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TUBORESHE CHAKULA
Final Report

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PREFACE AND ACKNOWLEDGEMENTS

The end of a project is the appropriate time to reflect on what it accomplished. Under USAID Tuboreshe Chakula, a Feed the Future project, the U.S. government worked closely with Tanzania's national and local government, and nearly 90 other collaborators to improve the competitiveness of rural value chains and enhance the livelihoods of those engaged in them. This report records the big picture and provides valuable insights for future implementers of competitiveness and food security projects in Tanzania, so they can build on this significant experience.

Tuboreshe Chakula was a private sector-led agribusiness development project with a nutrition outcome that spearheaded new products and technologies to introduce fortified, safely processed staple foods into the marketplace. This was accomplished with local partners willing to integrate and apply new practices and products into their business. We wish to thank the hundreds of business owners who participated in project activities. It was our pleasure to work with you.

No strides can be made within the private sector without active support from the public sector, and we were particularly grateful in this regard for input and feedback from the Government of Tanzania, particularly the Prime Minister's Office, the Ministry of Health through the Tanzania Food and Nutrition Center (TFNC), the Tanzania Food and Drug Administration (TFDA), and the regional governments of Morogoro, Dodoma and Manyara as well as the Government of Zanzibar.

The substantial and sustainable accomplishments of Tuboreshe Chakula would not have been possible without the talents and commitment of our partners, counterparts, clients, and beneficiaries. The vision of USAID/Tanzania guided U.S. government support and investment from the outset; the mission continued to provide technical guidance and management oversight throughout the project's operation. Abt Associates particularly wishes to acknowledge the initial Feed the Future "architects"—Tom Hobgood and David Nyange—and their successors and more recent USAID technical managers, Janeth Said, David Charles, and Randy Chester. Throughout, USAID staff gave the project team critical support and guidance. We are also grateful to USAID for granting a project extension that allowed us to ensure the fortified foods were flowing into the marketplace and our business partners were sufficiently networked to ensure sustainability.

Abt also owes a debt of gratitude to our subcontractors, all of whom are cutting-edge practitioners in their fields: TechnoServe, Trace, InnovisionIT, and Scanad.

The entire Tuboreshe Chakula team knew this project was special: Our collective vision was a healthy Tanzania where all people thrive. Local staff members were proud to contribute in a meaningful way to the health of their own families and build strong future generations. At full staffing, four of six expatriates were fluent or nearly fluent in Swahili, and five of six were returned U.S. Peace Corps volunteers, four of whom served in Tanzania. The project was united in our drive to open a pathway for fortification and food safety in processed staples foods and MNP in Tanzania.

Rebecca Savoie, Chief of Party
USAID Tuboreshe Chakula, a Feed the Future project

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ACRONYMS

A2F	Access to Finance
AECF	Africa Enterprise Challenge Fund
AGRA	Alliance for Green Revolution in Africa
BA	Business Advisor
BCC	Behavior Change and Communication
BDS	Business development services
BRELA	Business Registration and Licensing Authority
CBO	Community- Based Organization
CCHP	Comprehensive Council Health Plan
CEZOSOPA	Central Zone Sunflower Processors Association
COP	Chief of Party
COR	Contracting Officer's Representative
CRDB	Cooperative & Rural Development Bank
DCT	Diocese of Central Tanzania
DCA	Development Credit Authority
DFID	Department for International Development (UK)
DOFPA	Dodoma Food Processors Association
FAO	Food and Agriculture Organization of the United Nations
FMCG	Fast moving consumer goods
FTF	Feed the Future
GAIN	Global Alliance for Improved Nutrition
GMP	Good Manufacturing Practices
GoT	Government of Tanzania
HACCP	Hazards Analysis of Critical Control Points
HH	Household
HKI	Helen Keller International
IEC	Information, Education and Communication
IP	Feed the Future - Implementing Partners
LGA	Local Government Authority
LOP	Life of Project
M&E	Monitoring and Evaluation
MB	Mwanza Bora - the FtF nutrition project
MBS	Market-Based Solutions to Reduce Poverty and Improve Nutrition
MFI	Micro-finance institution
MNP	Micronutrient Powder
MoHSW	Ministry of Health and Social Welfare
MOU	Memorandum of Understanding
MSME	Micro-, small, or medium-sized enterprise
MT	Metric tons

NFFA	National Food Fortification Alliance
NGO	Nongovernmental organization
NMB	National Microfinance Bank
OHS	Occupational Health and Safety
PCP	Processing and Consumption Project
PFS	Partners in Food Solutions
PHH	Post-harvest handling
PMP	Performance Management Plan
RCH	Reproductive and Child Health
SACCOS	Saving and Credit Cooperative Societies
SIDO	Small Industries Development Organization
SME	Small and Medium Enterprise
SNV	Netherlands Development Organization
SOLEO	Social Liberation and Empowerment Organization
SOW	Scope of Work
STTA	Short term technical assistance
SUA	Sokoine University of Agriculture
TAFOPA	Tanzania Food Processors Association
TAHA	Tanzania Horticulture Association
TAPP	Tanzania Agriculture Productivity Program
TBS	Tanzania Bureau of Standards
TC	Tuboreshe Chakula
TFDA	Tanzania Food and Drugs Authority
TFNC	Tanzania Food and Nutrition Centre
TIB	Tanzania Investment Bank
TNS	TechnoServe
TOR	Terms of Reference
TWCC	Tanzanian Women's Chamber of Commerce
UBS	Unified Baseline Survey
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UWAMA	Umoja wa Wanawake wa Madizini (Mandizina Women's Assoc)
VAT	Value-added tax
VHW	Village Health Worker
WB	World Bank
WFP	World Food Programme of the United Nations
ZOI	Zone of Influence

EXECUTIVE SUMMARY

From 2011 to 2015, the USAID Feed the Future project Tuboreshe Chakula (Swahili for "Let's Improve Food) charted a unique course by establishing commercial channels to realize the vision of a healthy Tanzania. Through new products, stronger staple processing businesses, multiple awareness campaigns, and dynamic collaborations, the project boosted both supply of and demand for fortified foods in regions long plagued by malnutrition.

The problem was clear: In the project's target areas *(see map),* 42 percent of children suffer from stunted growth or anemia—or both. Fortification has long been recognized as a means to get essential vitamins and minerals into processed staples. In 2011, Tanzania's government mandated fortification for all edible oil, wheat and maize flour, clearly prioritizing it as a tool to fight malnutrition.

While large, urban-based millers were able to quickly integrate fortification into their established processes, Tuboreshe Chakula (TC) was charged with pioneering fortification in rural areas, focusing on small and medium enterprises. To fortify, processors would first have to upgrade their businesses to meet national certification standards, which often required multiple improvements: revamped infrastructure, recordkeeping, adherence to good manufacturing processes, food safety systems, and adoption of new technologies. In short, *business solutions* to ultimately achieve and sustain better *nutrition outcomes*.

Ultimately, Tuboreshe Chakula applied this market-based paradigm to five new and improved nutritious or staple products, including a commercial home fortification supplement for children called *Virutubishi*, a protein-rich recipe for blended flour, and a specially adapted machine called a *dosifier* to add fortificant to maize flour. In parallel, TC boosted awareness and understanding of fortified foods, training over 7,000 community leaders, conducting informational campaigns that directly reached over 50,000 people, and publishing numerous guides and brochures. Surveys in the project's final months showed that it succeeded in increasing the flow of fortified foods into the marketplace—and that demand was also rising for fortified foods *(see box).*

LIFE OF PROJECT ACHIEVEMENTS

- From **zero to 50% consumption of fortified flour** among surveyed populations.
- **52% of shops surveyed stocking fortified flour** in target regions.
- Among surveyed families with children under 5, **35% were using *Virutubishi* micronutrient powder,** up from zero in 2013.
- **7,960 individuals trained** in fortification, basic business management and administration.
- **60% of project-assisted businesses** operating more profitably.
- **$2.9 million in loans** for project clients from commercial banks, social impact funds and microfinance organizations.

To sustain and accelerate this trend, TC handed over stewardship to several public and private entities, including District/Municipal Nutrition Steering Committee members and the Council Health Management Team members in the project's eight districts. These stewards were part of the larger group of over 90 government, private, financial and donor collaborators the project had during its life, many of whom participated in the project's final learning event, "Food Fortification in Tanzania: Past, Present, and Future," in April 2015. This conference also launched the project's final push to spur demand: a nationwide multimedia campaign *(see poster)* to be continued under the direction of Helen Keller International, with funding from GIZ, both of which collaborated frequently with Tuboreshe Chakula.

THE ROAD TO FORTIFICATION

When it launched in 2011[1], the only project within USAID/Tanzania's Feed the Future portfolio charged with increasing food fortification faced an uphill task. Tanzania had approved a fortification logo in 2003 and in 2011, mandated fortification for all locally processed wheat, maize and oil. But there was no locally produced fortified maize flour, and most fortified sunflower oil was imported. Vitamin supplements for children under age 5—the age when malnutrition can lead to lifelong damage—were given in the form of annual national Vitamin A supplementation or commercially sold multivitamins, often not formulated specifically for children. And despite the logo, few people in the project's target zones understood how fortification could improve the nutrition of general and vulnerable populations—or how to integrate fortification into processing and everyday consumption.

Stunting and other forms of malnutrition in target regions were already high, and the pressure was growing: The population of Tanzania is expected to double in the next 20 years, with over half of the population moving to urban areas by 2030. Fewer people will grow the food they eat, and more will purchase processed foods such as milled maize flour. Fortifying these foods with essential vitamins and minerals is a key step in heading off chronic problems caused by childhood malnutrition.

Working on multiple fronts, Tuboreshe Chakula (TC) pioneered new technology and processes for business partners, and spearheaded new products and distribution systems for the general public—all within economically vulnerable regions that also suffered from high levels of stunting. The road to fortification was often an uphill one, requiring business transformation, introduction of food safety systems, creation of supply chain management systems, and educational yet assertive marketing to answer consumer suspicion of fortified products.

2011-2012: Testing the ground

Tuboreshe Chakula launched in April 2011 with four components—enterprise development (business advisors or BAs), food technology, capacity strengthening, and behavior change/communications (BCC)—all of which would train various populations. Additionally, the enterprise development team and food technology team would offer business development services (BDS) to help 600 very small-scale millers fortify their products and significantly upgrade their management practices, while the BCC team would focus on increasing sales and consumption of nutritious foods.

In September 2011, the project delivered to USAID an assessment of food security and malnutrition in Feed The Future regions *(see Annex 16)*, which showed the following levels:

Districts with high food vulnerability and malnutrition, 2003-11

District		Vulnerable out of 9 seasons	Malnutrition <2%
MOROGORO	Morogoro Rural	5	1.9**
DODOMA	Chamwino*	5	2.9
	Kongwa	5	2.6
	Mpwapwa	4**	2.8
	Bahi*	5	2.1
MANYARA	Simanjiro	8	1.6**

*Bahi and Chamwino are new districts carved out of Dodoma Rural
** Districts meeting either criterion are included

[1] This USAID/Tanzania Feed the Future project was contracted as the Tanzania Market-Based Solutions to Reduce Poverty and Improve Nutrition (MBS). Later, it was briefly known as the Processing and Consumption Project and then Tuboreshe Chakula (TC), which means Let's Improve Food in Swahili. This last name became the most widely used, though official contract documents still bear the original name.

TC also conducted several market and business surveys in its initial months. Major findings included:

Initial market survey: August-September 2011

- Most households and mills have no concept of what fortification is
- Over half of households with children under 5 prepare blended flours (indicating parents are trying to improve child nutrition). Households select the ingredients, not the millers, who just grind whatever the household brings in.
- Mill revenue varies from under $5,000/year to $300,000. Most toll millers average $5,000.

Diagnostic assessment of consumption and demand: December 2011

- Cooking oil and maize flour (hulled, sifted white maize flour) eaten daily
- High levels of mistrust of packaged flour blends
- Consumers expressed strong interest in micronutrient powders
- Middle-income groups in all regions interested in buying fortified sunflower oil
- Retailers very eager to begin supplying fortified foods and micronutrient powders
- Education through point of sale materials key in raising demand

Equipment needs assessment of maize, rice and sunflower oil millers: February 2012

- Hygiene, food safety and worker safety little understood and must improve in most mills
- Parts readily available in major towns like Morogoro and Dodoma; prices higher than Dar, but not exorbitant
- Local equipment manufacturers cannot compete with the price of mass-produced parts and equipment imported from India and China
- Most mills could benefit from trained staff and process improvement around supply chain management
- High moisture content is a serious problem in all three value chains

Sales and consumption of nutritious foods survey: May-August 2012

- Daily mill output very low: maize-905 kg; oil-586 kg; blended flour-20 kg
- Only 14 out of 197 shops stocked blended flour; average sales were 13 kg per week
- Out of 606 households surveyed, 44% consume blended *uji* weekly; 59% occasionally. 88% take ingredients to a mill for blending; only 17% ever buy blended flour from a blender or shop. Most common ingredients in blended flour: maize, millet and groundnuts, then soya.
- No households consume fortified maize flour or cooking oil because these products aren't on the market except as imports.

The project also conducted capacity assessments of the Tanzania Food and Drugs Authority, Tanzania Food and Nutrition Centre's Rural Fortification Program and CEZOSOPA, the Dodoma regional association of sunflower oil millers, to identify how best to link these organizations and programs with the work under Tuboreshe Chakula.

By early 2012, assessments were revealing the enormity of the task to help 600 very small-scale millers fortify their products.[2] TC made a course correction: First, the project would focus on the larger of the small millers, sometimes referred to as "progressive millers," who would be better able to fortify maize and oil; remaining small-scale millers would get basic training and BDS. Second, to get nutritious food into the market, the project would assist blenders—those who prepare *lishe* mix or "power flour" by blending millet or maize with a protein, usually groundnuts or soya, and other ingredients— and introduce micronutrient powder (MNP) into Tanzania.

[2] Discussed in detail in the January-March 2012 quarterly report.

The project team began building its roster of clients, including an initial group of seven medium-scale enterprises and 130 small-scale processors, as well as seven individual blenders,12 blender cooperatives and one association with a total of 141 blenders, of whom 133 are women. By the end of FY 2012, TC was also working with two processor associations and three government institutions.

2013: Hitting project stride

Tuboreshe Chakula interviewed its client processors about their financing needs and abilities, finding that the No. 1 financing need was commercial loans for raw material purchases—although all already had access to a raw materials credit facility—and that 60% had an existing loan with a bank. Despite this, only 50% of these small and medium enterprises (SMEs) prepared audited accounts.

To accelerate credit for producers, TC launched Access to Finance (A2F) workshops, with participation from CRDB Bank, NBC, Barclays Bank, Private Agricultural Sector Support (PASS) and Small Industries Development Organization (SIDO). The project also partnered with private BDS providers to conduct accounting and financial management workshops for processors, followed by networking sessions. The Tanzania Revenue Authority and Tanzania Chamber of Commerce held sessions for project clients on the country's SME tax policy and industry associations. Thanks to this focus on access to finance, the number of loans to client processors increased from two in 2012 to 53 in 2013, worth $653,275.

The project launched two major fortification innovations. To address the specific nutritional needs of young children, Tuboreshe Chakula sourced a micronutrient powder, branded it *Virutubishi*, shepherded it through government approvals and organized a campaign to accompany distribution. By the end of the year, around 1.6 million sachets of MNP had been distributed.

In May 2013, Tuboreshe Chakula's food technologist Ladislaus Ikombe, at left, showed an early model of the dosifier to Tanzania's President Jakaya Kikwete.

TC identified a technology provider with a solution for adding fortificant to maize in small hammer mills, the main source for maize flour in most rural areas.[3] Under the parent organization of the NGO Project Healthy Children, Sanku had been testing a machine called a *dosifier* in Asia for two years, and teamed with TC to explore the market for this technology in Africa.

TC developed a facilitators' training manual about nutrition for blended flour processors and trained Maasai women in Kiteto on how to make blended flour with a more nutritious recipe *(see Annex 14).* The project provided coaching and training to 11 blended flour groups on producing safe and nutritious blends that can then be marketed for household income.

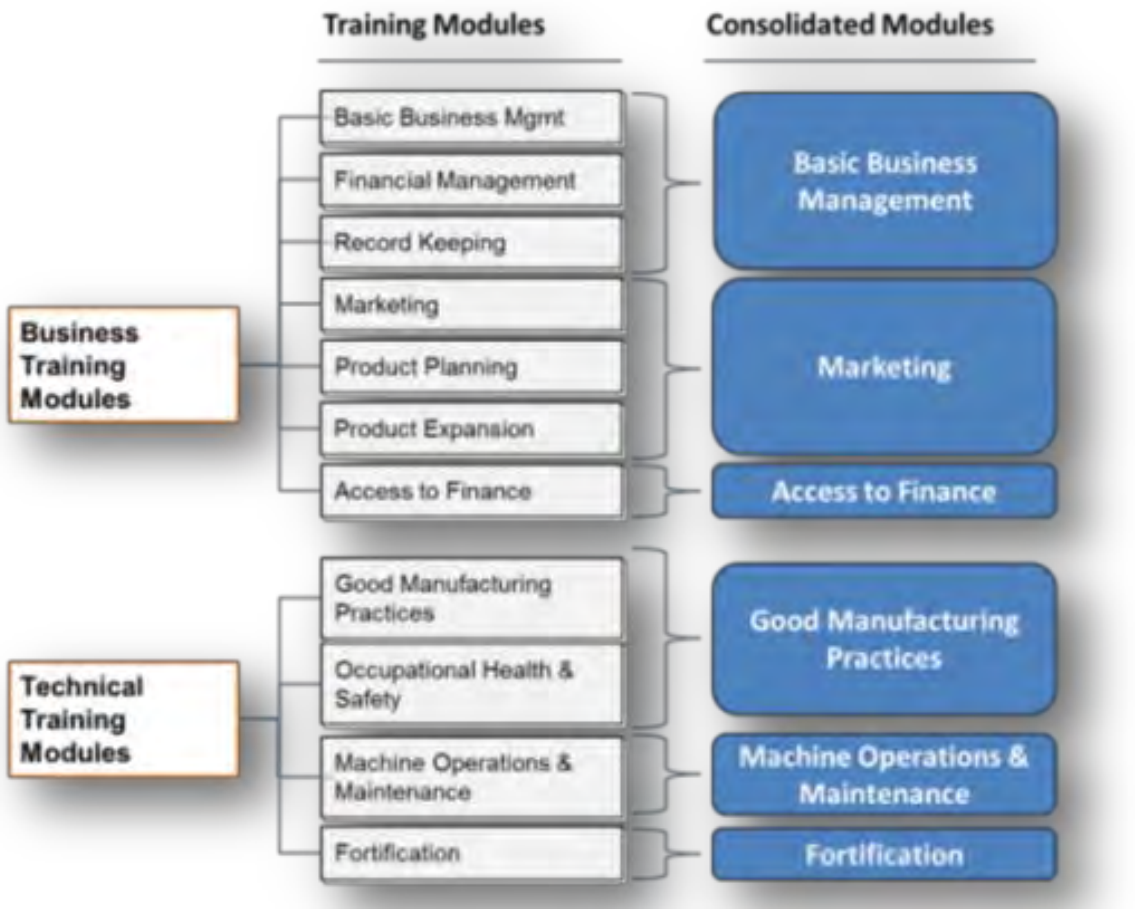
By the end of FY2013, TC met or exceeded all Feed the Future targets. The project was working with 405 processors, 262 of whom were operating more profitably. The project provided BDS to over 340 businesses and trained over 4,000 individuals on good manufacturing practices, record keeping, and occupational health and safety; plus government and village health workers on understanding and promoting nutritious foods. TC also awarded over $1 million in 94 grants—81 for moisture meters and 13 for equipment upgrades—and strengthened the capacity of 10 new processor associations and the eight local government authorities.

2014: Focus on market barriers and flows

As its business development services program matured, TC adopted a client graduation approach with two tracks: those who successfully completed all modules, and those who had not implemented any elements of training. The project also condensed its 12-module training to three business modules and

[3] Another means of adding fortificant to maize flour is using a micro-feeder, which attaches to a larger mill.

three technology modules, as few processors were able to attend 12 separate sessions. The consolidated modules allowed business advisors to spend more time on topics critical to a specific business partner.



Under the direction of new COP Rebecca Savoie, formerly TechnoServe Country Director, the project partnered with relevant local and regional organizations to address major gaps in processors' capacity to start fortifying:

- *Lack of machinery maintenance:* The project engaged SIDO to train *super fundis*—highly skilled craftsmen capable of doing machine maintenance as well as minor and major repairs— from Manyara, Morogoro and Dodoma.
- *Infrequent business formalization:* TC organized two business formalization workshops with presentations from the Business Registration and Licensing Authority (BRELA), District Government Trade Officers, Tanzania Revenue Authority (TRA) GS1, a bar code certification authority, Small Industries Development Organization (SIDO) and Tanzania Chamber of Commerce Industry and Agriculture (TCCIA).
- *Shortage of quality grains:* The project's post-harvest handling and mycotoxin control training—jointly facilitated with its sister project NAFAKA and ICRAF, the International Centre for Research in Agroforestry in Kenya—explained techniques for improving and maintaining yield quality and reducing losses due to pest invasion and poor storage.

In February and March, the project conducted a major educational campaign to promote demand of Virutubishi, then in the market for one year. The campaign included community leader trainings and events at schools, clinics, shops in all eight mainland districts plus both islands of Zanzibar, directly reaching 28,500 people.

In July, the project refocused attention on increasing flow of fortified foods into the market and realigned staff along product lines: maize, oil, MNP, blended flour *(lishe)*, and rice *(see next section,* Product Focus, *for an extensive discussion of this realignment).*

In FY14, TC significantly exceeded its targets for profitability (127%), improved technology and management (141%), training (601%), value of loans (392%), BDS (343%), and MNP consumption (181%).

At a project campaign event in Dareda in February 2014, a government official feeds a child porridge mixed with Virutubishi micronutrient powder.

2015: Setting sustainability into place

In December 2014, Tuboreshe Chakula received a no-cost extension through June 2015.

The project collaborated with Partners in Food Solutions (PFS) to help selected project clients create tailored business plans and sales and marketing charters—essential documents for a business to understand its customers and grow over time. These should have a direct impact on boosting the amount of fortified maize and sunflower oil entering the market. TC also organized an energy audit—cost-shared with GAIA, a successful South African renewable energy company—of several maize and oil clients to evaluate their energy consumption and identify cost-saving measures.

PARTNERS IN FOOD SOLUTIONS
Connecting Expertise with Opportunity

From October 2011to March 2015, 51 experts from **Partners in Food Solutions**—a nonprofit formed by General Mills, DSM, Cargill, and Buhler offering technical assistance—volunteered 3,719 hours, valued at $435,100.

Aflatoxin control and testing continues to be a priority area for the Government of Tanzania—from the perspectives of consumer protection under the TFDA and post-harvest handling under Ministry of Agriculture and Tanzania Bureau of Standards and others. In January, TC and PFS organized training on aflatoxin control and testing, attended by 61 representatives of 55 companies and six government agencies, helping ensure quality information is available to government and millers in key areas.

In its final months *(see Annex 1 for the Q3 FY15 report),* TC held closeout meetings with a total of 285 members of the District/Municipal Nutrition Steering Committees and Council Health Management Teams in each district. These committees will work with millers and communities to promote food fortification and consumption of fortified food products, maize and oil. Participants responded positively to TC's request that the districts continue the work the project started by including food fortification activities in their schedule of work and ensuring a local governmental entity exists to promote fortification and consumption of fortified food products. The District/Municipal Nutrition Steering

Fortification has been included in the current district budget in Manyara for FY2015-16 and other districts have committed to doing the same for FY2016-17, the result of successful local government partnerships with USAID's Tuboreshe Chakula project. Fortification efforts will only continue if the districts allocate funds to these activities, which starts with specific funding written into the annual budget submission.

Committee and the Council Health Management Team will include food fortification activities in their responsibilities and earmark funds for implementation.

In April 2015, 56 dosifiers valued at $257,000 had been installed at 44 client mills, two of those mills had micro-feeders and another miller in Magugu used only micro-feeders to fortify maize.

That same month, TC collaborated with Tanzania Food and Nutrition Centre (TNFC) on a fortification learning event, "Food Fortification in Tanzania: Past, Present, and Future," which brought together stakeholders to harmonize a way forward for fortification in Tanzania. Participants included millers/processors, premix manufacturers/sellers, suppliers of fortification equipment, donors (USAID, the United Kingdom's Department for International Development, Irish Aid), other development partners, local NGOs, national government partners (Tanzania Food and Drugs Authority, Tanzania Bureau of Standards) Local Government Authorities, National Food Fortification Alliance members and academia (Sokoine University of Agriculture and University of Dar es Salaam).

In May 2015, the project conducted an extensive analysis of sales and consumption data gathered during eight surveys carried out from May 2012 to May 2015. Consumption of TC's target products rose considerably among surveyed populations—including fortified flour, fortified oil and *Virutubishi* micronutrient powder—as did the number of stores and other outlets stocking these products. Recognition of the fortification logo also grew. *See Annex 2 for a detailed report.*

"I am a Muslim woman who was against processing and selling fortified products, but I have realized the positive nutritional benefits of fortified foods through this Tuboreshe Chakula marketing training, including the question of [the] huge micronutrient malnutrition problem in Morogoro and neighboring regions. Being a teacher by profession, I promise to be a leader in creating more awareness of fortified foods through mosque and schools."

Ms Zaituni Kiaghano, owner
Family Choice Mill, Morogoro

PRODUCT FOCUS: STRENGTHENING AND SUSTAINABILITY

Tuboreshe Chakula leaves behind five new and strengthened nutritious products—***micronutrient powder, fortified maize, fortified oil, blended flour*** and ***milled rice***—with systems and partner commitments in place to continue meeting and growing demand. In 2014, the project restructured along these product lines, with teams in place to address business development services, access to finance (A2F) and behavior change in each. By focusing on five products, TC identified and helped unlock barriers to production and consumption of quality, safe, primarily fortified foods. *Please see additional information in Challenges and Lessons Learned.*

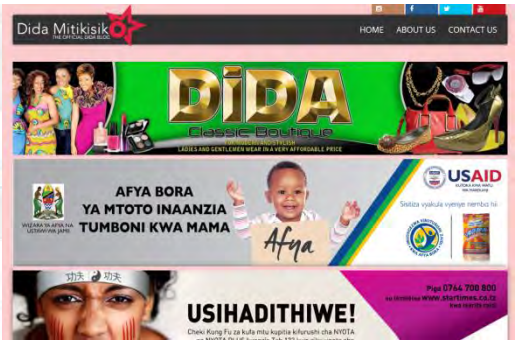
The mandate to fortify comes from Tanzania's government. But the financial burden to do so rests with the processors, and without national promotion of fortified products, consumer trust remained low. Tuboreshe Chakula had one overriding goal: To increase the flow of fortified products into the marketplace. Accomplishing this meant working across product lines and target regions with businesses, government and the larger public to drive demand for fortified foods—the foundation of sustainability.

Businesses: The project gave direct technical assistance and business support to clients with the most potential to fortify. All client business partners were already operating, and during the project, they were encouraged to develop strong networks with other firms—including at least five phone numbers on speed dial: a similar business partner, a larger business owner, suppliers/vendors, mechanics/service people, and government partners. As millers and processors regularly cited access to finance as the No. 1 obstacle to expansion and fortification, TC matched processors with a range of financial institutions and hosted A2F events, included sessions for processors and bankers to meet privately or with the project's financial advisors. Through TC's efforts, 120 businesses received a total US$2.9 million in loans—many of whom had never previously been part of the formal banking sector. *See Annex 13 for the project's Access to Finance Guide.*

Governments: Fortification efforts in Tanzania are led by the Government and TC staff understood the importance of building awareness about fortification at the local government level to ensure budgets would be allocated specifically for fortification activities. Following close collaboration with numerous agencies and councils throughout the project, TC held close-out meetings with 285 members of regional and district management committees and provided copies of the project's FY2014 annual report, fortification guidelines, a list of TC clients in each district, the millers who were fortifying and/or had received project grants—as well as flyers about USAID Feed the Future partners: Nafaka, TAPP, Mwanzo Bora, Sera and iAgri.

Demand creation: Spurring consumer demand for and understanding of these products was the goal of the project's behavior change communication (BCC) strategy, including local campaigns, gatekeeper training, RCH training and other sensitization strategies. In its final year, Tuboreshe Chakula also pioneered a national campaign with a simple message: *Fortification for your children affects their future.* Launched in April 2015, the multimedia campaign was designed by Scanad Tanzania, an advertising agency that is part of Scangroup, East Africa's leading marketing services group. It included:

- **Posters**—branded under Tanzania's Ministry of Health and Social Welfare and co-branded with USAID, the fortification logo and the Virutubishi logo—in clinics, retail shops and government offices in the project's target regions.
- **Radio** messaging started in late April, starting with PSAs, then ads spots on popular talk shows with high female listenership. The stations—Radio Free Africa, Radio One and TBC Taifa—have a combined audience of 2.3 million.
- Two popular Tanzanian **blogs**— Dina Marios and Dida Mitikisiko—have since picked up on the campaign *(see screenshots below).*



Having launched the campaign, Tuboreshe Chakula has passed its management to longtime project collaborators: Helen Keller International (HKI), which spearheaded formation of the National Food Fortification Alliance (NFFA), and *Gesellschaft für Internationale Zusammenarbeit* (GIZ), the German development organization that developed the fortification logo. HKI will manage the relationship with Scanad and assist with developing affordable media bundles that millers and processors can purchase and use within their target regions. This structure encourages businesses of all sizes to take advantage of existing creative design and allows for the addition of a tag line that promotes their business, such as, "Brought to you by Miller ABC." HKI and Scanad will work with the NFFA to understand the optimal size media bundles that appeal to millers and processors.

TC has advised HKI to also contact premix manufactures and others who have an interest in growing the fortification sector in Tanzania to contribute to this campaign. The TFDA, the government's consumer protection agency, now has funds in its annual budget for promoting fortified products and will provide the much-needed public government endorsement of fortified products.

Each TC product line also had its own strategy, detailed below, to roll out and scale up introduction and/or expansion of each product—as well as sustain the momentum gained under Tuboreshe Chakula.

Micronutrient Powder (*Virutubishi*)

To combat childhood malnutrition in rural Tanzania, Tuboreshe Chakula spearheaded the introduction of *Virutubishi*, the country's first commercially distributed nutritional supplement for children. This affordable micronutrient powder (MNP) provides 10 vitamins and five minerals not always found in typical rural Tanzanian diets—particularly those of children between 6 months and 5 years old, when good nutrition is crucial for development.

The year-long process of sourcing, approval, shipment and distribution began when TC first brought together fortification stakeholders (TFNC, TFDA, UNICEF, NFFA, and Sokoine University of Agriculture) to agree on MNP formulation. The project sourced the manufacturer, Heinz India, which makes a range of nutritional products for children, oversaw design of the *Virutubishi* logo and packaging, which TFDA approved, and complementary educational materials, which were approved by TFNC. In late 2012, TC obtained a Registration Certificate for MNP from TFDA and selected Mohamed Enterprises Tanzania Limited as sole distributor.

The first shipment of 2 million sachets arrived in February 2013. By the end of March, 576,000 sachets had been distributed to the three mainland TC regions. Priced at 100 TZS per sachets, *Virutubishi* became available in shops, clinics and through a network of trained volunteer health workers, who earned commission. In June, the project expanded MNP distribution to the Zanzibar Islands of Pemba and Unguja, along with sensitization and training workshops.

To spur adoption and combat misinformation about this new for-sale project, TC conducted a *Virutubishi* promotion campaign in February-March 2014 in all eight mainland districts plus both islands of Zanzibar, which reached 28,500 people. These were followed up with two-day MNP mini-campaigns in 40 wards, which reached another 26,000 persons. The project also aired 1,794 promotion spots on local radio stations, and participated in nine talk shows and two TV programs.

Success Spotlight:

Mother (and mother-in-law) tout benefits of micronutrient powder

When her daughter Janeth turned six months, Chuki Meshack of Moleiti Village in Kongwa District began giving her Virutubishi, a micronutrient supplement for young children introduced to Tanzania by the Tuboreshe Chakula project

Her mother-in-law objected, calling Virutubishi harmful medicine. But after less than a month, the benefits were clear: Janeth had a good appetite and had put on weight. A year later, she is a strong and healthy toddler who has rarely been sick. Her grandmother now strongly supports giving her the supplement.

Meshack advised women to use Virutubishi when their children are young, as it will strengthen their immunity to diseases.

By June 2015, 2 million sachets had been distributed, and in surveys, 35 percent of families with young children reported regularly using *Virutubishi* 3-4 times per week, the optimal rate. However, uptake of this product remains uneven across TC target regions. *See survey results in Annex 2* and *a list of shops selling* Virutubishi *in Annex 9.*

Distribution and sales of MNP will continue after Tuboreshe Chakula closes, thanks to a former project BCC coordinator, who stepped in after two major handover efforts fell through with large companies. Julitha Mongi is director and founder of a local NGO called Social Liberation and Empowerment Organization (SOLEO), which has held discussions with several manufacturers, including one in neighboring Kenya, to supply MNP. The NGO has regional warehouses in place and has identified 20 new wholesalers.

Finding a committed organization to take on sustainability of *Virutubishi* proved unexpectedly difficult—particularly distribution to rural regions. TC first engaged with one of the largest fast-moving consumer goods distributors in Tanzania, which despite an MOU, still relied on project staff to keep retailers supplied and product stored. TC then signed an MOU with a large pharmaceutical distributor with the infrastructure to move high volumes of pharmaceutical supplies around the country to 1,800 outlets. Project staffers trained its 90-person sales force to promote *Virutubishi* as a new company offering, but again, retailers were left without product, leaving a recently downsized TC staff to deal with the fallout.

After close involvement with TC's Virutubishi promotion and distribution efforts, former project staffer Julitha Mongi (shown in February 2014 in white shirt), founded a local NGO to take on marketing of this nutritional supplement.

Ms. Mongi was very involved with both sustainability attempts and saw an opportunity to take on the task. Since her contract with TC ended in April 2015, Ms. Mongi founded her small, mission-driven organization, took over distribution and marketing and has already expanded distribution to new regions including Pwani, Iringa, Mbeya, and Dar es Salaam. Sales have since risen, and SOLEO expects to soon place an order for another shipment of *Virutubishi*.

Maize Flour (*Sembe*)

In 2012, Tuboreshe Chakula began discussions with development partners helping the national government realize its mandate to fortify locally consumed staple foods. The World Bank, the Global Alliance for Improved Nutrition (GAIN), HKI and DFID were working with seven large commercial-scale millers to fortify wheat flour and had useful information to share about sourcing and bureaucratic procedures.

As maize is the main staple in most rural areas, TC sought a way to fortify flour produced in hammer mills, found in almost all towns and villages. The project contacted Project Healthy Children, which was using *dosifiers* to fortify pre-ground maize at small mills in Nepal, and brought the inventor, Felix Brooks-Church, to Tanzania to modify this machine for hammer mills in this country.

TC's Stanford Ngassalah trains a miller in dosifier use in April 2015.

In early 2014, Project Healthy Children formed Sanku to market dosifiers in Tanzania. Tuboreshe Chakula collaborated with Brooks-Church on institutional learning, design modifications, and a comprehensive business plan which offered a service contract model to ensure a regular supply of premix as well as monthly visits to ensure the equipment is working well and confirm dosing ratios are correct. In late 2014, the project, in cooperation with Sanku, piloted dosifier technology at seven mills. In 2015, 37 additional clients received dosifiers and are now fortifying maize flour, bringing the total to 45 fortifying millers (44 of them using 56 dosifiers, and one using a micro-feeder). *See Annex 5 for a list of all client mills fortifying.*

By May 2015, these millers had produced 2,800 MT of fortified *sembe* to feed 156,000 people. As the milling season accelerates during the upcoming maize harvest season, fortified *sembe* may be consumed by as many as half a million people. *See Annex 6, Fortified Sembe Production, 2011-2015.*

Success Spotlight:

Fortifying flour along with business operations

With 20 employees, Kibaigwa Flour Supply produces 120 tons of maize flour a week, a success in this midsize town in Dodoma region. Owners Sebastian and Bahati Msola wanted to improve their business and start fortifying their flour to make it more nutritious, but lacked certification from the Tanzania Bureau of Standards (TBS)— among other obstacles.

Enter Tuboreshe Chakula, which worked with the Msolas to re-design their mill to meet TBS specifications. In 2014, the Msolas were among the first project clients to begin fortifying with both a dosifier acquired through a project grant and a micro-feeder purchased on their own.

Following Tuboreshe Chakula's guidance, Kibaigwa Flour also hired a university-educated accountant to manage the books and a marketing person to evaluate packaging materials and advise on advertising their maize flour.

"A successful business must look at things from all sides and take everything into account," Sebastian Msola said. "Feed the Future has helped me do just that. I am a much better businessman then I used to be."

Sanku's dosifiers: current and future technology

These specially adapted machines measure how often they're being used via a LED screen displaying the grain weight reading as well as stored production data (hours of operation, total grain milled, and premix consumed). An internal real-time clock stores the data even when the dosifier is powered off. With a push of a button, the user may access data reports to monitor doses. This data may also be sent via SMS, substantially lowering monitoring costs.

Sanku is developing cellular capabilities to relay logged data automatically to the internet via GSM, Wi-Fi or the user's own mobile phone via a USB port. A remote monitor can then automatically upload data into a spreadsheet that will:

- Monitor compliance
- Assist in distribution models for premix
- Allow for a national mapping tool for rural flour production and consumption
- Specifically design standards based on targeted regional differences in consumption

To sustain the momentum built in partnership with Tuboreshe Chakula, Sanku was recently awarded a GAIN grant of 9 MT of premix (which can fortify 900 MT of maize flour) and two vehicles from USAID via Tuboreshe Chakula. With the next consignment of machines arriving in August/September, Sanku will add dosifiers to 5-10 mills a month and add staff to service the mills every six months. Brooks-Church has hired former TC staff and continues to strengthen Sanku. Its business plan anticipates working with over 300 millers to reach approximately 7 million consumers by 2018.

Other avenues to maize fortification have also received project support: Two TC client millers also have micro-feeders, which add fortificant to already milled flour, and another processor in Magugu with a large roller mill uses a micro-feeder to fortify *sembe*. The Government of Tanzania is also testing the "scoop" method, which mixes premix into grain prior to milling—a low-tech, low-cost method, but one that does raise issues of quality control of the premix.

In addition to Sanku, other premix suppliers including DSM, a Dutch chemical company, are exploring premix "hubs" or depots in Tanzania where product can be imported and mixed as required by the client. DSM is running a small project called Miller's Pride with World Vision in Tanzania, plans to introduce fortification technology to maize millers in Dar es Salaam, and recently purchased four Sanku dosifiers to test with its clients.

Sunflower Oil

Tuboreshe Chakula began meeting oil expellers early in the project to discuss potential activities to improve the sector's production, food safety, food quality, and fortification. In March-April 2013,

Tuboreshe Chakula conducted a detailed consumer, retail and commercial market survey of edible oils, targeting 1,500 consumers, 300 retailers and 90 wholesalers. Main findings included:

- Sunflower oil production in Tanzania is growing, but contributes only 20% of total domestic oil consumption with imported palm oils making up more than 50%.
- Market demand for sunflower oil is strong
- A profitability analysis of refining oil indicates margins will be reduced, which processors could address by increasing volume ~45%. This, combined with the costs of fortification, would require an 8% increase in the retail price (TShs 250 per liter).

In mid-2013, TC piloted a sunflower oil processing and fortification training curriculum in partnership with Partners in Food Solutions (PFS) in preparation for oil fortification. In 2013, the project requested proposals to identify three businesses to receive oil refineries with fortification units, each worth around $200,000. These refineries would go to businesses currently expelling, so they would produce their own branded product, as well as toll mills for others interested in the value addition of refining and fortifying.

Installation of oil refinery at Uncle Milo in Dodoma, December 2014.

Mitsun, the oil refinery manufacturer, began installation of three refineries in December 2014 for Uncle Milo and Jackma J in Dodoma and Bakari Mukta in Babati. In June 2015, Uncle Milo and Bakari Mukta are producing fortified sunflower oil; Jackma J is expected to start soon. Three other processors are semi-refining sunflower oil and have been given information on low-cost fortification. Longtime TC client Three Sisters Oil Mill in Dodoma recently secured a $50,000 loan from the PFS Opportunity Fund to purchase a 2 MT/day capacity oil refinery. These seven processors, when running at full capacity, will produce fortified sunflower oil for consumers in Tuboreshe Chakula's target regions.

Success Spotlight:

Sunflower oil proves successful for three sisters

When Amina Majengo's husband died, she needed a plan to generate income for her two younger sisters, Mariamu and Jamilla, and 12-year-old daughter, Salma. With their father's financial backing, the sisters developed a small sunflower oil mill in 2006 in Dodoma municipality called Three Sisters.

In 2012, the sisters connected with Tuboreshe Chakula, and received training on proper care for their machines and organization of milling space for certification by the Tanzania Food and Drug Authority—crucial for Three Sisters to start fortifying their oil with Vitamin A.

The project also advised the sisters on marketing and labeling their product, and keeping business records. Today, Three Sisters' oil is sold in multiple regions and in higher quantities, wrapped in new packaging.

"We now have customers all over Tanzania," Amina said. "We never thought we would be making this type of money. Through support of Tuboreshe Chakula, we are seeing major results."

The project also linked Three Sisters to Root Capital, a nonprofit social investment fund, which recently approved a $50,000 loan for Three Sisters to buy a 2 MT-capacity oil refinery.

Sustainability of these investments is rooted in the commitment of the business owners; the three who received new refineries contributed an average $75,000 to the installation costs. All oil milling partners have extensive connections to other processors in the project regions and beyond. In addition, PFS is expanding the USAID/Washington-funded SAFE project to Tanzania with one year of funding and a plan to work with 11 TC clients, including all three refinery owners. Local government has committed to building fortification into local budgets in coming years.

Meanwhile, demand is growing for fortified sunflower oil, as seen in the project's final sales and consumption: Over half of households reported using fortified oil in May 2015, a significant increase from 24% in June 2014 and 33% in September 2014 *(see Annex 2).*

Blended Flour/*Lishe* Mix

To boost the nutritional value of one of Tanzania's most popular staples, one or more cereal flours are blended with legume powder to achieve healthy proportions of carbohydrates, proteins and amino acids. Surveys indicated that around 240,000 households in Tuboreshe Chakula's eight target districts regularly consume porridge made with blended flour (*lishe*). Yet many blenders—who tend to be women in rural Tanzania—were not following recommended formulations, so their flours were often carbohydrate-heavy, lacking the nutrients especially needed by young children and women of childbearing age .

TC conducted field testing of the new lishe recipe with Maasai women in Kiteto, September 2013.

Tuboreshe Chakula worked closely with 142 blenders, 133 of them female, to improve their recipes, marketing, packaging and basic business skills. In 2013, the project developed two simple Swahili books for facilitators and processors, TC developed a facilitators' training manual about nutrition for blended flour processors *(see Annex 15)* and a step-by-step handbook for blenders to produce a nutritious quality *lishe* mix *(see Annex 14).* The project field tested the book by training Maasai women in Kiteto to use a more nutritious recipe involving different types of cereals and legume (mainly soybean).

In late 2013, eight TC-supported blenders from Babati travelled to Arusha to learn more about manufacturing, packaging, marketing and operational procedures, including visits to manufacturing companies, processors and other stakeholders.

Success Spotlight:

Blended flour business on the rise

When business owner Juliana Mtenga of Dodoma town launched Gemago Enterprises in 2010, one of her product lines was blended flour: traditional maize flour and peanut or soya flour. She produced 20-30 kg of Samaria Nutritious Flour a month, which she sold mainly to neighbors. Before milling the flour, she dried grains in the sunlight.

In 2012, Mtenga started working with Tuboreshe Chakula, attending trainings on blended flour preparation, packaging and record keeping. The project advised her on production and marketing and brought her to Arusha for a visit to three blended flour processors and a packaging designer. She also received a grant from the project to buy milling and drying machines, improving the quality of the flour and reducing costs and time of preparation.

Today, Gemago produces 1,500 kg of blended flour per week, which is sold in five regions: Dodoma, Arusha, Moshi, Morogoro and Dar es Salaam. Mtenga hasn't forgotten her original customers, however, saying even the health of her family members and neighbors is improving as they consume porridge made of quality blended flour.

In March 2015, the project finalized the blended flour training book for facilitators and blenders' booklets, incorporating comments from a number of stakeholders. Final versions were used in training 75 blenders and 84 district trainers and are in the process of being endorsed by the Ministry of Health and Social Welfare. TFNC will handle dissemination to key stakeholders and the project's 20 blenders and groups. Materials in these books will help to drive production and offer guidance on marketing and demand creation strategies.

Rice Milling

TC's sister USAID-Feed the Future project NAFAKA directed 80% of its efforts and resources to rice, so TC began its activities in the two NAFAKA rice-growing districts of Mvomero and Kilombero. Because the Tanzanian government did not have a policy of fortifying rice, the project focused on improving processing capacity, particularly in food safety, packaging and sorting by quality level.

At the Mambo ya Yesu rice mill in Morogoro, Tanzania, Ben Wad shows graded and ungraded rice in front of processing equipment purchased with TC grant funds.

By September 2012, out of 130 small-scale client millers, 71 either processed rice or rice and maize. Eventually TC client rice millers made up 127 out of a total 733 processors, serving as a market channel for NAFAKA's farmers to sell to.

Rice millers received the same training as maize and oil processors in record keeping, business management, marketing, access to finance, machine operation and maintenance, Good Manufacturing Practices and post-harvest handling (including food safety). Six rice millers received project grants to upgrade their technology, valued at about $36,000 each.

During sector-wide rice mill trainings, TC created strong networks among project millers, service providers and financial institutions. District and regional government officials have stayed informed about TC's work in the rice sector, as has the NAFAKA team.

TARGETS AND ACTUALS FOR FY2012-15 AND LIFE OF PROJECT (LOP)

INDICATOR NUMBER	INDICATOR TITLE	FY 12 Target	FY 12 Actuals	FY 13 Target	FY 13 Actuals	FY14 Target	FY14 Actuals	FY 15 Target	*FY 15 Actuals	LOP Target	LOP Actuals
4.5.2(5) (RiA)	Number who have applied improved technologies or management practices as a result of USG assistance	185	116	375 cumulative	383 cumulative (262)	550 cumulative	771 cumulative (393)	840 cumulative	827 cumulative (56)	840	**827/ 98%**
Up-scaling technology	processors using dosifiers or micro-feeder					35	7	56	45	63	**45/ 71%**
	processors refining oil					4	3	6	5	6	**5/ 83%**
	processors using moisture meters					90	81	95	92	95	**92/ 97%**
4.5.2(7) (RiA)	Number of individuals who have received short term training	245	424	2,400	4318	500	2977	200	**251**	7900	**7,960/ 101%**
4.5.2(29) (RIA)	Value of agricultural and rural loans	$200,000	$232,000	$600.000	$653,276	$400,000	$1,566,600	$300,00	$475,700	$2.7mil	**$2,927,576 / 108%**
4.5.2(37) (S)	Number receiving BDS	185	105	270	341	165	566	65	71	1070	**1,083/ 101%**
4.5.2(43) (RiA)	Number of firms now operating more profitably	50	103	230 cumulative	262	400 cumulative	509	560 cumulative	546	560 cumulative	**546/ 98%**
Custom Indicator #81	Number of enabling grants awarded	-	-	100	94	35	6	70	61	170	**161/ 95%**
Custom Indicator #79	Number of agro-processing organizations undertaking capacity strengthening	3	2	4	10	4	4	1	0	12	**16/ 133%**

Custom Indicator #80	Number of GoT institutions undertaking capacity strengthening	3	3	3	8	2	6	1	0	9	**17/ 189%**
Custom Indicator #86	Percent change in sales to consumers of nutritious foods	-	-	14%	13%	+10%	+14%	+20%	+32%	+20%	**+32%/ 160%**
Product	Fortified maize	-		-	-	-	0	7%	7%		
	Blended flour	-	42%	+8%	+6%	+5%	+6%	+8%	-4%		
	Cooking oil	-	-	-	-	-	+33%	+4%	+23%		
	Micronutrient powder	-	-	-	11%	+5%	+18%	+1%	+6%		
Custom Indicator #87	Percent of households with children under five that consume MNP weekly	-	-	8%	11%	16%	29%	30%	35%	30%	**35%/ 117%**
+Custom Indicator #85	Percent of households that consume at least one blended product weekly	-	-	50%	46%	55%	52%	60%	48%	60%	**48%/ 80%**
Custom Indicator #49	Percent+ of households that consume fortified maize or oil weekly	-	-	-	0	16%	16%	20%	32%	20%	**32%/ 160%**
Custom Indicator #50	Percent of households that recognize social brands	-	-	16%	26%	22%	36%	60%	53%	60%	**53%/ 88%**

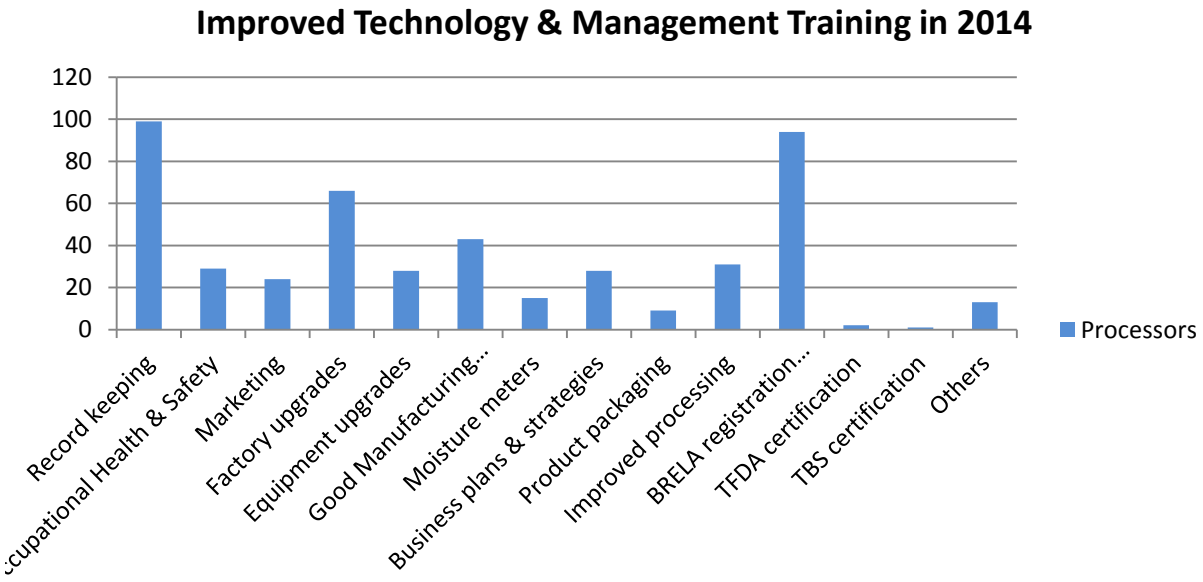
*FY 15 Oct 2014-June 2015
+Average of fortified maize & oil

LIFE OF PROJECT RESULTS NARRATIVE

As seen in the preceding table, Tuboreshe Chakula's results met or exceeded, sometimes by large margins, most of its indicators—despite the inherent difficulties in introducing and upscaling new projects and technologies within a short timeframe. Below, please find a detailed discussion of each of these indicators.

Indicator 4.5.2(5) (RIA)—Number of Processors Who Have Applied Improved Technologies or Management Practices

Through a series of trainings and business advisory services to individual processors, Tuboreshe Chakula staff engendered uptake of improved technologies and business practices that allow project clients to grow their business over time. During the entire project, 522 processors (or 71% of the total 733 clients assisted) applied improved technologies and management practices. *(Please see complete list of clients in Annex 4.)* In the project's final full year, processors received the following training:



Business Management: Before project intervention, most millers were selling their products without comprehensive sales records. After training and BDS almost all keep records, and 30 are using Excel to keep computerized records. All 22 medium-scale clients have hired accountants or use accounting services. Recordkeeping is essential for businesses to access finance and enter into credit arrangements with input suppliers. As businesses grow, recordkeeping of sales, profits and supply chain management become critical.

Sales and Marketing: The project advised millers to practice price/quantity discounts to increase sales volume, to design and print brochures for brand promotion, and to advertise their products through radio advertisements. By March 2015:

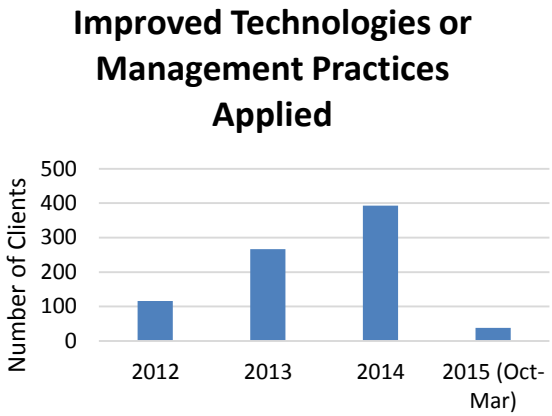
- Seven clients were practicing quantity/price discounts to increase sales.
- Four clients established a sales and marketing team.
- Three clients were promoting their products/brands on local radio.
- Eight maize millers—Katundu, Kibaigwa, Kilonda, Majengo, Takadir, CFM, Chamwino and Manyovu—improved their distribution networks of fortified products to new wards and districts.

Designing, Packaging and Labelling: One month after the February 2015 marketing sector-wide training, 15 out of 57 participants had designed labeling for fortified products per TFDA specifications. Kibaigwa Food Supplies printed and installed a billboard along the Morogoro/Dodoma road promoting its fortified maize flour.

Newly designed packaging that meets TFDA requirements for fortified products

Supply Chain: A significant challenge in Tanzania's maize value chain is getting maize and seed from producer to processor while maintaining quality. When the project was restructured in late 2014, the team included a dedicated supply chain management expert to help clients understand how to manage relationships with raw material suppliers and other upstream actors while strengthening relationships with customers.

Clients focused on building a pipeline to generate maximum capacity utilization of the mill. Successful examples included two maize millers in Mvomero district—Kilonda and Rahis Group—who connected with three community-based seed banks, while 45 maize millers were linked with the Kibaigwa International Market to access daily market prices on their mobile phones. As of June 2015:



- Seven maize millers were buying directly from the market.
- Ten mills were keeping and tracking records of their biggest customers to be able to best service their most valued clients.
- Seven clients improved customer relations through regular check-ins and tracking customer complaints that allow for personalized follow-up.

Upscaling Technologies

Tuboreshe Chakula introduced and tracked uptake of three key technologies: dosifiers/micro-feeders, oil refineries, and moisture meters.

- ***Dosifiers and micro-feeders***, used to fortify maize flour

In 2014, the project, in cooperation with Sanku, piloted dosifier technology at seven mills. In 2015, 37 additional clients received dosifiers and are now fortifying maize flour, bringing the total to 44 millers using 56 dosifiers. Two millers also have micro-feeders, and another processor in Magugu with a large roller mill uses a micro-feeder to fortify *sembe*.

- ***Oil refineries***, constructed with oil fortification units and laboratory facilities

Three oil processors installed sunflower oil refineries and fortification units. All installations have been tested. Two started producing fortified oil: 4,100 liters in two days. The third will begin after the harvest

of sunflower begins in June 2015. Three Sisters Oil Mill in Dodoma recently secured a loan to purchase a 2 MT/day capacity refinery and should begin producing fortified oil by August 2015. Other processors are semi-refining sunflower oil, some using a low-cost technology introduced by UNIDO. The laboratory facilities will be a resource for the sunflower oil sector already underway with partnerships in the works with CEZOSOPA

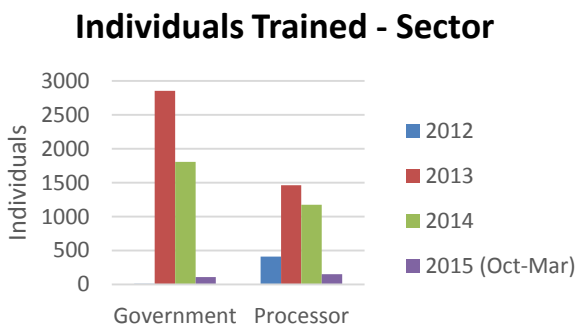
- ***Moisture meters***, to reduce spoilage of grain and seed during storage.

The project promoted this technology early, giving 83 as grants to 81 maize, oil, rice and blended flour processors. Another 11 were distributed to millers with dosifiers in June 2015.

Indicator 4.5.2(7) (RIA)—Numbers of Individuals Who Receive USG-Supported Short-Term Agricultural Sector Productivity or Food Security Training

Business Module Training

Throughout the project, small-scale processors and government workers participated in a standard set of module trainings (Basic Business and Financial Management, Marketing, Access to Finance, Good Manufacturing Practices, and Occupational Health & Safety) to boost business performance, resilience and competitiveness—and improve the enabling environment for such. The project trained 7,960 processors and government representatives, as shown at right.



In addition to standardized modular trainings, project staff identified specific areas of interest to allow processors to gain understanding and know-how through the following platforms.

Business Formalization Workshop

To help processors overcome this obstacle to business expansion and fortification, the project held workshops to explain how to obtain business registration, licenses, tax registration, improved packaging and adoption of bar codes. Facilitators from SIDO, BRELA, GS1 (the international barcode authority), TCCIA, TRA and District Trade Officers, presented business formalization services and assisted participants with processing various applications**.**

Study Tours

Processors at Murzah Oil Mill learn how Vitamin A is added to fortify sunflower oil.

Study tours took project clients to access-to-finance 'role models' which included processors who are fortifying products. The idea was to help businesses build a network of millers and processors who were already accessing finance. At two large-scale oil mills fortifying edible oils in Dar es Salaam, seven project clients received technical training on the oil refining process and relevant technologies used to calculate vitamin A levels, pre-blending and dosing. Seven processors are expected to be refining and fortifying their oils in 2015. An access-to-finance study tour in Dar es Salaam, Arusha and Manyara regions connected participating processors to successful entrepreneurs to discuss the challenges and opportunities in using external capital to invest in

business. Again, throughout the project, the team focused on building networks within our clients, extending to service providers, support organizations, government partners and others. These important, trusted and influential networks became the foundation of the project's sustainability plan.

Sector-Wide Training, in Cooperation with Partners in Food Solutions

Access to Finance

This workshop sought to cultivate borrowing habits among project clients, increase agricultural financing of milling businesses, and find practical solutions for financing challenges. Facilitators included commercial banks, microfinance institutions, social impact financiers, Savings and Credit Cooperatives Societies[4], district land officers, cooperative development officers—and a number of Tuboreshe Chakula clients with a strong history of securing finance to serve as role models. The workshop offered "financier booths" for participants to learn one-on-one about financial products and services or to simply open an account with a commercial bank.

Sunflower Oil Processing and Fortification

This workshop taught best practices on improved sunflower oil processing and better equipment management to maximize yield and improve sunflower oil and seed cake quality. It also connected government regulatory agencies with processors to help them understand the requirements of edible oil fortification.

Best Global Practices in Rice Processing

Training, prepared and delivered by a Bühler engineer, gave clients an understanding of best rice processing practices, regional and varietal differences, post-harvest handling, and quality testing.

Marketing

This two-day event brought together 57 clients (46 processors of maize , 6 of sunflower oil and 5 of rice) to explain marketing principles, marketing mix and how to work for business growth and market development. Beyond the micronutrient deficiency discussions, participants learned how to implement marketing strategies for new fortified products in order to stay competitive.

In addition to project staff, facilitators included a representative from GS1, a company specializing in barcodes, package design, and branding. Additional presenters included an officer from the Ministry of Agriculture's Food Security Department, a district nutritionist, and Sanku, TC's supplier of dosifier fortification technology. Other presenters included the owners of Tembo Maize Milling and Murzah Oil Mills, companies with successful track records selling and marketing fortified products.

Aflatoxin Control and Testing

Project staff reported early that those in the maize value chain generally knew little about the effects of poor handling of maize in the field, and when harvested, stored, and processed. As a result, the project partnered with Partners in Food Solutions volunteer experts and with the Nelson Mandela African Institute of Science and Technology, based in Arusha, to build the capacity of agro-processors to improve the quality, safety, presentation and wholesomeness of processed maize products. The course introduced the types of mycotoxins, and covered aflatoxin contamination, control and management, sampling and testing as well as how to build a system of hazard analysis and critical control points (HACCP). HACCP is a systematic preventive approach to food safety from biological, chemical, and physical hazards in production. Businesses have been training on building these practices into standard operating procedures.

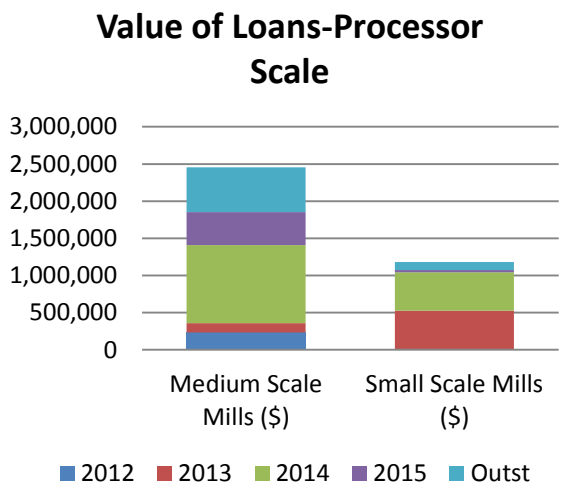
[4] SACCOs are micro credit unions whose members may include women in a certain geographic community, millers in a specific region or size, etc.

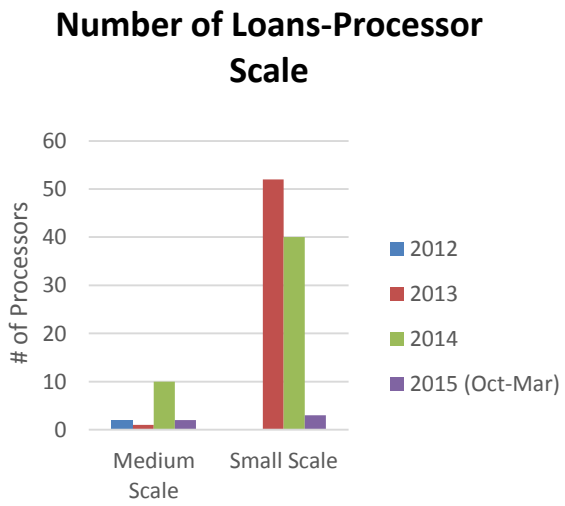
Indicator 4.5.2(29) (RIA)—Value of Agricultural and Rural Loans

In 2012, medium-scale processors secured only two loans valued at $232,000. As Tuboreshe Chakula trained and provided business development services to more clients it became clear that these efforts were unlikely to gain traction if clients were unable to access credit to realize business growth. By the end of FY13, TC had facilitated $885,000 in loans to 53 medium and small-scale mills, but more growth was deemed possible in the remaining 18 months of the project.

Year	Loans	Medium $	Small $	Total Value $	% of Target
2012	2	232,000	0	232,000	116%
2013	53	125,000	528,276	653,276	109%
2014	56	1,051,000	515,600	1,566,600	392%
2015	9	444,600,	31,100	475,700	158%
LOP	120	1,852,600	1,074,976	2,927,576	108%

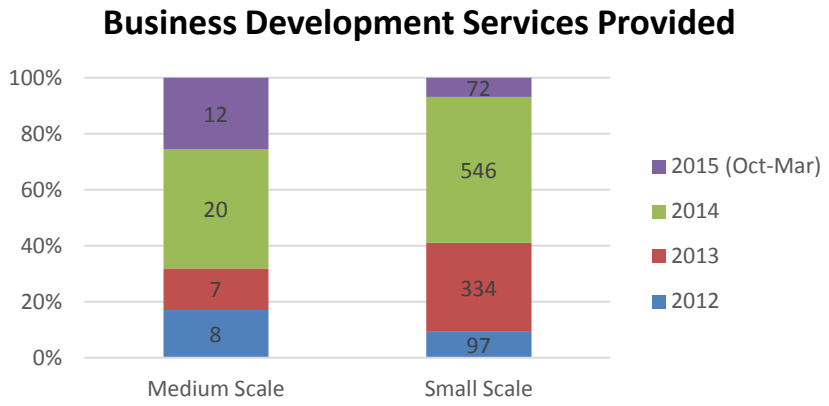
After TC's restructuring in FY14, a business advisor with a history in banking became the project's access to finance specialist, and she worked with business advisors on effective ways to build relationships needed to secure lasting lines of credit. The result was 56 loans in FY14 with a value of $1,566,600, and another nine loans in the eight remaining months of FY 2015 with a value of $475,700. Over the life of the project, Tuboreshe Chakula facilitated 24 medium-scale loans valued at $1,851,900 and 96 small scale loans with a value of $1,074,976 (the disproportionate numbers are because medium-scale processors need more credit and are generally viewed by lenders as more credit-worthy; the average small-scale loan was $11,000, while the average medium scale loan was seven times greater). Overall, the project facilitated 120 loans worth $2,927,576.





Indicator 4.5.2(37) (S)—Number of MSMEs Receiving Business Development Services

Following each modular training (Business Management, Marketing, Access to Finance, Machine Operation and Maintenance, Good Manufacturing Practices and Post-Harvest Handling), project staff provided ongoing business development services to each client to monitor adoption of new knowledge and skills.



In the second half of FY14, TC's maize team began implementing its accelerated fortification strategy by developing a tool to evaluate maize millers' abilities to produce and market fortified maize flour. Food technicians teamed with business advisors to evaluate processing and milling facilities and monthly sales performance.

After the marketing sector-wide training, the project assisted 20 maize millers to redesign their packaging to accommodate fortification information. Three clients—Magugu, Katundu, and Kibaigwa— established new wholesale market outlets.

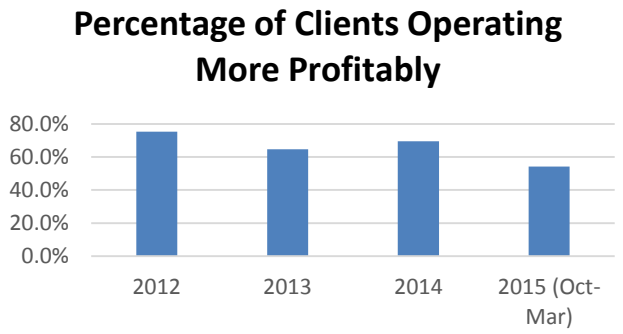
Through BDS, companies are now producing monthly income statements, balance sheets, cash flow statements, as well as quarterly and annual audits to meet standard financial controls.

Maize millers who were granted dosifiers via grants also received a guidebook containing technical and business information, including a schematic of how Sanku's dosifier works and contact addresses of key partners and stakeholders *(see Annex 12).* Before handing the guidebook to maize millers, the project team held a close-out evaluation to determine the extent of market linkages, fortification marketing and sales strategies, and other business-related performance indicators.

Expanding Markets

Magugu Farm linked with the Ministry of Agriculture's Food Security Department to secure an export permit for maize flour. **Katundu Flour Mills** captured Lake Zone markets (Mwanza, Shinyanga, and Tabora) and began delivering about 150 MT of maize flour per month by rail. **Kibaigwa Flour Supply** is expanding into the South Sudan market if it passes all food quality tests as a tender qualification by three international bodies: WFP, UNCDF and World Vision.

Indicator (4.5.2-43) (RIA)—Agro-processors Operating more Profitably Because of USG Assistance Increased



A sizeable majority of project clients reported profitability following project interventions. Per USAID Feed the Future guidance, TC collected a representative sample of profitability data.[5] As seen below, the FY15 sample contained significantly fewer clients than previous years as a large percentage were exited to focus on those in a position to fortify their products. Additionally, to compare like-to-like, TC used profits reported in October-March, the post-harvest period which has lowest profit for most millers, although millers must use whatever profits they have to prepare for purchasing grain in the harvest season which starts in mid-April. All 67 processors operated at a profit, but only 34 were more profitable in FY2015 than in FY2014.

The table measures FY15 data against the same time period (October-Mar) for FY12-15.

Year	Sample	# Profitable	< Profitable than FY11	< Profitable than FY12	< Profitable than FY13	< Profitable than FY14
FY11	70	70 (100%)	-	-	-	-
FY12	90	86 (96%)	45/70 (64%)	-	-	-
FY13	89	86 (97%)	38/70 (54%)	58/89 (66%)	-	-
FY14	88	85 (97%)	41/70 (59%)	56/88 (64%)	55/88 (64%)	-
FY15 (Oct-Mar)	24	24 (100%)	-	-	12/13 (92%)	13/24 (54%)

Custom Indicator #79—Grants

USAID approved the TC grants manual in November 2011. In 2012, a grants assessment determined basic equipment requirements and expected recipient readiness to match the grants by percentage as a cost share. By the end of FY13, 94 grants valued at $1,060,000 had been awarded, of which 81 were for moisture meters and 13 were for equipment upgrades.

In June 2014, the project surveyed clients who received moisture meters. Most of them (between 93-99%) reported satisfaction with this new technology, saying the meters were easy to use, improved their products and productivity and helped modernize their business by assessing raw materials.

In March-April 2015, the project conducted a close-out survey.

- In Morogoro, 54 grant recipients were surveyed: 26 for moisture meters, 23 for dosifiers, 5 for rice mills. Five surveys were not done for dosifiers in Ifakara as they had not yet been installed; one maize mill in Morogoro also had not yet been installed.
- In Dodoma, a total of 39 grant recipients were surveyed: 23 for moisture meters, 13 for dosifiers and 3 for maize mills and drying machines. The 13 grantees signed the In Kind grant agreements for dosifiers awarded.
- In Manyara, a total of 34 grant recipients were surveyed: 32 for moisture meters, 1 for a dosifier, 1 for a rice mill; 3 were not done for dosifiers not yet installed. All four grantees signed the In Kind

[5] This Feed the Future indicator does not measure increased profitability against a baseline, but rather against the previous year's profits, so it does not capture when a business invests profits from the prior year into current year projects that may not yield a high return until the following year.

grant agreements for dosifiers awarded. All grantees signed a Certificate of Completion form except for the three oil refineries which were still being installed.

Results of the surveys were reported in Q2 2015 *(see Annex 16).* Value of all grants totaled $1.2 million.

Summary of Grants

ITEM	FY2013	FY 2014	FY 2015	TOTAL
Moisture Meters	83	0	*11	94
Dosifiers	-	6	50	56
Oil Refineries	3	-	-	3
Rice Mills	6	-	-	6
Maize Mills	2		-	2
TOTALS	94	6	61	161

*pending USAID approval at the time of this writing

Custom Indicator #81—Processor Association Capacity Strengthening

From 2012-15, Tuboreshe Chakula worked closely with 16 private sector processor associations, including the Central Zone Sunflower Processors Association (CEZOSOPA), for which the project provided a consultant to carry out a needs assessment and another to help the association come up with a strategic plan. The membership of CEZOSOPA currently faces a real threat with outside buyers offering high prices and incentivizing contracted farmers to sell outside that contract. A strong association can help create defensive strategies to help ensure raw material supply for members. *Please see Annex 18 for a list of public and private groups that received attention to strengthen capacity.*

Custom Indicator #80—Government Institution Capacity Strengthening

Tuboreshe Chakula worked closely with Tanzanian Food and Nutrition Center and the Tanzania Food and Drug Agency, as well as staff of the eight district councils, including the District Nutrition Officer and members of the District Agriculture Department *(see Annex 18).*

Tuboreshe Chakula worked to promote market based solutions for fortified products. The Government of Tanzania often provided free or highly subsidized services for children under the age of 2, therefore, there was some resistance about introducing the *Virutubishi* through a commercial market channel. Many people in our partner organizations are now champions of using the commercial channels. Dr. Vincent Assey, a director in the Ministry of Health, was an especially important partner who ran the salt iodization program in the 1990s in Tanzania, which was the country's first fortification effort. He has been a champion for our fortification work and has helped Tuboreshe Chakula leadership map a way forward, particularly regarding certification, which can be a long and costly process for millers.

Custom Indicator #86—Sales to Consumers of Nutritious Foods

Overall, sales of nutritious foods in the project's target regions increased 32% between September 2014 and May 2015.

Fortified *sembe* reached an estimated 7% of the households in the TC zone of influence, although in areas surveyed in the vicinities of mills with dosifiers, 50% of households were consuming fortified sembe and 52% of the shops were selling it.

Blended flour sales and consumption sadly declined 4% from September 2014 in areas such as Babati, Kiteto, Kilombero. We expect those were due to increased competition for limited resources, families were making the choice not to buy blended flour. Blended flour consumption did, however, increase in Dodoma and dramatically increased in Kongwa from 30 to 70% during this same period, likely due to strong marketing by Dodoma producers. Blended flour consumption in households surveyed with

children under the age of 5 and other vulnerable populations also increased slightly. Fortified oil sales jumped 23% from September 2014, although none was produced by TC oil processors. We expect some of this increase is due to the fact that retailers are starting to stock mostly fortified oil products.

MNP consumption rose 6% from 29% of surveyed households with children under five in September 2014 to 35% in May 2015. This is likely due to continued promotion of the product at the retail level and via media outlets, and especially information given at RCH clinics.

Custom Indicator #87—Households with children under 5 years that consume MNP weekly

In its final months, Tuboreshe Chakula transferred distribution of MNP to an NGO called SOLEO, founded by a project staffer. This NGO was formed with a mandate to support activities around nutrition, fortification, child safety, and support to women who are victims of domestic violence. To support the MNP activities, SOLEO has secured warehouses for MNP in Dodoma and Morogoro. The founder has recently opened an office in Dar es Salaam and is ready to start fundraising for the next container of MNP. She has already identified 20 wholesalers and expanded MNP sales outside the project's target regions. Artwork for the product itself and marketing materials have been forwarded to SOLEO, with copies to TFNC and the Ministry of Health so future product and collateral material can easily be updated and printed.

Summary of MNP distribution by 1 gram sachets

	Dodoma	Morogoro	Manyara	Zanzibar	TOTALS
Q2 2013	115,200	430,848	29,952	-	576,000
Q3 2013	133,632	115,200	4,608	-	253,440
Q4 2013	115,200	69,120	11,520	-	195,840
Q1 2014	230,400	11,520	69,120	-	311,040
Q2 2014	4,608	9,216	18,432	135,936	168,192
Q3 2014	57,600	6,912	32,272	0	96,784
Q4 2014	41,472	39,168	9,216	12,960	102,816
Q1 2015	112,896	39,168	16,128	11,520	179,712
Q2 2015	57,600	47,232	47,232	33,408	163,872
Q3 2015	108,288	39,168	34,560	115,200	297,216
TOTALS	806,400	721,152	209,680	264,096	2,001,328

Custom Indicator #49—Households that consume fortified maize meal or oil weekly

Forty-four millers are producing fortified *sembe* using 56 project-granted dosifiers supplied by Sanku who will continue servicing the dosifiers and supplying pre-mix fortificant. A 45th miller in Magugu produces fortified *sembe* with a micro-feeder on a roller mill; he markets his product in Arusha and Kenya.

Fortified sunflower oil is being produced by two oil processors, one in Dodoma and the other in Babati; a third will begin production shortly. Three other processors are semi-refining sunflower oil and have the means to produce fortified oil at low cost. A seventh processor has secured a $50,000 loan to purchase a 2 MT/day capacity refinery and should be able to fortify within the coming months. Fortified oil consumption jumped from 33% of surveyed households in September 2014 to 56% in May 2015. We attribute this to more retailers carrying fortified brands that are capturing more market share.

Custom Indicator #85—Households that consume at least one blended product weekly

The project finalized blended flour training books for facilitators and booklets for blenders on how to prepare blended flour, which will help drive production and offer guidance on marketing and demand

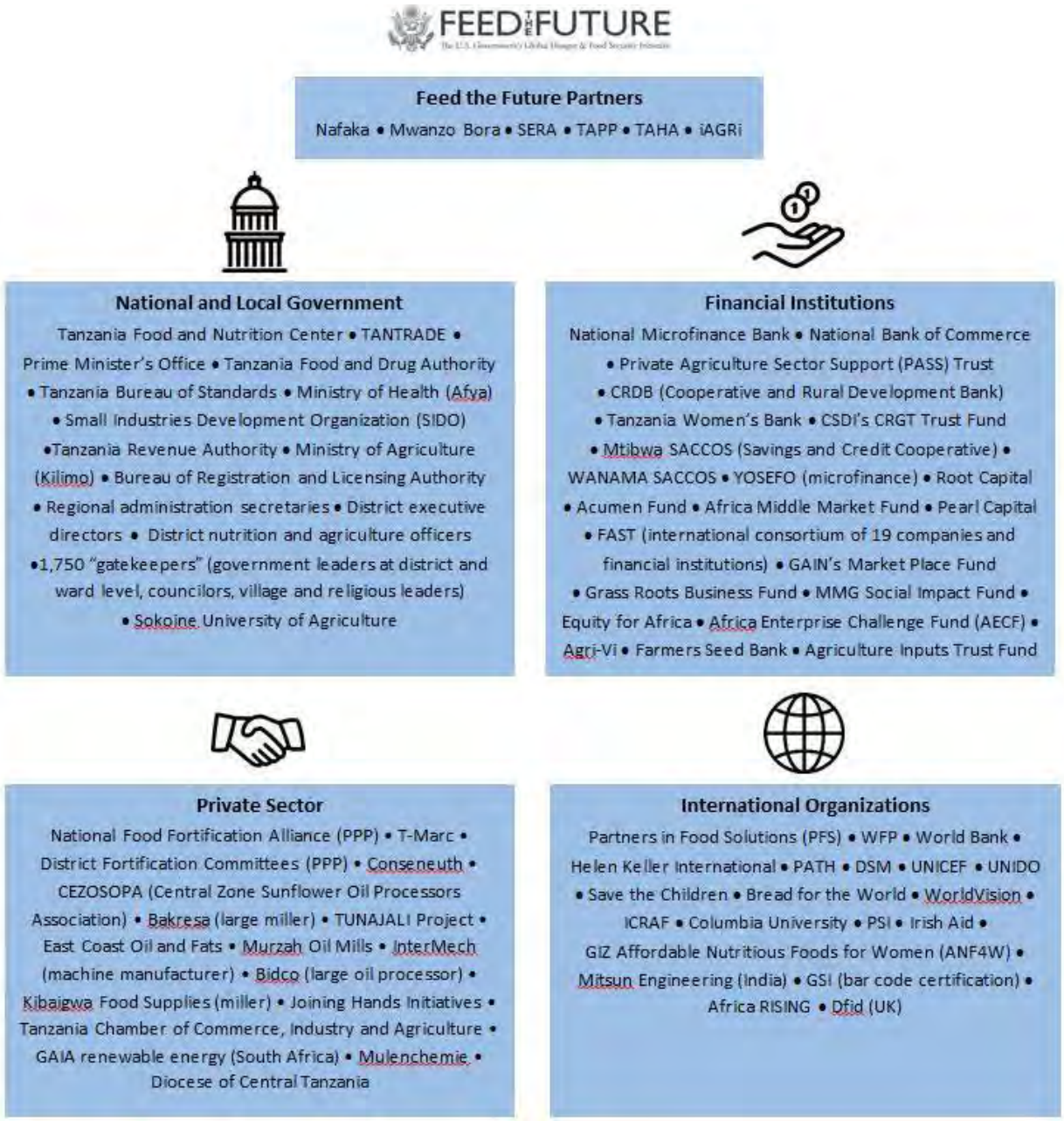
creation strategies. TFNC will print and disseminate to project supported blenders and other key stakeholders. According to surveys, blended flour has been consumed by up to 276,000 households in the TC zone of influence, 48% of the target population.

Custom Indicator #50—Households that recognize social brands

Recognition of the fortification logo rose 19% between September 2014 and May 2015 to 53% of households surveyed. Among shopkeepers, 78% knew the fortification logo. 80% of households surveyed could recognize the MNP sachet, although only 74% had children under five. The logo is now promoted in shops, displays, vehicles—and recognition is increasing.

COLLABORATION

Tuboreshe Chakula's success rested on buy-in and synergies with multiple implementation partners. As seen below, the project collaborated with six Feed the Future Partners and nearly 90 other organizations, including Tanzanian government agencies and district councils, private companies, local and international financial institutions, donors and international NGOs.



Working within these groups, TC was able to advance its better business and nutrition goals and lay groundwork for the sustainability of its efforts. We explain some of these efforts below.

With Feed the Future Partners

TC worked closely with its sister USAID Feed the Future project, particularly those that deal directly with producers and millers, and participate in nutrition messaging; TC often attended multi-sectorial nutrition committee meetings with other projects. Other activities included:

With ***Nafaka***, TC developed extensive linkages between farmers and maize/rice millers—who ultimately became market channels—and held joint trainings on mycotoxin mitigation, modern rice processing, and blended flour.

With ***Mwanzo Bora***, TC established a cooperation framework to conduct joint BCC activities—such as sensitization meetings on MNPs and fortification for village health workers, local leaders and home based care providers—and developed a creative brief for print materials, including sign boards, brochures, posters, media campaigns and instructional job aides for health care professionals, relevant government personnel and lay people.

With ***iAgri,*** TC teamed on export ban issues around maize and other policy issues affecting markets for staple crops. With ***TAPP***, TC helped promote production of nutritious foods through home gardens and consumption of healthy foods. ***TAHA*** helped Tuboreshe Chakula's technology provider, Sanku, get dosifiers on the list of products requested for tax exemption.

With the Private Sector

Alliances with international and Tanzanian firms helped TC identify processors' priorities and cost-effective solutions. To address the ongoing issues of machine breakdowns, the project teamed with ***SIDO*** to train *super fundis*—highly skilled craftsmen doing machine maintenance as well as minor and major repair—to coach mill operators and local *fundis* who are less technically skilled. To give oil processors the capacity and know-how to refine and fortify, TC partnered with experts from ***Mitsun Engineering*** in India to install refineries and do preparatory training and hosted a study tour for processors at East Coast Oil and Fats Plant and Murzah Oil Mill in Dar es Salaam. With ***GAIA***, a highly successful South African renewable energy company, the project organized an energy audit of several maize and oil clients to evaluate their energy consumption and identify cost-saving measures.

With Financial Institutions

One of the big stumbling blocks in agro-processing in general—and food fortification in particular—is access to financing. TC was able to establish linkages with financial institutions that provided training on how to access tailored financial products for the fortification endeavor. In all, 120 loans were negotiated valued at $2.9 million. During the Access to Credit Workshop held in September 2014, credit managers from select financial institutions became familiar with the needs of processors and coached them through the loan approval process.

With National and Local Government

Buy-in from policy makers and representatives throughout the Tanzanian public sector was indispensable for the fortification effort. Tuboreshe Chakula was able to connect at all levels of government in the ***Ministry of Health, Ministry of Agriculture, and Prime Minister's office*** as well as at local and regional government offices. The importance of this engagement, and a key to sustainability of the fortification agenda, is exemplified by the integration of fortification activities in local governments' annual budgets.

With International Organizations

Strategic partnerships with international organizations also bolstered the impact of TC's activities. For instance, ***Partners in Food Solutions*** worked with selected processors to create tailored business plans and sales and marketing charters. ***Helen Keller International*** was the first organization to work with fortification of staples (wheat fortification with large millers) and was a key partner for TC as it started in the fortification space, helping identify key government partners, premix suppliers and others.

THROUGH A GENDER LENS

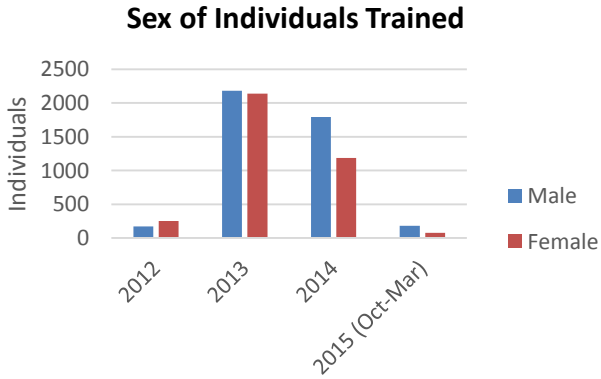
In most developing economies, women are considered the linchpins to family nutrition as they usually choose, buy and prepare the food; Tuboreshe Chakula (TC) confirmed this in February 2013, through a survey that found women decided which foods to purchase in 93.6% of households in its target regions. Yet men control most of the assets needed (farms, mills and shops) to produce, process and market nutritious food.

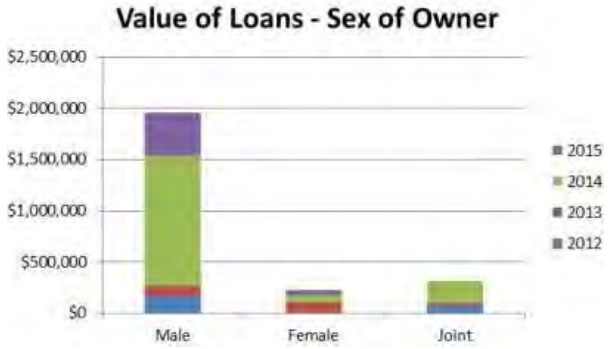
These roles are changing, even in rural Tanzania, where female entrepreneurs are gaining ground, and men are strongly encouraged to be involved in their children's feeding and upbringing. But with an eye toward current realities, TC, as a nutrition-improvement project, prioritized gender-specific approaches to maximize its impact and disaggregated all its participant data by sex to monitor its efforts—while also seeking opportunities to promote gender equality, particularly in the business side of its work.

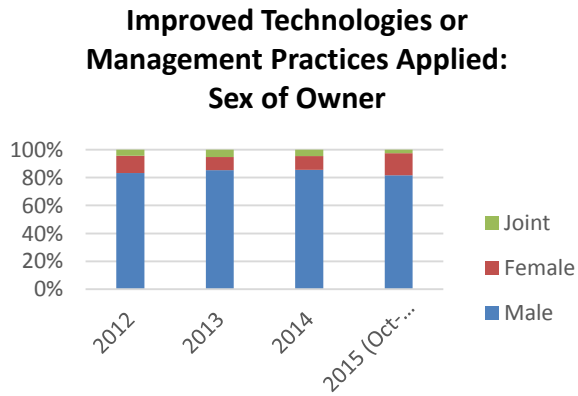
"I feel so independent now. I was able to use my own interests to generate more income for my family." *Julianna Christopher of the Gemago Cooperative in Dodoma, who redesigned her blended flour packaging and used a soya-intensive recipe after attending TC trainings in marketing and nutrition.*

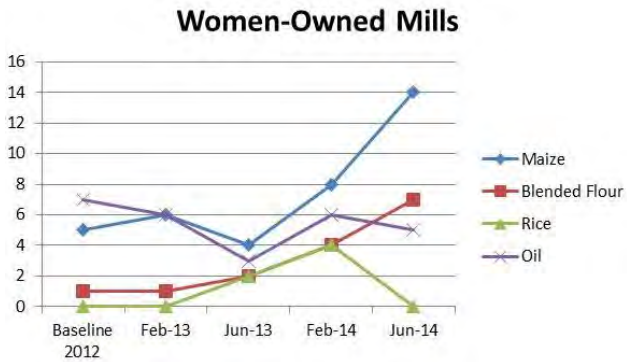
Men have historically dominated the country's processing industry and indeed, men owned the majority of TC-supported businesses. Yet the number of maize and blended flour mills owned by women or by married couples rose definitively during the life of the project. As more women became successful millers and blenders, TC supported them to shift from home-based businesses to formalizing their processing operation—and then promoted them as role models to encourage other women to move into this space.

TC had three gender focal persons and developed a gender action plan from 2012-14 *(see Annex 11).* In









In 2014, TC hosted a millers' training focused on women in Mvomero for 60 participants, 48 of them women. The project partnered with local government authorities to encourage female millers to attend the training and featured as role models Rahisi Group Mill and Kibaigwa Flour Supply, both jointly owned by a husband and wife, to share their stories of starting, expanding and operating their businesses. The workshop presented access to finance options and provided guidance, including an inspiring speech by Margaret Chacha, managing director of Tanzania Women's Bank *(shown above with TC COP Rebecca Savoie in background);* by the end of the workshop, 22 women had opened bank accounts with this institution. Mtibwa SACCOs discussed the benefits of creating a Savings and Credit Cooperative (SACCOs) among women and business groups that require capital. Participants also visited Farmers Seed Bank, a raw material credit supplier.

supporting processors, the project set a goal of working with at least 25% women, which it met, as 52 of the 733 mills were female or jointly-owned and 133 flour blenders were female, bringing the percentage to 25.2%. Female and jointly-owned mills received $566,000 in loans, a fifth of the total $2.9 million in loans facilitated by the project. To give women more tools to grow their businesses, TC targeted women for access to credit and held several workshops to link and network women processors to financial institutions. Project-supported women-owned businesses were usually quick to adopt new practices and began to bring records of suppliers and customers in addition to business plans to banks and microfinance institutions, all of which helped credit officers understand their business and identify debt options.

The project's social behavior change communication (BCC) efforts contained gender-differentiated messaging to encourage women to purchase more nutritious and fortified foods and men to understand the value of same.

Over the life of the project, TC found approaches most effective in empowering women were:

- Women-to-women peer group workshops for processors where they discussed gender issues.
- Women's access to credit workshops, many of whom had never engaged with the formal financial sector. TC coached business owners how to present their business to a financial institution and understand how financial institutions view risk.
- New and stronger networks among women-owned businesses as well as with women bankers, including Margaret Chacha, managing director of the Tanzanian Women's Bank.
- BCC visits to Reproductive and Child Health clinics during well-child visit days to inform women about micronutrient powder (MNP) and other nutritious foods.
- "Gatekeeper" training of 1,750 government and religious leaders to promote consumption of MNP and other nutritious foods; over one-third of them were women.

CHALLENGES AND LESSONS LEARNED

Internal factors

Delays in resources and staffing

Abt Associates signed the USAID contract on April 7, 2011 to implement the Market Based Solutions project (later called Tuboreshe Chakula), although funding did not become available until August. In the interim, project COP Remer Lane resigned due to serious health problems. Abt's John Lichte was designated acting COP, until the replacement COP, Jim Hellerman, arrived.

Field activities started in February 2012 in two districts—Morogoro Urban and Mvomero. By May 2012, the project had identified clients in Kilombero and Kongwa, plus Dodoma Urban and Kiteto. (Babati was added in 2013.) By September 2012, the project was working with 137 clients.

Organizational Innovation

The original project design was structured functionally, with Abt responsible for behavior change communications (BCC) and capacity strengthening and TechnoServe responsible for enterprise development and technology transfer. This resulted in teams working in silos, often making cooperation and collaboration a struggle. In mid-2014, the new COP, Rebecca Savoie, who replaced James Hellerman in December 2013, restructured teams to work around product lines, integrating business advisors, food technicians, BCC specialists and others to shepherd a product to market. Despite its late introduction, this innovation galvanized staff attention along priority areas for each product.

Organizational structures and management processes can greatly enhance or hinder project execution. Earlier attention to administrative and procedural aspects of implementation would give management better tools to track client trends and identify opportunities to re-deploy financial and staff resources according to priority areas.

Resistance to new practices and market-based approaches

Many of Tuboreshe Chakula's clients resisted changing the way they did business. Even as their systems became more complex, several clients had difficulty accepting the need for hiring an operations manager or a sales manager. The project did register gradual shifts in behavior, with some millers starting to reconsider their human resources strategies. More progressive millers have hired professional sales staff who are identifying ways to open outlets in their area and beyond. Others are hiring professional operators to oversee the mechanics, maintenance, and quality control systems. Some business owners are beginning to understand that this investment, although it reduces profits in the short term, will often improve operations, increase profits, and eventually cover his/her costs—plus add to the bottom line. TC also saw several millers make significant improvements in marketing strategies: Most originally had none beyond waiting for the customer to come to the store. By linking clients to larger mills with sales outlets and sales teams, project millers were exposed to specialization and began to adapt their own marketing strategies.

A more fundamental challenge was the Government of Tanzania's interest in importing micronutrient powder (MNP) at subsidized or wholly funded rates through government health programs. This would have undermined the project's mandate to create sustainable private sector supply to meet a nutritional need. During ongoing discussions with the GoT, the project team did eventually convince them that a product for children can be sold through commercial market channels and does not have to be a tax burden on the country. Other donor projects are subsidizing the cost of the product in order to meet their own project goals, such as an anemia reduction project managed by Helen Keller International.

External factors

Working within the system

It took over a year for TC to obtain the necessary approvals, certifications and inspections to import the first cartons of MNP into Tanzania. The project's goal was to work within the system and develop a program that met government criteria, as well as meeting nutritional needs of the program. Government policy changes and new innovations always take work—and this process was no exception, in particular working through multiple government entities that needed to approve various aspects of the nutritional content, labelling, and import of the MNP. Fortification activities were also delayed due to a slow and complex process of certifying businesses that fortify. Following the 12-plus month delay, the project found a way forward after lengthy discussions with the Ministry of Health and Tanzania Food and Drugs Authority (TFDA) by adapting the process followed for salt iodization in the 1990s. All parties agreed that TFDA, the Tanzania Food and Nutrition Centre (TFNC) and the Ministry of Health (MoH) should stay informed about the work of Tuboreshe Chakula, but businesses could start fortification efforts concurrent with the registration process. The project team created a handbook for maize millers that included the process for certification and registration with TFDA and the Business Registration and Licensing Authority (BRELA) that provides guidance as they move forward.

Role of Government of Tanzania

Under the ambit of consumer protection for promotion around fortification, the GoT has allocated resources to the TFDA that should be followed up on by subsequent projects, as they have not yet arrived at a plan or timeline for how these will be allocated. Millers bear the full burden of increasing consumer trust about their product. The project advocated for more government involvement, with some success: In Manyara, fortification was included in this year's budget, and in Dodoma, the regional nutrition officer clearly plans to move the fortification agenda forward. GoT messages are particularly important to build consumer trust. Many myths about the micronutrient powder were easily dispelled, but not before seriously denting sales.

Importance of SME financing

As with most businesses in Tanzania, Tuboreshe Chakula's private sector partners were generally young and growing their businesses, and often their investment in project-supported activities was delayed due to poor cash flow and lack of access to credit. Some business partners close for a few months during the low pre-harvest season and switch to another income-earning activity. By linking processors to financial institutions, TC facilitated120 loans valued at $2.9 million. But tailored financial products are not sufficient; they need to be coupled with assistance in establishing supply chain management systems to help even out production throughout the year.

Demand creation for new products

The project had a short timeline to achieve results through developing and marketing new products, such as *Virutubishi,* adaptation and installation of dosifiers, and improved formulation of blended maize flour to include soya. New product introduction takes time to develop and test the product, get the necessary certifications, move the product to market and create demand. Demand creation and behavior change at a scale that can support new business entry and investment requires repeated messages from various sources over time, including community leaders, to dispel myths and promote the products. Tuboreshe Chakula could not start demand creation until the products were in the market, which occurred in the second half of the project. But despite enormous promotional efforts—training over 1,700 community leaders about fortification and its benefits, and investing in several campaigns—the time needed for GoT approval meant the project's business and behavior change activities were limited in their ability to reap the results of this promotion. Specific activities were put in place in recognition of this necessary sequencing of inputs to encourage growth of market demand and private sector's role in that beyond the project end date.

Delays in administrative approvals

The project experienced delays with procurement approvals which hindered planned implementation of project activities. For example, a TechnoServe consultant, Nancy Tran, who did a fine and thorough analysis of sunflower oil in April 2013, waited six months for approval to do a similar analysis for maize, after which she moved on; the study then did not occur until late 2014. Most harmful was the delay in approving the project extension until December 2014, which delayed staff restructuring and strategy retooling to meet goals.

PROJECT FINANCIALS

Abt Associates Inc.

Raise Plus -Tuboreshe Chakula Project

Contract: EDH-I-00-05-00005-00, Order: EDH-I-10-16-00005-00

Approved Budget $22,000,000.00

Period of Performance April 8, 2011 - June 30, 2015

Contractually approved Line Items		INVOICED					Total Invoiced to Date	Estimated Accrued Costs	
		Invoice 17637-10	Invoice 17637-22	Invoice 17637-34	Invoice 17637-45	Invoice 17637-48			
		Year 1	Year 2	Year 3	Year 4	Year 5 (Partial)	April 8, 2011 - May 30, 2015	Accruals	
	Approved Budget per Modification 7	April 8, 2011 - April 7, 2012	April 8, 2012 - April 7, 2013	April 8, 2013 - April 7, 2014	April 8, 2014 - April 7, 2015	April 8, 2015 - May 30, 2015		June 1, 2015 - June 30, 2015	Projected Total Spending
I. **DIRECT LABOR (Incl Fringe and Overhead)**	$5,459,303.00	1,068,859.75	1,269,748.00	1,459,956.12	1,384,344.95	167,004.85	5,349,913.67	80,355.00	5,430,268.67
II. **OTHER DIRECT COSTS**	$11,634,658.00	1,189,533.45	2,501,966.01	3,644,155.11	3,684,764.64	190,086.28	11,210,505.49	473,772.70	11,684,278.19
III. **GRANTS**	$1,275,250.00	0.00	0.00	457,371.43	456,545.59	227,319.24	1,141,236.26	61,610.00	1,202,846.26
IV. **INDIRECT COSTS (Incl G&A and Handling)**	$2,288,066.00	329,452.16	456,392.15	665,324.81	689,952.46	90,458.30	2,231,579.88	108,304.00	2,339,883.88
V. **FIXED FEE**	$1,342,723.00	168,211.35	275,126.32	405,264.12	403,192.03	46,415.5	1,298,209.32	44,513.68	1,342,723.00
XV. **TOTAL ESTIMATED COSTS PLUS FEE**	**$22,000,000.00**	**$2,756,056.71**	**$4,503,232.48**	**$6,632,071.59**	**$6,618,799.67**	**$721,284.17**	**$21,231,444.62**	**$768,555.38**	**$22,000,000.00**