

Supporting Information

Files in this Data Supplement:

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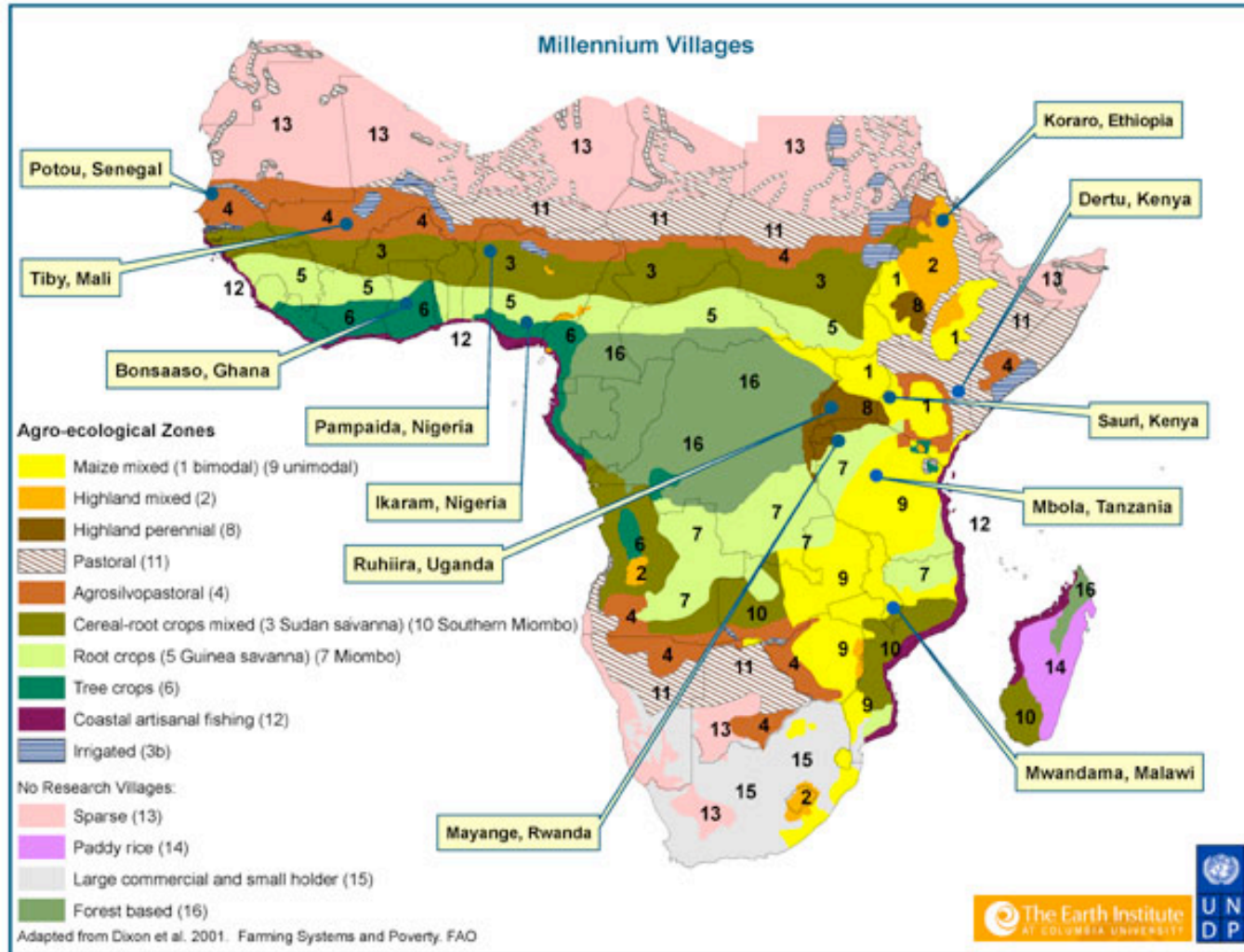


Fig. 2. Location of the Millennium Village clusters in the major agroecological zones and farming systems of tropical Africa. The 12 clusters are named after their Millennium Research Village and include 66 expansion Millennium

Villages, each with a population of $\approx 5,000$ people each.

SI Appendix

Other Interventions. Because data are not yet fully available on other interventions, this section gives brief examples of interventions regarding water, land reclamation, and school feeding and the fact that they have positive synergies with other sectors. In Sauri, the water committee received training on groundwater hydrology, spring protection, rainwater harvesting and safe water systems for human use. The committee built or repaired 15 protected springs and constructed roof-based rainwater harvesting systems. Villagers planted indigenous trees around selected springs to protect them from erosion and livestock. A pit latrine was constructed at Bar Sauri primary school for girls to enable improved hygiene, privacy and safety in school, boosting attendance (1).

In Koraro, the community undertook a major landscape restoration activity, rehabilitating a 50-hectare area by diverting an intermittent river that was forming gullies in cultivated fields. Paid for by a food-for-work scheme, Koraro villagers built by hand 25 km of trenches, 45 km of hillside terraces and 645 plastic-lined small reservoirs. They also plugged gullies with 45 m^3 of gabions (stones wrapped in heavy wire mesh) and $1,790 \text{ m}^3$ of loose check dams, as well as planted 45,000 fruit and native trees (2). Runoff water and soil loss on barren hills was visibly reduced, natural vegetation began to regenerate and some wells were recharged. People downstream are living with reduced flood risk due to the gully treatment. Although basically an environmental intervention, the landscape reshaping also benefits agriculture and water management.

In Ruhira, Uganda, a school feeding program was established in October 2006 by the parents, teachers and MVP staff in the four primary schools (34). Community members noted that school feeding was particularly important to reduce tardiness, absenteeism, poor participation in classrooms, and lack of morale for teachers and pupils in the afternoons. The community contributed 9.5 tons of beans, the bulk of which came from the payback for agricultural inputs earlier

received. The project contributed an additional 7 tons of beans and 10 tons of soya-enriched maize flour to ensure there is sufficient and nutritious food for 1,733 school pupils for 66 days of a school term. In addition parents contributed on a daily basis fresh green leafy vegetables to enrich the beans sauce. The meals are prepared by cooks who are paid by the parents. Enrollment in the four primary schools increased by 32% since the school feeding program started. Approximately 40% of new pupils had either dropped out or never been to school at all.

After the initial achievements regarding food security, access to clinical services, and the beginning of the economic transformation, villagers in Sauri and Koraro have demonstrated new community-based initiatives and innovations on several fronts, including some beyond the recommendations of the UN Millennium Project. As one example, a town with 172 houses was spontaneously built in Koraro. New houses have been built in Sauri and the population of this village has increased to about 6500, a reverse migration from urban areas. Elections for an executive committee were held in Sauri and a woman master farmer became chair. A welfare committee was established and rebuilt houses for 42 "destitute" households whose homes were falling apart. Art displays and the newsletter *Sauri Times* have been launched. Villagers in the cluster plan to upgrade a vocational high school in the cluster to empower those primary school graduates unable to attend secondary schools with skills useful for off-farm work. One aim is to dissuade young people from migrating to cities, where they risk falling prey to AIDS or descent into petty thievery and prostitution.

Table 4. List of surveys for determining baseline conditions in the Millennium Research Villages

Survey modules	Types of information gathered and purpose of survey module	Level of administration of survey	Sample size
Demographic census	Design to capture total number of households, primary occupation, population strata and characteristics of	Household (HH)	All HH (head of HH) \approx 1,000

		specific sites		
Socioeconomic comprehensive	Gathers information to describe basic household characteristics on:	HH/individual	300 HH (head of HH) population based on stratified sample; this subsample is used for all other surveys	
	Household composition			
	Land use and agriculture practices			
	Education			
	Earnings, expenses, employment, credit			
	Health, general assessment			
	Mortality rates			
	Nutrition			
	Risks and vulnerability			
	Status of orphans			
Socioeconomic shortened	A lighter version of the previous one to capture baseline information on the MDG indicators from all HH	HH/individual	700 HH (Head of HH); the remaining HHs not included in the socioeconomic comprehensive	

			survey
Water and sanitation	Access to water for domestic and potable use	HH	300 HH (head of HH) population based on stratified sample
	Access to water for irrigation and other uses		
	Determine distance and use of water sources		
	Determine sufficiency of water supply		
Energy, transport and communication	Condition of roads and distance to HHs	HH/individual	300 HH (head of HH) population based on stratified sample
	Types and cost of various modes of transportation		
	Type, quality and costs of energy sources		
	Availability, access and distance to energy sources		
	Types and cost of different forms of		

	<p>communication</p> <p>Gender related aspects of transport, energy, and communication</p>		
Agriculture and the environment	<p>Production functions of common crops, including livestock and fisheries</p> <p>Types of soil and water conservation activities</p> <p>Gender related aspects of agricultural production and income</p> <p>Major agricultural problems (i.e. risks, lack of access to and management)</p>	HH/plot	300 HH (head of HH) population based on stratified sample
Malaria	<p>Incidence and prevalence of malaria</p> <p>Number of deaths due to malaria</p> <p>Malaria control and</p>	HH	300 HH (head of HH/spouse) no breakdown by age, sex group needed

	<p>treatment</p> <p>Malaria diagnosis</p> <p>Household members' and community's level of knowledge regarding malaria</p> <p>Forms of medication and/or control currently in use</p>		
Sexually transmitted infections (STI) and HIV/AIDS	<p>Level of awareness and control of STI and HIV AIDS</p> <p>Social stigma</p> <p>Prevalence of high risk behaviors associated with HIV transmission</p> <p>Number of people seeking testing, and treatment</p>	Individual	380 adults (190 men and 190 women) selected randomly from the 300 HHs
Human nutrition	<p>Food frequency patterns among household members</p> <p>Varieties of food consumed.</p>	Individual	<p>100 men (13-49 yrs) head of HH</p> <p>100 women (13-49 yr of age) female partner)</p>

	Caloric and nutrient intake and deficiencies by age and gender		100 children (1-5 yr of age) interview main caretaker
Women's and child's health	Child care practices.	Individual	All women >13 yr of age within the 300 HH
	Diarrhea, incidence, prevention, and treatment		
	Level of vaccination of the under fives		
	Child mortality rates		
	Domestic violence		
	Diseases such as TB, malaria, pneumonia		
	Vulnerability of pregnant women to poor antenatal and postnatal care		
	Breast feeding practices		
Men's health	Men's fertility perceptions	Individual	All men >13 yr of age within the 300 HH
	Preferences in terms of the number and sex of children to be		

	born		
	Capacity to adopt new methods of contraception		
Men and women's health	Level of knowledge of how various infectious diseases are transmitted	Individual	Same sample used for STI and HIV/AIDS module
	Sanitation and hygiene practices		
Orphans vulnerability	Social status	Individual	Based on number of orphans in population
	Access to security (both physical and psychological), food, education		
	Access to health care		
	Capture the psychological and financial effects of HIV AIDS deaths		

Table 5. Selected results of the Sauri baseline survey (4)

Goal 1: eradicate extreme hunger and poverty	
Proportion of population below \$1 per day	79% live below \$1 per day (PPP)

Prevalence of underweight children under 5	17%
Goal 2: achieve universal primary education	
Net enrollment ratio in primary education	84.6%
Proportion of pupils starting grade 1 who reach grade 5	63.6% by age 12-14 years 89% by age 18 years
Goal 3: promote gender equality and empower women	
Ratio of girls to boys in primary, secondary, and tertiary education	102% primary 86% secondary and tertiary
Goal 4: reduce child mortality	
Under five child mortality	Proxy: 30 of 225 live births since 2000
Percentage of 1 year olds immunized against measles	50
Goal 5: improve maternal health	
Maternal mortality ratio	Not measured; see proxies below
Proportion of women reporting pregnancy complications	49%
Proportion of women	0%

with access to emergency obstetric care	
Goal 6: combat HIV/AIDS, malaria, and other diseases	
HIV prevalence among pregnant women aged 15-24 yr	Proxy: 30% of women receiving ante-natal care at Yala Sub District Hospital tested positive
Prevalence of malaria	55%
Prevalence and death rates associated with TB	Prevalence is \approx 943 per 100,000; mortality is 171 per 100,000
Percentage of TB cases detected and cured under recommended TB control strategy DOTS	35
Prevalence of soil-transmitted helminths	48% age 2-4; 80% age 9-10; 75% women 15-49
Prevalence of anemia	64% overall; 76% in children under 5 years
Goal 7: ensure environmental sustainability	
Percentage of land area covered by forest	5
Percentage of area protected to maintain biodiversity	0
Percentage of population with sustainable access to an improved water source	74 with basic access to a water source

Percentage of population with access to improved sanitation	56 within the homestead; 19 within the household
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Supporting Methods

Site Selection. Five criteria were used for village selection: (i) be located in a country that is at peace, reasonably well governed and committed to meeting the MDGs; (ii) located in a hunger hotspot, defined as having more than 20% underweight children under the age of five (2), and typically an area of extreme poverty and infectious disease as well; (iii) representative of a major agro-ecological zone/farming system, (iv) an administrative unit with appointed or elected leaders, and (v) having a population of $\gg 5,000$ people, often corresponding to administrative units. In 10 of the 12 sites expansion villages have been added to the research villages to form clusters of 3 to 11 villages encompassing $\approx 390,000$ people.

Process. At each site, the process is initiated as follows. After meeting with the Head of State and senior government officials, MVP team and government officials held "town meetings" where the villagers described their situation, learned about the MDGs, and became familiar with the conceptual basis, including cost sharing by all partners, the villagers contributing in kind, and that there is a time limit for project funding.

Activities start with a comprehensive baseline assessment, participatory analysis, planning and developing community action plans that outline the responsibilities of the various partners. Village activities are carried out by committees, usually organized along sector lines where the decisions are made together with the MVP staff to assure that they are science-based.

Project Staff. In each site, the local MVP team is led by a Ph.D.-level science coordinator and typically includes professionals in community development, health, agriculture/environment, water/sanitation, energy/infrastructure, education, business enterprise development and a database manager. Often these professionals are seconded from local governments and considered as part of the government cost-sharing contribution. In the larger clusters there is also an operations manager. All are nationals of the country.

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1. Mutuo P, Okoth H, Makomere C, Oule J, Oduong G, Ombai W, Wariero J, Akinyi B (2006) *Annual Report for Sauri, Kenya Millennium Research Village July 2005--June 2006* (Earth Institute, Columbia University, New York).
2. Kifleariam T, Gebretsadik A, Kebede G, Mehari G, Habtetsion T, Ye-ebiyo Y, Said A, Desta H (2006) *Annual Report for Koraro, Ethiopia Millennium Research Village July 2005--June 2006*. (Earth Institute, Columbia University, New York).
3. Siriri D (2006) *The Ruhiira Millennium Research Village Project. Report to the Government of Japan in Uganda* (UNDP, Kampala, Uganda).
4. United Nations (July 6, 2004) *Secretary-General Calls for 'Uniquely African Green Revolution' in 21st Century, to End Continent's Plague of Hunger, in Addis Ababa Remarks*, press release, www.un.org/News/Press/docs/2004/sgsm9405.doc.htm.