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Building a Path to Food Security: Strengthening Rural Infrastructure in Madagascar

Food insecurity is not always caused by a lack of food. Sometimes, food exists, but people cannot get it where it needs to go. This is a major problem in Madagascar. The country has fertile land and a large agricultural workforce, yet millions of people still struggle to get enough food. Madagascar is currently facing high levels of food insecurity, and more than 80 percent of its population lives on less than $2.15 per day (World Food Programme [WFP], n.d.). Agriculture employs around 80 percent of the population, which means that when farming systems struggle, entire communities feel the effects (WFP, 2024). One of the biggest problems is infrastructure. Poor roads, limited irrigation, and inadequate storage make it difficult for farmers to produce, transport, and sell food. Improving rural infrastructure would not solve every problem in Madagascar, but it could make a major difference in food security by helping farmers get their crops to markets, reducing food losses, and making rural communities more resilient to climate change.

Madagascar is the world's fourth-largest island and is home to a large rural population. Many rural families depend on small-scale agriculture for both food and income. A typical farming family may grow crops primarily to feed themselves while selling part of their harvest to pay for necessities such as school supplies, healthcare, clothing, and other food. This makes transportation especially important. If a family cannot get its crops to a market, it may have to sell them for very little money to someone who can transport them, or the crops may spoil before they can be sold. At the same time, the family may have difficulty buying food that does not grow itself. This creates a cycle where a family can work hard and still struggle to earn enough to meet its basic needs.

For a rural farming family, these challenges are connected to everyday decisions about food and income. Many farmers produce primarily for their own households and sell whatever is left to pay for necessities such as soap, sugar, school expenses, healthcare, and other supplies. The International Monetary Fund reports that farmers in rural Madagascar often depend heavily on rain-fed agriculture and sell only their surplus production, while poor roads make it difficult to reach markets and limited storage can cause crops to spoil before they are sold (Fayad, 2023). This means that a family can have a successful harvest but still struggle financially if it cannot get that harvest to a buyer. The problem becomes even greater when a drought or cyclone damages crops or roads. The World Bank has also found that rural farmers who are isolated from markets face lower incomes and fewer economic opportunities (World Bank, 2024). For these families, infrastructure is not simply a development issue. It can determine whether the food they grow becomes food on their table, income in their household, or a crop that is lost.

The problem is especially serious in rural areas because poverty is much higher there than in cities. According to the World Bank, 79.9 percent of Madagascar's rural population lived in poverty in 2022, compared with 55.5 percent of the urban population (World Bank, 2024). Rural families also face limited access to basic services. Only about 36 percent of the rural population has access to improved water sources, and only about 10 percent of the country's population uses basic sanitation facilities (UNICEF,

n.d.). These conditions affect health and nutrition and make it even harder for families to escape poverty. When people are already spending most of their income on basic necessities, a poor harvest or damaged road can have serious consequences.

Infrastructure is one of the biggest factors connecting these problems to food insecurity. Infrastructure includes the roads, irrigation systems, storage facilities, electricity, and other systems that allow food and resources to move efficiently. In Madagascar, rural infrastructure is particularly weak. The World Bank reports that Madagascar has one of the least developed road networks in the world. Only about 11.4 percent of the rural population lives within two kilometers of an all-season road, leaving an estimated 17 million rural residents without reliable road access (World Bank, 2023). For a farmer, this can mean that getting a crop from a field to a market is not a simple trip. A road that becomes difficult or impossible to travel during heavy rain can separate a farmer from a buyer, a school, a hospital, or a source of supplies.

The effects of poor roads can be seen in places where infrastructure has already been improved. In one World Bank project, a 40-kilometer section of Madagascar's RN44 was rehabilitated. Travel time between Marovoay and Vohidiala dropped from eight hours to three hours. Farmers also gained better access to markets, and some rice farmers more than doubled their incomes after transportation improved (World Bank, 2023). This example is important because it shows that better infrastructure is not just an idea. It has already produced measurable changes for Malagasy communities.

Roads are only one part of the problem. Farmers also need reliable water and places to store their crops. Much of Madagascar's agriculture depends on rainfall, making farmers vulnerable to drought and unpredictable weather. Irrigation can help farmers produce more consistently when rainfall is limited. Storage is also important because food that is harvested but cannot be stored safely may be damaged or lost before it reaches consumers. The World Bank has identified inadequate rural infrastructure, including roads, electricity, and water systems, as a major barrier to agricultural production, marketing, and value-added activities in Madagascar (World Bank, 2025).

These problems are likely to become more difficult in the future if climate change continues to increase the frequency and severity of droughts, cyclones, and flooding. Madagascar is already highly exposed to these events. Southern Madagascar regularly experiences drought, while southeastern areas are vulnerable to cyclones and flooding (WFP, n.d.). Climate shocks can destroy crops, damage roads, interrupt transportation, and leave families without income at the same time. This means that infrastructure should not only be built to work during normal conditions. It needs to be designed to withstand the conditions Madagascar is likely to face in the future.

Food insecurity also affects much more than whether a person has enough to eat. Poverty, poor health, limited education, and inadequate sanitation are all connected. Children who do not have enough nutritious food can have problems with growth and development. Poor sanitation and limited access to clean water can contribute to disease and chronic malnutrition (UNICEF, n.d.). When roads are poor, reaching a hospital or school can also become more difficult. The World Bank's poverty assessment found that Madagascar's lack of investment in infrastructure, connectivity, education, and healthcare has contributed to persistent poverty (World Bank, 2024). These problems reinforce each other. A family with low income has fewer choices, and every additional obstacle makes it harder to improve its situation. Because infrastructure is connected to so many parts of food security, I believe Madagascar should focus on a rural infrastructure program centered around three priorities: roads, small-scale irrigation, and

community storage facilities. Instead of trying to rebuild the entire country at once, the program should begin in rural agricultural areas where poor infrastructure is preventing farmers from reaching markets.

The first step would be identifying the roads that would have the greatest effect on farmers. The government, local communities, and agricultural organizations could work together to identify the main routes farmers use to transport rice and other crops to nearby markets. These roads should be prioritized based on the number of farmers who depend on them, the amount of food transported, and how frequently the roads become unusable during bad weather. This would prevent money from being spread across hundreds of projects that are difficult to maintain. The goal should be to improve the roads that connect the largest number of farmers to markets first.

The next step would be hiring local workers to help repair and maintain those roads. This would make the project about more than transportation. It would also create jobs in communities that need additional income. Maintenance should be included from the beginning instead of waiting until roads become damaged again. Culverts, drainage systems, and bridges should be designed to handle heavy rainfall and flooding so that roads remain usable for as much of the year as possible. This is especially important because Madagascar's climate makes infrastructure vulnerable to repeated damage.

The second part of the plan would focus on irrigation. Large irrigation systems can be expensive and difficult for small communities to maintain, so the program should begin with smaller projects that local farmers can manage. Depending on the region, these could include small canals, rainwater collection systems, or community-managed irrigation areas. Local farmers should help decide which systems make sense for their communities. They should also receive training on maintaining the systems and using water efficiently. This would make the projects more sustainable because farmers would not have to depend entirely on outside organizations after construction is finished.

There are already examples of this type of approach in Madagascar. The World Food Programme and International Labour Organization are currently supporting projects involving irrigation, storage facilities, and other agricultural infrastructure in several regions of the country. These projects are designed to improve food security while also creating employment and increasing climate resilience (International Labour Organization, 2025). Madagascar's existing projects could provide useful information for expanding successful approaches to other communities.

The third part of the plan would be improving food storage. Farmers should have access to simple, affordable community storage facilities close to where crops are harvested. These facilities would not need to be complicated or expensive. Depending on the crop and location, they could include improved drying areas, protected storage buildings, or other structures designed to reduce damage from moisture, pests, and extreme temperatures. Farmers could manage the facilities through local cooperatives, allowing several families to share the cost and responsibility.

Storage would also give farmers more choices about when to sell their crops. If a farmer has nowhere safe to store a harvest, they may have to sell immediately, even if prices are low. A safe storage facility could allow farmers to wait for a better opportunity to sell instead of losing money because of poor timing. Better roads and storage would therefore work together: storage would protect the food, while roads would help move it to the people who need it.

Funding would need to come from several sources rather than relying on one organization. The Madagascar government should provide part of the funding and oversee the program, while international organizations such as the World Bank, WFP, and other development partners could provide financing and technical assistance. Private agricultural organizations and local businesses could also contribute to specific projects. International funding is already being used for rural infrastructure and food-security programs in Madagascar, so the proposed plan would build on systems that already exist rather than creating an entirely new structure (WFP, 2025).

Transparency would be one of the most important parts of the program. Each project should have a publicly available budget showing how much money was provided, what it was used for, and who was responsible for the work. Local community members should also have a role in monitoring projects. This would help reduce the risk of money being lost through poor management and would give communities a reason to trust the program.

Most importantly, Malagasy communities need to be involved in deciding what gets built. Outside organizations can provide money and technical knowledge, but they cannot know every community's needs. Farmers know which roads flood, which crops are most important, and which areas need irrigation. Local leaders and farmers should therefore help choose projects and participate in managing them. This would also make the infrastructure more likely to last because people would have a reason to take care of something they helped create.

This plan would not solve food insecurity in Madagascar overnight. Roads can be damaged by cyclones, irrigation systems require maintenance, and storage facilities require people to manage them. There would also be challenges with funding and government capacity. However, the fact that infrastructure improvements have already increased market access and farmer incomes shows that targeted investments can work (World Bank, 2023). Madagascar does not need one giant project that attempts to fix everything at once. It needs smaller projects that are chosen carefully, connected to one another, and maintained over time.

Food insecurity in Madagascar is not simply a problem of farmers failing to produce enough food. It is also a problem of whether that food can get from a farm to a family. When a road is impassable, a farmer can lose income. When there is no irrigation, a drought can destroy a harvest. When there is no safe storage, food can be lost after it has already been grown. Each of these problems makes it harder for families to afford the food and services they need.

Madagascar already has many of the resources it needs to make progress. It has farmers, agricultural land, communities with local knowledge, and organizations already working on rural development and food security. The challenge is connecting those resources with infrastructure that allows them to work. By improving the roads that farmers depend on, expanding small-scale irrigation, creating community storage, and giving local people a role in planning and maintaining these projects, Madagascar could begin breaking the cycle between poor infrastructure, poverty, and food insecurity.

What stands out to me most about Madagascar's situation is that the solution does not have to begin with something enormous. A repaired road can mean a farmer reaches a market. A working irrigation system

can mean a crop survives a dry season. A storage building can mean food that would have been wasted is available to a family later. Those changes may seem small individually, but together they can give rural families more opportunities and more control over their futures. Madagascar cannot eliminate every challenge facing its people at once, but investing in the infrastructure that connects farmers, food, and communities would be an important place to start.

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