



INVESTMENT IN AGRICULTURE

Policy Brief #7

Financing Rural Infrastructure: Priorities and pathways for ending hunger

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Introduction

Significant and interrelated investments in rural development are needed to achieve Sustainable Development Goal (SDG) 2 to “*End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.*”² This policy brief focuses on just one of these needed investments: finance for rural infrastructure.³ Most people in the world suffering from hunger live in rural areas and work in the agricultural sector. Many lack basic services such as access to energy and irrigation because there is no infrastructure for service delivery or what is available is inadequate. There is a global consensus among governments that a productive and sustainable agricultural sector is key to achieving food security and improved nutrition for all.⁴ In turn, governments recognize the importance of a robust infrastructure base for farmers and rural communities to improve efficiencies in agricultural value chains and overcome the many constraints on productivity growth in food production, agribusiness and other formal and informal sectors in rural economies.

Yet attracting the right type of financing to ensure the availability, quality and affordability of rural infrastructure is no small task. Given that many rural communities are characterized by remoteness, dispersed populations and a susceptibility to natural disasters, the “business case” is not obvious. A lot of what can go wrong for an agricultural enterprise—such as bad weather or a pest infestation—will typically affect many farms in the same region, which means risks can both be high (because the whole crop is affected) and widespread (everyone if affected at the same time). In light of these challenges, this research was guided by two principal questions.

Two central questions guide this report:

1. What rural infrastructure investments can have the most direct positive impacts on ending global hunger?
2. How can these infrastructure assets be sustainably financed?

¹ The IISD series of policy briefs on investment in agriculture is generously supported by the Swiss Agency for Development and Cooperation (SDC).

² For a broader range of effective public investments to improve food security, see the IISD policy brief on the topic, *Effective Public Investments to Improve Food Security*.

³ This brief is based on a longer IISD report, *Financing Rural Infrastructure: Priorities and pathways for ending hunger*

⁴ G20 Insights. (2017). *Key policy actions for sustainable land and water use to serve people*. Retrieved from http://www.g20-insights.org/policy_briefs/key-policy-actions-sustainable-land-water-use-serve-people/



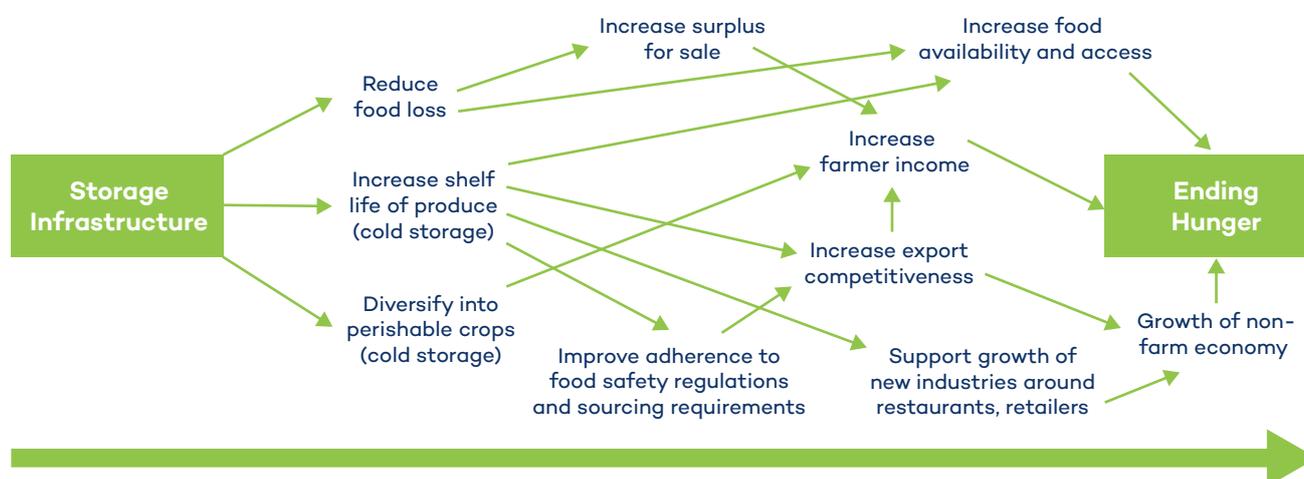
Priorities and Pathways

In the full report, a “long list” of infrastructure assets that affect rural development, poverty and food security was developed. That list was subsequently pared down using a literature review and expert interviews to achieve a list of **four infrastructure categories** that demonstrate the most robust and empirically verified relationships to ending hunger and promoting food security, while also persistently failing to attract adequate investment. The four assets that emerged from our analysis were storage infrastructure (including cold storage), decentralized renewable energy, feeder roads and irrigation infrastructure.

Storage	Decentralized Renewable Energy	Feeder Roads	Irrigation
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Using a “pathways” approach to map the potential relationships between an infrastructure type (storage, roads, energy, irrigation) and the outcome of interest (ending hunger), we focused on two principal mechanisms through which people facing food insecurity can access more food (and ideally more nutritious food): 1) growing more food for own-consumption (i.e., subsistence agriculture) and 2) generating income with which to buy additional food. Both of these pathways are legitimate and important approaches that co-exist in efforts to end hunger, and each is given equal importance in the analysis.

The pathways approach has emerged in the past decade as a way of studying sustainability transitions.⁵ The emphasis in a pathways approach is on the existence of multiple, alternative ways of achieving a goal or realizing a more sustainable outcome. This approach reflects the reality that determining causality is often hard, but that robust studies of socioeconomic changes before and after an intervention can show clear effects nonetheless, although there may be many potential causal explanations for the effect observed. Because infrastructure is integrative by nature, mediating between people, the environment, workplaces and a range of human activities, it is highly likely that infrastructure benefits go beyond those foreseen by project planners, both over time and across economic sectors.⁶



⁵ See, for example, Geels, F. W. (2010). Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research Policy*, 39(4), 495–510.

⁶ IISD’s Sustainable Asset Valuation (SAVi) tool assesses the extent to which environmental, social and economic risks and externalities affect the financial performance of infrastructure assets.



Financing Options for Rural Infrastructure

Developing financially viable infrastructure projects in rural agricultural regions poses a challenge. Projects often lack the stable revenue streams needed to repay the initial investment and cover operating costs but generate an attractive risk-adjusted return for investors. It is a common misconception, however, that financial viability is limited to revenue-generating assets. In fact, if the project does not have the ability to generate revenues on its own, through user fees for example, it can still be bankable if the government provides availability payments. Availability payments are fixed, periodic payments to the private contractor, paid upon condition that the contractor meets its contractual obligations and operates the project without any major disruptions. Bankable projects are indeed essential for engaging private capital in the financing of infrastructure, which is a necessary component of addressing the rural infrastructure deficit and ending hunger. But definitions of bankability should not be needlessly restrictive.



The report presents a wide range of financial instruments to consider, some of which have already proven successful in rural contexts and some that have yet to be tried in rural contexts but that look promising. The aim is to encourage governments and investors to **think creatively about revenue sources** and to look at the long-term returns. The objective is to position governments to better leverage their limited funds, to limit project risk and to mobilize private capital. For example, if the public sector is smarter about what it should subsidize, or about how it targets grants, or the project risks it takes on, this will encourage investors to rethink risk and opportunity and see the public sector as a reliable partner. Table 1 gives a sample of some of the financing approaches discussed in the longer report. Many of them are applicable to all four asset categories.

For the four infrastructure categories considered, we strongly recommend that governments and investors ensure the **participation of local communities and end-users** in the planning, construction, maintenance and—where appropriate and feasible—the financing of projects. This not only adds to the financial viability of rural infrastructure solutions, but it also has other important benefits, such as improved social acceptance of the projects and increased local employment. Such engagement can even potentially slow the deterioration of the asset by creating a sense of local ownership.





Table 1. Sample financing solutions for rural infrastructure

Asset Category	Examples of Financing Solutions
STORAGE infrastructure	<p><i>For small or community-scale storage projects, government-backed incentives can improve food security. Examples include:</i></p> <ul style="list-style-type: none"> • Dedicated storage funds: Government funds that finance exclusively storage projects through loans or grants. Both public and private entities and farming organizations should be eligible beneficiaries, and a certain percentage of the funding can be dedicated to projects located in food-deficit regions and/or below a certain size. • Preferential loans: Loan conditions that can support farmers and farming collectives include lower interest rates, longer tenor periods (time in which the loan is repaid) and longer grace periods (periods during which interest does not accrue). Preferential loans can be provided through a dedicated fund or through a partner bank, in which case the government makes up the difference between the market and the preferential interest rates. • Targeted fiscal policy: For example, time-bound tax exemptions or deductions for specific storage-related expenses and preferential import tariffs for any imported technologies or products. • Viability Gap Funds: Grants to support priority infrastructure projects that reduce the value of the loans required in relation to the cost of the project. Such grants increase the appeal of the investment to private banks and investors, encouraging the mobilization of private funding. Grants can be from domestic funds channelled through a scheme or fund structure, such as a Viability Gap Fund. Alternatively, grants can be sourced from international cooperation funds.
DECENTRALIZED RENEWABLE ENERGY (DRE) infrastructure	<p><i>A variety of investment incentives have been successfully used to create renewable energy capacity in both developed and developing countries. They include:</i></p> <ul style="list-style-type: none"> • Accelerated green depreciation: This accounting method allows eligible green assets to depreciate faster in the early years of the project, effectively providing a tax break for the owner of the asset. In practice, this decreases the cost of the asset by “borrowing” from the government in the form of upfront tax deductions. • Investment grants: These can range from financial aid to providing land-use rights free of charge for a limited time, providing the “bridging capital” that can enable DRE projects to become financially viable in rural areas. Only certain asset types and projects with a high economic and/or social multiplier should be eligible for these grants. • Blended capital: Projects with a high development impact can offer investment opportunities for impact investors, whose mandate allows them to make investments with subpar financial returns if the environmental and social benefits are high enough. These entities can provide risk capital (in the form of an equity investment, for example), which reduces the risk for other investors. • External credit guarantees: Development banks may be willing to take on one or more specific risks associated with the DRE project, such as credit risk (partial credit guarantee), construction risk or political risk. • Feed-in tariffs (FiTs): If and when renewable energy producers have access to the electricity grid, FiTs set the selling price of the electricity at a premium to the market price; additional costs are either paid by the customers of the utility or can be funded through a government scheme. FiTs can be used to support the development of renewable energy in a given region.

Asset Category	Examples of Financing Solutions
FEEDER ROAD infrastructure	<p><i>Different financing schemes exist in which the government or a government-related entity fills the revenue gap when it is not feasible to charge users for roads directly:</i></p> <ul style="list-style-type: none"> • Availability payments: In a public–private partnership, the public party pays a predetermined amount on a regular basis to the private party for the operation and maintenance of the asset for as long as the asset meets pre-agreed performance requirements. • Shadow tolls: The government pays a predetermined amount per user (depending on vehicle type and distance travelled) on an annual basis for the construction, operation and maintenance (O&M) of the asset. • Dedicated road funds: Government funds that finance road projects <i>exclusively</i>, such as feeder roads to remote areas, can encourage increased investment in road projects with strong positive links to food security. • Project bundling: Overcome the barriers of financing high-risk projects or projects with limited revenue potential by “bundling” a less commercially attractive project with a project (or projects) with a more favourable risk-return profile.
IRRIGATION infrastructure	<p><i>In a sector where ability and willingness to pay user fees are particularly challenging and politically charged, careful financing approaches can provide potential solutions. For example:</i></p> <ul style="list-style-type: none"> • Availability payments: In a public–private partnership, the public party pays a predetermined amount on a regular basis to the private party for the O&M of the asset for as long as they meet pre-agreed performance requirements. For example, in a water infrastructure investment, this might be linked to water-saving targets, and drought contingency plans might be required in the contract in areas where drought is already a risk or possible under climate change scenarios. • Investment grants: These can range from financial aid to providing land- and water-use rights free of charge for a limited time. The idea is to provide “bridging capital” that can enable projects to become financially viable in rural areas. Only certain projects with high projected economic and/or social multiplier effects should be eligible for these grants. • Incremental increases to user fees: If possible, grants should be used for upfront capital costs of new infrastructure, and user tariffs should reflect a portion of the O&M costs, increasing incrementally to cover all O&M costs as the benefits of infrastructure start to be realized.





Intermediate Infrastructure: The missing middle

Hard infrastructure is not by itself sufficient to transform food availability and rural incomes. The success of physical infrastructure interventions as a means to improve food security is deeply dependent on complementary services and human capacities, sometimes called “soft infrastructure.” Between hard and soft infrastructure is the “intermediate infrastructure” that links the two, such as transport, logistics, extension and standards-related services. For example, storage facilities require reliable management and transport services to get crops to collection points as well as reliable energy services to keep perishables cold. Focusing solely on increasing the quantity of installations is thus not enough. More must be done on the quality and efficiency of related services. Indeed, analyses of rural economic infrastructure increasingly reference the systemic inefficiencies that arise where proper intermediate services infrastructure is lacking.⁷

Ten Recommendations for Public Infrastructure Authorities and Policy-Makers

1. Promote an ambitious systems approach to food and agricultural investments to account for complex, inter-related challenges and feedback loops that can occur within and across sectors.
2. Collaborate with farmers and end-users in the design, planning, O&M of projects. They know their needs best.
3. Assess which projects have the highest multiplier effects for food security outcomes and establish project pipelines accordingly. By identifying these multipliers, international donor funding can also be secured more easily.
4. Think about financial viability or bankability not in the narrow sense (revenue through user fees) but in a larger and more long-term sense (over time, how can revenue sources evolve, and what is the government willing to invest—with other donors and investors—to improve food security?).
5. Use grants in a smart and efficient way. Instead of funding infrastructure projects outright, grants should be used to mobilize additional sources of funding.
6. Hone the ability of public procurement officials to design, assess and negotiate sound infrastructure projects. This is essential for the financial viability of projects. Well-designed financial solutions cannot compensate for poor procurement procedures.
7. Conduct value-for-money assessments before looking to private investors to see how to structure financing in a way that also provides value to taxpayers.
8. Focus not only on the quantity of infrastructure developed, but also on its quality and maintenance. Refurbishment and maintenance of existing infrastructure should also be a priority.
9. Create a market for “intermediate infrastructure” providers such as logistics and transport service companies that support improved value chains.
10. Combat corruption in all its forms. Corruption undermines the effectiveness of all investments, including infrastructure investments, and creates the risk of derailing efforts to end hunger.

⁷ ODI. (2013). *Targeting infrastructure development to foster agricultural trade and market integration in developing countries: An analytical review*. Retrieved from <https://pdfs.semanticscholar.org/043e/62efb6f053374d3f9e0fa772848ecfde7a76.pdf>

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