

## Lessons from Scaling Up

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### Recycling Cassava Waste – a Triple Win for Development *A Case Study From Nigeria*

The new “Lessons from Practice: Assessing Scalability” report aims to provide specific tools and guidance to World Bank Task Team Leaders (TTLs) and other agricultural development specialists which can assist them in identifying the potential for scaling up small, innovative projects throughout the entire project cycle – from inception through completion. The report, developed in collaboration with the Heller School for Social Policy and Management at Brandeis University, draws on lessons from the experience of the Development Marketplace (DM) in funding small innovation projects and offers strategic advice to agricultural practitioners on assessing the scalability of such projects. This Note is based on a case study in Nigeria from the report.

Scaling up effective agricultural interventions is integral to reducing poverty on a global scale. Furthermore, effective scaling up requires the identification of key lessons and recommendations which can help identify necessary components for continuing the effectiveness of these interventions. Recognizing these needs, a case study was undertaken in by the World Bank’s Development Marketplace, in collaboration with the University of Agriculture in Abeokuta (UNAAB), to explore the innovative features of a cassava waste intervention being implemented in Nigeria in order to better understand the lessons of scalability being generated by this project. The “Adding Value to Waste in the Cassava Processing-Goat Keeping Systems in Nigeria” project was designed to create new linkages in market value chains through the provision of cassava waste as goat fodder, offering the “triple win” potential of developing new market opportunities, introducing higher-nutritional feed to goat farmers, and reducing harmful effects caused by the traditional practice of burning cassava. The project provides a measureable economic benefit for both cassava processors and goat farmers who earned an average of less than \$2 a day. By introducing a dynamic theory of change, developing several key innovations and continuing to address scaling up as an iterative process, this project has not only been effective in addressing the development needs of rural populations in Nigeria, it has also provided key insights into lessons for successful and sustainable scaling up.

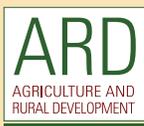
#### THEORY OF CHANGE (TOC)

One of the most instructive components for scaling up this project offers is a simple **Theory of Change** (TOC) which helped produce economic and social

change by increasing the income of poor rural farmers and improving their ability to afford food, health care, and basic household necessities. By introducing the simple technology of a drying platform to remove harmful arsenic from cassava waste – making it safe for animal consumption – this project was able to create a new pathway to economic development for both cassava producers and goat herders. Through the introduction of this



A rural farmer in Nigeria bags dried cassava from a drying rack. Photo: ARD.



new drying technique the project created economic incentives for both producers – who can now earn money from the previously discarded waste – and goat herders – who are able to improve the nutritional well being of their stock and raise goats in nearly half the time previously required. This TOC helped introduce adequate economic incentives required to ensure beneficiary buy-in and long-term project sustainability.

Furthermore, by recognizing **scaling up as an iterative** process, the project was able to provide continual assessments on scaling up – resulting in the expansion of this innovation to an additional 21 locations throughout Nigeria and an increase in the number of drying platforms from 24 to 33. This expansion resulted in an upward revision of expected increases in annual incomes for cassava producers of more than 60% – from \$384 to \$635 (after the initial cost of \$165 for the drying platform) – and led to increased demand from extension agents and the communities they serve. Likewise, goat farmers also benefitted from the introduction of dried cassava as goat fodder, which produced healthier goats in half the time – providing additional annual income of up to \$128 that is now being used to expand their business, buy additional goats and improve pens where the goats are kept.

## INNOVATION

In addition to implementing a simple and strategic TOC, the *Adding Value to Waste in Cassava Processing-Goat Keeping Systems in Nigeria* project provided key insights for the creation of broader lessons and recommendations on scaling up by highlighting the role simple and complimentary innovations can play in promoting scaling up goals. This project was comprised of five key innovations: a **simple technology** (a drying platform for the cassava peels to be used instead of burning the waste), a **new product** (clean dried cassava peels that can be sold as goat feed), an **educational component** (a diet prescribed to goat farmers, designed by animal scientists that utilizes cassava peels and maximizes the growth rate and health of the goats), **access to credit** (facilitating micro-credit loans to build the drying platforms), and a new **market mechanism** (linking cassava processors and goat keepers). The integration of these innovations provides a pathway for beneficiaries to more easily adopt the necessary elements of change and adapt to the development mechanisms introduced by this intervention.

### Project Lessons for Scaling Up

**Simplicity** – this project employs simplicity in its innovation and TOC to achieve scalable goals.

**Scaling up is an iterative process** – continuous adherence to the scaling up processes resulted in this project increasing its scale and reach – demonstrating scalability during initial implementation.

**Behavior change via simple TOC** – by implementing a simple and focused TOC this project was able to encourage buy-in at the beneficiary level and create sustainable economic and environmental improvements.

## TRIPLE WIN

Through the incorporation of simple and complimentary innovations, the development of a straightforward and effective Theory of Change and a continued adherence to the processes of scaling up, this project was able to improve the rural livelihoods of Nigerian cassava producers and goat herders alike. In addition to these economic benefits, this project was also able to provide a “triple win” through the added value of an environmental gain. The introduction of an economically viable solution for utilizing cassava waste meant that this waste was no longer disposed of in the traditional manner of burning this waste. By creating a disposal mechanism that did not require cassava waste to be burned, this project was instrumental in completely eliminating emissions of carbon monoxide in 28 processing centers across Nigeria.

## CONCLUSION

The *Adding Value to Waste in Cassava Processing-Goat Keeping Systems in Nigeria* project was successful in improving both the economic and environmental landscapes in Nigeria. This triple win project was also instrumental in illuminating key lessons for scaling up practices. By targeting vulnerable populations living at the margins of poverty the additional income created by this intervention is able to improve the living conditions of thousands of families. By showing promise for further scaling up at the national, regional and global levels, this project paves the way for these benefits to reach millions of others.

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