromita Goswami attempts to alleviate exploitation of the rural poor by landowners, government officials, employers, or police. Goswami aims to unite the people of tribal and nontribal groups (or landless and indebted farmers) that bear the brunt of abuse so that they can take up a shared cause. To this end, Goswami establishes two groups. One (Shamrik Elgar) is composed of villagers drawn from a spectrum of groups—tribal, nontribal, Dalit, Hindu—with at least 50 percent women. The other (Elgar Pratisthan) is comprised of rural middle class volunteers who help disenfranchised people exercise their legal rights. Goswami insists on keeping the two groups separate because the latter could easily take over the former and reinforce existing power inequalities. The volunteers—most of them young—gain valuable experience and exposure to different realities (the volunteers travel from village to village). The rural poor are equally compensated, finally realizing social benefits entitled to them by law, as well as acquiring less tangible rewards, such as leadership skills and empowerment strategies.

29. Amol Goje (Ashoka fellow, 2003, India)

Ashoka fellow Amol Goje uses various technology approaches to increase the flow of market information to rural citizens to ensure the participation of non tech-savvy individuals. The first of his three-pronged effort establishes an Interactive Voice Response (IVR) telephone system that announces the market rates of numerous commodities in the local language. His approach also introduces the use of smart cards so, for example, when farmers make their milk deposits at the cooperatives; the cards store information ranging from the amount of milk collected to the amount of money owed the farmer. The device sidesteps middlemen who would otherwise record incorrect amounts and deprive farmers of their rightful pay. Goje’s third strategy is to install village information kiosks in remote areas with the help of Wireless Local Loop (WLL) technology. These kiosks feature a computer, a Web camera, speakers, and a printer, allowing users access to a bevy of services, including video conferencing, email, and word processing. To ensure adoption, he uses mobile vans that travel to faraway schools and villages to offer tech training to rural students.

30. Paul Polak, International Development Enterprises, IDE, Colorado-based with operations in India and Africa

IDE sells affordable drip irrigation technologies (ADITI) to small farmers in India in the form of packaged and ready-to-use kits, which are used to improve the yield of crops and promote conservation. ADITI is a water-saving technology that enables slow and regular application of water to the roots of the plants through a network of efficient plastic pipes and low discharge emitters. IDE adapted its technology to meet the needs of poor farm families by making the technology simpler and affordable. IDE kits cost an estimated 80 percent less than conventional drip kits, according to the company. Through various kit sizes, farmers also have the option to begin with one unit and expand it later at their convenience. IDE has sold 2.1 million treadle pumps throughout Bangladesh since 1983 by designing a mass marketing campaign and a private-sector supply chain that allowed people to make money from the sale and use of the pumps. It also operates programs in eight countries in South Asia, southeast Asia, and Africa (Bangladesh, Nepal, Cambodia, Myanmar, Vietnam, Ethiopia, Zambia, and Zimbabwe).

31. Comat Technologies, India

Rural populations have largely missed out on the technology revolution. But organizations such as Comat are working to bridge the digital divide. The Bangalore-based private company, founded in 1996, runs India's largest network of Rural Business Centers (RBCs), storefronts where otherwise isolated villagers can learn job skills, find non-agricultural employment, or access government documents. For example, Comat has digitized 20 million land records, which farmers use as collateral to secure loans. More than 6.7 million landowners in the state of Karnataka now have easy access to the records for a standard fee and avoid the challenges of government latency and corruption. Comat operates more than 2,000 RBCs across six Indian states, and provides educational, financial, and government services to more than 50,000 villagers daily. Winner of the Legatum FORTUNE Technology Prize in December 2008, the company helps to create jobs, boost economic prosperity, and bring greater transparency to government processes.

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