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Millennium Global Village-Net: Bringing together Millennium Villages throughout sub-Saharan Africa

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ABSTRACT

The Millennium Villages Project (MVP), based at The Earth Institute at Columbia University, is a bottom-up, community led approach to show how villages in developing countries can get out of the poverty trap that afflicts more than a billion people worldwide. With well-targeted, practical inputs can help the community invest in a path leading to self-sustaining development. There are 80 Millennium Villages clustered in 10 countries throughout sub-Saharan Africa. MVP is an important development process for empowering communities to invest in a package of integrated interventions aiming to increase food production, improve access to safe water, health care, education and infrastructure. The process benefits from synergies of the integrated approach and relies on community leadership as empowered by proven technological inputs. MVP is committed to a science-based approach to assess and monitor the progress of the communities towards clear objectives; the Millennium Development Goals (MDGs) and to do so with mechanisms that are scalable and sustainable. This approach offers much more than simply collecting and analyzing data since the mechanism used for recording progress would provide a bridge over the divide which separates the haves and the have-nots (by facilitating the sharing of solutions from one community to another bidirectionally). By so doing, it allows people to enhance their own futures in a sustainable manner. Solutions found in one community are transferable to similar communities in other MVP villages. To achieve this goal, the MVP requires an information and communication system which can provide both necessary infrastructure for monitoring and evaluation, and tools for communicating among the villages, cities and countries. This system is called the Millennium Global Village-Net (MGV-Net). It takes advantage of the latest in open source software (OpenMRS), databases (MySQL), interface terminology, a centralized concept dictionary, and uses appropriate technology locally for data entry.

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1. Introduction

Over one billion people are living in extreme poverty. Surviving on less than $1 a day, they are malnourished, plagued by disease, lack safe drinking water and sanitation and are unable to provide education for their children. In 2000, the nations of the world committed, for the first time, to end extreme poverty. The Millennium Development Goals (MDGs), agreed to by every country in the world, set time-bound and measurable targets for eliminating all facets of extreme poverty [1].

Sub-Saharan Africa is currently at the greatest risk of not achieving the goals and is struggling to progress on almost every dimension of poverty, including hunger, lack of education, and the large burden of disease. And while many who live within these countries are struggling to survive, they are capable of improving their situations with the right support—and are determined to do so. The Millennium Villages™ Project (MVP) is a partnership between the Earth Institute at Columbia University, the UN Development Program (UNDP), Millennium Promise and national governments. The MVP is based on the recommendations of the UN Millennium Project which is the product of five years of intensive preparation by hundreds of scientists and development experts from the UN, governments, Non-Governmental Organizations (NGOs) and academia working under the mandate of UN Secretary General Kofi Annan. The UN Millennium Project in turn builds upon the health recommendations of the WHO Commission on Macroeconomics and Health which was issued under the former World Health Organization Director General, Gro Harlem Brundtland. MVP seeks to prove the concept that the Millennium Development Goals can be reached by the poorest of the poor, throughout sub-Saharan Africa, in partnership with governments and other committed stakeholders, providing affordable and science-based solutions to help people lift themselves out of extreme poverty [2].

The Millennium Villages Project operates in 10 countries and 14 agro-ecological zones (see Table 1), with a total coverage of approximately 500,000 people. MVP aims to empower individual African villages to achieve the MDGs through the implementation of comprehensive, community-based, low-cost, integrated rural development strategies delivered within the budget recommended by the UN Millennium Project.

Millennium Villages are explicitly based on achieving MDGs and are anchored by three interconnected components: (i) the principles of community participation and leadership, (ii) science-based innovations and local knowledge, and (iii) a costed, national action-plan for reaching the time-bound and targeted objectives of the MDGs and other national development priorities. Three of the eight MDGs are explicitly health-related covering child health, maternal health and infectious disease management. MVP seeks to address the health crisis of rural Africa in an integrated manner through such interventions as increasing agricultural yields to reduce hunger and improve nutrition, improving access to functioning health services, and increasing availability of clean drinking water.

One of the key interventions for improving health is to ensure that there is a staffed, equipped and functioning health facility for approximately every 5000 people. Improvements in quality of service are needed as well in order to improve health indicators in rural Africa. One of the key elements for improving quality of service is medical records. The lack of patient medical records results in an increased time per patient visit as medical history and information about past visits has to be ascertained each time a patient arrives at the health facility. Often, past diagnoses and treatments are missed or misreported leading to a reduced quality of care. Monthly reporting systems are also critical to effective health facility management to track drug needs, monitor epidemic outbreaks, and ascertain improvements in health indicators over time [3].

The MVP sites represent a wide range of medical records systems. Some sites might have monthly reporting requirements, others do not. Robust patient medical records are virtually non-existent in these MVP sites. If they do exist at the national level, they are not fully implemented at the rural clinic level. One exception to the lack of patient records is generally in the HIV/AIDS field where government's implementing partners maintain patient records for patients on Anti-Retroviral Therapy (ART). However, due to slow decentralization of ART, most of these systems exist only at regional or district hospital levels as opposed to rural health facilities.

The promise of health information systems depends on adequate penetration of infrastructure, training and proper implementation. However, particularly in developing countries, the systems have failed to deliver. Most information systems in Africa are based on pen and paper, and data is frequently missing or inaccurate. In Kenya, for example, it can take two years before health clinic data reaches the Ministry of Health, and it is frequently incomplete [4]. Perhaps related to its timeliness, another problem with the current reporting system in many countries is that the information currently being collected is not used to inform patient management/care. There is little to no feedback mechanism.

The variance in both the reporting requirements and the existing at the various sites presents the MVP with a wide range of challenges in this regard. Senegal, for example, has a very robust medical records system whereby each *poste de santé* must fill out a detailed form every month that outlines the number of cases of a long list of diseases seen and the number and type of treatments for each disease. This system is extremely detailed and absorbs a substantial amount of a health professional's time. Given that the existing health facility in the MVP site in Senegal is staffed by two nurses and two matrons, the amount of time taken up by filling out registers and compiling data daily and monthly is substantial and reduces the amount of time available for patient care.

Table 1 – MVP Village Sites with projected year of MGV-Net implementation.

Koraro, Ethiopia (2009)	Timbuktu, Mali (2009)
Bonsaaso, Ghana (live 2009)	Ikaram, Nigeria (2009)
Dertu, Kenya (2009)	Pampaida, Nigeria (2009)
Sauri, Kenya (live 2007)	Mayange, Rwanda (live 2008)
Gumalira, Malawi (2010)	Potou Senegal (2009)
Mwandama, Malawi (2010)	Mbola, Tanzania (2009)
Tiby, Mali (2009)	Ruhiira, Uganda (live 2008)