STORIES OF CHANGE

A collection of inspiring accounts from West Africa’s smallholder farmers based on a decade of work by CORAF fostering regional integration and bridging food and income gaps
About CORAF

CORAF is an international non-profit association of national agricultural research systems (NARS) of 23 countries, covering over forty percent of Africa’s population, thus making it the largest sub-regional research organization on the African continent. It was created in 1987 and assigned the responsibility to coordinate and facilitate groundbreaking and cutting-edge research outputs needed to unlock the agricultural potential of West and Central Africa.

For more information on CORAF, visit www.coraf.org.

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# ABBREVIATIONS & ACRONYMS

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<th>Abbreviation</th>
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<tr>
<td>AusAID</td>
<td>Australian Agency for International Development</td>
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<td>CORAF</td>
<td>West and Central African Council for Agricultural Research and Development</td>
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<td>ECOWAS</td>
<td>Economic Community of West African States</td>
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<tr>
<td>FAO</td>
<td>United Nations Food and Agriculture Organization</td>
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<td>FIRCA</td>
<td>Inter-Professional Fund for Agricultural Research and Advisory Services</td>
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<td>IFPRI</td>
<td>International Food Policy Research Institute</td>
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<td>IP</td>
<td>Innovation Platform</td>
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<tr>
<td>MSc</td>
<td>Master of Sciences</td>
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<tr>
<td>NARS</td>
<td>National Agricultural Research System</td>
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<tr>
<td>NCoS</td>
<td>National Center of Specialization</td>
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<td>RCoE</td>
<td>Regional Center of Excellence</td>
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<td>SONAGESS</td>
<td>National Company for the Management of Food Security Stock</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>UPFN</td>
<td>Union provinciale féminine namagbzanga</td>
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<td>WAAPP</td>
<td>West African Agriculture Productivity Program</td>
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“Before, I could not produce more than 100 birds a year. For this year alone we had more than 800 poultry as a result of knowledge gained from the WAAPP. This also enabled me to hire young people to work with me, 

Adamu Mubarik, 
a guinea fowl farmer 
in Garu Tempane in Ghana

“
ACKNOWLEDGEMENT

This publication documents the uplifting and refreshing stories of selected smallholder farmers who adopted improved varieties, promising technologies, and innovations proposed by the West Africa Agriculture Productivity Program (WAAPP) to make a difference in their lives. They may not be representative of the 9 million direct and 49 million indirect beneficiaries of the WAAPP, yet their testimonies mirror a wider trend of improvements in the livelihoods of the hardworking men and women in fields across thirteen participating WAAPP countries.

To the Economic Community of West African States (ECOWAS), CORAF expresses its deep appreciation not only for the leadership it has demonstrated throughout this journey but also for trusting CORAF as its technical partner.

For aiding collaborative agricultural research, transferring technologies and innovations among countries, and strengthening the institutional and human capacity of the national agriculture research systems and those of the National Centers of Specializations (NCoS) in particular, CORAF expresses its gratitude to the Regional Project Implementation Unit.

Without the thirteen National Project Implementation Units (PIUs), the uptake of proven technologies and innovations at country will not be a reality. The PIUs contributed substantially to national agricultural growth, food security, and building the resilience of project recipients. CORAF appreciates this collaboration. The countries include Benin, Burkina Faso, Côte d’Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone & Togo.

We cannot overlook our network of hundreds of research scientists for owning the program and working in partnerships to generate technologies and sharing critical knowledge that made all this possible.

To the development partners who funded WAAPP (World Bank, DANIDA, JICA, Spanish Cooperation, UN Food and Agriculture Organization [FAO]), CORAF acknowledges your unflinching support.

Lastly, this publication would not have been possible without the communication specialists both in-country and at the regional level. A special appreciation to you all.
FOREWORD

I am incredibly delighted to provide the foreword for this special publication centering on the brave people of West Africa working hard to not only improve their living condition but also provide the food needed to feed the region.

As we have repeatedly seen over the past decade, adopting an improved variety or technology can result in unbelievable benefits.

A high-yield cassava variety generated in Kumasi, Ghana finds its way to Thielle (Tivaouane), Senegal and improves yields three-fold. A composite bread technology discovered in Dakar is adopted in Cote d’Ivoire. The long-term effect is that it generates the food needed to boost the pastry sector, grow incomes and lasting employment for previously unemployed youths.

For us, this is what we had hoped for when we launched the WAAPP in 2008 together with the World Bank and other friends of the region. Back then, the sharp rise in prices of basic foodstuff needed a response.

We set up WAAPP to not only increase productivity but to also foster our most cherished value of regional integration through agriculture. Guided by our belief that subsidiarity and complementarity generate greater efficiencies and impact, we handed the regional coordination of the project to CORAF as our trusted technical partner in agriculture research and development.

Ten years after, the results of the WAAPP are there for everyone to see. Overall, there are nine million direct and 49 million indirect beneficiaries.

On many counts, WAAPP has even surpassed expectations. Indeed, as reports have suggested, the WAAPP has had substantial contributions to the agriculture research and development systems of our region.

This does not mean our overarching mission of unlocking the agriculture economy of our region is over. Aggregate annual food import to Africa is estimated at US$35 billion and projected to rise to US$110 billion by 2025. The high youth unemployment is driving most of our young people to unknown destinations. Smart and precision agriculture is a solution. So too, are the acceleration of the massive adoption of technologies created by the WAAPP and comprehensively ensuring agri-inputs are available to those in need. These are some of the core elements of the new program which we hope will provide the needed jolt to achieve the required transformation finally.

In the meantime, ECOWAS is delighted to present to you the testimonies and personal stories of the people who are at the center of what we do each day. They are not only inspiring but profoundly motivating.

His Excellency Sekou SANGARE
ECOWAS Commissioner for Agriculture, Environment and Water Resources
In 2006, agricultural productivity was on the decline in Africa. Cereal yields, for example, were on average 1,120 kg/ha compared to the global average of 2,067 kg/ha. At this pace, agricultural products from the region could not compete favorably with those in the world markets. Overall, Africa’s intra-regional trade was limited. Food imports were on the increase, and government and private spending on agricultural technology, generation, and dissemination were on the decline. The linkages between research systems, extension services, farmers, and agribusinesses were weak to generate the required technologies. Technology transfer mechanisms were inefficient or non-existent. In many cases, farmers never learned of the innovations.

The West Africa Agriculture Productivity Program (WAAPP) was designed as a response to some of these challenges. The program adopted a regional approach to avoid wasteful duplication, make efficient use of scarce human and financial resources, and create economies of scale and positive regional spillovers.

Today, the West Africa region has made considerable progress with respect to reversing these trends. Cereal production increased by 60% between 2000 and 2012.

The largest increases were recorded in rice (+98%) and maize (+130%). The WAAPP has generated over 177 technologies and innovations that have induced yield increases of about 30% for dry cereals. As of end 2016 more than 143,900 tons of certified improved seeds of cereals have been produced with WAAPP support. Agricultural research expenditures in West Africa grew by more than 50 percent between the late 1990s and 2014, according to a new report by International Food Policy Research Institute (IFPRI).

However, the growing population and increasing food demand are putting substantial pressures on the regional food systems making some of this progress recorded in the past ten years almost negligible. This justifies the birth of the West Africa Agriculture Transformation Program which seeks to build on the momentum of the WAAPP to sustainably improve the agro-food system in West and Central Africa.

Besides these macro analyses,

the positive stories of the hard-working men and women across fields in West Africa have been the most gratifying part of my experience in this program.

They inspire us all to carry on. This is why as we enter the 10th year of the WAAPP and about to transition to a new program, we determined that it will be best to share these invigorating change stories with you.

Dr. Abdoulaye TOURE
The World Bank Group
STATEMENT FROM USAID WEST AFRICA MISSION DIRECTOR

A gri-businessperson Abdoulaye Sawado-go is the CEO of Neema Agricole du Faso commonly known as NAFASO. For over 13 years, he worked for a tire company in his native Burkina Faso. When he was terminated, he got a 300000 FCFA (USD 600) compensation package. He invested this money into agriculture. Despite initially making progress, he went from setback to setback. But as a result of his persistence and adoption of best practices from the WASP, his business fortune began to change considerably.

Today, NAFASO has about 50 permanent employees and nearly 1500 seasonal workers. The WASP has enabled NAFASO to expand operations beyond Burkina Faso to Senegal, Nigeria, Guinea and other West African countries. With more than 50 shops and nearly 450 retailers, NAFASO makes 5500 tons of seeds per season with an annual revenue of about 2.5 billion FCFA (USD 5 million). NAFASO seeds are helping to improve yields and incomes of West Africa smallholder farmers.

In setting up the WASP in 2012, our overarching goal was to build the critical bridge for the free flow of quality foundation and certified seed between producers and end-users. We understood that without a vibrant private sector such as NAFASO, we would struggle to unleash the seed industry and the agricultural economy of the region.

After five years of the implementation of the WASP, a mid-term evaluation established that its main objectives had been achieved. Not only have we seen many more NAFASO’s across the region, but an alliance for the coordination of the seed industry in West Africa has also been established. A harmonized seed regulation framework has now been implemented in 13 countries, unlocking cross-border trade and the availability of quality seeds to farmers.

Though there are now stronger linkages between research institutions, seed producers, certifiers and farmers across the West African seed value chain, much work still needs to be done. West Africa still faces challenges in the production, distribution, and widespread use of basic agricultural inputs, including certified seed, fertilizer, and pesticide. Lasting improvements in this sector requires the combined delivery of vital agri-inputs such as seeds, fertilizer, pesticides and other best practices. This is why we are delighted to renew our partnership with CORAF, and other partners in the region through a new program aimed at not only focusing on seed delivery, but also scaling up useful technologies, and supporting the development of regional markets and trade.

This publication is a recognition of the life-changing experience of those not only making a fitting living from seed production but also contributing in small yet significant ways to the delivery quality agri-inputs to smallholder farmers.

Dr. Alexandre DEPREZ
Director, USAID West Africa Mission
FROM THE ED’S DESK

In 2013, fifty-nine years old Kouamé Akissi, now an established agripreneur and cassava processor based in Toumodi in Central Cote d’Ivoire was looking to expand her business. With the help of the WAAPP Cote d’Ivoire, Akissi traveled to the Root and Tuber Research Center in Ghana. There she acquired not only new knowledge on improved cassava varieties but also technique on how to cultivate cassava at scale. Needless to say, that Akissi is now one of the well-known producers and processors of cassava in Cote d’Ivoire and across West Africa.

Making agriculture more productive and sustainable might have been the overarching objective of the WAAPP. But the regional approach to tackling common challenges and disseminating solutions across borders such as the example above are perhaps the reasons why this program stands out today across the world.

In ten years working with multiple actors in West Africa, CORAF has used its unique assets (networks, base centers, innovation platforms, etc.) to generate and disseminate critical public good research results that have contributed to fostering regional integration and bridging food and income gaps.

The results have been hugely encouraging. WAAPP reached close to nine million people directly and about 49 million indirectly.

More than two hundred technologies were released and adopted by almost 4,5 million producers and processors on about 4.8 million hectares.

WAAPP financed master degree and Ph.D. studies for 1021 youths. This represents 72% of men and 28% women. These young researchers are expected to replace most the agriculture researchers going on retirement.

The nine national centers of specializations of countries participating in the program benefitted from the renovation of their infrastructure and new research laboratories were constructed. Two of the centers have been upgraded in regional centers of specialization. This includes the Dry Cereals Center based in Senegal and The Roots and Tuber center based in Ghana.

By increasing the major crops yields between 30% for dry cereals and 150% for rice, fruit, and tubers, the program has had a considerable impact on food security and caloric intake. Caloric consumption rose from 2,777 kcals to 2,964 kcals and the "hunger period" reduced by 28 to 55% according to the commodity. WAAPP has also increased by 34% the economic situation of farmers as well as transformed communities.

Building on the WASP Model

There is no doubt that the WASP contributed considerably to improving the seed industry in West Africa. By convening the main players in the region to work together to make quality seeds accessible to farmers and helping countries to adopt legislation allowing cross-border trade, we have crossed the critical first hurdle.

We must now turn our focus to finishing the job. This requires an integrated approach in implementing the lessons learned from implementing the WASP. This includes enhancing implementation of the seed regulation at the country level, expanding quality assurance through the use of alternate quality control models and minimizing hindrances to cross-border seed movements. The WASP business model needs to be scaled up to agri-inputs business in the region while facilitating credit to those looking to get into the sector.

Encouraging as these figures are, the stories from across fields and communities are even heartening. This is what this publication is all about. A celebration of the brave people who bought into our research, innovations, and ideas, sometimes at a high risk, but ultimately with a high reward.

Dr. Abdou TENKOUANO
Executive Director  of CORAF
In 2014, I generated a net profit of 665,000 CFA (1,350 dollars) by selling 5.400 kg of cowpea to the National Company for the Management of Food Security Stock in Burkina Faso.

Gansore Binta, a 52-year old woman and cowpea producer from the Province of Bam in Burkina Faso. She is one of the users of improved cowpea variety introduced by the WAAPP.
INTRODUCTION

REGIONAL INTEGRATION IN BRIDGING FOOD AND INCOME GAPS

WAAPP was designed to make agriculture more productive, sustainable and profitable for small holder farmers, to improve the conditions of life of consumers through the provision of agricultural products at competitive prices, build a critical mass of researchers for sound, efficient and collaborative research programs and finally to ensure that technologies generated nationally are available regionally.

Meantime, the WASP was designed to help smallholder farmers to access higher-quality seeds that improve yields and are resistant to pests and drought. It was also set up to encourage intra-regional seed trade by harmonizing regional seed standards and policies.
FACTS AND FIGURES

BENEFICIARIES

9 MILLION
• Direct Beneficiaries

49 MILLION
• Indirect Beneficiaries

GENERATED AND ADOPTED

200
• Technologies

1021 YOUNG SCIENTISTS
• were awarded scholarships for Master and PhD degrees
• 72% men and 28% women

AVERAGE YIELD INCREASE
• 30% for dry cereals
• 150% for rice, fruit and tubers

AVERAGE INCOME INCREASE
• 34%
• 4.5 producers on about
• 4.8 million hectares

HUNGER PERIOD REDUCED
• 28 to 55%
• Caloric consumption rose from 2,777 to 2,964 kcals

CULTIVATED LAND
• 4.5 producers on about
• 4.8 million hectares
Introduction

Pooling research
The WAAPP has set up 9 NCoS strategically. These centers lead research in a specific commodity of regional interest and are expected to grow into RCoS over a period of five to ten years. Cross-border exchange visits have facilitated the sharing and adoption of technologies and innovations created by these centers.

Regionality a reality
Earlier individual countries worked within their boundaries with limited cross-border interactions. But with the adoption of a common results framework, exchange visits, and other mechanisms and tools, the regionality of WAAPP became a reality.

Technologies without Borders
The WAAPP has facilitated the trans-boundary exchange and adoption of technologies. Take, for example, the rice seeder, the composite bread technology, and the high-yield cassava variety were initially made in Mali, Senegal, and Ghana respectively. Today, these technologies are found across West Africa.
Value Chain Approach

Innovation Platforms (IPs) have mobilized actors of specific value chains in ways that were not feasible before. Each actor performs different but complementary roles in the development, dissemination, and adoption of technologies. Hundreds of IPs have been set up and are now supporting information sharing and adoption of technologies released by the NCoS.

Sustainable Funding

Inspired by the Ivorian agriculture funding model, the WAAPP is looking at replicating this indigenous funding best practice as a way of solving the enduring under-funding challenge. The Inter-Professional Fund for Agricultural Research and Advisory Services (FIRCA) of Côte d’Ivoire relies on professional contributions from producers processing agribusinesses. Over the period 2002-2012, FIRCA mobilized over CFAF 44 billion to finance 395 projects.

Next Generation of Scientists

More than 1000 Masters and Ph.D. candidates have been trained under the WAAPP. Some of the training was conducted in reputable universities in the region. These young researchers are expected to take over a largely aging research community in West Africa.
Introduction

BURKINA FASO

Cowpea Relieves Women
SUCCESSFULLY CULTIVATING COWPEA WAS A MAJOR HEADACHE FOR WOMEN IN THE PROVINCE OF BAM, LOCATED ABOUT 120 KM NORTH OF OUAGADOUGOU, THE CAPITAL OF BURKINA FASO.

They faced among others, the lack of awareness of quality seeds, limited access to arable land, poor access to finances and the lack of an efficient and functional market chain.

With the introduction of an innovation platform on cowpea, things changed for most of these women. Thanks to knowledge and information acquired from other actors on the platform, the women of BAM organized under a local cooperative known as Union provinciale féminine namagbzanga (UPFN), now have quality seeds and information on how to access financial institutions and credit.

The establishment of the Innovation Platform in July 2013 with the support of the West Africa Agricultural Productivity Programme (WAAPP) in Burkina rejuvenated the hope of many of these women who were about to abandon these activities for something else.

With the improved cowpea varieties, farmers can now produce 800kg per hectare as opposed to 550 kg per hectare for the old varieties.

To improve crop productivity, research centers introduced five new high-yielding cowpea varieties in the innovation platform. Through guided tours, the female producers adopted and disseminated these varieties.
Encouraged by the success of these women, traditional leaders are conducting advocacy to facilitate women’s access to arable land. With available land, financial institutions are encouraged to loan to the women. “Our participation in the guided tours on cowpea production plots contributed to convincing us of the quality of the work and potential yields. As a result, we decided to increase our loans to women for cowpea production,” says Aminata CISSE, a manager of a microfinance institution which is a member of the platform just like researchers and traditional leaders.

With the involvement of microfinance institutions, access to quality seeds, and land, yields and incomes have also increased. Overall about 465 tons of cowpea was sold in 2014 for roughly 120 million CFA francs (240,000 dollars) against average annual sales of 280 tons for a total of 72 million CFA francs (144,000 dollars) before the implementation of the innovation platform.

“In 2014, I generated a net profit of 665,000 CFA (1,350 dollars) by selling 5,400 kg of cowpea to SONAGESS,” said Gansore Binta, a 52-year old woman and producer of cowpea in Bam. SONAGESS is the National Company for the Management of Food Security Stock.

Assurance provided by SONAGESS to producers also contributed significantly to stabilizing the markets and brought certainty to those involved in the value chain.

Cowpea production has been increasing for the last ten years in Burkina Faso. Despite some of the progress made, climate variabilities and poor access to markets remain a challenge.
We want to say to CORAF, WAAPP, WASP and our various partners that they have sown grains that have sprouted and we are watering them so that they can bear fruit and many seeds.

Abdoulaye Sawadogo, founder of the company Nafaso
Introduction

BURKINA FASO

A Beacon of Hope
Nafaso, a Beacon of Hope

Abdoulaye Sawadogo, formerly a worker in a tire company, is about to conquer West Africa with his seeds. After close to 13 years working as a laborer, he was terminated in the 1980s with just 300,000 FCFA (USD 600) as compensation.

Uncertain about what to do with this sum, he decided to go into agriculture by cultivating a hectare of a banana plantation. His first harvest earned him 1,200,000 FCFA (USD 2400). This is four times the amount he received as his severance package for 13 years of work. In the second planting season, he cultivated maize and the harvest generated 750,000 FCFA (USD 1500). These encouraging results convinced him that he had indulged in a sector where the outcome could only be wealth creation.

In 2002, Abdoulaye sowed 65 hectares. His harvest worth about 279 tons were sold to a company partly associated with the state for about 65 million FCFA. He hasn’t been paid as of today. A year later, he suffered another major setback. In under 24 hours, torrential rains flooded his farm almost killing any hopes he had. Still confident, he obtained a loan of 8 million FCFA (USD 16000) to restart his activities the following year. With all the experience accumulated, he created his firm in 2008 and opted for the produc-
tion of off-season seeds. This was a winning strategy as Nafaso is today the leading company in West Africa specialized in the production and marketing of improved seeds.

Based in Bobo Dioulasso, Burkina Faso, Nafaso is active in rice, maize, sorghum and cowpea seeds. The new warehouse and machines and evidence of the company’s growing success. It has 40 permanent employees, ten executives, nearly 1,500 seasonal and more than 1,200 temporary workers.

«Our goal is to bring the seeds closer to their users and the small producers,» says Abdoulaye Sawadogo.

With more than 50 shops and nearly 450 retailers, Nafaso, which makes 5,500 tons of seeds per season, has an annual turnover of 2.5 billion FCFA (USD 5 million). Thanks to West Africa Seed Program (WASP), a program of CORAF, the company that operated mainly in Burkina Faso currently sells its seeds to Senegal, Nigeria, Guinea and across West Africa.

«Coraf accompanied Nafaso to obtain pre-basic seeds, from AfricaRice.

Today we produce certified seeds »
recalls Abdoulaye Sawadogo

«Nafaso is well positioned in the sub-region market thanks to CORAF, WASP, and WAAPP. They facilitated our access to the regional market,» says Abdoulaye recalling the 2014 initiative to supply critical seeds to countries hit by the Ebola disease.

During that period, Nafaso sold nearly 3 billion FCFA (USD 6 million) of seeds to the affected countries.
My income enabled me to pay the dowry of my fiancée. I was also able to cover the school fees of my children attending a private school.

Augustin Oussou, a small-scale farmer based in Tieplé close to Bouaké in Central Cote d’Ivoire
COTE D’IVOIRE

Increasing Incomes and Employment Opportunities
COTE D’IVOIRE
Increasing Incomes and Employment Opportunities

Augustin Oussou, a small-scale farmer, based in Tieplé close to Bouaké in Central Côte d’Ivoire is now a happy man. Since his involvement in poultry farming, he has seen a considerable increase in his income. With this, he not only covers the needs of his family but can also save for future contingencies.

Thanks to this income, I was able to pay the dowry of my fiancée. I am also able to cover the school fees of my children who attend a private school, even though my village has public schools, he explained.
Augustin is one of 800,000 Ivorian farmers that has benefited from the WAAPP, financed by the World Bank. This program aims to improve agricultural productivity through the development and use of certified seeds and the adoption of best practices for livestock farming such as the construction of hen houses (using local material) or the vaccination of poultry.

Raising livestock is a promising sector for youth seeking employment. Thirty percent of WAAPP beneficiaries practicing poultry farming are youths. Augustin Oussou is convinced that this sector is a lucrative business and has even taken steps to negotiate with his village authorities about how to provide training for more young people who wish to invest in this activity.

Oussou is just one of many beneficiaries of the program. Others, such as Albert Kangah, is exploring a different avenue. He produces plantains and runs a nursery in Azaigué, a village approximately 40 kilometers from Abidjan, the economic capital of Cote d’Ivoire. “I can produce plantains in the off-season thanks to WAAPP support.”

“In the beginning, I was worried about demand. But thanks to a large media campaign, there is a large demand now. Sometimes, the demand is higher than what we supply.”

With the increase in revenues, he was able to purchase a 3 500 000 FCFA (USD 7,000) worth car that now allows him to deliver quicker. Kangah delivers an average of 1.5 tons of plantains per week in the off-season. He has also hired 14 full-time workers.

While these results are impressive, according to Jean-Paul Lorng, the WAAPP Deputy coordinator, the scaling up of the distribution of certified seeds for crops such as cassava, plantains, and of poultry incubators is necessary to diversify revenue sources for Ivorian farmers.

Akissi N’da Kouame, a farmer from Bedresou, a village in central Cote d’Ivoire, has several agricultural activities. She produces cassava and cassava seedlings, as well as processed cassava. “I started with one or two hectares of cassava, and now I have achieved my dream of becoming a cassava processor. Ms. Kouame now grows cassava on more than 30 hectares of land.”
Stories of Change
Regional Integration in bridging food and income gaps

COTE D’IVOIRE

Unlocking the Baking Industry
Until recently, most small bakery businesses in Cote d’Ivoire faced significant challenges related to obtaining raw material including flour. Thanks to the composite bread technique exported from Senegal by WAAPP Cote d’Ivoire, many of the hurdles in the pastry market are now being addressed. Pastry and bread are now produced with inexpensive, more nutritious and easy-to-produce cassava flour.

According to Louis Kakou, the manager of Top’Pain, an Abidjan-based leading pastry firm, they now have enough flour to grow their businesses and meet local demand thanks to WAAPP-generated cassava.

“Before the training workshops organized by the WAAPP, women bakers did not know one can use local flour to bake and obtain good results,” says the manager of Top’Pain. WAAPP has trained 500 firms, of which 350 bakers and 150 pastries. Solange Mundi, a baker and bakery teacher at an Abidjan institute, says “I can now save more money because local flour is less expensive, and that impacts on the entire cycle of production and sales.”

To provide added value to the corn and cassava sector, WAAPP Cote d’Ivoire initiated, as a priority activity, the development of local flours made from these products in bread making. This project aims at encouraging the production and consumption of composite bread made with local flour by bakery and pastry professionals and the population.
“Thanks to the income from this activity, I was able to pay my kids’ university fees without making any loans”

Adamu Mubarik, a guinea fowl farmer in Garu Tempane (Ghana)
GHANA

Guinea Fowl Creating Jobs
A program of the WAAPP is developing the guinea fowl breeding industry in Ghana to create rural jobs. Incubation methods and techniques, such as guarding guinea fowl to protect them from predatory birds, have boosted the productivity rate by over 500 percent. Program starter kits include financial support, an incubator, a generator, 500 eggs, a dewormer, fodder, and vaccines. Participants also receive regular visits from agricultural trainers who help them with poultry care. Today, more than 50,000 people benefit from the program.

Before, I could not produce more than 100 birds a year. Now our losses are really minimized. For this year alone we had more than 800 poultry, so we were able to hire young people to help me,

says Adamu Mubarik, a guinea fowl farmer in Garu Tempane.
“Thanks to the income from this activity, I was able to pay my kids’ university fees without making any loans.”

WAAPP-Ghana’s guinea fowl program is designed, so that beneficiary farmers also support others in their community. Each WAAPP-sponsored farmer is paired with an aspiring guinea fowl farmer, to whom he provides guidance and access to resources. For a low fee, WAAPP beneficiaries also rent out space in their incubators to farmers who want to hatch their eggs.

 Entire communities of guinea fowl farmers have thrived as a result, with up to 50,000 people benefiting from WAAPP’s initial investment in just 80 farmers.

«Agriculture is already one of Ghana’s biggest employers, but the energy and optimism that fuels the sector means that it can have an even bigger impact,» says Henry Kerali, World Bank Country Director, Ghana.

«The Bank is supporting Ghana’s guinea fowl industry because it’s ripe for expansion—it has the potential to create thousands of jobs, earn revenue by selling to the local and international market and help alleviate poverty.»

Many other farmers are looking to replicate the experience of Adamu. «I get calls from Kongo, Basunde, every corner of this district,» says Adamu. «They want to hatch their eggs using the incubator or buy eggs or a guinea keet. They’ve heard of the farm and want to see what I’m practicing here.»

Mubarik, who received a starter kit from WAAPP in 2013 and now produces up to 3,200 birds a year, is keen to put others on the path to success.

According to the International Livestock Research Institute (ILRI), up to 80 percent of the agricultural gross domestic product (GDP) in developing countries comes from livestock while 600 million rural people are dependent on livestock to feed themselves and their families. Farmers often raise indigenous breeds, managing herds both to maintain diversity and to support community livelihoods.

«In the face of climate change and other challenges to food security, it is critical we maintain the resilient characteristics of breeds that are well adapted to rough terrains, harsh environments, and limited feed and water, » says the FAO Director-General José Graziano da Silva.

“And many breeds have valuable characteristics that help maintain landscapes and wildlife habitats.”

© Countryside Network
"I was convinced by the WAAPP approach"

Ousmane Diallo, young Guinean agribusiness owner who is now diversifying into the sales of ice cream. He is a beneficiary of WAAPP improved variety and knowledge.
Young Guinean Takes a Successful Bet in Agriculture
GUINEA

Young Guinean Takes a Successful Bet in Agriculture

With most youths continuing to view agriculture unfavorably, it is uncommon to see young people venturing into the farming sector. But in Guinea, the case is different for Ousmane Diallo. He lived abroad, but one day, he decided to return home and settled in agriculture.

At first, it was not easy. Returning to the fields after living abroad was difficult. But today, I can achieve my goals as a farmer, he says.
About 80 percent of Guineans are engaged in the agriculture sector. Though Ousmane has been in agriculture for a while, he always longed to be involved in a business activity further up in the agriculture value chain.

Ousmane developed eight hectares of land, going from rice production to banana and cashew. Proceeds from these activities have now enabled him to open an ice cream shop. The WAAPP equipped him with the required knowledge, varieties, and technologies.

«The WAAPP approach convinced me.»

Ousmane employs six people permanently and about 15 seasonal workers. About ten other people work in his new ice cream shop. Despite the progress made, Ousmane still dreams of more startups in the agriculture value chain.

The original article was published on the website of WAAPP Guinea.
Rice Productivity and Incomes on the Increase
Mali
Rice Productivity and Incomes on the Increase

The Sahara’s mighty sands and brutal temperatures may extend over half of Mali, yet these unforgiving desert conditions are not slowing down the country when it comes to agricultural production.

In a country where even the slightest fluctuations in climate could lead to acute food insecurity, mastering the art of agriculture under harsh conditions remains essential.

Malian farmers are now farming smarter and adopting new technologies to boost crop yields and revenues.

With the help of the West African Agricultural Productivity Program (WAAPP), over 175,000 Malian farmers have been able to revitalize their productivity through the planting of higher yielding rice varieties and more pest resistant tomatoes, the use of an adapted seed drill to economize seeds, and the production of siloed corn to feed livestock thus increasing their milk production.

With the support of the project, Mali is strengthening its seed systems as well as its research and technology transfer systems to provide comprehensive support for the implementation of the National Agricultural Investment Program and to boost the resilience of farming and pastoral communities.

The integrated subregional aspect of the program, which constitutes one of the program’s biggest strengths, also enables Mali...
The completion report for the first phase of the WAAPP revealed that these farmers have been able to enhance their productivity by on average 30% and their revenues by 34%. The period between two harvests has also been shortened, a result which is already having a significant impact,

explains Abdoulaye Touré, Lead Agriculture Economist at the World Bank and WAAPP Task Team Leader.

to benefit from innovative technologies and techniques developed in the other WAAPP beneficiary countries. One of these innovative techniques is the introduction of new more resilient varieties of tomatoes.

«The drought tolerant varieties enabled us to maintain our production yields during the rainy season, when tomatoes are in short supply,” says Ibrahima Diakite, President of the Regional Commission for Users of Agricultural Research Findings in Mali.

The possibility of producing crops year-round has proved to be a real advantage for Malian farmers.

Farmers also benefit from training, study tours, knowledge exchanges between ECOWAS stakeholders, and equipment prototypes during exchange visits, all of which help strengthen their technical capacities.
The drought-tolerant varieties enabled us to stabilize our yields during the rainy season, when tomatoes are in short supply.

Ibrahima Diakite, President of the Regional Commission for Users of Agricultural Research

Findings in Mali.
Regional Integration in bridging food and income gaps

Stories of Change

MALI

SRI increases Incomes
Mali

SRI increasing Incomes

The System of Rice Intensification (SRI) is helping bring rural farmers closer to food self-sufficiency in many countries in West Africa including Mali. SRI potentially reduces water use, increases land productivity, and provide a buffer against the impacts of climate change while reducing reliance on artificial inputs, like pesticides and artificial fertilizer.

Mali, where rice is the staple food, imports more than 45 percent of its rice. The West Africa Agricultural Productivity Programme (WAAPP), a program at CORAF, introduced SRI methods to increase rice production and lower food insecurity sustainably.

SRI creates two possible harvest periods in Mali, thereby reducing the length of the lean period. With increased income, farmers are purchasing food supplements and investing in education.

"With this practice, I can feed my family, and the income generated enabled me to cover health costs and school fees for my children," says Adama Dougnon, a rice producer in the Segou Region of Mali. "Before, I used to practice the broadcast seeding method. With 120 kilograms of paddy rice seeds, I can reap 3-4 tonnes per hectare. Then I switched to a regular rice-transplantation system that allowed me to get about 5 tons with 80 kilograms of seeds per hectare. But the introduction of the SRI by WAAPP has significantly increased my yields. Currently, my yields are estimated in the range of 8 to 8.5 tons per hectare with a maximum of 15 kilograms of paddy rice seed used."

SRI is a crop management approach developed by Fr. Henri de Laulanié in Madagascar in 1983. The goal is to create nutrient-rich soil and provide individual plants with the space to grow, allowing them to develop a stronger root system. This leads to stronger plants and larger yields.
MALI

Rainy Season Tomatoes now Possible
MALI

Rainy Season Tomatoes now Possible

Ba Issa Traore is a market gardener in San, a city located about 437 km northwest of Mali’s capital, Bamako. Here, the WAAPP introduced three varieties of high yield and pest-resistant rainy season tomato. WAAPP also provided improved crop techniques. Combined, they have enabled farmers to improve their yields as they can now cultivate, harvest and sale year-round.

Before, Traore was unaware of these improved techniques. Similarly, many farmers near the Segou region were not familiar with this approach. Traditionally, tomatoes were cultivated only during the dry season, often in swampy areas. Most planting tests during rainy season often resulted in the deterioration of over three-quarters of crops given the high vulnerability of plants to pest infections. This regularly led to shortages of tomatoes in the region.

But since the introduction of three improved varieties initially developed in Burkina Faso, farmers in San have seen their fortunes turn around.

There is now a steady and regular supply of high-quality tomatoes in the local and national market.

«I grow my tomatoes on about 600 meters square. After each harvest, I make a profit of 35,000 f CFA (75 US dollars) or even more. During the production cycle I can harvest about ten to twelve times,» «says Traore.

With the improved techniques introduced by WAAPP, Traore and his community are fully prepared to face the lean season that corresponds to times when the previous harvest is depleted while the new crop is still growing.

«The improved tomato allows me to replenish food supplies such as rice and millet to feed my family during the lean season,» says the market gardener.
NIGER

Maradi Opens New Opportunities
NIGER

Maradi Opens New Opportunities

In West Africa, the red goat of Maradi is improving the lives of family farmers, stimulating local economies, and making better nutrition more accessible. These indigenous livestock species are well-suited for West Africa, with a wealth of genetic diversity that makes them more adaptable to a changing climate. With assistance from the West and Central African Council for Agricultural Research (CORAF), these breeds are becoming easier and more profitable to raise.

The Red Goat of Maradi is found in central Niger and is economically important in rural households for its milk and skins. A typical litter is two to three kids, and they reach reproductive age at six to seven months, with two litters a year. Each female goat can produce 0.6 liters of milk per day for three to four months after each litter. Its milk is rich in Vitamin A and in rural Niger it is known for saving maternal orphans. The meat is a good source of protein, and the skins are used in internationally-praised luxury leather goods.

Maradi in Côte d’Ivoire, Burkina Faso, and Mali

The Centre Secondaire d’Elevage Caprins (Secondary Center for Goat Breeding) in Niger was established in 1963 to conserve, improve, and disseminate the red goat, as well as teach adaptive livestock techniques to farmers. Through this breeding program, the red goat is now present in many parts of Niger. The WAAPP has further distributed red goats to Côte d’Ivoire, Burkina Faso, and Mali to improve local economies and provide additional nutrition.
Regional Integration in bridging food and income gaps

Stories of Change
Fortunately, through my collaboration with the WAAPP, I was able to buy equipment and expand my business. The WAAPP became a springboard for me to achieve production capacity and produce quality fingerlings for fish farmers in Nigeria. The program also helped me devise a strategy to own my value chain in aquaculture, continuing to excel in fish production while also expanding into processing and packaging of different fish products.

Steve Okeleji, a Nigerian aquaculturist and founder of Fish Shoal Nigeria.
NIGERIA

5.2 Million Fingerlings & Counting
When I was growing up in rural Nigeria in the ’80s and ’90s, agriculture was already a central part of my life. As a child, I gained farm experience working with my father, who was a veterinarian. My mother, a teacher, would send me off to school each day with the parting words, “Go out there and be the best amongst equals.” This is still the motto by which I try to live.

As an aquaculture student at the Federal University of Agriculture, Abeokuta, I discovered a large gap in the fisheries industry: a scarcity of good fish seed in eastern and northern Nigeria. I began surveying fish farmers in the affected regions to learn more about the problem. The results revealed a business opportunity. I decided that I could help bridge a knowledge gap for the fish farmers and also supply them with quality fish seed. I began devising strategies for fish distribution.

By my third year at university, I acquired my own farm where I started fish seed multiplication with only two wooden vats to raise fish. Today, with support from the World Bank’s WAAPP, my company, Fish Shoal Ni-
Nigeria, has a capacity of 5.2 million fingerlings per year.

The challenges of fish farming have been innumerable. In the early years, there was a lack of funding, facilities, and equipment. Few people wanted to listen to a young farmer. I didn’t have the right equipment to monitor environmental and water parameters or a fish disease diagnosis laboratory to help prevent against disease. There were no insurance policies to protect fingerling producers and no support structure from the government. I experienced massive fish mortality through parasite infestation, disease, and fire.

Fortunately, through my collaboration with the WAAPP, I was able to buy equipment and expand my business. The WAAPP became a springboard for me to achieve production capacity and produce quality fingerlings for fish farmers in Nigeria. The program also helped me devise a strategy to own my value chain in aquaculture, continuing to excel in fish production while also expanding into processing and packaging of different fish products.

For years, I have worked to build Fish Shoal Nigeria. The name “Fish Shoal” means a massive movement of fish. It’s a business name that is living its true meaning.

Fish Shoal Nigeria employs an inclusive buy-back strategy to engage thousands of Nigerian farmers. We produce and supply quality broodstock to downlink farmers, offer technical support to the farmers who raise the fish, and we buy back from the same farmers to process and package the fish for distribution. This strategy provides jobs and increases and improves food security in Nigeria. One of my primary goals is to put fish on the tables of more Africans as cheaply as possible.

I believe Africa is capable of feeding the world and that our continent is the next frontier of economic development. Eight years after founding Fish Shoal Nigeria, I’m using my knowledge and experience to help drive change in Africa and make aquaculture accessible to fellow Africans.
The seeds met my expectations

Mamadou Faye, a small-scale farmer in Pointe-Sarene, about 100 kilometers south of Dakar, Senegal
Regional Integration in bridging food and income gaps

Stories of Change

SENEGAL

Improved Varieties
Building Resilience
Mamadou Faye is a small-scale farmer in Pointe-Sarene, about 100 kilometers south of Dakar, Senegal. Thanks to our WAAPP, Mamadou went from corn farming to sorghum seed production. Despite the erratic rainfall, he was able to acquire drought-tolerant varieties of sorghum.

Previously, irregular rainfall and poor seed quality produced paltry yields and low revenue. When he signed a contract with a cooperative run by Senegal’s Pastoral and Farmers Organizations’ Network (Réseau des organisations paysannes et pastorales du Sénégal abbreviated or RESOPPI), he was provided with new varieties of sorghum developed by the WAAPP. These seeds are drought-resistant and have shorter cycles. The seeds met my expectations, says Mamadou.

I work almost the whole day in this field because growing sorghum is worth it. «I will increase cultivation if I had more land, explains Mr. Faye.
Under the seed production contract, Mamadou is bound to sell the sorghum seeds back to the cooperative for 300 FCFA a kilo, a price higher than that of the market (150 FCA). According to the local WAAPP agricultural advisor, Diegane Faye, farmers using these WAAPP certified seeds obtained a yield of 1.5 to 2 tons per hectare against 0.5 ton per hectare from local non-certified varieties. With a region receiving half the normal amount of rainfall, experts this is remarkable yields.

With agriculture becoming an increasingly uncertain business in Senegal and many other Sub-Saharan African countries, there is an urgent need to protect farmers from the ever-increasing risks linked to weather variability, pests, diseases, drought, and flooding.

Given these conditions, the WAAPP program coordinated by CORAF is developing and implementing smart climate agriculture to sustain agricultural growth and subsequently, pave the way for poverty alleviation and economic growth, especially in agricultural-based countries.

Improved varieties are leading to high yields even with deficits in rainfall. Between 2011 and 2014, producers increased their productivity by 6 percent. The improved varieties are also helping farmers build resilience to climate shocks and protecting them against the negative effects of crop failure.
Processing Saved Disabled
Aissatou Diallo
SENEGAL
Processing Saved Disabled Aissatou Diallo

As part of the implementation of the WAAPP in Senegal, Aissatou was selected with other women and trained in food processing and conservation.

“We gained valuable knowledge,” says Aissatou who received a diploma from her training in Canada.

On her return home, Shivet Fruit received equipment worth about one million FCFA from the National Fund for Agricultural and agri-food research (FNRAA). As a result of the training, Shivet Fruit now has the technical capacity required to process almost all local products, while maintaining their taste and nutritional qualities.

Shivet Fruit processes local cereals into syrups. In Mbour, products from this local group have made their way to hotels and restaurants. The quality of their products has gained the respect and trust of those in the local market. It is now possible to see “Tropic,” a Shivet Fruit’s favorite brand in the local stores.

“We carefully comply with manufacturing standards,” said Mrs. Samb, the group’s spokesperson.

“The products of Aissatou Diallo do not show any lack of hygiene and quality, and our customers appreciate her syrups, jams and processed cereals. I strongly encourage her to maintain this momentum” a hotelkeeper in the seaside city of Saly said.

Today, “Tropic” is sold beyond the Mbour area. The successes recorded have encouraged the group to start new business plans of increasing supply to the international market.

Aissatou Diallo is a disabled person. She has about 30 years of experience in fruit processing. She is also chairperson of Shivet Fruit, an interest group made up of about ten women in Mbour, located about 50 kilometers from Senegal’s capital, Dakar.

In Most parts of West Africa, disabled people are left on the streets begging and expecting to assisted by passers-by. But not for this 50-year brave women.

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In Most parts of West Africa, disabled people are left on the streets begging and expecting to assisted by passers-by. But not for this 50-year brave women.
I chose to be a seed producer rather than going to the city to join the growing lines of the unemployed women or reduced to a house help,

Sokhna Amy Mbacké,
A Standout Female Seed Producer
A Standout Female Seed Producer
At 45, Sokhna Amy Mbacké has emerged as a standout seed producer in a largely male-dominated village of Touba Madina in the Kaffrine region, located in central Senegal.

This mother leads an agro-business in an environment where the majority of women are confined to household chores or mostly laborers in fields and businesses often owned by their husbands. In this small town located in the heart of the groundnut basin of Senegal, Sokhna is admired and respected by all.

Sokhna who is a member of the certified seed growers’ cooperative of the Kahi commune has been recognized across many seasons for her outstanding work in seed production. For a community mostly dominated by men, this is an exceptional feat.

In 2017, she produced ten tonnes of maize and sorghum and almost as much groundnut thanks to the support they got from the WASP. Though she is discrete with respect to her income, Sokhna admits that she earns enough to cover her needs.

She now takes care of the school fees and insurance of her children and family thanks to the revenues from the sale of certified seeds. She also extends her generosity to the people in her community by regularly helping villagers with food, seeds, and sometimes money.

“Everyone here respects her particularly men,” says a village resident.

“I chose to be a seed producer rather than going to the city to join the growing lines of the unemployed women or reduced to a house help,” says Sokhna while thanking CORAF and USAID for allowing her to produce and sell certified seeds.
“I can now afford to educate my two daughters and take care of my household”

Jane Diagne, a thriving female farmer in Boiram Village in the Gambia
A Female Farmer
Feeding her Village

THE GAMBIA
THE GAMBIA
A Female Farmer Feeding her Village

The village of Boiram is now a model for most communities producing rice in The Gambia primarily because of all the support provided by WAAPP in collaboration with the National Agricultural Research Institute and the Ministry of Agriculture. As a result of the use of high-yielding rice varieties introduced by WAAPP’s innovation platform, Ms. Jane Diagne’s is now a thriving female farmer that many others look up to.

The introduction of the Sahel 134 variety, the adoption of 21 agricultural best practices and the provision of agricultural inputs in time by the WAAPP Gambia has induced a rice yield increase of about 500%. This has motivated the women and youth of the village, to invest in the production of upland rice fully.

At the moment, yields have increased from roughly 1.2 tons to 4.5 tons per hectare. This has considerably improved the economic situation of Ms. Diagne. She says she can now afford to educate her two daughters and take care of her household. Before the implementation of WAAPP in her village, she used to sell small ruminants to meet the needs of the family.
Ms. Diagne and other rice farmers from Boiram have diversified into the production of rice seed.

With the new farming skills acquired, Ms. Diagne is able to equip and improve her farm and help other producers. She has provided seeds to up to 20 small-scale rice farmers in her community and become a role model and champion in rice production in the district of Fulladou.

Furthermore, she is now able to participate in decision making in her community actively and confidently interact with local authorities. She has significantly improved her knowledge and understanding of gender and climate change issues. She is now able to train and educate other women on nutrition and health issues.

Ms. Jane also invented 4 rice recipes (rice cookies, cakes, Chakeri and other products) that are appreciated by consumers.
Parboiling Kit Made the Difference for Single Mom
Togo
Parboiling Kit Made the Difference for Single Mom

With a broad smile and renewed pride, Mrs. Kadokali Ebiro shows us her piggery while telling the story of her life. This 47-year-old widow speaks about the positive impact improved rice parboiling kits provided by WAAPP Togo have had on her life and Vaillantes Femmes, the women group she belongs to.

Following the death of her husband, Ebiro was involved in small business including selling sand and charcoal to support her four kids. The revenue she generated from these activities was not sufficient to take care of her needs and those of her family. In search of better options, she joined Vaillantes Femmes in 2007. This group was engaged in traditional parboiling rice. At the time, they recorded at each parboiling a loss of six kilograms on each bag of 100 kg of parboiled paddy rice. They could only parboil three bags of 100 kg per day and only made a profit of 7500 FCFA (USD 15) per day.

With the improved parboiling kit offered by WAAPP Togo in 2014, Vaillantes Femmes increased its profits by 211% and diversified their activities. Ebiro now manages to pay for her children’s school fees easily. One of her
kids graduated from the University of Lomé in 2015 with a degree in management. She started raising pigs with her share of profits. Their nutrition has also improved. Generally, in poor households in rural Togo and across Africa, rice is consumed sparingly. This is no longer the case in Ebirô’s home. They now eat parboiled rice often.

Ebirô is the President of Femmes Vaillantes. Their collective ambition is to create a modern rice parboiling center which will further increase the income of members of other women and youths.

Since December 2011, WAAPP Togo has been at the forefront of generating and promoting technologies that can meet the nutritional needs of the population and ensure food security. WAAPP Togo has acquired ten rice steamers and shared with women groups across the country producing parboiled rice.
THANK YOU

Without your unflinching support, none of this would have been possible. On behalf of the hardworking men and women of West Africa, we say thank you.
About CORAF

CORAF is an international non-profit association of national agricultural research systems (NARS) of 23 countries, covering over forty percent of Africa’s population, thus making it the largest sub-regional research organization on the African continent. It was created in 1987 and assigned the responsibility to coordinate and facilitate groundbreaking and cutting-edge research outputs needed to unlock the agricultural potential of West and Central Africa.

For more information on CORAF, visit www.coraf.org.