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Principles into Practice: Irrigated Agriculture

In Principle: MCC's Approach to Irrigated Agriculture

Two of MCC's founding principles are country ownership and a focus on results. These principles lead MCC to support investments that reflect countries' own priorities for poverty reduction, and offer the most promise for returns in terms of increased incomes. MCC empowers partner countries to prioritize investments that address the most binding constraints to economic growth and poverty reduction. Many partner countries—including not only governments but citizens, civil society organizations and private enterprises—have prioritized irrigation projects for MCC investment. These investments seek to increase rural incomes by improving agricultural productivity and access to markets, and to enhance food security by expanding local food supplies and creating new income opportunities.

In Practice: MCC's Approach to Irrigated Agriculture

MCC's investments in irrigation total almost \$1 billion. These investments are one component of MCC's broader \$4.4 billion investments in agriculture, rural development and food security.

Taken together, these investments contribute significantly to the United States' support of global efforts to reduce hunger and poverty, increase food security, and reduce the impact of climate change on agriculture. MCC investments in irrigated agriculture include infrastructure, water management, value-chain and market development, access to rural finance and land tenure activities.

These investments, collectively referred to as "irrigation projects," figure prominently in MCC's program portfolio. MCC has irrigation

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PRINCIPLES *into* **PRACTICE**

MCC was founded with a focused mandate to reduce poverty through economic growth. MCC's model is based on a set of core principles essential for development to take place and for development assistance to be effective—good governance, country ownership, focus on results, and transparency.

The *MCC Principles into Practice* series offers a frank look at what it takes to make these principles operational. The experiences captured in this series will inform MCC's ongoing efforts to refine and strengthen its own model. In implementation of the U.S. Global Development Policy, which emphasizes many of the principles at the core of MCC's model, MCC hopes this series will allow others to benefit from and build on MCC's lessons.

The series also offers insights into MCC's experience with the technical and operational approaches it uses to support poverty reduction through economic growth. The full *Principles into Practice* series is available at www.mcc.gov/principlesintopractice.

projects in various stages of implementation in nine partner countries. These projects are expected to result in over 252,000 hectares of new or improved irrigation.

Accountability for results is a hallmark of the MCC model. This principle demands that MCC-funded investments have strong potential for cost-effectiveness, impact and sustainability. In addition, the following three operational premises are recognized as international best practice guidance in the development and management of productive and sustainable irrigation systems.

1. ***An irrigation system is a complex land-water-economic-social system.*** Irrigation infrastructure is ultimately built to serve farmers' needs, and while it can be said their primary objectives are to increase income and reduce vulnerability, farmers' motivations and behavior are also influenced by environmental and institutional factors.
2. ***An irrigation system provides a service to water users.*** Technology choices in design and investment should respond to water users' requirements and focus on how these systems will be operated and maintained reliably, efficiently and equitably.
3. ***An irrigation project is one element of an overall river basin or watershed, with multiple objectives competing for limited land and water resources.*** Understanding the water requirements of various users is essential to effective watershed management and to the design of sustainable irrigation investments.

Five Lessons: MCC's Experience with Irrigated Agriculture

As a learning organization, MCC takes a frank look at how MCC and its partner countries have grappled with some common challenges in efforts to improve irrigated agriculture in a cost-effective manner, and demonstrate how the lessons learned in early compacts have benefitted later compacts.

The lessons in this paper focus on project implementation, not impact. MCC's portfolio of impact evaluations will soon begin to yield additional lessons about the impact of MCC's irrigation and related investments on farming practices, agricultural productivity, and income generation.

Lesson 1

Policies matter. Incentivizing efficiency and promoting sustainability is key to success.

To achieve a full and lasting impact, MCC investments cannot happen in isolation. Consistent with MCC's principle that policies and good governance matter for economic growth and poverty reduction, MCC and its partner countries look closely at the environment in which MCC investments are being made, and assess what policies or practices might limit an investment's impact and sustainability.

In the case of irrigation infrastructure, MCC works with partner countries to support their efforts to establish a policy environment that provides incentives for farmers to use water efficiently and for institutions to effectively operate and maintain new or rehabilitated infrastructure. Policies requiring review and reform often include setting the price of water to reflect costs of service delivery and water scarcity, devolving the responsibility for irrigation management to water users, enabling efficient input and output markets, establishing secure land tenure arrangements, and facilitating access to cost-effective technology through open markets and agricultural research. Inherent in policy and regulatory change is the challenge of behavioral changes of government entities and water users.

MCC and its partner countries have learned that achieving these complementary changes can be as difficult as, or more difficult than, completing the investments they support. Unexpected delays in these policy and institutional reforms can affect the pace of implementation progress, particularly if they must be completed before infrastructure works begin, or if needed reforms are identified after implementation begins. MCC has learned the importance of early engagement and efforts to build such requirements into compact agreements up front. Once implementation plans are set, there is little time, leverage or incentive for governments to effect change that can sometimes be controversial. *See the full paper for examples from Armenia, Burkina Faso, Mali, Moldova, and Senegal.*

Lesson 2

Design matters. Irrigation sustainability requires designing with farmers' needs in mind.

Achieving sustainable economic benefits from irrigation infrastructure depends not only on reliable water delivery structures, but also institutional capacity to operate and maintain these systems. Putting these in place often involves changing ingrained practices of government agencies, water management institutions and farmers. MCC and its partner countries have taken several approaches to addressing these long-term sustainability issues, both in regards to infrastructure design and in-country management systems.

An irrigation investment will only have a positive and sustained impact if it meets farmers' needs and farmers are willing to pay for reliable water delivery. To this end, MCC has sought to introduce "service orientation" and "modernization" into irrigation designs to help enhance the performance and efficiency of water delivery through improvements in infrastructure design and technology. Adapting modern irrigation design concepts to individual country contexts requires the application of hydraulic engineering, agronomy and social science to arrive at the simplest and most workable solution to meet operational requirements and serve farmers' needs.

International experience confirms that new or rehabilitated irrigation infrastructure will only offer sustained benefits if operated and maintained by technically qualified and financially self-sufficient water management institutions. Whether farmer-based, public, or private concessions, management of water delivery and system maintenance are always considered during project design. To increase institutional capacity and effectiveness for water management, MCC and partner countries have endeavored to incorporate three key principles into irrigation project design—user involvement, transparency and financial accountability, and autonomy. These principles directly echo MCC's institutional commitments to country

ownership, accountability, transparency and sustainability. *See the full paper for examples from Armenia, Burkina Faso, Cape Verde, Ghana, Mali and Moldova.*

Lesson 3

Management matters. There are tradeoffs between being ambitious and being manageable.

MCC's investments seek to address poverty reduction by breaking down fundamental barriers to growth and generating additional income for beneficiaries, both during program implementation and after programs end. This often means accompanying irrigation infrastructure with policy and institutional reforms, as well as physical, social, economic, policy, and institutional arrangements, or management dimensions, each of which influence impact and sustainability. These additional activities have varied based on local context, and have included resettlement, agricultural extension, land tenure reform, institutional support, and improved access to markets. Yet, broadening of project scope has created additional and significant management challenges for newly established MCAs, particularly within MCC's operational model of a fixed five-year time frame and fixed budget.

MCC and its partner countries increasingly recognize an internal tension between additional complexity in project design and MCC and MCAs' ability to successfully implement the program as designed on time and on budget. A one-dimensional project that simply builds new infrastructure likely will not lead to sustainable new irrigation services, but neither will a multifaceted integrated program that, despite best intentions, experiences failure on one or more critical dimensions.

Based on experiences from early compacts, MCC is placing increasing emphasis on the "management dimension" as early as possible, and has attempted to simplify its own investments in a manner that leverages other donor and governmental initiatives. MCC continues to address management challenges inherent in integrated, multi-faceted projects, and it remains supportive of an approach that assesses factors influencing the impact and sustainability of irrigation investments, directly financing them when cost-effective and feasible, or identifying partnerships to support complementary activities. MCC is currently funding several rigorous impact evaluations that will enhance learning about the impact of irrigation schemes and complementary projects affecting farming practices, agricultural productivity, and income. *See the full paper for examples from Armenia, Moldova, Morocco, and Senegal.*

Lesson 4

Water is for more than irrigation. Early attention to water availability and competing uses is important to ensure sustainability and maximize benefits.

Without water, irrigation infrastructure is rendered useless. Initial partner countries' project proposals have tended to be over-optimistic in regards to availability of water for proposed irrigation investments. In such cases, MCC and partner countries have worked together to directly address availability of water resources, with the goal of ensuring sustainability and coordination with other development efforts. The results of this analytical process sometimes lead to changes in project scope and design parameters.

Although many project proposals have downplayed the importance of water availability, MCC has consistently required water source and water use assessments as part of its proposal evaluation process. Over time, MCC has learned that its programs can add greater value in achieving sustainable outcomes by directly addressing watershed management issues. *See the full paper for examples from Burkina Faso, Cape Verde, Mali, Moldova and Morocco.*

Lesson 5

Prepare to adapt. Unanticipated cost escalations and delays may require project scope changes during implementation.

Infrastructure projects are always susceptible to changing costs and implementation delays. MCC's model of fixed budgets and five-year timelines means that when these pressures emerge, MCC and partner countries have to think quickly and creatively about scaling back or altering investments to maintain MCC's principle of ensuring the most cost-effective and impactful use of limited resources. Many MCC-funded infrastructure projects have been restructured to respond to these pressures. This was particularly true for projects designed in MCC's early years, when MCC needed to establish itself fairly quickly with the first cohort of compacts.

To better buffer MCC and its partner countries against these pressures, MCC now conducts more rigorous design, cost estimation and budgeting prior to making final investment decisions; and builds greater project management capacity to deal with complex projects and their inevitable challenges. MCC now strives to design infrastructure components in a scalable fashion where appropriate, so that management teams can balance scope with cost and time considerations should one factor experience overruns. Understanding that adjustments in project scope are often unavoidable, MCC is applying lessons learned in early compacts to later (and future) compacts to be better prepared for these inevitable changes. *See the full paper for examples from Armenia, Mali, Moldova, Morocco and Senegal.*

MCC continues to learn and evolve as early projects conclude.

MCC is not alone in investing in irrigated agriculture, or in facing challenges along the way. Many of the issues with which MCC and partner countries have grappled are common. However, MCC's commitment to results and to learning demands a frank and open discussion of these lessons, even when they are learned the hard way. The emerging body of lessons learned from MCC's earlier compacts continues to inform later compacts and guide how future irrigation projects are evaluated and funded.

Given the often multi-disciplinary nature of irrigated agriculture investments, the particular challenge for MCC lies in determining how best to intervene within a five-year window, such that long-term developmental goals are met in a manner that is sustainable and cost-effective. MCC continues to learn, leverage international experience, and apply lessons learned to improve investment design and management capacity, and better help partner countries anticipate and meet operational challenges. MCC's portfolio of impact evaluations will soon begin to yield additional learning about the impact of MCC's irrigation and related investments on farming practices, agricultural productivity, and the income of farming households.

To read the full *Principles into Practice: Irrigated Agriculture* paper, visit www.mcc.gov/principlesintopractice.