IDEV conducts different types of evaluations to achieve its strategic objectives.
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Project Cluster Evaluation of the AfDB’s Technology for African Agriculture Transformation (TAAT) Program – Phase I – Summary Report
IDEV Project Cluster Evaluation, May 2023

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The overarching objective of the African Development Bank Group is to spur sustainable economic development and social progress in its regional member countries (RMCs), thus contributing to poverty reduction. The Bank Group achieves this objective by mobilizing and allocating resources for investment in RMCs and providing policy advice and technical assistance to support development efforts.

About Independent Development Evaluation (IDEV)
The mission of Independent Development Evaluation at the AfDB is to enhance the development effectiveness of the institution in its regional member countries through independent and instrumental evaluations and partnerships for sharing knowledge.

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## Abbreviations and Acronyms

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<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AATF</td>
<td>African Agricultural Technology Foundation</td>
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<tr>
<td>AEFPF</td>
<td>African Emergency Food Production Facility</td>
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<td>AfDB</td>
<td>African Development Bank Group</td>
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<tr>
<td>AGRA</td>
<td>Alliance for a Green Revolution in Africa</td>
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<td>AHAI</td>
<td>Agriculture &amp; Agro-Industry Department</td>
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<tr>
<td>BMGF</td>
<td>Bill &amp; Melinda Gates Foundation</td>
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<tr>
<td>CAADP</td>
<td>Comprehensive Africa Agriculture Development Program</td>
</tr>
<tr>
<td>CFA</td>
<td>Central African CFA Franc</td>
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<tr>
<td>CGIAR</td>
<td>Consultative Group for International Agricultural Research</td>
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<tr>
<td>CIAT</td>
<td>International Center for Tropical Agriculture</td>
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<tr>
<td>CSP</td>
<td>Country strategy paper</td>
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<tr>
<td>DP</td>
<td>Development partner</td>
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<tr>
<td>DRC</td>
<td>Democratic Republic of Congo</td>
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<tr>
<td>ECAD</td>
<td>African Development Institute</td>
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<tr>
<td>GAFSP</td>
<td>Global Agriculture and Food Security Program</td>
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<tr>
<td>GAP</td>
<td>Good agricultural practices</td>
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<tr>
<td>GDP</td>
<td>Gross domestic product</td>
</tr>
<tr>
<td>GEM</td>
<td>Grain quality enhancer and energy-efficient, durable material parboiler technology</td>
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<tr>
<td>HA</td>
<td>Hectare</td>
</tr>
<tr>
<td>ICARDA</td>
<td>International Center for Agricultural Research in the Dry Areas</td>
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<tr>
<td>ICRISAT</td>
<td>International Crops Research Institute for the Semi-Arid Tropics</td>
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<tr>
<td>IDEV</td>
<td>Independent Development Evaluation</td>
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<td>IFDC</td>
<td>International Fertilizer Development Center</td>
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<tr>
<td>IITA</td>
<td>International Institute of Tropical Agriculture</td>
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<tr>
<td>ILRI</td>
<td>International Livestock Research Institute</td>
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<tr>
<td>IWMI</td>
<td>International Water Management Institute</td>
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<tr>
<td>Kg</td>
<td>Kilograms</td>
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<tr>
<td>Ksh</td>
<td>Kenya shilling</td>
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<tr>
<td>M²</td>
<td>Square meters</td>
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<tr>
<td>M&amp;E</td>
<td>Monitoring and evaluation</td>
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<tr>
<td>MEL</td>
<td>Monitoring, evaluation, and learning</td>
</tr>
<tr>
<td>NAIP</td>
<td>National agricultural implementing plan</td>
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<tr>
<td>NARES</td>
<td>National Agricultural Research and Extension Systems</td>
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<tr>
<td>NGN</td>
<td>Nigerian Naira</td>
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<tr>
<td>PAGL</td>
<td>Office of the Auditor General</td>
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<td>PIAC</td>
<td>Office of Integrity and Anti-Corruption</td>
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<tr>
<td>PINS</td>
<td>Non-Sovereign Operations and Private Sector Support Department</td>
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<td>PITD</td>
<td>Industrial and Trade Development Department</td>
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<tr>
<td>PMU</td>
<td>Program management unit</td>
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<td>PPE</td>
<td>Personal protective equipment</td>
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<td>RDGE</td>
<td>East Africa Regional Development and Business Delivery Office</td>
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<td>RDGN</td>
<td>North Africa Regional Development and Business Delivery Office</td>
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<tr>
<td>RDGS</td>
<td>Southern Africa Regional Development and Business Delivery Office</td>
</tr>
<tr>
<td>RDSA</td>
<td>Portfolio, Monitoring and Delivery Department</td>
</tr>
<tr>
<td>RDVP</td>
<td>Regional Development, Integration and Business Delivery Complex</td>
</tr>
<tr>
<td>RMC</td>
<td>Regional member country</td>
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<tr>
<td>SAH</td>
<td>Semi-autotrophic hydroponics</td>
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<tr>
<td>SARD-SC</td>
<td>Support to Agricultural Research for Development of Strategic Crops in Africa project</td>
</tr>
<tr>
<td>SEAF</td>
<td>Special Emergency Assistance Fund for Drought and Famine in Africa</td>
</tr>
<tr>
<td>SNDR</td>
<td>Development Impact and Results Department</td>
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<tr>
<td>TAAT</td>
<td>Technologies for African Agricultural Transformation</td>
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<tr>
<td>TAAT-I</td>
<td>Technologies for African Agricultural Transformation, Phase I</td>
</tr>
<tr>
<td>TAAT-II</td>
<td>Technologies for African Agricultural Transformation, Phase II</td>
</tr>
<tr>
<td>UA*</td>
<td>Units of Account</td>
</tr>
<tr>
<td>USD*</td>
<td>United States dollars</td>
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*1 AfDB Unit of Account (UA) = 1.30 United States Dollar (USD), as at September 2022*
Executive Summary

Background

This summary report presents the key findings, lessons, and recommendations of a project cluster evaluation of the African Development Bank Group (AfDB or ‘the Bank’)’s Technologies for African Agricultural Transformation (TAAT) Program, Phase I (TAAT-I). The evaluation was part of Independent Development Evaluation (IDEV)’s 2022-2024 work program and was conducted after TAAT-I ended in September 2022.

IDEV’s evaluation of TAAT-I had originally been planned to inform decisions about the second phase of the TAAT Program (TAAT-II). However, the evaluation took place during a period of unprecedented global change, as a result of which the Bank expedited its approval of the African Emergency Food Production Facility (AEFPF) in May 2022 and of TAAT-II in July 2022. As a result, IDEV’s evaluation will inform not the approval but the implementation of TAAT-II, as well as the implementation of other Bank initiatives in the sector.

The main goal of TAAT-I was to deploy proven agricultural technologies to raise the productivity and production of selected agricultural commodities. The program also sought to mitigate risks and promote diversification and processing in 18 agricultural value chains; to harmonize national, regional, and transnational border protocols for the introduction and release of improved seed varieties and breeds; to synchronize seed system protocols across countries and regions, especially for the production of foundation seeds; to combat the spread of destructive pests and diseases affecting crops and livestock across borders; and to create an enabling environment for entrepreneurship and private sector activity.

TAAT’s overall objective was to increase food output by 120 million tons and lift 40 million people out of poverty by 2025. To do this, the program developed compacts for nine commodities: maize, rice, wheat, cassava, high-iron beans, orange-fleshed sweet potato, sorghum/millet, livestock, and aquaculture. The nine commodity compacts were supported by enabler compacts that addressed six areas of intervention: soil fertility management, water management, capacity development, policy support, youth in agribusiness (Enable TAAT), and the response to fall armyworm. TAAT-I originally targeted 22 countries but by completion had supported 29 countries, all of which were eligible for the African Development Fund.

At approval, TAAT-I’s total resource envelope was UA 40 million (USD 55.2 million). This comprised UA 29.0 million (USD 40 million) from an African Development Fund grant, UA 7.25 million (USD 10 million) from the Alliance for a Green Revolution in Africa (AGRA), UA 0.85 million (USD 1.17 million) from the Bill & Melinda Gates Foundation (BMGF), and UA 2.9 million (USD 4.0 million) of counterpart funding from regional member countries (RMCs). Over the course of implementation, the AfDB disbursed UA 27.53 million (USD 38.4 million) and the BMGF increased its contribution to UA 4.79 million (USD 6.6 million). USD 8.2 million was leveraged from TAAT-related programs funded by other development partners and the private sector in RMCs. Except for USD 127,000 provided by the Government of Togo, data was not available on governments’ counterpart contributions, whether in cash or in kind.
Purpose and Scope of the Evaluation

The evaluation examined TAAT-I’s strategic orientation and the program’s relevance, coherence, effectiveness, efficiency, and sustainability over its entire duration, that is, from February 2018 to September 2022. The evaluation also drew lessons and good practices related to the program’s compacts and contexts. The evaluation covered the program’s nine commodity compacts in seven purposively sampled countries; for each commodity compact, it also examined all applicable enabler compacts. The sample ensured adequate representation of all agroecological zones, all regions, and all country development contexts, including fragility. The evaluation focused on both the program and compact levels and presents its findings accordingly.

Evaluation Questions and Methodology

The evaluation followed the AfDB’s Independent Evaluation Policy and conformed to IDEV’s guidance for project cluster evaluations. The evaluators formulated the evaluation questions after consulting with the Evaluation Reference Group, the Bank’s Agriculture & Agro-Industry Department (AHAI), and several Board members. The evaluation questions can be summarized as follows:

Q1. To what extent was TAAT-I relevant to the needs of the targeted beneficiaries, RMCs, and other stakeholders?

Q2. To what extent were TAAT-I interventions in selected commodity compacts and intervention sites coherent with other Bank interventions to develop agriculture and increase productivity, and with the interventions of RMCs and other development partners?

Q3. To what extent did TAAT-I achieve or was likely to achieve its expected results and contribute to improved productivity, incomes, and food security among targeted communities and individuals for selected commodity compacts in the intervention sites?

Q4. To what extent was TAAT-I effective at leveraging resources and promoting innovation through partnerships for selected commodity compacts in the intervention sites?

Q5. How efficient was TAAT-I in using its resources and implementation arrangements, including the program’s ecosystem—the program management unit (PMU), the clearing house, the Steering Committee, and the commodity technology delivery compacts—to achieve its objectives?

Q6. To what extent were TAAT-I activities and results sustainable or were likely to be sustained for selected commodity compacts in the intervention sites?

Q7. What key lessons can be drawn about what works and does not work, where and under what circumstances, for selected commodity compacts in different country contexts? How effectively were good practices shared during the program’s implementation?

To answer these questions, the evaluation used a theory-based approach and three lines of evidence: a desk review of program-related documents, key informant interviews, and country case studies. For the country case studies, the evaluation reviewed country-level documents, conducted country- and community-level interviews, held community- and beneficiary-level focus group discussions, and undertook observation visits. Except for Nigeria and Niger, in each country covered by a case study, the evaluation examined two commodity compacts. In Nigeria and Niger, the evaluation examined one commodity compact each. The resulting case studies covered the following compacts and countries: wheat and livestock in Ethiopia, cassava in Nigeria, maize and aquaculture in Zambia, high-iron beans and orange-fleshed sweet potato in Kenya, millet/sorghum in Niger, rice and maize in Benin, and cassava and orange-fleshed sweet potato in Democratic Republic of Congo (DRC).
The evaluation experienced several challenges, the most significant of which were (i) the limited availability of data and the complexity of attributing results to the program; (ii) conflicts and insecurity that prevented the evaluators from assessing the orange-fleshed sweet potato and cassava interventions in DRC and visiting certain sites in other countries; and (iii) high turnover among staff of the Bank, the project’s implementing partners, and RMCs. The evaluation mitigated these challenges by using multiple lines of evidence to triangulate and validate the findings. The sources of evidence included the documentation systems of the program’s implementing partners and the program’s monitoring and evaluation (M&E) unit.

Main Findings

Relevance

The evaluation assessed the extent to which TAAT-I’s strategic orientation and design aligned with the Bank’s policies, strategies, and operations in the agriculture sector and with RMCs’ needs. The evaluation also assessed the program’s design and how the program integrated cross-cutting issues.

Alignment: The evaluation found that TAAT-I aligned with the Bank’s Ten-Year Strategy 2013–2022, which identified agriculture and food security as one of its three areas of special emphasis, and with the “Feed Africa” High 5. The Bank’s Feed Africa Strategy seeks to use a value chain approach to transform Africa’s agriculture and increase the productivity of major crops on the continent: TAAT-I’s commodity compacts did likewise. In addition, TAAT-I’s support aligned with RMCs’ priorities for the agriculture sector.

Design: The evaluation found that TAAT-I’s design was complex and overambitious. With nine commodity compacts and six enabler compacts, the program’s scope was broad; with 29 countries, its geographic coverage was vast; and with more than 300 partners, its implementation model was complex. Nonetheless, the evaluation found TAAT-I’s design to be tailored to the needs of RMCs, institutions, and beneficiaries at different levels. In Ethiopia, for instance, the program supported the government in its aim to achieve wheat self-sufficiency by expanding production in lowlands that traditionally had been agropastoral zones. Similarly, in Nigeria, the program supported the private sector and farmer groups to increase their cassava processing capacity in response to the increase in the supply of cassava that resulted from farmers’ use of improved varieties and good agricultural practices. However, the evaluation observed shortcomings in TAAT-I’s mainstreaming of the cross-cutting themes of gender and the environment, despite some progress on the theme of youth empowerment.

Notwithstanding the importance of TAAT-I’s shortcomings, on balance, the evaluation rated the program’s relevance as satisfactory.

Coherence

The evaluation assessed coherence in terms of the extent to which TAAT-I was integrated, harmonized, and coordinated with other Bank-supported interventions in agriculture and with similar interventions implemented by RMCs, development partners, and the private sector.

Internal coherence: TAAT-I mirrored the agricultural priorities identified in the Bank’s country strategy papers (CSPs) and its Feed Africa Strategy. Because the CSPs for 90 percent of the evaluation’s case study countries had been developed before TAAT-I had been approved, the CSPs did not reference TAAT-I; nonetheless, the CSPs prioritized agriculture and TAAT-I focus areas. At the same time, the evaluation found weak linkages between TAAT-I implementing partners and AfDB country offices in the case study countries, although it noted that towards the end of the program period, TAAT-I attempted to strengthen its ties to programs implemented by AfDB country offices.

External coherence: The evaluation made four principal findings on external coherence. First, it found that TAAT-I was well harmonized with global,
continental, and regional frameworks for agricultural development. Among other things, the program collaborated with regional economic communities through the African Agricultural Technology Foundation to domesticate regional policy and legal frameworks for the seed subsector. For instance, remarkable transfers of technologies occurred from pioneer countries such as Nigeria (cassava) and Ethiopia (wheat) to other RMCs. Second, TAAT-I and other development partners' programs were found to be highly integrated in countries with strong national coordination mechanisms, clear policy direction, and government-supported input provision schemes (e.g. Ethiopia, Kenya, and Zambia). However, TAAT-I’s success at leveraging resources from other development partners was inferior to that of similar, AfDB country office-led programs, which attracted up to 45 percent of their resources in this way. This was due to the limited degree to which the program coordinated its activities with development partners and government stakeholders in RMCs. Third, the strength of the linkages between TAAT-I and the private sector depended on RMCs’ policy environment. For example, RMCs with weak national input support programs experienced more private sector participation but needed a good regulatory framework. As for universities and nongovernmental organizations, they played a critical role in implementation. Fourth, TAAT-I was able to adapt to the initial institutional coordination challenges experienced by the program’s ecosystem (the PMU, the clearing house, the Steering Committee, and the compacts), but challenges persist.

Overall, TAAT-I demonstrated a satisfactory level of coherence.

Effectiveness

The evaluation assessed TAAT-I’s effectiveness by assessing the extent to which the program and its compacts achieved or were likely to achieve planned results and contribute to improved productivity, incomes, and food security among targeted communities and beneficiaries. The evaluation presents its findings in this regard in terms of the TAAT-I program’s objectives. The evaluation also assessed the achievement of outcomes. The assessment took place at the program level and was supported by an in-depth examination of results at the compact level in the case study countries.

Creating an enabling environment for farmers’ adoption of technology: The evaluation found that the program’s support for policy reforms-reforms that promoted the mobility of agricultural technologies, inputs, and products across borders, especially among countries in similar agroecological zones-produced tangible results. The three indicators on policy reform achieved 145 to 193 percent of their targets.

Resource mobilization: TAAT-I’s financial resources consisted of the Bank’s contribution, the BMGF’s funds for the project’s clearing house, and resources leveraged by RMCs from similar projects supported by the private sector and other development partners. A total of USD 8.2 million was leveraged against a target of USD 4.8 million, representing an achievement rate of 170 percent. As for counterpart funding, apart from USD 127,000 provided by the Government of Togo, data was not available on the resources provided by RMC governments, whether in cash or in kind. TAAT-I was less successful at mobilizing resources from AfDB-supported country programs: it only leveraged 74 percent of its target (USD 9.5 million of the USD 12.9 million targeted). Several stakeholders and program staff expressed concern about the shortage of external resources for scaling up TAAT technologies in RMCs.

Cross-cutting issues: The evaluation found the program’s performance on inclusivity and the mainstreaming of cross-cutting themes to be mixed. The program succeeded considerably on youth empowerment but less well on gender and the environment. The work on gender concentrated mainly on quotas for the participation of women, pegged at 40 percent; little gender analysis took place, and only one of 27 outcome indicators was disaggregated. The Enable TAAT Compact made progress on building youths’ capacity and
Executive Summary

An IDEV Project Cluster Evaluation

involving youths in Agripreneurship (awareness-raising activities, trainings, agribusiness parks, and group business ventures), but youths’ involvement was constrained by their poor access to land and finance. As for the implementation of environmental safeguards, in general, few risks materialized, but in some areas, the program failed to put appropriate mitigation measures in place.

Facilitating delivery to farmers: Although TAAT-I was found effective in developing partner organizations’ capacity to deliver technology to farmers, these efforts did not increase farmers’ access to trainings on the technologies in question. The evaluation found demonstration sites to be vital for building capacity and promoting TAAT-I technologies. The program established 202 multi-stakeholder innovation platforms for learning, knowledge generation, and dissemination against a target of 234. Through these platforms, 1,250 partners (the target was 1,122) were involved in the program and received capacity-building support. This resulted in 351,456 staff members of TAAT-I partner organizations being trained under 13 of TAAT-I’s 15 commodity and enabler compacts. The training developed the capacity of national agricultural research and extension systems (NARES) centers, which were critical for training farmers. That said, only 497,275 people were trained in the development of agricultural enterprises: this fell far short of the target of 9.6 million and produced an achievement rate of only 5.2 percent. Although TAAT-I’s program-level data validated and consolidated the data tracked in compact-level reports, a review of compact-level closure reports suggests that the number of farmers trained may have been under-reported.

For example, in three case study countries (Kenya, Nigeria, and Zambia) and three other beneficiary countries (Cameroon, Uganda and Zimbabwe), Syngenta, a private seed company, implemented fall armyworm-related activities that trained 1,237 staff members of partner organizations (NARES centers, agrochemical and seed companies, and academia). The NARES centers cascaded this training to 833,374 district-level extension agents. In Zambia alone, the cumulative number of beneficiaries of Fortenza Duo-treated maize seed reached 2 million farmers.

Interviews with stakeholders and focus group discussions with farmers revealed that the main challenges in training more farmers resulted from inconsistencies in the level and intensity of training activities. More training took place in the first season than in following seasons, on account of limited resources and COVID-19 restrictions. Nonetheless, the program helped establish 2,789 new small and medium agribusinesses against a target of 2,421. It also strengthened 102 national seed systems against a target of 106, accredited 5,000 input suppliers, and established digital seed trackers. This was critical in Benin and Nigeria, where small-scale farmers raised concerns about counterfeit seeds and seeds whose quality had been compromised.

The development of regional value chains was an important aspect of TAAT-I. The program had not established indicators for this activity, but the evaluation observed two notable achievements: the widespread adoption of semi-autotrophic hydroponics (SAH) technology, resulting in the establishment of improved cassava seed systems in Benin, DRC, and Nigeria; and value addition realized with improved cassava processing technologies. In Nigeria, Niji Agro Solutions spearheaded the research, fabrication, and export of food-processing and agro-equipment technologies across cassava-growing countries in Central and West Africa. In Kenya, the evaluation found evidence of a regional value chain for orange-fleshed sweet potato, with farmers sourcing cheaper planting materials from Tanzania. However, among TAAT-I’s main shortcomings were delays in the adoption of regional policies and regulations to harmonize seed systems and ease the movement of technologies among RMCs in similar agroecological zones.

Deployment of appropriate technologies: In total, the program deployed 208 individual technologies (133 bundled technologies): the target for individual technologies was 202. The program involved 63,472 intermediate beneficiaries against a target of 62,427.
Most intermediate beneficiaries were farmers and people involved in establishing community demonstration sites, multiplying seeds and planting materials, and fabricating equipment. Some 18.9 million people against a target of 20.2 million were reached by awareness-raising campaigns. However, of the 40 million people targeted, only 10.9 million ultimate beneficiaries (27 percent) actually used the technologies and accessed the program’s services. At the same, it should be noted that the 40 million target had been set at the design stage for all three phases of TAAT ending in 2025, not just for TAAT-I, which ended in 2022. By the end of TAAT-I, 21 percent of the program’s ultimate beneficiaries had accessed market facilities and services, 5.4 percent had used post-harvest technologies, 22 percent had engaged in commercial agribusiness supply chains, and 53 percent had accessed inputs.

Overall, despite the program’s progress in creating an enabling environment and helping partners establish an effective technology delivery infrastructure, persistent barriers prevented beneficiaries from taking full advantage of the technologies and the market linkages promoted by the program. First, small-scale farmers only had access to small plots of land and found it difficult to finance the expansion of their agricultural activities. The case studies revealed that this was especially true for youths. Second, limited access to inputs and other complementary services from governments, the private sector, and other development partners prevented beneficiaries—especially youth—from starting and expanding agricultural enterprises.

**Achievement of outcomes:** The evaluation found that despite progress on TAAT-I’s outputs, the limited scale and duration of TAAT-I’s interventions made it difficult to assess progress on outcomes, among others because of the weakness of TAAT-I’s M&E system and the complexity of attributing the results: that is, the difficulty of assessing how much of the results were due to TAAT-I and how much they were due to other agriculture programs. Nevertheless, the evaluation referred to a selection of commodity compacts in its country case studies to estimate the program’s outcomes for a limited number of beneficiaries. On this basis, the evaluation found mixed results for the program’s contribution to increased agricultural production and productivity.

**Efficiency**

The evaluation examined how efficiently TAAT-I used its resources (its time and its funds) and its implementation arrangements, including the program’s ecosystem (the PMU, the clearing house, the Steering Committee, the commodity technology delivery compacts, and the commodity and enabler compacts) to achieve the program’s objectives.

**Timeliness, Resource Use, and Implementation**

**Timeliness:** The evaluation found that despite the program’s complexity, the appraisal and approval of TAAT-I only took 4 months. Nonetheless, 7 months elapsed between the Board’s approval and the program’s first disbursement. Delays in disbursements were also found to affect the implementation of compact activities, especially the procurement of key agricultural inputs necessary at the beginning of the farming season. For example, delays in obtaining statements of no objection for the fall armyworm compact reduced disbursements for field activities in Kenya, Nigeria, and Zambia by 30 percent.

**Resource Use:** Overall, the program’s performance on resource use was found mixed. The program was only able to use its funds after two no-cost extensions. At the same time, some 90 percent of interviewees—especially program staff, the management staff of implementing partners, and the representatives of RMC institutions—expressed concern about the program’s limited resources. A comparison of the resource envelope and scope of TAAT-I and those of the Support to Agricultural Research for Development of Strategic Crops in Africa project (SARD-SC) indicated that TAAT-I’s resources were limited in light of the expectation that TAAT-I would deploy
technologies, including technologies developed by SARD-SC, at scale. Indeed, at UA 39 million (USD 60.5 million), SARD-SC’s resource envelope was similar to TAAT-I’s, but SARD-SC only supported four commodities in 20 RMCs, whereas TAAT-I supported nine commodities in 29 RMCs. Under TAAT-I, a 13 percent overhead for implementing partners, a 2 percent consultative group tax for CGIAR partners, and operating and human resource costs reduced the resources available for each country. Furthermore, the evaluation estimated that countries that participated in commodity compacts that covered 11 to 16 countries (the compacts for maize, cassava, rice, and aquaculture) received a total of USD 57,007 to USD 88,018 each over the life of the program. In contrast, countries that participated in compacts that only covered 4 to 5 countries received an estimated USD 248,315 to USD 297,640. This showed that compacts’ coverage affected the level of TAAT-I’s support.

Implementation: The evaluation found that delays associated with the Bank’s procedures for procurement and disbursement undermined the timeliness and flexibility of the program’s activities. In Nigeria, for example, the cassava compact’s slowness in procuring cassava cuttings delayed the program by seven months after the start of the planting season in April. The outbreak of the COVID-19 pandemic and measures introduced by RMCs to contain the spread of the virus slowed implementation as well. These factors led to a 40 percent slippage in the program’s completion.

TAAT-I’s institutional framework: TAAT-I’s design was complex and the program’s implementation model involved over 300 partners. The institutional framework for managing these partnerships had several layers of approvals and agreements: this created a burdensome bureaucratic system for approvals and oversight. Furthermore, the program counted 141 sub-agreements with partners: establishing these agreements and managing them during implementation entailed huge responsibility and was itself a time-consuming endeavor. Despite coordination challenges, however—especially in the early stages of the program—the evaluation found TAAT-I’s management entities (the PMU and the clearing house) and the program’s compacts to have functioned reasonably well. That said, challenges persisted in terms of the clarity of roles and responsibilities, financial and program management procedures, and the coordination between commodity and enabler compacts.

Monitoring, evaluation, and learning (MEL): The evaluation found that a programmatic MEL framework had not been prioritized and integrated into the design of TAAT-I at the project appraisal report stage. A systematic focus on MEL activities was only operationalized after a mid-term review of the program in December 2019, followed by an automated system developed with additional funds provided by the International Institute of Tropical Agriculture (the executing agency) and the BMGF.

The evaluation also found that the program only employed one dedicated M&E expert to support both management entities (the PMU and the clearing house) and the 15 commodity and enabler compacts in 29 RMCs. An M&E assistant was only engaged towards the end of the program. This arrangement compromised the design of the system as well as the collection and quality assurance of data used to track the output and outcome results reported by the program’s partners. The cost of direct MEL expenses—the cost for personnel, equipment, and the development of the MEL system—was USD 580,000: this represents only 1.5 percent of the total budget, well below the 3-10 percent recommended by development organizations. These shortcomings limited the scope and depth of the program’s M&E system and affected the rigor of data collection and analysis, especially for outcome and impact indicators.

The evaluation also found that TAAT-I did not effectively leverage the capacity of implementing partners—especially the CGIAR centers, national research centers, and universities—to deploy complementary, independent systems to collect data and monitor the achievement of outcomes and impacts.
Given these shortcomings, the evaluation rated TAAT-I’s efficiency as partly unsatisfactory.

**Sustainability**

The evaluation examined sustainability by assessing the extent to which TAAT-I interventions and results were likely to be sustained at the program and compact level in the case study countries.

**Sustainability of results:** The evaluation found the sustainability of the program’s results to be promising but limited. According to the evaluation’s document review and stakeholder consultations, TAAT-I was premised on principles of sustainability and focused deliberately on building partnerships. But evidence from stakeholder interviews revealed that TAAT-I’s huge number of partnerships (more than 300) were difficult to coordinate and support. This undermined the sustainability of TAAT-I’s interventions and results.

**Ownership by stakeholders:** The sense of ownership of the program’s interventions on the part of RMCs, the private sector, and other partners was found to be satisfactory but could have been stronger. The evaluation found that in DRC (cassava and aquaculture), Ethiopia (wheat), Kenya (high-iron beans), and Zambia (the fall armyworm response, which was the enabler compact for maize), a deliberate, government-led process of coordinating and linking various actors improved results. The private sector’s participation in TAAT-I activities was mainly driven by the viability of the technologies promoted: for example, cassava processing in Nigeria and the use of Fortenza Duo against fall armyworm in Zambia.

**Sustainability of institutions:** The evaluation noted that pre-existing, higher-level institutions, such as CGIAR centers and regional economic communities, demonstrated good potential to sustain the program’s interventions because of their capacity to mobilize resources and the fact that TAAT-I’s interventions fell within their mandates and areas of specialization. In contrast, the sustainability of national institutions, country-level research institutions, and extension systems in RMCs was found to be weak on account of limited funding and other capacity gaps. Although the TAAT Program had been expected to be implemented over three phases, the limited focus on developing a sustainability plan for the clearing house early in the first phase was another major gap.

**Functioning of new partnerships:** The assessment of the functionality and sustainability of partnerships created at various levels found mixed results. TAAT-I’s partnerships with regional economic communities, implementing partners, and the private sector were found to perform well and created new opportunities for country-level institutions in Benin, Nigeria, Kenya, and Zambia. Consequently, partners participated in the program and compact activities and were keen to sustain their partnership. In contrast, the program’s partnerships with extension services and research institutions were found moderate: their continuity relied on the flow of resources from TAAT-I or the government.

**Financial and economic sustainability:** Although the project appraisal report had projected an economic rate of return of 40 percent and a financial rate of return of 20 percent, the evaluation found that the potential of beneficiaries (smallholder farmers) to realize these returns was undermined by several factors. One such factor was farmers’ limited use of key farm inputs. In Ethiopia, for example, farmers’ incomes were limited by the small size of their plots (the average was 0.5 hectares). In a discussion with farmers in the Ido area of Oyo State, Nigeria, the farmers complained of low farm-gate prices and their lack of access to credit (interest rates were as high as 30 percent). These barriers, among others, made it impossible for beneficiaries to realize the full potential of the agricultural technologies promoted by the program.

**Environmental sustainability:** The evaluation found that TAAT-I prioritized environmental sustainability from the onset. The program’s development included environmental impact assessments and the preparation of an environmental and social
management plan. Although environmental and climate change-related challenges and risks were present, in the case study countries their manifestation was low. That said, the evaluation observed some challenges in the case study countries, such as monocropping, which emerged because of the absence of alternative economically viable crops with which farmers could rotate production. The phenomenon was exacerbated by small-scale farmers’ limited access to land. The evaluation found that the program did not put in place adequate measures to continuously monitor and address these and other potential environmental challenges and risks.

Overall, the evaluation rated TAAT-I’s sustainability as satisfactory.

Conclusion

The evaluation found that despite concerns about the level and consistency of TAAT-I’s support, TAAT-I made significant progress in achieving planned results, especially for outputs, with results on outcomes being more mixed. The program delivered innovative technologies to farmers at both the program and the compact level. Still, barriers prevented beneficiaries from taking full advantage of the technologies.

The program’s achievements did not materialize without challenges: financial resources that were insufficient for the program’s geographic coverage and scope, complexities in the coordination mechanisms of TAAT-I’s ecosystem, operational challenges, and the adverse effects of the COVID-19 pandemic. In addition, the complexity of the program's design produced notable operational challenges that undermined the program’s efficiency, especially in the early stages. Finally, TAAT-I demonstrated shortcomings when mainstreaming the cross-cutting issues of gender and the environment but performed better on youth empowerment.

Lessons

The evaluation draws five lessons from its assessment.

Lesson 1: Bank-supported operations executed and implemented by third-party organizations need strong linkages and coordination with AfDB country offices to engage effectively with RMC institutions and other stakeholders if they are to influence policies and strategies. They also need to better coordinate with programs supported by other development partners.

Lesson 2: A simple and agile program design is vital to efficient implementation and the achievement of results.

Lesson 3: The private sector’s participation in commodity compacts is critical to scaling-up and sustainability.

Lesson 4: Beyond the adoption of technology, support services are critical for agricultural transformation and modernization, especially when programs target youths and other vulnerable populations.

Lesson 5: Strong links with research and effective feedback mechanisms are critical to continuously update technology catalogues and meet farmers’ demands for improved technologies.

Recommendations

IDEV makes three recommendations:

Recommendation 1: Strengthen the design and implementation arrangements for TAAT-II and future, related programs. Priority actions include:

- Strengthening the coordination among TAAT management entities, TAAT implementing partners, AfDB country offices, key government institutions, and other development partners at the country level.
I Revisiting and reviewing, as necessary, the roles and responsibilities of TAAT’s management entities (the PMU and the clearing house), the compacts, the Steering Committee, and the program’s financial management systems to make the TAAT Program more efficient.

I Ensuring that the program’s cross-cutting themes (gender, youth, and the environment) are mainstreamed at all stages of the program cycle.

**Recommendation 2:** Pursue increased private sector participation in TAAT-II and related agriculture operations. Priority actions include:

I Strengthening linkages between the TAAT Program and the Bank’s non-sovereign operations department to optimize the Bank’s support to private sector entities and enable them to seize emerging opportunities, in a timely manner, within the commodity compacts.

I Enhancing collaboration with financial institutions to facilitate farmers’ and small and medium-sized enterprises’ access to inexpensive medium- or long-term financial resources to enable them to make effective, sustainable investments in agriculture, for the benefit of vulnerable populations such as youths.

**Recommendation 3:** Strengthen the monitoring, evaluation, and learning systems of TAAT-II and future related programs by integrating the design of a monitoring, evaluation, and learning system from the onset and providing adequate resources, both human and financial, to operationalize the system in a timely fashion.
Agnés is one of the beneficiaries of the TAAT program in Zambia. She was able to build a house with benefits from increased harvest.
IDEV evaluation team with participants from a focus group meeting in Nvuazi, Bas-Congo province.
Management Response

Management welcomes IDEV’s project cluster evaluation of the Technologies for African Agricultural Transformation Program – Phase I (TAAT-I). The Program was approved by the Bank’s Board of Directors in November 2017 for a value of UA 29 million (USD 40 million) and was implemented over 5 years from January 2018 to December 2022. The evaluation highlights the positive impact as well as shortcomings of the program, identifies lessons learned and provides valuable recommendations for improving the design and implementation of future related programs. This note presents Management’s response to the evaluation’s findings and highlights actions that will be taken during the ongoing TAAT-II in response to the evaluation’s recommendations.

Introduction

The Technologies for African Agricultural Transformation (TAAT) Program, Phase I (TAAT-I) helped 29 Regional Member Countries (RMCs) to improve their agricultural production and productivity by promoting technology advancement in nine agricultural commodities and six enablers. The implementation of TAAT-I occurred during a challenging time of global transformation, with the world undergoing and recovering from the COVID-19 pandemic.

In response to the rising food inflation and input shortages in RMCs, the Bank approved the African Emergency Food Production Facility (AEFPF), a USD 1.5 billion short-term facility designed to bolster the production of essential imported food commodities. Simultaneously, the Bank expedited the preparation of the second phase of TAAT or TAAT-II, which obtained approval in July 2022. This provides the opportunity to implement AEFPF and TAAT-II in an integrated, harmonized, and coordinated manner.

Management welcomes the insightful assessment of TAAT-I against international evaluation criteria of relevance, coherence, effectiveness, efficiency, and sustainability. Management takes note of the evaluation findings and is committed to drawing lessons and implementing the recommendations in future Bank interventions in the agriculture sector, and particularly during TAAT-II implementation (2022-2025).

Relevance

Management notes the satisfactory rating of the relevance of TAAT-I to the priority and needs of RMCs and welcomes the finding that it is aligned with strategies and initiatives of the Bank such as the Feed Africa Strategy. However, the evaluation observed shortcomings in TAAT-I’s mainstreaming of the cross-cutting themes of gender and the environment, despite some progress on the theme of youth empowerment.

During a TAAT-II supervision mission held on May 29th to June 2nd, the above-mentioned shortcomings on gender and E&S were discussed.
The mission noted the need to define specific gender transformative actions in each compact and enablers as had been indicated in the project’s broad gender action plan and with reference to the Gender Mainstreaming Guide developed in TAAT-I.

Although no formal assessment was conducted on the Environmental and Social impacts for the project activities, the Environmental and Social Management Systems within the TAAT implementing partners were used to assess and implement the required mitigation measures to manage the E&S risks of the program activities. Moving forward in TAAT-II, in line with the Bank’s Integrated Safeguards System (ISS), the PMU will report quarterly to the Bank on the implementation of the E&S requirements, prepare and submit 3rd party E&S Audits on an annual basis and recruit an E&S Specialist to comply with the Bank’s ISS.

Coherence

Management is pleased the evaluation has indicated that TAAT-I was consistent with Bank’s strategies and external initiatives of RMCs and various organizations (e.g. African Union, development partners, NGOs). However, it has been observed that Bank Country Strategy Papers (CSPs) did not refer to the TAAT program. Most of the CSPs were developed during the 2013-2017 period before the time frame of TAAT-I (2018-2022). TAAT team will be involved in the new CSPs development.

Nevertheless, the evaluation found weak linkages between TAAT-I implementing partners and Bank’s country offices in the countries case studies but noted that towards the end of the program period, TAAT-I attempted to strengthen its ties to programs implemented by its country offices.

The recently recruited eight Country engagement officers have been tasked to work closely with AfDB Country Offices, regional Sector Managers, and Project Task Managers to strengthen the ties with Bank’s decentralized structures.

Management acknowledges the success of the TAAT Policy Compact partnerships with Regional Economic Communities (RECs) to promote regional policy, legal, and regulatory frameworks that facilitate the movement of agricultural technologies, seeds, and planting materials. Despite progress, Management recognizes that challenges still exist in some cases, particularly about the domestication of regional policies on varietal release, trade in seeds, fertilizer and other farm inputs, and the movement of planting materials across borders. Such hurdles are attributed to varying levels of political commitment and operational capacities of implementing institutions across RMCs. TAAT-II will therefore advocate for institutional capacity strengthening and political commitment to facilitate more efficient cross-border movement of agricultural technology and products.

Effectiveness

The evaluation found mixed results for the program’s contribution to increased agricultural production and productivity. However, the evaluation found demonstration sites to be vital for building capacity and promoting TAAT-I technologies. The evaluation observed two notable achievements: the widespread adoption of semi-autotrophic hydroponics technology, resulting in the establishment of improved cassava seed systems in Benin, DRC, and Nigeria, and value addition realized with improved cassava processing technologies.

Management concurs with the finding that TAAT-I has been effective in advancing policy reforms and regulations for the integration of technologies. TAAT-II recruited eight seasoned agricultural development practitioners in the clearing house to bolster country engagement and brokerage roles. These practitioners work towards strengthening engagement with decision-makers and persuading...
government officials to allocate resources to scale modern technologies.

The evaluation indicated that TAAT-I’s success at leveraging resources from other development partners was inferior to that of similar Bank-led programs, which attracted up to 45 percent of their resources in this way. Furthermore, several stakeholders and program staff expressed concern about the shortage of external resources for scaling up TAAT technologies in RMCs. During TAAT-II, Agriculture and Agro-Industry department (AHAI) department engaged with different development partners to mobilize additional resources. Towards the end of TAAT-I, the Bill and Melinda Gates Foundation (BMGF) increased its funding to the clearing house by 50% from USD 6.6 million to USD 9.2 million. Furthermore, additional USD 5 million have been leveraged from the Federal Republic of Germany for TAAT-II. NORAD also committed EUR 4 million to fund TAAT-II (the proposal is at its final step of approval). Recently USAID committed USD 9.5 million to fund TAAT-II.

**Improving the delivery of technologies to farmers for enhanced effectiveness**

Management fully acknowledges and endorses the evaluation’s findings that TAAT-I’s capacity development initiatives have yielded positive outcomes for a variety of stakeholders, including Consultative Group for International Agricultural Research (CGIAR) centers, National Agricultural Research and Extension Systems (NARES), and the private sector. During TAAT II, more efforts will be deployed to increase farmers’ access to trainings on the technologies. Nevertheless, it is important to highlight that TAAT-I’s top priority was to establish innovative platforms and demonstrate the latest agricultural technologies. TAAT-II is now emphasizing scaling technologies.

Management recognizes these partnerships with governments are critical for the success and sustainability of TAAT. In the context of TAAT-II implementation, Management will ensure to strengthen relationships not only with governments but also with other partners including Multilateral Development Banks (MDBs), bilateral donors and the private sector. Finally, it is important to highlight that results cannot be fully captured until the project supported is completed and in the context of the interventions supported by the program most are at the inception stage or at the early implementation stage.

**Success and room for improvement in TAAT’s gender strategies**

The program aimed to promote inclusivity with a gender focus and engage young people in agriculture. The evaluation noted that although the program met its participation quota of 40% women, there was limited application of gender analyses during implementation, including in reporting. Management is committed to improving TAAT’s gender strategies through the Bank’s gender unit at the Human Capital, Youth, Skills Development department (AHHD) department for future programs. For instance, TAAT-II will address gender barriers and reduce the gender gap while engaging youth to create a sustainable agricultural sector that benefits all stakeholders, with the support from AHHD. A gender-sensitive monitoring and evaluation system will be implemented to ensure that at least 50% of women benefit from the program’s technologies.

**Unintended results**

The evaluation report indicates that there is a potential risk of hazards associated with the increased application of inputs to fully exploit the benefits of TAAT-I technologies. The use of farm inputs is extremely low currently in most Sub-Saharan Africa countries and the potential for manifestation of such risks is low in most of the RMCs. Despite this, Management will still investigate all concerns raised and address them. It is important to note that the promotion of TAAT’s technology is conducted in partnership with governments and existing farming systems. These farming systems encompass leguminous crops and agro-forestry
trees such as fiderbia albida through the practice of farmer-managed natural regeneration to sustain productivity levels. Similarly, the technology deployed to enhance the production of cereal crops is done by teaching farmers good agricultural practices, encouraging crop rotation, and intercropping with legumes where applicable. Although the evaluation did not provide empirical evidence on the increase in monocropping due to TAAT-I interventions or the potential risks that may arise from such systems, during TAAT-II, Management will explore this area and proactively study to propose evidence-based models that fit with monoculture.

Furthermore, the utilization of a balanced formulation of fertilizer in micro-doses has been shown to promote the potential of improved crop varieties. This is achieved by concentrating nutrients in the root zones of the plant in small doses matching the soil and plant requirements, which enhances root development, and nutrient uptake and reduces waste. Moreover, this approach aims to increase nutrient and water use efficiency, while simultaneously minimizing the risks of inappropriate fertilizer application on soil quality.

The successful application of these practices, however, requires the involvement of multiple partners and the alignment of recommendations with government policies. This poses significant challenges concerning the balance of agility and compliance with procedures and regulations, especially during emergencies and seasonal changes. Recognizing the complex and intricate nature of Africa’s agriculture systems, which are characterized by diverse value chains and varying seasons, Management has made it a priority in TAAT-II to improve organization and coordination among partners based on their respective roles.

**Capacity-building efforts by TAAT-I to enable adoption**

The evaluation notes that TAAT-I was effective in enhancing the capabilities of partner organizations and showcasing demonstration sites. Outreach campaigns and farmer field days were instrumental in promoting TAAT-I technologies among commodity and enabler compacts.

TAAT-I placed significant emphasis on building partner organizations’ capacities to train farmers, disseminate technologies, and link this knowledge to national investments to scale up. In TAAT-II, there is a greater focus on scaling technologies by integrating them more into national programs and investments. The program aims to create awareness and work with governments to take knowledge and technologies to scale through national investments using seed money. TAAT-II will further leverage and prioritize partnerships to catalyze the adoption of technologies through the private sector.

**The pace of domestication of the new and revised policy and regulatory frameworks**

Management acknowledges that the slow pace of domestication has had a significant impact on the advancement of promoted technologies. To address this issue, TAAT-I conducted approximately 100 policy dialogue events with over 400 stakeholders, which helped identify 64 policy gaps. This effort resulted in the adoption of 29 revised policy, legal, and regulatory frameworks.

However, it is crucial to recognize that the implementation of domesticated policies and regulations requires additional institutional capacity building, infrastructure upgrading, and continuous advocacy. Governments and institutions are responsible for achieving positive results on the ground. While TAAT can advise and guide governments based on evidence-based recommendations, it cannot enforce the adoption of any suggestions. TAAT-II prioritizes accelerated institutional capacity building and advocacy efforts to accelerate the integration of policies and regulations that enable the movement of technologies, particularly agriculture inputs.
Efficiency

The evaluation indicates that TAAT-I had to rely on two no-cost extensions, from end 2020 to end 2021 and later, to September 2022, to fully utilize the available funds. While Management acknowledges this finding, they attribute it mainly to the slow implementation during most of 2020 and the first quarter of 2021, which was caused by the impact of the COVID-19 pandemic and the resulting restrictions imposed to contain the disease.

In addition, at time of review by IDEV, about USD 1.6 million was indicated as undisbursed in the TAAT-I budget. Subsequently, this amount was utilized for implementing additional compacts activities bringing the disbursement rate to 97%. Also due to delays by compacts to advance their justifications, new replenishment was also delayed until the project closed. The compacts following Bank’s advice, prepared their reimbursement requests for activities already implemented before the closing date, which will bring the disbursement rate to 99%.

Management notes the observation that the monitoring and evaluation (M&E) component was not given adequate attention. TAAT designed a digital platform called the Monitoring and Evaluation of Agri-Science Uptake in Research and Extension (or MPRO), but implementation was constrained by the COVID-19 pandemic, with travel restrictions making it challenging to evaluate on-the-ground achievements. For TAAT-II, the platform which is already effective, will be populated with results, and greater resources and expertise will be dedicated to M&E activities, particularly at the community level. Management recognizes the critical importance of supporting vulnerable populations and will take specific measures to ensure their support, such as providing young farmers with access to soft loans or grants to increase their production and revenue.

Sustainability

Management agrees with the evaluation’s conclusion that the program was designed with sustainability principles. Partnership building was a key focus at various levels of implementation, which resulted in positive outcomes. The evaluation found that the implementing partners, RMCs, and the private sector showed high levels of program ownership. However, the evaluation revealed that inadequate funding to critical partners, such as NARES, and insufficient consideration of emerging and potential issues related to social, economic, environmental, and climate change factors posed major risks to the program’s sustainability.

Despite the numerous challenges faced during the implementation of the program, Management is pleased to state that the evaluation of the program’s sustainability has produced promising results. For instance, the deployment of modern technologies is expected to lead to improved profits for private sector organizations. However, Management is aware of the risks associated with the substantial number of partnerships (more than 300) during TAAT-I implementation, which posed significant coordination and support challenges that affected the program’s sustainability. Therefore, addressing these issues remains a top priority for Management. It intends to bolster the sustainability of TAAT-II and other related operations by ensuring that TAAT partners implement activities that are demand-driven and supported through public-private partnership (PPP) models wherever possible. TAAT-II will also focus on creating sustainable capacity within national public institutions and NARES to deploy new technologies that can drive national agricultural investments.

Sustainability of TAAT institutions

The TAAT Program Management Unit (PMU) plays a crucial role in coordinating and managing the implementation of activities on the ground, ensuring the right partners and processes are in place to support the accelerated implementation of technological solutions aimed at enhancing agricultural productivity and sustainability across the continent. The PMU oversees the planning, execution, fiduciary, monitoring, and evaluation of projects related to agricultural technology adoption and innovation.
Furthermore, it is important to note that the clearing house is an organ created at the design of the TAAT-I and has become a major vehicle for delivering sustainable linkages to government investments. It oversees the technical implementation of the project and its technologies brokerage role. However, the evaluation highlights that during TAAT-I implementation, there was no sustainability plan for the clearing house vis-à-vis its form of existence and the roles it will play after the TAAT program. Management is committed to develop a sustainability plan for the clearing house before the end of the second quarter 2024. Nevertheless, towards the end of Phase I, the clearing house evolved from a stand-alone unit for technology delivery to one that enhanced the linkage of TAAT technologies. Through its accelerated and more streamlined brokerage role, the clearing house has been able to leverage USD 40 million in-country investments to ensure governments scale modern and proven TAAT technologies through large-scale agricultural programs. Through this interest from RMCs and development partners, the clearing house will contribute to sustaining TAAT interventions.

TAAT-I deployed experts from leading research institutions, working to continuously provide Research & Development (R&D) into African agriculture. The need for R&D has been amplified by the ecological diversity in African countries, which also manifests even at state or provincial levels. Although TAAT-I was a proven technology delivery program, it was necessary for the program to maintain a strong linkage with research departments in supported organizations and programs funded by the government and other development partners. Going forward, this linkage will be strengthened in TAAT-II by leveraging on the CGIAR’s Excellence in Agronomy initiative and other initiatives, working with governments to develop the right agronomy advisory tools and early warning systems needed to provide sustainable agriculture farming approaches. It is important to note that timely feedback from farmers/ governments on promoted technologies and other value chain actors is also necessary to understand the evolving needs of farmers and other end-users of technologies, as well as enabling timely updates to be able to ensure farmers receive updated knowledge and advice and have the necessary toolkits/documentation on hand to reference.

**Conclusion**

Management appreciates the observations and recommendations made by the evaluation. It presents a balanced assessment of the TAAT-I, identifying achievements, shortcomings and key lessons, and provides recommendations for improvement in enhancing the design of future agriculture programs and projects with the view to scale up agricultural technologies at a regional level in line with the Feed Africa strategy.

Management is also committed to improving the design and implementation of future multinational agricultural programs across the continent, particularly in providing farmers with climate-smart agricultural technologies, inputs and practices, in close collaboration with other development partners. Given the role of TAAT in supporting other agricultural projects originating and implemented in the framework of the Bank’s Feed Africa strategy, the lessons will position TAAT even more strategically to deliver on the mandate of mainstreaming innovative climate smart agriculture technologies in Bank operations and providing sustainable solutions for beneficiaries.
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<td><strong>Recommendation 1:</strong> Strengthen the design and implementation arrangements for the TAAT-II program and future related programs</td>
<td>Agreed – Management agrees with the three sub-recommendations.</td>
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Priority areas of action to consider include:

a. Strengthening coordination between TAAT organs and implementing partners, AfDB Country Offices, including key Government Institutions and other development partners at the country level.

b. Revisiting and reviewing, as necessary, the roles and responsibilities of the TAAT implementing organs (PMU and CH) as well as Compacts, the Steering Committee and Program Financial Management systems to enhance the efficiency of the program.

c. Ensuring that cross-cutting themes (gender equality, youth empowerment and environment) are mainstreamed at all stages of the program cycle.

Management has enhanced coordination to increase the effectiveness of agricultural development initiatives, with the BMGF providing ongoing support to connect TAAT technologies with national investments through the CH. The TAAT-II implementation structure has been improved following evaluation findings by strengthening coordination between TAAT organs and implementing partners. Management will increase synergies between AHAI department and the gender unit of AHHD department to mainstream gender strategies in future TAAT interventions. TAAT-II has already allocated resources for gender and social safeguard interventions.

**Further actions:**

1. Appoint eight regional engagement officers to enhance coordination between Bank’s country offices, TAAT organs and implementing partners, national institutions, and other development partners [AHAI; August 2023].

2. Revise and clarify the roles of all involved in the TAAT program to avoid overlap and promote efficient teamwork, including the steering committee and financial management systems [AHAI; Q4 2023].

3. Establish a framework for collaboration between AHAI and AHHD departments on TAAT-II [AHAI/AHHD; Q4 2023].

4. Hire two experts - a gender specialist and an E&S specialist to support the implementation [AHAI; Q4 2023].
## Management Action Record

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<td><strong>Recommendation 2</strong>: Pursue increased Private Sector participation in the TAAT-II program and related agriculture operations</td>
<td><strong>Agreed</strong> – Management agrees with recommendation 2 and its two sub-recommendations.</td>
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Priority areas of action to consider include:

- **a. Strengthening linkages between the TAAT Program and the Bank’s non-sovereign operations department to optimize the Bank’s support to private sector entities and enable them to seize emerging opportunities, in a timely manner, within the commodity compacts.**

- **b. Enhancing collaboration with financial institutions to facilitate farmers’ and small and medium-sized enterprises’ access to inexpensive medium- or long-term financial resources to enable them to make effective, sustainable investments in agriculture, for the benefit of vulnerable populations such as youths.**

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The Agriculture Finance and Rural Development department (AHFR) in charge of NSOs in the agriculture sector was key to the design of TAAT-II. They will also be carried along extensively during the implementation phases to facilitate private companies multiplying and selling improved quality seeds in targeted countries. TAAT II teams are already working with AHFR by developing synergies with ongoing SAPZ projects across countries such as Ethiopia, Tanzania, Mozambique, DRC, Nigeria, Liberia, Togo, Mali, Cote d’Ivoire, Senegal, and Guinea.

There is an urgent need for innovative financing mechanisms to support farmers and vulnerable populations. Synergies will be built with the African Fertilizer Financing Mechanism to allow farmers to access input subsidies.

TAAT-II plans to systematically engage major and seed companies on the African continent to promote TAAT technologies, including sharing with them lists of varieties and demo trial data; adding their crop varieties to TAAT demo trials; If TAAT is to succeed, the program must raise the use of certified seeds of improved varieties amongst African farmers from the current 20% to at least 70%.

**Further actions:**

1. **Establish a framework for collaboration between Agriculture and Agro-Industry department/AHAI and AHFR on TAAT-II [AHAI/AHFR; Q4 2024].**

2. **Identify innovative financing solutions to stimulate the adoption of increased opportunities for farmers [AHAI/AHFR; Q2 2024].**

3. **TAAT will recruit a seed specialist to lead the effort of engaging private sector seed companies aimed at raising the use of certified seeds of improved varieties [AHAI; Q4 2023].**
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<td><strong>Recommendation 3:</strong> Strengthen the monitoring, evaluation and learning system of the TAAT-II program and future related programs, by integrating the design of the Monitoring, Evaluation, and Learning (MEL) system from the onset and providing adequate human and financial resources to enable timely operationalization of the system.</td>
<td><strong>Agreed</strong> – Management agrees with this recommendation.</td>
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The TAAT-1 M&E system has undergone significant improvements by integrating a highly customized, state-of-the-art digital data collection and management tool, the MPRO platform. This innovative platform provides a holistic and comprehensive data collection, analysis, and visualization solution, offering valuable insights through an intuitive, interactive dashboard. Initially funded by the BMGF via the TAAT clearing house unit, MPRO was successfully incorporated across the TAAT-1 program in its final stages. Moving forward, TAAT-II’s M&E system and related activities will be financed and supported by funds allocated to the PMU from the AfDB. TAAT-II M&E costs are estimated at USD 1.03 million. The allocation of the USD 1.03 million to support TAAT M&E is broken down into two categories:

- **Continued upgrade of the current MPRO platform to meet TAAT-II M&E requirements (USD 643,150 over 3 years across for 14 Compacts).** This involves setting up a strong MEL system to monitor, track and assess the activities implemented by the 14 compact. It includes enhancing and managing the MEL system for TAAT, implementing a training curriculum of all compact teams and partners regarding data collection requirements and the use of tablets, as well as conducting field studies and validating outcome results in collaboration with partners including CGIARs, Universities, and NARS, to ensure delivery of the program’s development objectives in accordance with the program results framework.

- **Ensuring collection of data on TAAT-II deployed activities (USD 391,398 over 3 years across 14 compacts).** This involves ensuring data is correctly and timely gathered on TAAT-related activities.

**Further actions:**

- During the design of TAAT-III, a strong MEL system will be integrated into its design [AHAI; Q2 2025].
Site visit by the IDEV evaluation team to an equipment manufacturer of the Mecano-Welded Construction Technique (TCM) in Porto Novo, Benin.
Introduction

Background and Rationale

Independent Development Evaluation (IDEV) at the African Development Bank Group (AfDB or the Bank) launched a project cluster evaluation of the Technologies for African Agricultural Transformation (TAAT) Program, Phase I (TAAT-I), as part of IDEV’s approved work program for 2022. The TAAT Program is a three-phase program that had initially been planned to run from 2018 to 2025; the AfDB was expected to provide UA 29 million (USD 40 million) for each phase. The project cluster evaluation assessed TAAT-I, which had been expected to be implemented from February 2018 to December 2020 but was extended to December 2021 and then to September 2022. TAAT-I supported 29 regional member countries (RMCs) to transform their agriculture sector by promoting improved technologies for nine agricultural commodities and six enabler compacts that corresponded to six cross-cutting areas of intervention.

The evaluation was undertaken during a period of unprecedented change. The world was just emerging from the COVID-19 pandemic, and Russia’s invasion of Ukraine was ongoing. These events led to high prices for fuel, food commodities, and agricultural inputs, especially fertilizer. In response, the Bank developed the African Emergency Food Production Facility (AEFPF), a USD 1.5 billion short-term facility, to enable RMCs to increase their production of major imported food commodities and cushion the effects of food inflation and input shortages. The Bank also fast-tracked the development and approval of the project appraisal report on TAAT’s second phase (TAAT-II), after the pandemic and an impending audit had stalled an original project appraisal report earlier in 2020. Accordingly, the Board approved the AEFPF in May 2022 and TAAT-II in July 2022: this provided a unique opportunity for the two initiatives to be implemented concurrently in an integrated, harmonized, and coordinated manner. The project cluster evaluation of TAAT-I had originally intended to inform decisions on the development of TAAT-II. Given the timing of the approval of TAAT-II and the AEFPF, however, the evaluation of TAAT-I is now expected to inform the implementation of those two initiatives, as well as other Bank initiatives in agriculture in the future.

This evaluation also followed the completion of audits in 2019 and 2020 by an independent audit firm and the conclusion of investigations by the Bank’s Office of Integrity and Anti-Corruption (PIAC). The Bank’s Office of the Auditor General (PAGL) also audited TAAT-I after the program was completed in 2022.

Purpose, Scope, and Questions

This evaluation assessed the strategic orientation, design, and implementation of TAAT-I, the resources for which amounted to UA 27.52 million (USD 38.4 million) disbursed by the Bank, UA 4.79 million (USD 6.6 million) disbursed by the Bill & Melinda Gates Foundation (BMGF), and counterpart financing and in-kind resources provided by implementing partners, RMCs, and other stakeholders. The evaluation’s findings provide the Bank’s Board of Directors and Senior Management with lessons and good practices for better implementing TAAT-II and the AEFPF. The findings will also inform the design and implementation of future Bank initiatives for developing and transforming agriculture in RMCs, including the Feed Africa Strategy. Finally, the findings will help TAAT’s executing agency, its implementing partners, and RMCs to enhance the implementation and effectiveness of TAAT-II.
The evaluation examined the relevance, the coherence, the effectiveness, the efficiency, and the sustainability of TAAT-I in line with the standards of the Bank’s Independent Evaluation Policy and IDEV’s Evaluation Manual. In terms of scope, the evaluation covered TAAT-I’s nine commodity compacts and six enabler compacts over the duration of the program, from February 2018 to September 2022. The evaluation also assessed a cluster of interventions in depth: these interventions are referred to as the project cluster and consist of a selection of commodity compacts that were deployed in seven of the 29 countries in which TAAT-I was implemented (Figure 1). The evaluation assessed results at the program level and at the country level and presents the findings accordingly.

This evaluation is both summative and forward-looking: it focuses on assessing performance and drawing lessons. In addition to first-hand data generated from the project cluster, the evaluation built on information and knowledge provided in the program’s monitoring and self-evaluation reports, in earlier external evaluations, and in information on related programs and strategies on the part of the Bank and other stakeholders.

The evaluation addressed seven questions, all of which relate to the evaluation matrix (Annex 1).

Q1. To what extent was TAAT-I relevant to the needs of the targeted beneficiaries, RMCs, and other stakeholders?

Q2. To what extent were TAAT-I interventions in selected commodity compacts and intervention sites coherent with other Bank interventions to develop agriculture and increase productivity, and with the interventions of RMCs and other development partners?

Q3. To what extent did TAAT-I achieve or was likely to achieve its expected results and contribute to improved productivity, incomes, and food security among targeted communities and individuals for selected commodity compacts in the intervention sites?

Q4. To what extent was TAAT-I effective at leveraging resources and promoting innovation through partnerships for selected commodity compacts in the intervention sites?

Q5. How efficient was TAAT-I in using its resources and implementation arrangements, including the program’s ecosystem—the program management unit (PMU), the clearing house, the Steering Committee, and the commodity technology delivery compacts—to achieve its objectives?

Q6. To what extent were TAAT-I activities and results sustainable or were likely to be sustained for selected commodity compacts in the intervention sites?

Q7. What key lessons can be drawn about what works and does not work, where and under what circumstances, for selected commodity compacts in different country contexts? How effectively were good practices shared during the program’s implementation?

Structure of the Report

The next section of this report describes the methodology used for the evaluation, followed by a section that presents an overview of TAAT-I, namely, the program’s background, objectives and focus, resources, and implementation modalities. Subsequent sections present the evaluation’s key findings in response to the evaluation questions about the program’s relevance, coherence, effectiveness, efficiency, and sustainability. The last section summarizes the evaluation’s conclusions, presents lessons, and provides recommendations to better implement TAAT-II, the AEFPF, and other Bank strategies and programs in future.
IDEV evaluation team meeting with women rice parboilers at the innovation platform of the training center in Glazoué, South-Central Benin (see Box 1).
IDEV evaluation team meeting with the sheep fattening farmers in Doyogena, Ethiopia.
Methodology and Limitations

Methodological Approach and Sources of Evidence

The evaluation assessed TAAT-I at two levels—the program level and the country level—depending on the evaluation question and the evaluation criteria (Annex 1). Relevance, coherence, effectiveness, and sustainability were examined at both the program level and the country level, with in-depth assessments of one or two commodity compacts in each case study country. Efficiency was only assessed at the program level. The project cluster was composed of selected interventions for selected commodity compacts in the seven case study countries.

The evaluation was guided by a theory of change (Annex 2) and a results-based logical framework (Technical Annex 3). It adopted a mixed-methods approach, based on three interrelated components, and a robust methodology that collected and analyzed qualitative and quantitative data to triangulate results and validate findings. The three components of the mixed-methods approach were a desk review of program-related documents, key informant interviews, and country case studies. For the country case studies, the evaluation reviewed country-level documents, conducted country- and community-level interviews, held community- and beneficiary-level focus group discussions, and undertook observation visits.

The evaluation selected seven of TAAT-I’s 29 beneficiary RMCs as case studies. Purposive sampling was used to construct a representative sample of countries and cover all commodity compacts. The sampling conformed to IDEV’s guidance for project cluster evaluations and was evidence-based to ensure (i) a balanced coverage of regions and agroecological zones; (ii) the inclusion of countries of different development statuses (including fragile states), as classified by the AfDB and other multilateral development banks; (iii) a selection of agricultural commodities that reflected the commodities’ importance to the case study country (the country’s production and consumption of the commodity in question); (iv) the practicability of evaluating certain interventions; and (v) the inclusion of a range of best-performing, average-performing, and below-average-performing countries and commodity compacts.

Figure 1 shows the countries and commodity compacts selected for the case studies on this basis. Except for Nigeria and Niger, in each country covered by a case study, the evaluation examined two commodity compacts. In Nigeria, only one commodity was selected to give the evaluation team enough time to engage the PMU on program-level assessments. In Niger, only one commodity was selected as well, this time because conflicts limited the evaluation’s operations. Details on the evaluation’s approach and methodology can be found in Technical Annex 1.

The evaluation interviewed or held focus group discussions with 538 representatives from the International Institute of Tropical Agriculture (the executing agency), implementing partners, continental and regional bodies, government agencies, development partners, private and parastatal companies, nongovernmental organizations, and beneficiaries. Specifically, 180 people from the Bank and partner organizations participated in 129 key informant interviews and 9 focus groups that discussed the program and the commodity compacts. In addition, 138 representatives of stakeholder organizations participated in 59 commodity compact-specific key informant interviews, and 220 farmers in 19 locations took part in focus group discussions.
Figure 1: Countries and Commodity Compacts Selected for Case Studies

- Rice and Maize (Benin)
- Cassava and Orange fleshed sweet potato (DRC)
- Wheat and Livestock (Ethiopia)
- High Iron Beans and Orange fleshed sweet potato (Kenya)
- Millet and sorghum (Niger)
- Cassava (Nigeria)
- Maize and Aquaculture (Zambia)

The evaluation’s findings, conclusions, lessons, and recommendations were reviewed by internal peer reviewers, an independent external peer reviewer, and the Evaluation Reference Group. As per IDEV’s Evaluation Manual, the evaluation questions and criteria used a four-point rating scale ranging from one (1) for unsatisfactory to four (4) for highly satisfactory. The rubrics for the scale and the country case study ratings are provided in Annex 3.

Challenges and Limitations

The design and execution of this evaluation experienced challenges and limitations. The principal challenges were as follows: (i) the difficulty of adapting the cluster evaluation approach to a single program; (ii) the limited availability of data for triangulating the results of the outcome and impact indicators presented in program and compact progress reports; (iii) conflicts and insecurity in targeted program areas, which made it difficult to meet all stakeholders and beneficiaries;7 and (iv) high turnover among staff working at various levels of project management, coordination, and implementation.

The evaluation team introduced measures to mitigate these difficulties, collect better data, and improve the internal and external validity of the findings. More specifically, team members used interviews and focus group discussions to triangulate and complement the data in program documents; they identified beneficiary areas similar to program areas that could not be reached due to conflicts and insecurity, and visited these areas to collect data; and they bridged information gaps by consulting a critical mass of representatives from implementing partners and stakeholder organizations with institutional memory and drawing on the documentation systems of the program and the program’s implementing partners. Details on these challenges and mitigation measures are provided in Technical Annex 1.
Tadelech Dukato benefitted from the sheep fattening project in Dawe Serara, a district of the Oromia Region in Ethiopia. Sheep fattening has become her main source of income and has enabled her to expand her house.
The results of flour processing by the Lume-Adama Cooperative. The cooperative is supplying wheat flour for Ethiopian Airlines catering.
Overview of the TAAT-I Program

Background and Rationale

The agriculture sector accounts for over 60 percent of jobs in Africa, but only 25 percent of Africa’s gross domestic product (GDP). This indicates that many people depend on the sector for their livelihood, but earn very little for their work. Indeed, less than 30 percent of harvests in Africa are processed into value-added products: in developed countries, the figure is 98 percent. Only USD 40 of value is added per ton of processed products in Africa, compared to USD 180 per ton in rich countries. Women make up 70–80 percent of Africa’s farmers.

Agricultural technologies have been identified as an essential part of the solution to the sector’s challenges with value addition, productivity, and nutrition. Yet several factors have hindered the scaling-up of agricultural technologies in Africa: (i) weak agricultural extension systems, (ii) poor linkages between research and extension, (iii) the slowness of systems to verify and release technologies, (iv) insufficient attention to private sector-driven value chains, (v) poor market linkages, (vi) weak policy and regulatory environments, and (vii) a focus on national boundaries instead of agroecological zones. The last item indicates the absence of regionally coordinated efforts to deliver technologies across similar agroecological zones (technologies without borders).

Purpose, Objectives, and Strategy

With the TAAT Program, the AfDB embarked on a mission to holistically address the challenges associated with transferring agricultural technologies and scaling them up. In doing so, the Bank hopes to increase productivity, boost production, augment farmers’ incomes, and improve food and nutritional security.

TAAT-I was approved in November 2017 and was signed in February 2018. It was initially expected to close in December 2020 but was extended to September 2022, principally because of the COVID-19 pandemic and other challenges (for details, see the section on efficiency). The program’s budget was UA 40 million (USD 55.2 million). This comprised UA 29.0 million (USD 40 million) from the AfDB, furnished through a grant from the African Development Fund (72.5 percent of total funding); UA 7.25 million (USD 10 million) from the Alliance for a Green Revolution in Africa (AGRA) (18.13 percent of total funding); UA 0.85 million (USD 1.17 million) from the BMGF (2.1 percent of total funding); and UA 2.9 million (USD 4 million) in counterpart funding from RMCs (7.3 percent of total funding). TAAT-I was implemented in 29 countries in sub-Saharan Africa.

TAAT-I was an integral part of the Bank’s Feed Africa Strategy 2016–2025 and aligned with three of the Bank’s other High 5s: Industrialize Africa, Integrate Africa, and Improve the Quality of Life for the People of Africa. In terms of the Bank’s corporate strategy, the program contributed to the twin objectives of the Ten-Year Strategy, namely, inclusive growth and the transition to green growth. The implementation of TAAT-I was also anchored on a continental program, the Comprehensive Africa Agriculture Development Program (CAADP). Later, during the COVID-19 pandemic, TAAT-I supported the African Union’s Special Emergency Assistance Fund for Drought and Famine in Africa (SEAF).

The development objective of TAAT-I was to “rapidly expand access of smallholder farmers, majority
women, to high yielding and resilient agricultural technologies to improve their productivity, food production, incomes and food security.” The program had three specific objectives:

i. **Create an enabling environment for farmers’ adoption of technology** by introducing policies for the deployment and adoption of food production technologies that are regionally harmonized, food- and nutrition-conscious, and environmentally sustainable.

ii. **Facilitate the effective delivery of technologies to farmers** by working with existing regional technology delivery infrastructure in collaboration with RMCs, represented by national agricultural research and extension systems (NARES), private sector actors, and an independent technology clearing house.

iii. **Raise agricultural production and productivity** by identifying and deploying appropriate technologies—including nutrient-dense crop varieties—and conducting vigorous crop outreach campaigns, extension campaigns, and market linkage campaigns in RMCs.

The TAAT Program’s three overlapping phases were initially expected to be implemented from 2018 to 2025. At completion, the program expected to have increased food output by 120 million tons and lifted 40 million people out of poverty. The Bank was expected to provide UA 29 million (USD 40 million) in each phase to support a total of 18 agricultural value chains. TAAT-I was the first phase and deployed technologies for nine agricultural commodities: maize, rice, wheat, cassava, high-iron beans, orange-fleshed sweet potato, sorghum/millet, livestock, and aquaculture. In addition, where applicable to a commodity compact, six enabler compacts were implemented as cross-cutting areas of intervention: soil fertility management, water management, capacity development, policy support, attracting youths to agribusiness (Enable TAAT), and the response to fall armyworm. Finally, the program considered three cross-cutting themes: gender (this was led by the Forum for Agricultural Research in Africa, which engaged African Women in Agricultural Research and Development), youth, and environmental sustainability. Gender had initially been earmarked as a compact but was implemented as a cross-cutting theme.

Central to the TAAT Program is the delivery of technologies in the form of regional public goods. Thus, the technologies profiled and promoted by TAAT-I were either developed through TAAT’s predecessor project (the Support to Agricultural Research for Development of Strategic Crops in Africa project (SARD-SC)) or were proposed by non-profit research and technology delivery organizations (mainly the Consultative Group for International Agricultural Research (CGIAR) centers) and NARES centers. To promote regional public goods, TAAT-I sought to (i) harmonize regional and transnational border protocols for the introduction and release of improved varieties/breeds and other agricultural technologies; (ii) synchronize seed system protocols, especially those involved with liberalizing the production of foundation seeds to allow for private seed companies and community-based seed multiplication systems; and (iii) combat the regional threats of destructive pests and crops/livestock diseases, neither of which respect national borders. On a limited scale, private sector organizations were allowed to submit their technologies for vetting where doing so made it possible for the program to address a critical challenge and promote the mass adoption of technologies. This was the case for Syngenta, which the program supported to address fall armyworm in maize in Central, Eastern, and Southern Africa.
Implementation Modalities and Resources

To fulfill the program’s mandate, TAAT-I constituted a regional technology delivery infrastructure system composed of a consortium of institutions: CGIAR centers, the African Agricultural Technology Foundation, the International Fertilizer Development Center, the Forum for Agricultural Research in Africa, NARES centers, and private firms. The program’s collaborating partners included regional economic communities and those of their sub-regional offices that were working on a regional approach to deploying new crop varieties, high-quality fingerlings, and livestock breeds. TAAT-I also combated pests and disease threats.

The program used a fair and transparent method of prioritizing technologies and allocating resources. A clearing house vetted and selected technologies according to agreed criteria and made recommendations for funding. Once the technologies were selected, the clearing house prepared information packs to promote and disseminate the technologies to farmers through various partners. The PMU was responsible for fiduciary management and procurement, including monitoring and evaluation (M&E) and program management. The Steering Committee oversaw program management.

Figure 2 illustrates the components and processes of TAAT-I’s regional technology delivery infrastructure. The International Institute of Tropical Agriculture, based in Ibadan, Nigeria, was selected as the TAAT-I’s executing agency. It is Africa’s oldest CGIAR center and has the largest footprint.

As regards TAAT-I’s total budget of UA 40 million, the Bank met most of its commitment: it disbursed UA 27.53 million (USD 38 million) for a disbursement ratio of 94 percent. The BMGF supplemented its original support to the clearing house to a total of UA 4.79 million (USD 6.6 million): this increased the BMGF’s initial commitment of UA 0.85 (USD 1.17 million) by

Figure 2: TAAT-I’s Process of Origination, Review, Decision-Making, and Funding

Source: TAAT Multinational Project Appraisal Report, November 2017
over 600 percent. The volume of resources leveraged from independent initiatives by development partners, the public sector, and the private sector was USD 8.2 million against a target of USD 4.8 million. These resources were provided either as in-kind or as cash contributions, through parallel funding. Except for the Government of Togo, which furnished USD 127,000, no other counterpart resources in cash or in-kind were recorded, but evidence from the country case studies indicated that all RMCs provided in-kind support - offices, personnel, land, machinery, etc. TAAT-I did not cost or track in-kind support. The Alliance for a Green Revolution in Africa (AGRA) did not provide the funds it had committed, but it collaborated with the program in deploying SeedSAT, AGRA’s seed systems assessment tool, to strengthen RMCs’ seed systems.

In total, the Bank and the BMGF released UA 32.3 million (USD 44.57 million) in cash of the UA 40 million (USD 55.2 million) committed by all partners. This represents 81 percent of the amounts committed. Technical Annex 4 details the budget allocations, the revisions, the disbursements, and other information on the use of the resources provided by the Bank to the program’s two management entities (the PMU and the clearing house), to the program’s implementing partners, and to one private company (Syngenta – Fortenza Duo) as of 30 September 2022. At that time, the program’s resource utilization rate stood at 99 percent, with the remaining USD 444,978 earmarked for pending commitments, operational costs, and internal auditor fees for the project closure period (the program’s partners had not yet claimed this sum).
Site visit by the IDEV evaluation team at a fish pond in Mukasa Farm, Zambia.
Mpeni Farm in Zambia has acquired many fish drying machines through the TAAT-I program (see Box 2).
Findings

As mentioned in the Section related to, the evaluation’s methodological approach, the evaluation’s findings on relevance, coherence, effectiveness, and sustainability are presented at two levels: the program level and the country level. In some cases, depending on the evaluation question, the findings are supported by evidence from case studies. As for the findings on efficiency, the evaluation could only analyze results at the program level. This is because the program’s resources were allocated and tracked by compact, not by country.

Relevance

The evaluation assessed the relevance of TAAT-I by examining the extent to which the program aligned with the Bank’s policies, strategies, and operations in the agriculture sector and with the needs of RMCs and beneficiaries. The evaluation also examined the design of the program, especially in terms of the scale of its operations, its targeting of beneficiaries, and its integration of cross-cutting themes.

Finding 1: Overall, the project cluster was found to meet the Bank’s standards in terms of rationale and justifications, although the management of quality at entry presented challenges.

Alignment with Bank strategies and operations

TAAT-I was found to align well with the Bank’s strategies and programs to develop and transform the agriculture sector in RMCs. Specifically, the program aligned with the Bank’s Ten-Year Strategy 2013–2022, whose overarching objectives were inclusive growth and the transition to green growth. By focusing on agriculture and food security, the program contributed directly to the Feed Africa High 5 and indirectly to three other High 5s: Industrialize Africa, Integrate Africa, and Improve the Quality of Life for the People of Africa. The program’s objectives were firmly anchored in the Bank’s Feed Africa Strategy 2016–2025, which aims to transform Africa’s agriculture with a value chain approach that increases the productivity of major crops on the continent. Three priority areas of Feed Africa were closely linked to commodities targeted by TAAT-I: (i) achieving self-sufficiency in cassava, rice, and wheat; (ii) creating a food-secure Sahel with commodities such as climate-resilient sorghum, millet, and livestock breeds; and (iii) realizing the potential of the Guinea savannah with maize and other adaptable crops.

Alignment with RMCs’ policies, strategies, and programs

TAAT-I supported 29 RMCs, all of which had requested to participate in the program. The evaluation’s country case studies observed that the program aligned with those RMCs’ policies, strategies, and programs for agricultural development and transformation. The program responded to the needs of RMCs, key stakeholders, and the ultimate beneficiaries by enhancing capacities and transferring improved agricultural technologies to farmers with a view to rendering RMCs’ agriculture sector more productive and more resilient, increasing farmers’ incomes from agriculture, creating job opportunities by adding value, and augmenting food and nutrition security. In this way, the program sought to strengthen RMCs’ response to persistent challenges: as mentioned in the Section on the Overview of TAAT-I, most RMCs are net food importers and about a fifth of the continent’s population experiences food insecurity and malnutrition.

In addition to nine commodity compacts, TAAT-I developed six enabler compacts to create an
environment favorable to the program achieving its objectives. For instance, the compact on policy aimed to create a policy and regulatory environment conducive to removing bottlenecks in the deployment of improved agricultural technologies to farmers, especially in countries in similar agroecological zones.

Technical Annex 2 describes the program’s alignment to RMCs’ policies and strategies in the countries where case studies took place.

**Scale of funding and scope of interventions**

In general, TAAT-I was found to be overambitious: the results and scope of the interventions envisaged for the program exceeded the program’s resource envelope. To arrive at this conclusion, the evaluation compared the resources, the scope of interventions, and the coverage of TAAT-I with those of a predecessor project and other Bank-funded projects that took place in the case study countries and whose objectives were similar to those of TAAT-I. The predecessor project, SARD-SC, had been implemented from 2012 to 2017 and mostly focused on research and the development of improved, highly adaptable, and resilient varieties of wheat, cassava, rice, and maize. SARD-SC was different from TAAT-I in some respects, but its level of resources -UA 39 million, or USD 60.5 million—was similar. Yet SARD-DC supported four commodities and 20 RMCs, whereas TAAT-I supported nine commodities, 29 RMCs, and six enabler compacts.

TAAT-I was designed to promote the adoption of agricultural technologies, including technologies developed by SARD-SC, that were vetted and selected by the program’s clearing house. As a program to scale up the use of technologies, TAAT-I was expected to foster an environment that encouraged farmers’ adoption of technology, to establish an enabling system and partnerships for the delivery of technology, and to provide resources for the deployment of technologies. The deployment of technologies required substantial investments, especially for new interventions, such as the promotion of wheat production in lowland and arid areas of Ethiopia that used to be pastoralist communities. These investments concentrated on awareness-raising; establishing demonstration plots; training farmers, experts in national institutions, and other stakeholders; multiplying the production of seeds and other technologies distributed to farmers; and providing the other inputs (fertilizers, herbicides, pesticides, etc.) necessary to realize the technologies’ full potential for productivity and production.

The evaluation estimated the average resources provided by TAAT-I for each commodity compact. It was difficult to estimate amounts per country because resources were allocated, used, and tracked by compact, not by country. Nonetheless, the evaluation found that overall, the commodity compacts that applied to a larger number of countries—for example, the rice compact (15 RMCs) and the cassava compact (16 RMCs)—on average allocated fewer resources (USD 57,000/country for rice and USD 64,500/country for cassava) than did compacts that applied to fewer countries—for example, the livestock compact (4 RMCs) allocated USD 187,390/country and the orange-fleshed sweet potato compact (5 RMCs) allocated USD 297,640/country (Technical Annex 5). In the case of the aquaculture compact, the case study in Zambia found that TAAT-I’s interventions were critical for diversifying the incomes of small-scale farmers but that the limited scope of the interventions constrained the program’s potential to achieve the results it had planned. The implementing partner received only USD 50,000, which was insufficient for the 11 demonstration sites targeted.

The evaluation noted that 71 percent of the case study countries had at least two AfDB-funded programs or projects whose objectives were similar to those of TAAT-I. These programs and projects did not necessarily cover the whole country; rather, they focused on specific commodities and program sites. Nonetheless, their funding levels tended to exceed those of TAAT-I. For example, the budget
of the project implemented by the country office in Niger (Niger only had one project similar to TAAT) was USD 55 million; for Zambia, the figure was USD 35 million. In both cases, the project’s sum for one country is comparable to TAAT-I’s budget for 29 countries (Technical Annex 6). Although TAAT-I largely maintained its focus throughout the life of the program, the issue of limited resources—noted during the mid-term review in 2019—necessitated modifying the program’s approach toward the end so as to refocus on enhancing the quality of the design and implementation of large RMC agricultural development programs funded by the Bank (including programs funded by the African Emergency Food Production Facility) and other development partners.

Targeting of beneficiaries

The evaluation found that the program was well adapted to the needs of stakeholders at different levels. For instance, it was adapted to the African Union’s Comprehensive Africa Agriculture Development Program (CAADP) and the Special Emergency Assistance Fund for Drought and Famine in Africa (SEAF). In addition, it provided regional economic communities with policy, technical, and financial support and NARES centers with capacity-building support. The program also enabled ultimate beneficiaries’ access to and use of improved technologies for production, for processing, and for building resilience to climate change and other risks. In Ethiopia, the program worked closely with the Ethiopian Institute of Agricultural Research and Ethiopia’s Agricultural Extension System to expand wheat production to lowland and arid areas. This was consistent with the Government of Ethiopia’s policy to produce more wheat and achieve self-sufficiency. In Nigeria, the program areas visited by the evaluation team focused on cassava production, and the program enabled partnerships between smallholder cassava farmers and non-governmental organizations, academia, and the private sector to promote processing activities, including the production of high-quality cassava flour, with a view to increasing the demand for and price of cassava. In Democratic Republic of Congo (DRC), the agriculture sector was characterized by its limited use of quality seeds, low productivity, and its little application of technology. The introduction of enhanced seed multiplication technology, such as semi-autotrophic hydroponics (SAH), was expected to increase production and productivity among DRC’s smallholder cassava farmers.

Inclusion and mainstreaming of cross-cutting themes (gender, youth, and the environment)

By paying attention to gender and increasing youth’s involvement in agricultural enterprises, TAAT-I was designed to be inclusive. The work on gender was led by the Forum for Agricultural Research in Africa, which engaged African Women in Agricultural Research and Development (AWARD) as part of the Capacity Development and Technology Outreach Compact. As for the work on youth, in addition to mainstreaming youths in the program’s various compacts, the program dedicated a compact to youth: the Enable TAAT Compact. During implementation, the work on gender concentrated on meeting quotas for the participation of women, which were set at 40 percent. In-depth gender analyses were not a common feature of programs’ and compacts’ M&E and only one of the 27 indicators (4 percent of all indicators) in the program’s results-based logical framework (Technical Annex 3) collected data on women (the indicator concerned jobs). As for youths, the lack of a structured and harmonized process to mainstream youth interventions in the commodity compacts produced uneven results. Some compacts, such as those for maize, cassava, orange-fleshed sweet potato, aquaculture, and livestock, worked proactively with the Enable TAAT Compact, but other compacts did not. Section on effectiveness addresses the mainstreaming of gender and youth in greater detail.

With regards to the environment, the evaluation found that TAAT-I prioritized environmental sustainability from the onset. The program’s development included environmental impact assessments and the preparation of an environmental and
social management plan. The manifestation of environment- and climate change-related challenges and risks in the case study countries turned out to be low, but the challenge of monocropping was found to be prevalent due to the absence of alternative economically viable crops which with farmers could rotate. Monocropping was exacerbated by small-scale farmers’ limited access to land. The evaluation found that TAAT-I did not put in place adequate measures to address this and other potential environmental challenges and risks.

**Fragility**

Although state fragility was not a requirement for participating in TAAT-I, it turned out to be a major feature because only African Development Fund countries could receive financial support to implement TAAT-I activities. African Development Bank countries were free to participate if the program’s support was limited to technical assistance. African Development Bank countries could also implement interventions with resources provided by their government, resources provided by other development partners, resources from an AfDB policy-based operation, or investments in large-scale agricultural transformation initiatives.

Some 50 percent of the beneficiary RMCs were fragile countries. Some—Chad, Ethiopia, Niger, and Sudan, among others—experienced multiple drivers of fragility, such as climate change, conflict and insecurity, and pests (locust, fall armyworm, birds, etc.).

**Coherence**

The evaluation assessed the coherence of TAAT-I by examining the extent to which the program’s interventions in selected countries and commodity compacts were integrated, harmonized, and coordinated with other Bank-supported interventions in agricultural transformation and with the interventions of RMCs, other development partners, and the private sector.

**Finding 2:** Overall, the evaluation assessed the coherence of TAAT-I as satisfactory. In terms of design, the evaluation found TAAT-I to be coherent with other Bank-supported operations and with the operations of RMCs and other development partners. During implementation and especially in the early stages, however, a combination of factors compromised the program’s internal and external coherence as well as its institutional coordination. TAAT-I was centrally coordinated from AfDB headquarters; the AfDB’s regional and country offices were little involved. The integration of TAAT-I interventions and interventions supported by other development partners was also affected by implementing partners’ limited capacity to engage in national coordination mechanisms for agriculture programs and projects.

**Internal coherence**

In terms of design, the evaluation found TAAT-I to be coherent with the Bank’s strategies and operations for agricultural transformation in RMCs. During implementation, however, harmonization and integration were found to be inadequate. TAAT-I mirrored the agricultural priorities set out in country strategy papers (CSPs), regional integration strategy papers, and the Feed Africa Strategy, even though these strategies did not reference TAAT. For example, from 2018 to 2023, none of the CSPs for the seven case study countries referenced TAAT but all of them prioritized agriculture, notably the areas of agriculture prioritized by TAAT-I. This lack of reference to TAAT was mainly because most CSPs had been developed between 2013 and 2017, before TAAT was operational. The exception was Kenya, whose CSP covered 2019 to 2023.

In terms of long-term support for CGIAR centers and RMCs, TAAT-I demonstrated the Bank’s commitment to scale up proven agricultural technologies, including technologies developed under previous projects, such as SARD-SC, which operated in the areas of research and development. In addition, most of the case study countries had two or more AfDB-supported projects whose focus areas were similar to those of TAAT-I; only Niger and Zambia had one such
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Ethiopia had four programs with a combined budget of USD 277 million (Technical Annex 6). An evaluation of the clearing house commissioned by the BMGF in 2021 found that nearly 60 percent (17 of 29) of countries implementing TAAT-I interventions also hosted an AfDB-supported project related to TAAT. However, the evaluation found limited synergies and coordination between TAAT-I and other Bank-supported projects in the case study countries. Up to the time of the evaluation, significant bottlenecks remained, the most prominent being the failure to designate AfDB regional and country officials as focal points for TAAT-I and the lack of mechanisms for systematic interaction between the leadership of AfDB regional or country offices and TAAT-I implementing partners. For example, in the case studies, the evaluation observed that nearly half (43 percent) of AfDB country managers and government agencies in DRC and Niger were not fully aware of TAAT-I interventions in their country.

Towards the end of the program, as a result of program reviews and the evaluation of TAAT-I’s clearing house, the program emphasized enhancing the design and implementation of large, Bank-supported sovereign operations for agricultural transformation. This shift in emphasis was realized by strengthening the program’s brokerage and country engagement functions, mainly through the clearing house, to leverage the abundant resources that the Bank invested in various programs and projects. The limited attention to TAAT-I’s resourcing from Bank-supported operations for most of the program’s implementation period was, however, a missed opportunity to access some of the more than USD 1 billion invested by Bank-supported programs for agricultural development in RMCs during that time. Note that some Bank-supported programs had been cofinanced by the Global Agriculture and Food Security Program and other development partners.

**External coherence**

The evaluation found TAAT-I to be coherent with agricultural transformation initiatives of African Union continental and regional bodies, RMCs, other development partners, and nongovernmental organizations. A case in point is the African Union’s Special Emergency Assistance Fund for Drought and Famine in Africa, launched in June 2021 to support the delivery of seeds and other commodities to at least 16 African countries in response to the growing food insecurity caused by the COVID-19 pandemic. The above-mentioned evaluation of the clearing house observed that 50 percent of the countries targeted by the African Union’s initiative had formally requested support from TAAT-I. Through the policy compact implemented by the African Agricultural Technology Foundation, the program also forged partnerships with five regional economic communities. This support built on the implementation of the African Continental Free Trade Area to facilitate the development of regional markets for seeds, planting materials, agro-technologies, and agri-products. In a small number of cases, however, it was difficult to move planting materials across borders. For instance, there was a delay in moving improved cassava varieties from Nigeria to Benin because the NARES centers preferred that new varieties be retested before release. While this preference was partly justified by the large diversity in climatic conditions among the area’s countries and regions, the delay was mostly attributable to the slow development and domestication of regional policy, legal, and regulatory frameworks.

In countries with strong leadership, effective coordination mechanisms, and good communication of policies and strategies (for example, Ethiopia, Kenya, and Zambia), TAAT-I interventions were highly integrated into national systems for implementing agricultural policies and strategies, including national agricultural implementing plans (NAIPs), the main vehicle for implementing CAADP. Yet TAAT-I’s implementing partners participated little in coordination frameworks for multi-partner initiatives at the country level. The implementing partners’ interactions were mainly confined to ministries of agriculture or NARES centers; the partners had little or no interaction with ministries, such as ministries for planning and finance, that coordinate the work of other development partners on similar
initiatives. One of the key reasons for this lack of interaction was the weak link between TAAT-I’s implementing partners and the AfDB’s regional and country offices. Furthermore, the level to which TAAT-I integrated with other programs funded by multilateral organizations and bilateral donors varied significantly, depending in large part on the strength of the national coordination mechanisms in place. Finally, the evaluation’s observations in DRC and Ethiopia suggest that government ownership was critical for success: these countries provided abundant resources for irrigation schemes, the supply of inputs, and mechanization to complement the Bank’s support.

The findings on TAAT-I’s coherence with the private sector were mixed. Often, coherence depended on RMCs’ policies. In Niger, Nigeria, and Zambia, the evaluation found a high level of private sector involvement in such TAAT-I activities as seed production (Niger), the fabrication of cassava-processing technologies (Nigeria), and Syngenta’s promotion of Fortenza Duo (Zambia). In contrast, under Ethiopia’s government-led approach, the private sector’s principal involvement took the form of parastatal companies and cooperatives that dominated input supply and crop marketing and were active in processing. In countries whose input supply systems were led by the private sector, farmers expressed the need for more regulation to protect the quality of inputs: this was especially true for strategic food crops, such as sorghum/millet in Niger and cassava in Nigeria. Better regulation was also vital for community seed multiplication systems, which involved many small and medium enterprises.

TAAT-I’s promotion and scale-up of proven technologies also generated capital requirements for parastatals and private sector organizations wishing to take up emerging opportunities in priority commodity compacts. By design, however, TAAT-I had limited capacity to meet firms’ need for capital: rather, private entities were to be financed by direct program funding or as part of a Bank-financed sovereign operations. This proved to be challenging except in few instances, for example, in TAAT-I’s support to Syngenta for the fall armyworm response. In the end, the lack of mechanisms by which the private sector could access capital through the Bank’s non-sovereign operations or other sources (commercial bank loans, bonds, shares, etc.) greatly limited the scale-up of proven technologies.

TAAT-I was implemented in collaboration with NARES centers, universities (principally faculties of agriculture, extension, and rural development and faculties of food sciences), and international and local nongovernmental organizations. Universities and nongovernmental organizations’ support was particularly critical for building capacity and increasing interventions’ outreach.

Effectiveness

The evaluation assessed the effectiveness of TAAT-I by examining the extent to which it achieved results at the program level. The evaluation’s assessment in this regard was hampered by the lack of an approved project completion report and limited data on certain compacts at the country level: this made it difficult to triangulate and validate the results reported in progress, review, and outcome assessments and progress reports. To mitigate this challenge, the evaluation drew on the case studies-on key informant interviews, focus group discussions, and observations made during site and household visits-to identify indicative results for the program’s outcomes, impacts, and stories of change. The case studies examined selected commodity compacts in selected intervention areas.

Finding 3: The program was found to have performed well in achieving immediate and intermediate results despite the effects of the COVID-19 pandemic and considerable operational challenges. Indicative results from the case studies suggest that the program improved productivity and, to a lesser extent, increased the incomes of beneficiary households. However, the evaluation also found that small-scale farmers in most RMCs were
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constrained by limited land area and limited access to the complementary support, including financial resources, that would have allowed them to better reap the benefits of TAAT-I technologies. Finally, the program could have paid better attention to inclusion and environmental and climate change-related risks.

TAAT-I's objectives are reflected in the program’s components. For that reason, this section on effectiveness discusses in sequence the extent to which TAAT-I achieved its three overall objectives: (i) creating an environment that enabled farmers’ adoption of agricultural technologies; (ii) facilitating the delivery of proven technologies to the project beneficiaries; and (iii) enabling farmers to actually deploy the technologies. In resume, the program was found to have made good progress towards its final targets for outputs: on 15 of 21 output indicators (71 percent), it achieved at least 70 percent of the target, and on 11 of 21 output indicators (52 percent), it achieved 94 to 193 percent of the target.

This section also presents certain outcome-level results identified by the evaluation’s in-depth assessment of the compacts examined in the case studies. On this basis, the evaluation found mixed results for the program’s contribution to increased agricultural production and productivity.

Creating an enabling environment for farmers’ adoption of technology

The first overall objective of TAAT-I—and the focus of the program's first component—was to create an environment conducive to farmers adopting agricultural technology. The program sought to achieve this objective by advancing policy, legal, and regulatory frameworks at the regional and country levels that would enable the deployment and adoption of food production technologies that were regionally harmonized, food- and nutrition-conscious, and environmentally sustainable. The program was expected to leverage resources from agricultural transformation programs implemented by RMCs with the support of the Bank and other development partners.

Policy support and dialogue

At both the regional and the national level, TAAT-I was found effective in advancing policy reforms and regulations for the adoption of the technologies promoted by the program. It accomplished this even though countries’ domestication of policy reforms was slow. To achieve its objectives in this regard, the program conducted events on policy dialogue, supported diagnostic studies to identify policy gaps, and provided technical assistance to facilitate the revision, approval, and adoption of agricultural policies and legal and regulatory frameworks. The program’s support aimed to encourage the domestication of continental and regional policies and regulatory frameworks to ease the movement of agricultural technologies and products across countries, especially countries in similar agroecological zones. It also aimed to help RMCs address challenges and gaps hindering agricultural growth and transformation. According to TAAT-I’s progress reports, 100 policy dialogue events had been held by the end of the program against a target of 69: this corresponds to an achievement rate of 145 percent. These events involved at least 400 stakeholders and led to the identification of the 64 policy gaps that had been targeted during project preparation. They also permitted the parties to identify solutions. The process led to the revision and adoption of 29 policy, legal, and regulatory frameworks against a target of 15, for an achievement rate of 193 percent (Technical Annex 3). As mentioned in the discussion on external coherence, however, in some instances the slow pace of domestication of the new and revised frameworks hampered the movement of promoted technologies, especially seeds and planting materials. In addition, the evaluation found that AfDB country offices and other development partners were not fully aware of the program’s support for policy reform. The same was true of certain important national institutions within RMCs that were not directly involved in the program.

Despite difficulties domesticating policy and regulatory frameworks, the evaluation found evidence that policy dialogue and technical
assistance improved the seed production systems of 15 countries. As noted in Mathematica’s evaluation of the clearing house in 2022, these countries had completed rapid assessments of their seed policy environment in partnership with the Alliance for a Green Revolution in Africa (AGRA). Four of the 15 countries were part of the project cluster: DRC, Kenya, Nigeria, and Zambia. The commodities assessed in the case studies for these countries were cassava, maize, rice, wheat, and livestock. In DRC, the cassava compact facilitated the government’s adoption of semi-autotrophic hydroponics (SAH) for the fabrication of large quantities of good cassava planting materials. Ethiopia was one of six countries supported by TAAT-I (the African Agricultural Technology Foundation) in collaboration with AGRA to address bottlenecks in the implementation of seed policy.

**Partnerships and the leveraging of resources**

As mentioned in the discussion on implementation modalities and resources in Section 3, TAAT-I attracted only 81 percent of the resources originally committed. The BMGF was the most reliable partner: it contributed directly to the program by supporting the clearing house and indirectly through programs such as BASICS II and Go Seed. It also contributed by means of its support for AGRA and other institutions. Evidence showed that AGRA only provided parallel funds in the form of collaboration on strengthening seed systems. As for counterpart support, RMCs principally supplied in-kind support that was not tracked or costed. That said, 11 of 15 compacts leveraged parallel funds and in-kind support from projects funded by other development partners and the private sector in RMCs. The resources thus mobilized amounted to USD 8.2 million against a target of USD 4.8 million, representing an achievement rate of 170 percent. The support took the form of personnel, logistics (transport, storage etc.), infrastructure, machinery, equipment, and more.

The evaluation inventoried the case study countries for AfDB-supported projects whose objectives were similar to those of TAAT-I. An assessment of these projects revealed that up to 47 percent of project resources were cofinanced by other development partners, mainly the European Union, the Export-Import Bank of Korea, the Islamic Development Bank, the International Fund for Agricultural Development, and the Global Agriculture and Food Security Program. Other partners were the Spanish Agency for International Development Cooperation, the Africa Growing Together Fund, and philanthropic organizations (Technical Annex 6). Because TAAT-I was constructed as a stand-alone program, and because of its weak linkages to AfDB Country Offices, TAAT-I was not able to replicate this success rate for cofinancing: indeed, towards the end of the program, TAAT-I’s clearing house attempted to compensate by concentrating increasingly on mobilizing resources. In fragile and conflict-affected countries, TAAT-I worked closely with the World Food Programme.

The volume of resources that TAAT-I’s compacts leveraged from AfDB-supported country programs amounted to USD 9.5 million against a target of USD 12.9 million, an achievement rate of 74 percent. For example, the aquaculture compact leveraged USD 100,000 from the USD 40 million Aquaculture Business Development Program funded by the International Fund for Agricultural Development in Kenya; USD 1.4 million from the USD 47 million Zambia Aquaculture Enterprise Development Project; and additional resources from the Government of DRC’s flagship 100-day program supporting the fish cage system on Lake Kivu. Results were uneven across RMCs, but the key finding for all the case studies was the difficulty to leverage cash and in-kind resources from programs funded by RMCs governments, the AfDB, or other development partners. This was mainly due to the reluctance of government officials to allocate resources to TAAT-I, after resources had been disbursed. In Angola, Central Africa Republic, and Gabon, none of
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which were case study countries, TAAT-I accessed resources through memoranda of understanding to revive old, non-performing projects supported by the Bank, other development partners, and governments.

In the case study countries, some partnerships were in place with various institutions, mainly public and private ones. The partnerships differed in terms of performance and strength. TAAT-I’s partnerships with government institutions (research and extension systems) were instrumental to the program in selecting and disseminating technologies suited to countries’ agroecological conditions. Overall, country-level partnerships yielded positive results. TAAT-I also worked well with implementing partners to harness resources from government offices and farmer cooperatives in the form of agricultural inputs; this said, mechanisms and results varied among countries. In Benin, Kenya, and Zambia, the program leveraged financial resources for youth from financial institutions. In Kenya, resources were also leveraged from financial institutions for women.

Facilitating delivery to farmers

The second overall objective of TAAT-I-and the focus of the program’s second component—was to facilitate the effective delivery of technologies to farmers in agreement with RMCs. This component sought to develop the capacity of partners involved in delivering the technologies: NARES centers, private sector actors, and others. The program also sought to ease the movement of technologies across countries in similar agroecological zones: this was critical to the development of regional value chains.

Capacity development

The evaluation found positive outcomes from TAAT-I’s work to develop the capacity of CGIAR centers, NARES centers, and the private sector to transfer agricultural technologies to farmers for the compacts targeted. Although TAAT-I’s capacity-development work strengthened seed systems and promoted small and medium-sized agribusinesses, however, it did not lead to effective training programs for farmers. Among the critical outcomes noted by the evaluation were CGIAR’s greater capacity to backstop the delivery of the 133 technologies (Technical Annex 8)—covering both commodity compacts and enabler compacts—that had been vetted by the clearing house. The evaluation also noted the strengthening of 102 national seed systems against a target of 106; the establishment of regional seed systems (e.g., for cassava through SAH); and a notable increase in the private sector’s participation in and ownership of several compact activities (maize/fall armyworm by Syngenta, cassava processing by Niji Agro Solutions). In Benin, the establishment of an efficient seed system at the national level was a direct result of development of the capacity of the Institut National des Recherches Agricoles du Bénin; in Ethiopia, TAAT-I’s capacity-building of NARES centers resulted in the production of early generation seeds, including pre-basic and basic seeds for low-land heat-tolerant varieties. And in Kenya, the program improved the value of products produced by the compacts for high-iron beans and orange-fleshed sweet potato.

In total, TAAT-I’s interventions involved at least 1,250 partners against a target of 1,122. The partners consisted mainly of seed companies and national institutions and they were present in all the program’s beneficiary RMCs. By the end of the program, 351,456 staff members of TAAT-I’s partner organizations had been trained as trainers in the deployment of the technologies selected for the commodity and enabler compacts (Technical Annex 7.2). NARES centers’ decentralized nature made the centers an especially important partner organization for this role, since NARES centers were able to reach communities and train farmers directly. However, only some 497,275 people were trained in the development of agricultural enterprises: this fell far short of the target of 9.6 million and produced an achievement rate of only 5.2 percent (Technical Annex 3).

In the case studies, stakeholders and beneficiaries expressed concern with the level and intensity of the program’s capacity-building services. In most case study countries, capacity-building was high
during the first farming season but was scaled down drastically or halted during and after COVID-19. Nonetheless, the program helped establish 2,789 small or medium-sized agribusinesses against a target of 2,421, an achievement rate of 115 percent. In addition, over 100 seed companies and at least 5,000 input suppliers were accredited and featured in the catalogues of suppliers. A digital seed tracker was also established. In Kenya, Nigeria, and Zambia, Syngenta, a private seed company, implemented fall armyworm-related activities that led to the training of 1,237 staff members of partner organizations (NARES centers, agrochemical and seed companies, and academia). Women constituted 40 percent of trainees. The NARES centers cascaded the training to 833,374 district-level extension agents. In Zambia alone, 2,005,722 farmers were trained and supplied with Fortenza Duo-treated maize seed from 2018 to 2022. In Niger, 15 extension workers and 45 groups (composed of 1,113 farmers, of whom 320 were women) were trained in techniques for harvesting, processing, storing, and selling millet and sorghum products. However, a review of compact-level closure reports suggests that the number of farmers reported as trained in program level reports may have been under-reported.

**Development of regional value chains**

By design, TAAT-I used a compact and value-chain approach that involved countries with similar agroecological zones. For instance, the widespread adoption of SAH technology helped establish better cassava seed systems in Benin, DRC, and Nigeria. To scale up cassava-processing activities in targeted countries, the program also partnered with the private sector to fabricate vetted processing technologies. A case in point is Niji Agro Solutions in Nigeria, which spearheaded research and the mass production of food processing and agro-equipment technologies. As a result of Niji working closely with TAAT-I, cassava processing technology, including mobile processing products, became one of the company’s landmark products. At the time of the evaluation visit, the company had already accepted five orders for technologies and requests for technical assistance from Benin, Cameroon, DRC, Tanzania, and Togo. The company also received inquiries from cassava-growing regions outside Africa, such as Latin America. As for the orange-fleshed sweet potato compact, farmers in Kenya were already sourcing cheaper planting materials from Tanzania. With respect to wheat production, research centers in Ethiopia served as centers of excellence for transferring skills and technologies to wheat-producing beneficiary countries in East Africa, Southern Africa, and West Africa.

**Deployment of appropriate technologies**

The third overall objective of TAAT-I—and the focus of the program’s third component—was to enable the deployment of appropriate technologies, through an independent clearing house, in order to raise agricultural production and productivity. The program supported outreach campaigns to raise awareness about TAAT-I technologies and facilitated market linkages for producers using the technologies.

**Enabling beneficiaries’ access to technologies and market facilities and services**

By the end of the program period, TAAT-I had deployed 133 technologies. Unbundled, this translated into 208 individual technologies, which exceeded the target of 202. The program worked with 63,472 intermediate beneficiaries (the target was 62,427) who were involved in establishing community demonstration sites, multiplying seeds and planting materials, fabricating equipment, and more. The program reached 18.9 million people (against a target of 20.2 million) in campaigns to raise awareness about TAAT interventions and technologies in TAAT’s first phase. Despite this, however, only 10.9 million beneficiaries ultimately used technology products and services (the target was 40.5 million). It is worth noting that according to the project appraisal report, the 40.5 million target was for all three phases of the program, ending in 2025, not the target for TAAT-I, which ended in 2022. This demonstrates an important weakness in the design of the program’s results-based logical
framework—a weakness that the program’s partners confirmed in interviews and focus group discussions.

In general, ultimate beneficiaries’ access to markets and support services over the life of the program was found limited. The program supported 48 communities of a target of 90 (53 percent) to access inputs and output markets for their products. Only 21 percent of the ultimate beneficiaries used market facilities and services, only 5.4 percent used improved post-harvest technologies, and only 22 percent engaged in commercial agribusiness supply chains—all of which were below target.

**Inclusivity and the mainstreaming of cross-cutting themes (gender, youth, the environment)**

TAAT-I sought to ensure inclusivity by targeting women and youths, but the degree to which in-depth gender and youth analyses were mainstreamed and applied was below expectations, as was the program’s disaggregation of results. Nonetheless, the evaluation showed women having participated adequately in TAAT-I-supported activities. For instance, country interviews confirmed that the wheat compact employed an extension, technology, and gender facilitator who encouraged women to take part in trainings, to avail themselves of rural advisory services, and to work on grain production and processing/value addition. The result was that women held 49,621 jobs of the 112,774 created in the wheat compact (44 percent). Further, in 60 percent of the innovative, community-based platforms created to manage the commodity and enabler compacts, more women than men were appointed as leaders. Beyond this participation, however, the results for gender mainstreaming were limited, and only 1 of 27 indicators of job creation disaggregated results by gender. This was a missed opportunity to measure gaps, challenges, and the extent of women’s empowerment in TAAT-I commodity compacts.

In four case study countries (DRC, Kenya, Nigeria, and Zambia), youths benefitted from interventions under Enable TAAT, the youth compact. Except for Zambia, youths in these countries engaged more deeply in TAAT-I interventions than did youths in the

**Box 1: Women’s Empowerment and Value Addition in Benin’s Production of Parboiled Rice**

As part of the rice compact led by the Africa Rice Center (AfricaRice), TAAT-I supported 86 women from six municipalities with training and modern equipment for the production of parboiled rice in Glazoué, south-central Benin. The modern equipment consisted of a grain quality enhancer and energy-efficient, durable material parboiler technology (GEM). The GEM made it possible for the women to modernize their processing techniques and increase their productivity and production. The women indicated that in the past, they had produced 150 kg of parboiled rice every two days; the GEM nearly tripled their production to 400 kg every two days for a total of 1,200 kg per week. The new technology reduced physical labor, such as lifting the pot from the ground, and cut the time spent on processing activities. In addition, trainings enabled the women to improve the quality of the parboiled rice even as the introduction of new packaging gave them an economic advantage in the market. With this added value and increased appreciation of the product in the market, the women were able to sell rice locally at a higher price: from 2,500 CFA (USD 4.5) for a 5 kg packet in 2017 and 2018, to 2,750 CFA (USD 4.7) in 2019. In 2020, the price even reached 3,000 CFA (USD 5.2) per 5 kg packet. Ultimately, the compact improved women’s socioeconomic situation within their households, where the women felt more empowered and were more able to contribute to household expenses.

Despite these developments and the positive outlook of the parboiled rice business, the women were not able to satisfy demand. This was because their supply of the raw material (paddy rice) was limited, as was their access to credit, including microcredit, for expanding their business. Women also experienced challenges maintaining and repairing the GEM. At the time of evaluation, the pump for GEM did not function. Nonetheless, the women remained optimistic about the prospect of accessing institutional markets, such as school canteens, in the future. They were also interested in more training on recycling so that they could compete with imported parboiled rice and take advantage of opportunities in environmentally sensitive markets.

TAAT Evaluation Country Case Study, Benin
other case study countries. At the program level, TAAT-I’s outreach activities reached 200,000 youths, 116,600 of whom (58 percent) participated in TAAT-I capacity-building and agripreneurship activities (awareness-raising activities, trainings, agribusiness parks, and group business ventures). In addition, 42 agribusiness parks were established, increasing the public’s access to information and support services. In some cases, TAAT-I or collaborating organizations, including private financial institutions, provided resources for business start-ups. However, results under the Enable TAAT compact (the youth compact) in seven countries show that only 4,600 youths (4 percent) were trained in various skills and only 501 youths (11 percent of trained youths and less than 1 percent of youths who participated in Enable TAAT) established or were involved in an agribusiness start-up. This poor showing is principally attributable to the limited access by program staff, other stakeholders, and beneficiaries to funds for supporting agribusiness start-ups, as well as youths’ limited access to land. Youths who participated in the evaluation also mentioned that the limited mechanization and low use of information and communication technology made agriculture unattractive to them. Overall, the evaluation found that because of the coordination challenges discussed in the section on coherence, the degree to which compacts mainstreamed youth activities differed greatly.

With respect to mainstreaming environment-related activities, TAAT-I’s development process included the completion of environmental impact assessments and the preparation of an environmental and social management plan. To varying degrees, the program deployed interventions to address certain environmental challenges proactively. The maize compact promoted the deployment of water-efficient, drought-tolerant varieties of maize with high yields and a short maturity period. In Niger, the program promoted adapted sorghum and millet varieties under dry weather conditions. In addition, the deployment of a thermostable PPR vaccine for sheep and goats, which greatly reduced transportation and storage costs, was vital to promoting the production of small ruminants. The deployment of technologies for small ruminants and livestock and promoting them as a complementary enterprise is critical to diversifying farmers’ incomes and making their livelihoods more resilient in periods of crop failure, yet TAAT-I did not adopt the practice widely. Finally, as mentioned in the discussion of relevance, evidence from the evaluation indicated that environmental safeguards to address potential challenges and risks were not widely applied.

Achievement of outcomes

TAAT-I’s development objective was to rapidly increase smallholder farmers’ access to high-yielding agricultural technologies with a view to increasing food production, ensuring food security, and raising rural incomes. TAAT-I’s progress reports indicated that the program had contributed to the production of 108 million tons of food: 33 million tons of crops (32.9 million tons of cereals, 0.2 million tons of tubers, and 0.13 million tons of high-iron beans) and 74.78 million tons of fish (61.9 million tons of tilapia and 12.9 million tons of catfish). The achievement rate of the program’s crop production targets ranged from 16 percent for high-iron beans and 19 percent for maize, to 114 percent for cassava. The achievement rate for all crops averaged 72 percent. The average achievement rate of the production targets for fish was 99.7 percent (103 percent for tilapia and 86 percent for catfish). Data for the production of orange-fleshed sweet potato and livestock did not appear in the program’s progress reports, and the unavailability of data from national institutions and other independent sources and from reports from the sites selected for a case study left the evaluation unable to validate results. It was also difficult to quantify the program’s contribution to production levels, not least because the resources provided by TAAT-I were often greatly inferior to those provided by RMC institutions and by the programs and projects funded by various development partners. The same difficulties applied to the data on productivity, food security, and incomes. To mitigate these challenges, as mentioned previously, the evaluation used case studies whose in-depth assessments produced data.
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and information that demonstrated the program’s potential to achieve its outcomes and impacts. Data on production levels and food security was hard to obtain, but the case studies made it possible to triangulate data on productivity, and data from a small number of beneficiaries was used to assess results for incomes.

Increasing farmers’ productivity

With respect to increasing productivity, the Bank supported Syngenta Zambia to promote the use of maize seed treated with Fortenza Duo against the fall armyworm’s devastating effects on maize yields. Overall, maize yields increased from 1.5 to 2.5 tons/ha against a target of 3.5 tons/ha. This represented an achievement rate of 38 percent. Maize farmers using Fortenza Duo recorded 15 to 20 percent higher yields than farmers using untreated seeds. Productivity also increased in the aquaculture compact: the project progress report indicated an achievement rate that averaged 66 percent of targets. At 73 percent, the average productivity rate for tilapia was higher than for catfish (59 percent). These results were made possible by exposure visits, by training farmers, by scaling up the adoption of cutting-edge monosex tilapia technology, and by introducing efficient feeding practices. Evidence from the case study in Zambia indicated that the program there helped boost productivity during the production of both fingerlings and tilapia fish for sale on the market (Box 2). The case study also revealed threats to the viability of smallholder aquaculture enterprises.

In Benin, the evaluation found that on average, rice consumption increased to 25 to 30 kg/capita per year, or 225,000 to 270,000 tons per year. In response, the government aimed to increase yields by 4 to 5 tons/ha from an average of 2.7 tons/ha; it projected total production of white rice to reach 385,000 tons per year. TAAT-I supported the government with breeder seeds for three climate-smart varieties and five hybrid varieties. The country produced 26

Box 2: Smallholder Fish Farming in Zambia

In 2018, Royd Mukonda, a 33-year-old fish entrepreneur and the cofounder of Mukasa Agrosolutions and Fish Farm Limited, took part in TAAT-I’s aquaculture training in Egypt. Mr. Mukonda’s training and exposure visit helped him increase the monthly production of fingerlings from 15,000 to 700,000 on the 4 hectare plot where he produces tilapia (Oreochromis andersonii) and catfish (Clarias gariepinus). Linkages established with TAAT-I’s support also allowed Mr. Mukonda to better supply smallholder fish farmers not only in Zambia, where Mukasa Farm is located, but also in neighboring countries, namely, DRC and South Africa. Despite the increase in production, however, Mukasa Farm was unable to meet demand, among other things because of the high cost of fish feed and Mr. Mukonda’s limited access to financial resources from local banks. Without targeted follow-up support, farms such as his may have difficulty scaling up their fingerling production going forward.

Although fingerling production was booming, smallholder fish farmers’ limited access to ready markets for fish was a major risk that could reverse Zambia’s progress in the aquaculture subsector. In 2019, Mpeni Farm, a 6.5 hectare family business in Lusaka that specializes in aquaculture and banana farming, benefited from TAAT-I support and a loan from the Zambia Aquaculture Enterprise Development Project. With this support, Mpeni Farm invested significantly in fish farming by constructing several large ponds and growing tilapia to maturity. While the first batch in 2020 succeeded in both production and marketing, the second production cycle (in 2021) experienced significant market-related challenges. According to Mr. and Mrs. Tembo, the farm’s co-owners, an industrial-scale producer was able to grow a 500 g tilapia in 4 months compared to 6 months at Mpeni Farm, which used techniques learnt from TAAT-I and whose production costs were high. Mpeni Farm sold its fish below cost and realized a substantial loss: Mr. and Mrs. Tembo reported that “we were producing fish, but we were facing challenges to get clients or sell at the right price.”

While the Government of Zambia and TAAT-I have made significant progress on the supply side, therefore, more efforts are required to strengthen demand by developing markets, especially by linking smallholder fish farmers to stable markets, and by better timing production cycles, in relation to fish harvested from natural bodies of water.

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tons of foundation seeds and 1,324 tons of certified seeds by four private seed enterprises (Super Saveur Monkassa Do, Ets Manna, Ets Castor, and INOL). Additional support addressed the deployment of good agricultural practices and the adoption of the rice advice digital tool for using fertilizers efficiently. The Government of Benin’s targets ranged from 6.7 tons/ha to 8 tons/ha, but average yields under farmer conditions were 3.16 tons/ha versus 5 to 10 tons/ha in Côte d’Ivoire. Overall, rice production increased from 201,000 metric tons in 2017 to 303,000 metric tons in 2018 and 406,000 metric tons in 2020, but remained below target.

TAAT-I’s contribution to countries’ and households’ increase in yields varied according to several factors. It was observed that farmers’ ability to maximize yields for improved varieties depended in part on farmers’ access to inputs and their application of good agricultural practices. In Ethiopia, farmers produced yields of up to 4 tons/ha; the yields produced by farmers who were consulted in focus group discussions and observation visits averaged 3.6 tons/ha. The target was 3.0 tons/ha. The yield-gap was small because of strong complementary input and extension support programs led by the zonal agricultural departments and cooperatives of Ethiopia’s different regions. Ethiopia’s cluster system also made it possible to standardize small-scale farmers’ production systems and use agricultural equipment and machinery efficiently. Similarly, in Niger, the combination of climate-smart, improved varieties, water management activities, and soil fertility interventions increased yields of sorghum and millet to the target of 3.0 tons/ha from a baseline of 1.5 tons/ha. In contrast, farmers in Nigeria were aware of the potential yields of improved cassava varieties, but without a government-led farmer input support program, they lacked the means to procure adequate fertilizers and chemicals for weeding and pest control. As a result, Nigerian farmers consulted during the evaluation reported average yields of 9–15 tons/ha for varieties whose potential yields were 30–40 tons/ha.

Information gaps were observed elsewhere as well. In Nigeria and Benin, for example, the program promoted pro-vitamin A cassava even though farmers expressed concern with the variety’s lower yields. Similarly, in Ethiopia, the research center encouraged the cultivation of the Fentale and Amibara varieties of wheat, which withstand dry conditions and have a shorter maturity period, even though farmers had access to irrigation facilities that allowed them to grow medium-maturity varieties. Further, in Ethiopia, the evaluation met farmers who were still growing Qubsa, a variety that had been phased out because of its susceptibility to leaf rust. In some cases, the situation was caused by a shortage of seeds. These findings highlight the need for continuous research and better mechanisms for obtaining farmers’ feedback on the varieties and other technologies deployed by the TAAT-I program.

The quality of extension services was found to vary greatly among the case study countries, and RMCs experienced varying success with their use of pluralistic extension systems involving government agencies, the private sector, academia, and community-level service providers. In summary, the evaluation found agricultural extension agencies to be inadequately staffed, equipped, and funded. All case study countries failed to meet the Food and Agriculture Organization’s standard of one extension agent for every 400 farmers (this standard changes according to the distance between farmers). Even Ethiopia, which performed better than other countries, had gaps, and in Oyo State, Nigeria, the Agricultural Extension Office indicated to the evaluation team that in 2020, the office had received only NGN 500,000 (USD 1,105) of its approved annual budget of NGN 20 million (USD 44,000). The office estimated the ratio of extension agents to farmers to be as high as 1 to 5,000. It is worth noting, however, that in Nigeria, the allocation of resources to extension services differs among states. Some countries found a solution by adopting a cluster system that standardized farming systems (seeding, irrigation, etc.) for farms concentrated in one location. Nonetheless, in general, the
combined effect of weak extension services and inadequate inputs prevented farmers from realizing the full potential of improved varieties and other technologies. According to progress reports, by the end of the program, six of nine commodity compacts (67 percent) had achieved over 70 percent of their yield targets. Only four compacts (33 percent) reached their targets fully.

**Increasing farmers’ incomes**

TAAT-I’s progress reports and outcome assessments indicate that three of the nine commodity compacts—the compacts for orange-fleshed sweet potato, cassava, and livestock—nearly or fully achieved their targets for increasing farmers’ incomes. This was also the case for aquaculture for catfish, which recorded an achievement rate of 95 percent. The lowest achievement rates for increased incomes were for tilapia (65 percent) and wheat (64 percent); the highest rate was for livestock, which reached 230 percent of its target.

It was difficult for the evaluation to validate the reported results: first, because data was unavailable for triangulation, and second, because the evaluation did not integrate commodity compacts’ profitability analyses. However, proxy data on revenues and discussions with farmers on the costs of production and marketing indicated a range of results, with some compacts experiencing some success and other compacts experiencing challenges.

In Ethiopia, the International Livestock Research Institute (ILRI) only supported livestock activities for a very short period (about 6 months), but activities were sustained by the International Center for Agricultural Research in the Dry Areas (ICARDA) (namely the center’s program for small ruminants) in close collaboration with the government, other partners (e.g., Inter Aide in France), and community members. The support to farmers in Doyogena improved farmers’ knowledge and practices for sheep breeding and fattening. Taking advantage of the market and timing fattening activities with festivals, farmers were able to sell 3 to 10 animals per year. Farmers invested the income in producing crops; a few also built better houses and supported other businesses. In areas near Addis Ababa, irrigated wheat production was less profitable than vegetable production (tomato and onion). Farmers in Lume Adama and Bora Woredas, for instance, earned more than double the revenue (USD 8,000) per season by growing tomato and onion than they did growing wheat (USD 3,360). Naturally, farmers would have preferred to grow vegetables instead of wheat, but decisions about which crops to grow were made at the cluster level.

In Kenya, Nigeria, and Zambia, several factors limited the incomes farmers could earn from the commodities promoted under the program. In Kenya, yields of high-iron beans increased from an average of 1.4 tons/ha to 2.1 tons/ha (yields differed according to the variety of bean). Women tended to prefer beans both for home consumption and for sale, as a means of generating income. One kilogram of planted beans was reported to yield 10–60 kg (30 kg was the average); yields in the upper ranges made production viable on plots of 1 to 3 acres. When the beans were irrigated, yields increased to 3 tons/ha. Nonetheless, profitability was compromised by high production costs of Ksh 36/kg (USD 0.50/kg) and the low average sales price of Ksh 40/kg (USD 0.56/kg). In Nigeria, limited demand and high transportation costs caused by the high price of diesel (three times the price of petrol) were cited among the principal factors that lowered farmgate prices. These, coupled with high input costs, lowered the profitability of cassava production when optimal inputs were applied: this created a cycle of low input use, low productivity, and low production. In Zambia, the government and stakeholders made concerted efforts on the production of tilapia fish but invested less in helping producers access markets, value addition, and preserving fish for sale during period of fish bans. This undermined the viability of activities under the program’s compact on aquaculture.

Overall, diversifying agricultural commodities, for example by producing both crops and livestock, increased households’ capacity to earn higher incomes outside certain seasons. More specifically, households increased efficiency by using the
by-products of crop production—for example, by using maize and cassava pearls to feed livestock and reinvesting the profits to expand and diversify crop production. Yet farmers’ earning capacities were greatly limited by the size of their land: focus group discussions with farmers indicated that interventions promoted by TAAT-I were not always profitable because plots averaged only about 0.5 hectares. Also, beneficiary households consumed part of their produce.

Unintended results

Exploiting the full potential of TAAT-I technologies requires applying more inputs and increasing the use of land, neither of which is without risk. The evaluation found that in most RMCs, this risk seldom materialized. This did not prevent the emergence of unintended results in a few cases. First, the economic potential associated with producing the crop commodities promoted by the compacts—especially cereals (maize, wheat, rice, sorghum, and millet)—and the lack of alternative economically viable crops (legumes, fiber crops, and pulses) to rotate with contributed to an increase in monocropping. Second, in Ethiopia, more production of irrigated wheat in the winter led to a new problem: large flocks of birds flying from other regions and countries to eat the wheat in the fields. Third, TAAT-I generally promoted fertilizer formulations that encouraged microdosing. This however meant that in general, actual fertilizer application rates were lower than fertilizer application rates in research centers and under large-scale farmer conditions. This made it difficult for the farmers to maximize yields.

Efficiency

The evaluation’s assessment of the efficiency of TAAT-I focused on three related aspects: (i) the timeliness of the program’s development and disbursements, and the efficiency of the program’s implementation and use of resources; (ii) the efficiency of institutional arrangements for implementing the program; and (iii) the program’s monitoring, evaluation, and learning (MEL) system.

Finding 4: The evaluation found the implementation of TAAT-I to be characterized by challenges in resource allocation and delays in the disbursement of resources and the procurement of commodities and services. This often required the program’s implementing partners to use their own resources, obtained from other sources, to avoid disruptions. The COVID-19 pandemic also negatively affected TAAT-I’s implementation. Nonetheless, despite coordination challenges in the early stages of the program—some of which persisted until the program ended—the program’s management entities (the project management unit and the clearing house) were found to function reasonably well. Finally, the evaluation found that MEL activities were under-resourced. Given these shortcomings, the evaluation rated the efficiency of TAAT-I as partly unsatisfactory.

Timeliness, efficiency of resource use, and implementation progress

Timeliness

The evaluation found that the development of TAAT-I was generally smooth and efficient, despite the complexity of the program and the number of partners involved (see the discussion on partnerships). Only four months elapsed between the program’s appraisal in August 2017 and its approval in November 2017. Still, the first disbursement was delayed from February 2018 to June 2018, and implementing partners revealed that during the
initial period, they received conflicting information on available resources. These events were followed by several budget revisions and cuts. The reduction in resources committed by the Bank and other partners reduced the budgets allocated to partners, causing the initial, first-year budget of several partners to be reframed as their entire budget for the first phase of the program. As a consequence, the implementing partners were obliged to cancel commitments with their own partners and/or to divert their own resources or secure additional funds to honor their commitments. Several partners pre-financed their initial activities, expecting to be reimbursed, but were not reimbursed or were reimbursed with considerable delay because they had not met certain Bank requirements-this, because they had not been trained in the Bank’s fiduciary and procurement procedures in the early stages of the program. The Bank’s issuance of statements of no objection to subgrantee agreements were delayed as well. The delay in the Bank’s confirmation of no objection for the fall armyworm compact’s collaboration with the African Agricultural Technology Foundation (the maize compact) reduced disbursements for the Foundation’s activities in Kenya, Nigeria, and Zambia by 30 percent.

Efficiency of resource use and implementation

Considering the program’s objectives and geographical spread, the evaluation found that the resources available for TAAT-I were limited. The gap was exacerbated by the 13 percent overhead agreed with the implementing partners, a consultative group tax of 2 percent for all CGIAR implementing partners, various operating costs, and the cost of human resources. As discussed in the section on relevance, the volume of resources available to each country depended on the number of countries supported by a given compact. Even after following up with program officials, the evaluation found it difficult to ascertain actual resource allocations, disbursements, and expenditures per country because costs had been captured at compact level.

An important element of resource use, as mentioned in the section on effectiveness, is that the scope and the targets (outputs and outcomes) for the program and the compacts were not reduced after the 17.75 percent reduction in the budget of all the compacts. Meanwhile, the actual use of budgets depended on such factors as approvals for extrabudgetary resources, the timing of approvals of disbursements, and the timing of statements of no objection. In summary, the findings on resource use are mixed and are reflected in audit reports. After two requests for no-cost extensions, the program was able to use all disbursed resources. As for the program’s success at attracting resources from partners, it was less than that of similar, closely related projects implemented by AfDB country offices (see the section on partnerships). Several of the stakeholders interviewed for the evaluation—especially program staff, management staff at implementing partners, and representatives of RMC institutions—expressed concern with the low level of resources. This concern emerged in part from the lack of clarity on resources during the program’s initial phase and the responsibility of implementing partners to leverage resources through the platform provided by TAAT-I. In addition, TAAT-I confronted challenges when seeking to leverage resources from Bank-supported projects. Interviewees also raised concerns about staff complements/secondments, which for most implementing partners occurred in fewer numbers than agreed. Each compact was to employ a coordinator, an accountant, and a technology transfer officer, but in most implementing partners, some of these positions remained vacant. Staff turnover was high, and it was common for the staff of implementing partners to support activities related to TAAT-I, like M&E and accounting, even though TAAT-I did not contribute to their salary.

Program implementation

Delays in disbursements and in the issuance of statements of no objection affected the timeliness with which TAAT-I activities were implemented. It
was difficult for implementing partners to balance compliance with Bank procedures and regulations with the tight procurement schedules needed to ensure that inputs and services were available before the start of the local rainy season. These impediments were exacerbated by geographic spread and the difficulty of implementing bulk procurement without taking differences between compacts’ needs and timelines into account. As a result, the program only procured 40 percent of the goods and services planned for each year. In 2019, at the peak of implementation, only 29 percent of planned procurements took place (Technical Annex 9). Evidence from case study countries and interviews with program staff corroborated these findings and confirmed that often, the resources needed to procure key agricultural inputs—improved seed varieties, pesticides, and non-farm inputs, such as trainings for extension services providers—were not obtained on time. For instance, the procurement and purchase of seeds from community seed multiplication systems were delayed for the wheat compact in Ethiopia, and in Nigeria, the cassava compact’s slowness in procuring planting materials delayed the program by seven months after the start of the planting season in April. Similar delays in procurement and financial disbursements affected sorghum and millet compact activities implemented by the National Institute of Agronomic Research of Niger and fall armyworm compact activities in Southern, East, and West Africa.

Moreover, the fall armyworm compact led by the International Institute of Tropical Agriculture was unable to establish a critical partnership with the Centre for Agriculture and Bioscience International due to delays in the approval of the Bank’s statements of no objection. This was another missed opportunity, as the center’s experience in data collection and fall armyworm early warning systems could have strengthened the program and mitigated the impact of fall armyworm in RMCs. The evaluation’s review of disbursements confirms these findings, in that the program’s resource utilization rate was only 46 percent after two-thirds of the initial implementation period had gone by. After initial challenges, the rate stabilized: it was 18 percent in 2018, 28 percent in 2019, 24 percent in 2020, 26 percent in 2021, and 3 percent in 2022. While these rates suggest a fairly even implementation process after the first difficulties were resolved, most of the stakeholders and farmers interviewed for the evaluation expressed concern with the consistency of program implementation and its level of support, especially after the first agricultural seasons. Indeed, the slow pace of implementation, including the program’s extension at no cost, led to a 40 percent slippage in the program’s duration. COVID-19 also hampered the implementation of field-related activities (e.g., seed distribution, extension services, and physical training). To accommodate cross-border travel restrictions, the rice compact used DHL to ship seeds by air: this depleted the compact’s budget. That said, some compacts used innovative approaches to mitigate the pandemic’s impact on their activities. As a case in point, Enable TAAT (the youth compact) used virtual learning tools such as Google classroom and Google and Microsoft sheets for soft-skills training. Semi-autotrophic hydroponics (SAH) was also adapted to the production of cassava cuttings during this period.

TAAT-I’s institutional framework

The design of the TAAT Program is complex and its implementation in the first phase involved over 300 partners across 15 compacts. The institutional framework for managing these partnerships consisted of several layers of approvals and agreements: this created a very bureaucratic system for approvals and oversight. For instance, a request by a national institution that had a sub-agreement with the implementing partner, had to be submitted to the PMU; the PMU then reviewed it and submitted it, first to the finance and disbursement offices of the Bank’s Nigeria Regional Office, and later to the TAAT Coordination Team at AfDB headquarters. Only then could the request be reviewed and approved by the Bank’s financial and procurement departments. In the end, this bureaucracy was partly responsible for delays in the approval of statements of no objection and the approval of procurements. Furthermore, as
noted in the mid-term review of 2019, the program had 141 sub-agreements with partners: establishing these agreements and managing them during implementation entailed huge responsibility and was itself a time-consuming endeavor.

The management entities of TAAT-I (the PMU and the clearing house) and the compacts were assessed as effective despite significant coordination challenges, especially in the early stages of the program. The program’s monitoring, self-evaluation, and external evaluation reports highlighted several challenges with institutional coordination at various stages of the program’s life cycle. These were corroborated by program staff and stakeholders during the interviews. The most notable challenges concerned the coordination between TAAT-I’s principal management entities (the PMU and the clearing house) and the commodity/enabler compacts, the coordination between commodity and enabler compacts, and the coordination between the Bank and the executing agency.

Continuous reviews of the roles and composition of the key management entities (the PMU and the clearing house) by the executing agency and the Bank in collaboration with the BMGF addressed specific challenges related to operations, programming, and the engagement of RMCs. As a result, the PMU’s functions focused mainly on fiduciary management; the PMU’s responsibilities for program management and M&E were strengthened at the clearing house. In addition, with the support of the Bank’s TAAT Coordination Team, the parties developed a systematic coordination framework (this framework was not, however, implemented during TAAT-I). A focus group discussion with the leaders of the program’s enabler compacts pointed to the absence of a system for guiding and standardizing engagements between commodity compacts and enabler compacts as a crucial gap. An example was the target for the number of beneficiaries: this target was designed with the understanding that each commodity or enabler compact had a separate target, but in reality, the enabler compacts were cross-cutting and enriched the services provided under each commodity compact.

Partners highly appreciated the role played by the clearing house, although a few partners, mainly non-CGIAR partners, expressed concern that the clearing house was not sufficiently independent. Furthermore, in the program’s latter years, the program failed to comply with the Bank’s requirement to hold Steering Committee meetings. Steering Committee meetings were held regularly in 2018 and 2019; indeed, early in 2018, the frequency of meetings was revised from two to four meetings per year to coincide with quarterly disbursement cycles. After October 2019, however, no more meetings took place. This produced a major shortfall in oversight and guidance on implementation in the program’s later years. It contributed to persistent operational challenges. Interviews with Bank staff and TAAT-I program staff and stakeholders indicated that the small volume of financial resources that had been allocated to program operations during the program’s design stage contributed to the problem.

Monitoring, evaluation, and learning

The evaluation found that a programmatic monitoring, evaluation, and learning (MEL) framework had not been prioritized or integrated into the design of TAAT-I when the project appraisal report was being prepared. MEL activities became operational at mid-term, following a recommendation of the mid-term review in 2019. This meant that TAAT-I’s ecosystem, especially the ecosystem around commodity and enabler compacts, had no systematic framework for MEL for up to half of the program’s initial implementation period.

The MEL system that was operationalized at mid-term was manual and concentrated on aggregating the data on key performance indicators reported by the compacts. Towards the end of the program, an automated system was developed with resources provided by the executing agency (the International Institute of Tropical Agriculture) and the BMGF. Because of resource limitations, however, the system was not fully deployed. Meanwhile, TAAT-I’s management entities (the PMU and the clearing house) prepared outcome case studies and success stories on various commodity compacts.
even as the TAAT Coordinating Team (the Bank’s task managers) prepared supervision reports and implementation progress reports as per the Bank’s requirements. Given the few resources dedicated to MEL to support the 15 compacts and 29 targeted RMCs, the program found it challenging to collect and verify data from so many partners and beneficiaries and to give feedback on the reports supported by partners. In addition, the cost of direct MEL expenses—the cost for personnel, equipment, and the development of the MEL system—was USD 580,000: this represents only 1.5 percent of the total budget, well below the 3-10 percent recommended by development organizations. Furthermore, for up to half of the program’s duration, only one M&E expert supported the PMU, the clearing house, and all of the compacts; an assistant at the clearing house was only employed towards the end of the program. Limited resources also constrained the scope, depth, and rigor of the collection and analysis of the data used to track performance on outcome and impact indicators.

At the same time, the use of the MEL system for evidence-based decision-making was found effective in that it prompted the program to make changes to its management entities. Still, room for improvement remained, with several of the challenges raised in M&E reports—especially challenges with operations (human resources, delayed disbursements, and procurements, and so forth)—persisting to the end of the program. Limited resources also constrained the scope, depth, and rigor of the collection and analysis of the data used to track performance on outcome and impact indicators. Ethiopia, collects high-quality data—including data on pricing and sales-on sheep-fattening activities in partnership with International Center for Agricultural Research in the Dry Areas (ICARDA)’s program on small ruminants: this data was shared neither with the program’s M&E unit nor with relevant government ministries and agencies.

**Sustainability**

The evaluation’s assessment of sustainability took place at the program level and the country level. It examined the extent to which TAAT-I interventions and results were (or were likely to be) sustainable, and the extent to which RMCs, private sector organizations, and institutions at the continental, regional, national, and subnational levels demonstrated ownership of TAAT-I. In addition, the evaluation of sustainability questioned whether new institutions established by the program and existing institutions supported by the program at the continental, regional, national and subnational levels were presently sustainable or were likely to be sustained over time. Finally, the assessment examined the extent to which partnerships created under TAAT-I functioned in practice, the extent to which the partnerships were likely to continue beyond the life of the program, and the economic and environmental sustainability of the technologies deployed under the program.

**Finding 5:** The evaluation found that the program’s design was based on principles of sustainability and sought to build partnerships at various levels of implementation: this had positive results. Furthermore, the evaluation found that implementing partners, RMCs, and the private sector demonstrated high levels of ownership of the program. However, the evaluation also found that limited funding to critical partners, such as NARES centers, and inadequate attention to emerging and potential social, economic, environmental, and climate change-related threats posed substantial risks to the program’s sustainability. Overall, the evaluation assessed the sustainability of TAAT-I as satisfactory.
Sustainability of the results achieved

The evaluation found that the sustainability of the results of TAAT-I was promising even though several risks, if unaddressed, could cut the benefits of the program short. The program was largely premised on principles of sustainability: it deliberately focused on building partnerships and supporting organizations with interventions that already corresponded to those organizations’ core business. In this respect, TAAT-I’s role as a catalyst spanned all levels, from continental to sub-national, and laid a strong foundation for sustainability. Nonetheless, the huge number of partners involved in the program’s implementation (more than 300) proved difficult to coordinate and support: this undermined the sustainability of TAAT-I’s results. Insofar as different groups of beneficiaries were concerned, private sector organizations were expected to realize profits from increases in the productivity of non-patented technologies and outreach. The benefits to the farmers were expected to be ongoing because of sustained demand for their produce, as well as increases in productivity and production, all of which were expected to improve farmers’ livelihoods. As for benefits to governments, the evaluation found them likely to be realized in the medium-to-long term, when central treasury expenditures would fall because of more activity by the private sector, more revenues, the creation of jobs, greater food security, and so forth.

Ownership of the program

Several RMC governments—namely, the governments of DRC, Ethiopia, Kenya, and Zambia—demonstrated ownership of TAAT-I interventions. In Benin and Nigeria, stakeholder interviews indicated that private sector organizations fully embraced the opportunities arising from the demand for the fabrication of TAAT-I processing technologies for rice (Benin) and cassava (Nigeria). These organizations continuously invested their own resources in research and development. In Nigeria, Niji Agro Solutions even started exporting its products and services to other RMCs. In contrast, a number of country-level partners shunned TAAT-I interventions after the program’s funds failed to materialize to the extent the partners had been given to expect. The phenomenon was exacerbated by the presence of similar programs that were funded more generously by other development institutions and which competed with TAAT-I for country partners’ services. Interestingly, in RMCs with strong donor coordination mechanisms, such as Ethiopia, TAAT-I beneficiary households and institutions received much more resources (in Ethiopia, these resources were furnished by the government, the World Bank-led Second Agricultural Growth Project, and development partners, such as the Deutsche Gesellschaft für Internationale Zusammenarbeit). While these resources were not invested directly in TAAT-I, the objectives of the initiatives which they funded were similar to TAAT-I at the sector level, the country level, and the continental level. Finally, in DRC, the evaluation observed that coordinating the program’s implementation through the president’s office as opposed to through a mainstream government agency, such as a ministry of agriculture, fast-tracked implementation but could threaten the sustainability of progress after the program closed.

Sustainability of new and existing institutions

The sustainability of TAAT-I-supported new and existing institutions at the continental, regional, and country levels was found to be mixed. The evaluation noted that higher-level institutions (CGIAR centers and regional economic communities) had the potential to sustain program interventions because of their capacity to mobilize resources and the fact that TAAT-I interventions fell within their usual business portfolio. In contrast, with respect to national institutions, the evaluation found that limited funding, gaps in infrastructure, insufficient equipment, and in some cases, inadequate capacity on the part of staff rendered national research institutions and extension systems in RMCs weak. Also, interviews in Kenya revealed that government institutions had expected TAAT-I to fund the collection of M&E data on TAAT-I interventions. Meanwhile, in Nigeria and Zambia, the extension system lacked adequate operational funds to fully sustain and replicate TAAT-I-supported activities on a larger scale. The clearing
The clearing house was a new unit that had been created by TAAT-I to vet and select proven technologies for scale-up; in 2019, it was refocused to better embed those technologies in AfDB-supported sovereign operations. The advantages of the refocusing aside, the evaluation notes that even if the TAAT Program had been expected to be implemented over three phases, the limited focus on developing the clearing house’s sustainability plan early in the first phase was a major gap, as this planning would have allowed stakeholders to plan much earlier the form and role that the clearing house would take after the program was completed.

**Functioning of partnerships created under TAAT-I**

The evaluation found mixed results for the functioning of TAAT-I partnerships and their sustainability beyond the life of the program. Interviews at the regional and continental level showed that partnerships with regional economic communities performed well and would continue, given the benefits that had accrued through TAAT-I’s facilitation of regional policies and seed systems. Similarly, partnerships with CGIAR centers and other implementing partners performed well and were expected to continue. At the country level, private sector institutions in Benin, Nigeria, and Zambia accessed business opportunities because of their involvement in TAAT-I’s interventions; their adoption of TAAT-I technologies made it possible for them to develop business lines that they hoped to sustain. These institutions appreciated the program and were keen to sustain their partnership. The evaluation also found that the program’s partnerships with extension and research institutions were satisfactory, but that their continuity depended on the flow of resources from TAAT-I or the government.

**Financial and economic sustainability**

The evaluation found that the financial and economic sustainability of the interventions implemented by TAAT-I’s principal target beneficiaries (small-scale farmers) was a challenge, because of beneficiaries’ limited access to productive resources. In Ethiopia, interviews with country-level stakeholders in the wheat sector indicated that although the government supplied small-scale farmers with inputs and mechanization services, farmers’ production remained limited by the small size of their plots (the average was 0.5 hectares). Small plots and the cost of rented land were also noted as key challenges in most case study countries, especially by youths. This challenge was expected to worsen over time as populations grew and land became increasingly commercialized. Access to financial services was another persistent challenge for small-scale farmers, whose capacity to borrow from banks and microfinance institutions was limited. In a focus group discussion with cassava farmers in the Ido area of Nigeria’s Oyo State, the farmers complained of their inability to access credit (interest rates were as high as 30 percent) and the absence of an effective input delivery system. The high cost of inputs and transportation made it difficult for these farmers to realize the maximum yields of improved varieties; it also lowered farm gate prices. Ultimately, this lowered the profitability of cassava production.

**Environmental sustainability**

The evaluation found that TAAT-I prioritized environmental sustainability from the onset. The program’s development included environmental impact assessments and the preparation of an environmental and social management plan. Although environmental and climate change-related challenges and risks were present, in the case study countries their manifestation was low. That said, the evaluation observed some challenges in the case study countries, such as monocropping,31 which emerged because of the absence of alternative economically viable crops with which farmers could rotate production. The phenomenon was exacerbated by small-scale farmers’ limited access to land. The evaluation found that the program did not put in place adequate measures to continuously monitor and address these elements or to address other potential environmental challenges and risks.
Jeremie, a maize farmer, was selected, among more than 50 youth, by the Agence Territoriale de Développement Agricole (ATDA) for the ENABLE-TAAT program, which enabled him to benefit from trainings and improved seeds for maize production in Ketou, Southeast of Benin.
Site visit at a Wheat Cluster Farm in Arsi Zone (Participants included officials from Ethiopian Institute of Agricultural Research (EIAR), Arsi Zone Agricultural Officials, and the IDEV evaluation team).
Conclusion, Lessons, and Recommendations

Conclusion

Overall, despite concerns about the level and consistency of its support, TAAT-I was found to have made significant progress in achieving the results planned at the program level and the compact level, especially for outputs, with results on outcomes being more mixed. The program delivered groundbreaking, innovative technologies to farmers despite numerous challenges: financial resources that were insufficient for the program’s geographical coverage and scope, complexities in the coordination mechanisms of TAAT-I’s ecosystem, operational challenges, and the adverse effects of the COVID-19 pandemic. In addition, the complexity of the program’s design produced notable operational challenges that undermined the program’s efficiency, especially in the early stages. The evaluation also found that in general, the program only partially mainstreamed the cross-cutting themes of gender, youth, and the environment. Considering these challenges, the decision to review the program’s approach so as to prioritize countries’ engagement and leverage resources from large Bank-supported programs was appropriate. However, several challenges related to design, resources, coordination, and other areas persist. Unless these are addressed, they are likely to pose substantial challenges and risks to the success of TAAT-II and other Bank initiatives for agricultural transformation, now and in the future.

Lessons

The evaluation generated several lessons. In general, these lessons apply across compacts and in different country contexts.

Lesson 1: Bank-supported operations executed and implemented by third-party organizations need strong linkages and coordination with AfDB country offices to engage effectively with RMC institutions and other stakeholders if they are to influence policies and strategies. They also need to better coordinate with programs supported by other development partners.

The coordination of TAAT-I’s implementation from AfDB headquarters, instead of from the Bank’s country offices, did not foster strong linkages and coordination between implementing partners and AfDB country offices. This weakened the links between TAAT-I initiatives and country strategy papers, as well as TAAT-I’s links to other TAAT-I-related, Bank-supported projects. Finally, it limited implementing partners’ ability to engage effectively with government agencies, multilateral development banks, and other multilateral and bilateral donors.

Lesson 2: A simple and agile program design is vital to efficient implementation and the achievement of results.

The complexity of the program’s design, which involved multiple partners and a bureaucratic financial and program management system, hindered the program’s implementation and its achievement of results. The program found it difficult to balance agile implementation—necessary to respond to changing contexts—with the requirement to comply with Bank procedures and regulations, especially when it came to responding to emergencies such as fall armyworm and seasonally sensitive procurements.

Lesson 3: The private sector’s participation in commodity compacts is critical for scaling interventions up and making them sustainable.
TAAT-I promoted multiple technologies, including private firms’ cutting-edge solutions to fall armyworm, while increasing the firms’ access to a pool of proven unpatented technologies. The private sector, including small and medium-sized agribusinesses, demonstrated its ability to quickly adopt technologies for seed multiplication, to fabricate processing equipment, and more. The private sectors’ ability to take advantage of large, emerging opportunities in commodity compacts was constrained, however, by firms’ limited access to financial resources.

Lesson 4: Beyond the adoption of technology, support services are critical for agricultural transformation and modernization, especially when programs target youth and other vulnerable populations.

Most of TAAT-I’s direct beneficiaries, mainly small-scale farmers, expressed satisfaction with TAAT-I’s effects on their livelihoods, which resulted from the farmers’ use of improved technologies. This said, farmers’ production capacity—especially the production capacity of youth farmers—was constrained by their limited access to financial resources and land. Ultimately, this circumscribed the gains from the new technologies.

Lesson 5: Strong links with research and effective feedback mechanisms are critical to continuously update technology catalogues and meet farmers’ demands for improved technologies.

The evaluation observed that varieties and other technologies were being continuously improved. In some cases, the technologies were quickly replaced. The need for ongoing research was amplified by the ecological diversity among and within African countries. Thus, although TAAT-I was essentially a program to deliver proven technology, it needed to maintain strong links with the research departments of organizations and programs funded by government and other development partners in order to remain relevant. Timely feedback on technologies from farmers and other value-chain actors was necessary to understanding the evolving needs of farmers and other end-users. Also important were the clearing house’s timely updates to the technology catalogue.

Recommendations

IDEV makes three recommendations:

Recommendation 1: Strengthen the design and implementation arrangements for TAAT-II and future, related programs. Priority actions include:

- Strengthening the coordination among TAAT management entities, TAAT implementing partners, AfDB country offices, and key government institutions and development partners at the country level.
- Revisiting and reviewing, as necessary, the roles and responsibilities of TAAT’s management entities (the PMU and the clearing house), the compacts, the Steering Committee, and the program’s financial management systems to make the TAAT Program more efficient.
- Ensuring that the program’s cross-cutting themes (gender, youth, and the environment) are mainstreamed at all stages of the program cycle.

Recommendation 2: Pursue increased private sector participation in TAAT-II and related agriculture operations. Priority actions include:

- Strengthening linkages between the TAAT Program and the Bank’s non-sovereign operations department to optimize the Bank’s support to private sector entities and enable them to seize emerging opportunities, in a timely manner, within the commodity compacts.
Enhancing collaboration with financial institutions to facilitate farmers’ and small and medium-sized enterprises’ access to inexpensive medium- or long-term financial resources to enable them to make effective, sustainable investments in agriculture, for the benefit of vulnerable populations such as youths.

**Recommendation 3:** Strengthen the monitoring, evaluation, and learning systems of TAAT-II and future related programs by integrating the design of a monitoring, evaluation, and learning system from the onset and providing adequate resources, both human and financial, to operationalize the system in a timely fashion.
Farmers from the Agricultural platform in Bante, Benin.
Annexes

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## Annex 1: Evaluation Questions and Evaluation Matrix

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<tr>
<td>Strategic Orientation and Relevance</td>
<td>EQ. 1: To what extent was the TAAT-I program relevant to meet the needs of stakeholders, RMCs and targeted beneficiaries?</td>
<td>1a) How were the various commodity compacts selected for implementation in various countries?</td>
<td></td>
<td>Document Review, Key stakeholder and beneficiary interviews, Country case studies, and Focus Group Discussions</td>
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|                          | 1b) To what extent was the TAAT-I Program aligned with Bank’s Policies, strategies and other programmes on Agricultural development? |  | Steps/stages followed for compacts selection at country level  
  |                          |                                                                                         |  | Extent of participation of key stakeholder groups in the selection process at country level  
  |                          |                                                                                         |  | Mechanisms employed for commodity compact selection process  
  |                          |                                                                                         |  | Documentation of commodity compact selection process  
  |                          |                                                                                         |  | Extent of alignment of TAAT-I’s key objectives, components, strategies with those of the Bank’s policies, strategies and other programs on Agricultural Development  
  |                          |                                                                                         |  | Extent of harmonization between TAAT-I interventions with those of the Bank’s policies, strategies and other programs on Agricultural Development  
  |                          |                                                                                         |  | Harmonized M&E systems with same KPIs  
  |                          |                                                                                         |  | Extent to which TAAT-I program activities are integrated or drawn from National Agricultural Policies, Strategies and National Agricultural Investment Programmes (NAIPs)  
  |                          |                                                                                         |  | Concordance between the designed TAAT-I program and the relevant country commodity compacts  
  |                          |                                                                                         |  | Extent to which RMCs have developed and revised their commodity compact strategies to align with Regional compact strategies for countries in similar agro-ecological zone  
  |                          |                                                                                         |  | Extent to which the compacts selected for implementation in various countries are reflective of the needs of the countries  
  |                          |                                                                                         |  | Extent to which TAAT-I allocated funds that were disbursed and expended  
  |                          |                                                                                         |  | Scale/coverage of actual interventions compared to what was required to achieve the expected results  
|                          |                                                                                         |  | Available resources for the TAAT-I program in relation to needs of the CGIAR Centres and RMCs and funding gap, while taking into account other sources of finance  
|                          |                                                                                         |  | Percentage of the TAAT-I allocated funds that were disbursed and expended  
|                          |                                                                                         |  | Scale/coverage of actual interventions compared to what was required to achieve the expected results  
|                          |                                                                                         |  | Document Review, Key stakeholder and beneficiary interviews, Country case studies, and Focus Group Discussions  

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<tr>
<td>1e) To what extent was the design of the TAAT-I program conducive to leveraging resources and services from within the Bank, RMCs, Private sector, NGOs, services (wholesale, transport, cold chain, access to finance, extension services, etc.) to scale up the implementation of tested and proven technologies in selected countries and commodity compacts?</td>
<td></td>
<td>Volume of resources mobilized from within the Bank, RMCs, Private sector, NGOs, services, etc. on account of the design and implementation of TAAT-I program</td>
<td></td>
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<td>1f) To what extent did the program design target the right beneficiaries at various levels?</td>
<td></td>
<td>Volume of resources mobilized from within the Bank, RMCs, Private sector, NGOs, services, etc. on account of the design and implementation of TAAT-I program</td>
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<td>Volume of resources from within the Bank and those of RMCs and other stakeholders for implementation of other programmes in support of TAAT-I interventions</td>
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<td></td>
<td>Resources allocated in National Budgets for Agricultural Sector for scale-up of TAAT-I interventions</td>
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<tr>
<td>1g) To what extent was the TAAT-I program designed to be inclusive and address fragility and key cross cutting themes for the Bank (Gender, Youth and Environment)</td>
<td></td>
<td>Extent to which the TAAT-I program was designed to focus on all appropriate beneficiaries and deal with sensitivities and cross-cutting themes for the Bank (Gender, Youth and Environment)?</td>
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<td>Extent to which cross-cutting themes for the Bank (Gender, Youth and Environment) were mainstreamed into the TAAT-I program</td>
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<td>Proportion of beneficiaries that constitute Female-Headed and Youth-Headed household</td>
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<td>Evaluation Criteria</td>
<td>Key Evaluation Question</td>
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<tr>
<td>Coherence</td>
<td>EQ2. To what extent have TAAT-Interventions in the selected value commodity compacts and intervention sites been coherent with other Bank interventions focusing on agricultural development and increasing productivity, as well as those of RMCs and other development partners?</td>
<td>2a) To what extent are TAAT-I program interventions linked to and coordinated with other global, continental or regional programmes</td>
<td>Extent to which TAAT-I program interventions are linked to and coordinated with other global programmes (such as Global Agriculture &amp; Food Security Program (GAFSP), Continental Programmes (such as CAADP) and other regional programmes applicable to different selected RMCs</td>
<td>Document Review; Key stakeholder and beneficiary interviews, Focus Group Discussions with stakeholders at various levels,*33, Country case studies</td>
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<td>Degree of collaborations/linkages, congruence/agreement, going together well, blending and working together between TAAT-I program interventions and those of RMCs, other development partners and the private sector?</td>
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<td>Extent to which TAAT-I interventions are complimentary with those funded by other DPs working on similar themes</td>
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<td>Harmonization of coordinating structures between TAAT and other DP supported interventions</td>
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<td></td>
<td>Harmonization of M&amp;E systems between TAAT-I interventions and those supported by other DPs</td>
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<tr>
<td>Effectiveness</td>
<td>EQ3. To what extent has the TAAT-I program achieved or is likely to achieve its expected results and contribute to improved productivity, incomes and food security among targeted communities and individuals in the selected commodity compacts and intervention sites?</td>
<td>3a) To what extent has the TAAT-I program achieved or is likely to achieve the expected results in selected commodity compacts in RMCs?</td>
<td>The level of ownership of the TAAT-I commodity compacts in RMCs resulting in improved implementation performance</td>
<td>Document Review; Project Results Assessments, Key stakeholder and beneficiary interviews, Focus Group Discussions with stakeholders at various levels, Field and Sites Visits/Observations, and Country case studies</td>
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<td>The extent of the quality of implementation of commodity compacts in RMCs evidenced by achieved results</td>
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<td>The extent to which TAAT-I commodity compacts have been included in short, medium and long-term development strategies and programs of RMCs</td>
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<td>Proportion of output, intermediate, and outcome results achieved at program level and country level in selected commodity compacts</td>
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<td>Extent to which the TAAT-I program and selected countries are making progress on impact indicators influenced by TAAT-I interventions.</td>
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<td>Improvements and trends of yield per unit, production, incomes and food security in targeted communities and households</td>
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<td>Evidence of unintended results, both positive and negative.</td>
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| 3c) To what extent has the TAAT-I program enhanced the capacity of CGIAR and National Agricultural Research Centres to effectively utilise technology transfer to increase productivity, especially among small scale farmers? | Extent to which TAAT-I Interventions have been informed by capacity assessments of CGIAR and National Agricultural Research Centres.  
Proportion of CGIAR and National Agricultural Research Centres demonstrating increased capacity, to effectively utilize technology transfer to increase productivity, especially among small scale farmers, as a result of the TAAT-I program in selected countries  
Level of appreciation of TAAT-I program capacity development activities by RMCs and other stakeholders. | Level of development of regional value chains in countries in similar agro-ecological zones contributed to by TAAT-I program  
Extent of implementation performance of regional ecological commodity compacts resulting from the contribution of TAAT-I program |  |
| 3d) To what extent has the TAAT-I program contributed to the development of regional value chains in counties in similar agro-ecological zones? | Extent to which TAAT has increased/stimulated the ‘participation’ of the private sector in the commodity compact areas in respective countries.  
The extent to which the private sector has increased its funding to agricultural technology transfer in targeted commodity compacts in selected countries  
The extent to which governments of RMCs have forged PPPs with the private sector to enhance technology transfer in targeted commodity compacts. | Level of appreciation of TAAT-I program policy dialogue events by stakeholders  
Extent to which TAAT-I program’s Technical Assistance and Policy Dialogue has enabled the realisation of planned results and objectives |  |
<p>| 3e) To what extent has the TAAT-I Program enhanced the capacity of the Private Sector to contribute to agricultural technology transfer in targeted commodity compacts and selected countries? | Extent to which TAAT-I program’s Technical Assistance and Policy Dialogue contribute to the achievement of the planned results and objectives. |  |  |</p>
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<tr>
<td>3g) To what extent did TAAT-I promote gender equality and empowerment at various levels (community, household, individual) in RMCs?</td>
<td>- Level of participation in TAAT-I activities by both men and women at various levels of implementation&lt;br&gt;- Extent to which TAAT-I empowered women to access various economic resources and decision making.&lt;br&gt;- Level of women social empowerment at various levels of implementation</td>
<td>Document Review, Key stakeholder and beneficiary interviews, Focus Group Discussions with stakeholders at various levels, and Country case studies</td>
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<td>3h) In what way(s) did TAAT-I promote youth empowerment at national and subnational level?</td>
<td>- Extent to which TAAT-I design included youth interventions&lt;br&gt;- Level of youth participation in TAAT-I activities at various levels</td>
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<td>3i) To what extent were environmental management and climate change issues addressed in the implementation of TAAT-I at continental, regional, national and subnational level?</td>
<td>- Level of support by TAAT-I towards environment and climate change policies at various levels&lt;br&gt;- Level of climate change mitigation and adaptation supported by TAAT-I&lt;br&gt;- Level of climate change resilience by small holder farmers resulting from TAAT-I implementation</td>
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**Partnership**

To what extent was TAAT-I effective at leveraging resources and promoting innovation through partnerships for selected commodity compacts in the intervention sites?

To what extent have the partnerships created under the TAAT-I program functioned in practice and are they likely to continue beyond the life of the program?

- Functionality of partnerships created under TAAT-I program in practice<br>- Likelihood of partnerships created under TAAT-I continuing to function beyond program

Document Review, Key stakeholder and beneficiary interviews, Focus Group Discussions with stakeholders at various levels, and Country case studies
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| Efficiency          | EQ4. How efficient has the TAAT-I program been in utilising its resources and implementation arrangements, including the TAAT Ecosystem (PMU, Steering Committee, Clearing House, and Commodity/Enabler Compacts), to achieve its objectives? | 4a) To what extent were TAAT program inputs used efficiently to achieve planned results? (Timeliness, Resource Use Efficiency, and Implementation Progress) | ✗ Timeliness of program development, resource disbursement and implementation of activities  
 ✗ Levels of disbursements against available resources and utilisation of disbursed resources  
 ✗ Level of adherence to covenants for effective implementation of TAAT-I program interventions in selected countries  
 ✗ Proportion of time it took to implement various key activities and achieve various deliverables under different country contexts in selected countries and commodity compacts. | Document Review, Key stakeholder and beneficiary interviews, Focus Group Discussions with stakeholders at various levels, and Country case studies |
|                     |                         | 4b) To what extent was the TAAT-I program implementation model (i.e., ecosystem) sufficient and efficient for the achievement of the program’s objectives? | ✗ Extent to which governance model adopted by TAAT-I was the most efficient in producing the desired program results and how it compares with programs of other stakeholders of similar size and focus.  
 ✗ Extent to which the key targets were realized timely  
 ✗ Coverage of targeted beneficiaries  
 ✗ Level of achievements of objectives within the stipulated timeframe | |
|                     |                         | 4c) How well did the monitoring and evaluation system put in place under the TAAT-I program function at all levels, and did it enable continuous learning and evidence-based course correction measures during program implementation? | ✗ Level of stakeholder satisfaction of the M&E system at all levels  
 ✗ Extent to which the M&E System was used to enable evidence-based decision making and implementation of course correction measures during implementation  
 ✗ Extent to which the M&E system generated lessons to inform implementation, scale-up of proven and successful interventions, and replication of successes in countries with similar or different contexts | |
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<th>Specific Evaluation Questions</th>
<th>Judgement Criteria</th>
<th>Data Sources/Methods</th>
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</table>
| Sustainability      | EQ5. To what extent are TAAT-I program activities and results sustainable or are likely to be sustained in the selected commodity compacts and intervention sites? | 5a) To what extent are results achieved by the TAAT-I program at output and outcome levels sustainable or are likely to be sustained overtime beyond the program’s financing period? | 1. Degree to which benefits achieved by TAAT-I program at output and outcome levels likely to go on beyond the program’s financing period.  
2. Stakeholder perception about the sustainability of results achieved and the drivers of sustainability.  
3. Extent to which TAAT-I supported institutions at various levels are expected to continue performing beyond program life  
4. Extent to which TAAT-I supported institutions have continued to leverage resources beyond program life | Document Review, Key stakeholder and beneficiary interviews, Focus Group Discussions with stakeholders at various levels, Field and Site Visits, and Country case studies |
|                     |                         | 5b) To what extent have RMCs, Private Sector Organisations and supported institutions at Continental, Regional, National and Sub-National levels demonstrated a sense of ownership of the TAAT-I program? | 1. Stakeholder perception about the ownership of various actors for the TAAT-I program  
2. Extent to which supported RMCs, Private Sector Organisations and institutions at Continental, Regional, National and Sub-National levels have incorporated the TAAT program activities into their Annual Work-Plans and Budgets/Development programmes or projects. | |
|                     |                         | 5c) To what extent are new institutions established and existing ones supported by the TAAT-I program at Continental, Regional, National and Sub-National levels are sustainable or likely to be sustained overtime? | 1. The degree to which new institutions and existing ones supported by TAAT-I program at various levels have continued beyond TAAT-I financing period  
2. The degree to which existing institutions supported by TAAT-I program at various levels are likely to continue to perform their mandate beyond TAAT-I financing period | |
|                     |                         | 5d) To what extent are interventions implemented by the TAAT-I program environmentally sustainable? | 1. Extent to which the design of interventions is aimed at fostering environmental sustainability.  
2. Extent to which the environmental challenges and risks have manifested in selected case study countries and compacts.  
3. Extent to which new and potential environmental and climate change related challenges and risks have been identified, monitored and addressed. | |

**Notes:**
- EQ5 refers to the evaluation criteria question.
- Specific Evaluation Questions provide detailed scenarios for assessment.
- Judgement Criteria outline the criteria for evaluation.
- Data Sources/Methods list the methods and sources used for evaluation.
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<tr>
<td>Lessons and Good Practices</td>
<td>EQ6. What key lessons can be drawn about what works and does not work, where and under what circumstances in the selected commodity compacts and in different country contexts and how effectively have good practices been shared during the implementation of program? (Applicable to all evaluation criteria)</td>
<td>6a) What have been the major enabling and inhibiting factors for the TAAT-I program’s performance in different commodity compacts, geographical and country contexts?</td>
<td>I. Major enabling factors for TAAT-I program’s performance by value chain, geographical and country context; I. Major inhibiting factors for TAAT-I program’s performance by value chain, geographical and country context</td>
<td>Document review Key stakeholder and beneficiary interviews Focus Group Discussions with stakeholders at various levels /Field and Site Visits Country case studies</td>
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<td>6b) What are the key lessons that can be drawn from the design and implementation of the TAAT-I program?</td>
<td>Identification of major lessons that can be drawn from the design of TAAT-I program; Identification of major lessons that can be drawn from the implementation of the TAAT-I program</td>
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<td>6c) To what extent were good practices documented, shared and integrated in the implementation of the interventions?</td>
<td>Identification of good practices documented during implementation; Identification of good practices shared/disseminated during implementation; Identification of good practices integrated in the implementation</td>
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<td>6d) To what extent was innovation central to the design and implementation of the TAAT-I program?</td>
<td>Identification of innovations in the TAAT-I program document; Identification of innovations implemented during the TAAT-I program; Identification of innovations scaled up by other countries on the continent, Non-TAAT-I program Sub-National level areas within RCMs, etc.</td>
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## Annex 2: TAAT-I’s Theory of Change (Reconstructed)

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Activities</th>
<th>Outputs</th>
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<tr>
<td>Partnerships, Coordination and leveraging Financial and Technical Resources</td>
<td>Harmonize and streamline policies, regulations, technology release systems and registration as well as seed system policies across countries and regions in similar agro-ecological zones</td>
<td>Policies for release, deployment and adoption of productive food production technologies and inputs harmonized across regions developed and/or revised</td>
</tr>
<tr>
<td>Sharing Global, Continental, Regional and National Experiences by AfDB, CGIAR Centres, Regional Economic Communities (RECs) and RMCs</td>
<td>Develop capacity of Regional and National Agricultural Research Institutions, National Agricultural Delivery Mechanisms and Private Sector.</td>
<td>Policies for release, deployment and adoption of productive food production technologies and inputs harmonized across regions developed and/or revised</td>
</tr>
<tr>
<td>Program Financial Resources – USD 40 million, including Human and other material and in-kind resources (Seeds, Livestock Breeds, Fingerlings, Fertilizer e.t.c)</td>
<td>Support the development of a young class of ‘agripreneurs’ and women in agriculture.</td>
<td>Regional and National Agricultural Research Institutions, National Agricultural Entities and Private Sector Actors with increased capacity to produce, certify and promote productive agricultural technologies.</td>
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<tr>
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<td>Deployment of appropriate technologies through outreach campaigns in RMCs and distribution of improved varieties, breeds and materials</td>
<td>Young class of agripreneurs established and supported</td>
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<td>Design and implement wide-scale farmer extension and innovative models to organize and aggregate farmers</td>
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<td>Mainstreaming Climate Smart Agriculture and promoting climate resilient agricultural technologies</td>
<td>Establish and operationalize TAAT Program management, technology, and coordination mechanisms</td>
<td>Functional TAAT Program Management and Coordination Mechanisms in place</td>
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<td>Best practice small-scale farmer extension and innovated models documented, promoted and scaled-up.</td>
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An IDEV Project Cluster Evaluation

Inputs Activities Outputs

Partnerships, Coordination and leveraging

Financial and Technical Resources

Harmonize and streamline policies, regulations, technology release systems and registration as well as seed system policies across countries and regions in similar agro-ecological zones

Policies for release, deployment and adoption of productive food production technologies and inputs harmonized across regions developed and/or revised

Functional TAAT Program Management and Coordination Mechanisms in place

Improved enabling environment for deployment of agricultural technologies

Increased access to Climate Smart Agriculture Technologies (Adoption)

Increases access to diverse and nutritious foods

Increased access to labour and time-saving technologies for women and youth

Increased productivity of supported commodities

Increased Household Incomes

Enhanced food and nutrition security

Increased production of supported commodities

Increased employment opportunities

Improved and resilient livelihoods and reduced poverty

Increased access to markets and service (Transport, cold chain, extension services e.t.c)

Increased value addition in supported value chains

Assumptions

Creating an Enabling Policy and Regulatory Environment

RMCs and other development partners’ commitment to a coordinated approach

Sustained commitment and engagement by a Network of implementing partners and stakeholders, including private investors and agribusiness partners

Regional Technology Delivery Infrastructure (RTDI)

RECs and Sub-Regional Organizations are well informed and engaged

Cooperation and commitment by RMCs to implement regional policies and guidelines for approved technologies within agro-ecological zones

Deployment of Appropriate Agricultural Technologies (DAT)

Commitment by youths engaged supported by enabling policies and incentives

NARES with capacity and resources to support the deployment of Agricultural technologies

Infrastructure development accompanies agribusiness development and markets

In field coordination between National Systems and Compact Operations

Favorable weather conditions or experiences of droughts and natural hazards that are within allowable limits of promoted technologies.
Annex 3: Case Study Country Ratings and Rating Key

Country Case Study Ratings

<table>
<thead>
<tr>
<th>Country Case Study Ratings</th>
<th>Benin</th>
<th>DRC</th>
<th>Ethiopia</th>
<th>Kenya</th>
<th>Niger</th>
<th>Nigeria</th>
<th>Zambia</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice/Maize</td>
<td>3.0</td>
<td>2.4</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>4.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Cassava</td>
<td>3.0</td>
<td>2.7</td>
<td>3.0</td>
<td>3.0</td>
<td>2.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Wheat/Livestock</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>2.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>High-iron beans/Orange-fleshed sweet potato</td>
<td>3.0</td>
<td>2.0</td>
<td>3.0</td>
<td>3.0</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
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<tr>
<td>Millet/Sorghum</td>
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<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
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</tr>
<tr>
<td>Cassava</td>
<td>3.0</td>
<td>2.0</td>
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<td>3.0</td>
<td>3.0</td>
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<td>Maize/Aquaculture</td>
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<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
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<tr>
<td>Relevance</td>
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<td>3.0</td>
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<tr>
<td>Coherence</td>
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<td>3.0</td>
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<tr>
<td>Effectiveness</td>
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<td>3.0</td>
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<td>3.0</td>
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<tr>
<td>Efficiency</td>
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<td>3.0</td>
<td>3.0</td>
<td>2.0</td>
<td>2.0</td>
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<td>Sustainability</td>
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<tr>
<td>Average</td>
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<td>2.3</td>
<td>2.8</td>
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<td>2.4</td>
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Evaluation Criteria Rating Key

<table>
<thead>
<tr>
<th>Rating</th>
<th>Interpretation</th>
<th>Detailed Rating Rubric</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Highly Satisfactory</td>
<td>High quality in all aspects of the criterion; all dimensions of the criterion were fully met; performance on the criterion is considered good practice.</td>
</tr>
<tr>
<td>3</td>
<td>Satisfactory</td>
<td>Overall, the quality of the criterion is satisfactory; all dimensions of the criterion were met, but some dimensions had minor shortcomings.</td>
</tr>
<tr>
<td>2</td>
<td>Partly Unsatisfactory</td>
<td>Overall, the quality of the criterion is insufficient; one or more dimensions of the criterion were not met, and substantial improvements are required to bring the criterion to a rating of “satisfactory.”</td>
</tr>
<tr>
<td>1</td>
<td>Unsatisfactory</td>
<td>The quality of most aspects of the criterion is deficient; most dimensions of the criterion were not met.</td>
</tr>
</tbody>
</table>
Annex 4: References

<table>
<thead>
<tr>
<th>Program Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDB 2019. TAAT 2018-2020 Audit Reports</td>
</tr>
<tr>
<td>AIDB 2019. TAAT 2018-2019 Steering Committee (SC) Reports</td>
</tr>
<tr>
<td>AIDB 2019. Multinational: TAAT, Mid Term Report, December 2019</td>
</tr>
<tr>
<td>TAAT/AIDB 2021. TAAT Compacts Outcome Case Reports 2019 - 2021</td>
</tr>
<tr>
<td>AIDB/TAAT 2021. TAAT Board Progress Reports 2018 - 2021</td>
</tr>
<tr>
<td>AIDB/IITA/TAAT 2021. TAAT 2018-2021, Cassava Compact, Internal Completion Report, June 2021</td>
</tr>
<tr>
<td>AIDB/IITA/TAAT 2021. TAAT 2018-2021, Enabler TAAT Compact, Internal Completion Report, June 2021</td>
</tr>
<tr>
<td>AIDB/ICRISAT/TAAT 2021. TAAT 2018-2021, Sorghum and Millet Compact, Internal Completion Report, June 2021</td>
</tr>
<tr>
<td>AIDB/IITA/TAAT 2021. TAAT 2018-2021, Fall Army Worm (FAW) Compact, Internal Completion Report, December 2021</td>
</tr>
<tr>
<td>IITA/TAAT/AIDB 2022. TAAT Project, internal draft Project Completion Report, February 2022</td>
</tr>
<tr>
<td>AIDB 2022. TAAT Project Cluster Evaluation Approach Paper, August 2022</td>
</tr>
<tr>
<td>AIDB 2022. TAAT Project Cluster Evaluation Inception Report, September 2022</td>
</tr>
</tbody>
</table>
Benin


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CGIAR 2021. Improved Cassava Technologies, October 2021
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Central Bank of Congo (DRC) 2022. Monthly note for the month of June 2022

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### Nigeria


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### Zambia

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GRZ/Ministry of Fisheries and Livestock 2022. *National Fisheries and Aquaculture Policy, September 2022*


Technical Annexes

The Technical Annexes document can be found on the following page:


1. Evaluation Approach and Methodology
2. TAAT-I’s alignment with RMCs Policies, Strategies and Programs
3. TAAT-I Program Results Based Logical Framework (RBLF) (At Project Completion)
4. Summary of TAAT Resource Allocation, Disbursement and Utilisation (USD) as at 30 September 2022
5. Estimated TAAT-I Programming Resources per Country 2018-2022
6. TAAT Linked Projects in Case Study Countries
7. Achievement of Key Outputs and Intermediate Results for the TAAT-I program
   7.1 Contribution of Commodity Compacts towards Achievement of TAAT Objectives (Key Results)
7.2 Stakeholders that benefited from TAAT-I Capacity Building Support through various Compacts, 2021
8. Technologies Approved and Promoted under TAAT-I
9. Performance of the PMU in terms of procurement activities
10. TAAT-I Commodity and Enabler Compacts (Objectives and Targets)
11. List of organisations and farmer groups met and representatives/met
12. Country Case Study Data Collection Tool
Endnotes

1. Bundled technologies are technologies that are supplied as a package. Good agricultural practices (GAP), for example, include technologies for land preparation, planting, weeding, pest control, the use of personal protective equipment (PPE), and environmental protection.

2. At the design stage, the program only targeted 22 countries.

3. The nine agricultural commodities were maize, rice, wheat, cassava, high-iron beans, orange-fleshed sweet potato, sorghum/millet, livestock, and aquaculture.

4. The six enablers took the form of compacts in cross-cutting areas of intervention: soil fertility management, water management, capacity development, policy support, youth in business (Enable TAAT), and the response to fall armyworm.

5. Language adopted in the Communiqué of the Board of Governors at the AfDB’s annual meetings in May 2022. Algeria, China, Egypt, Eswatini, Namibia, Nigeria, and South Africa entered a reservation and proposed “Russia-Ukraine conflict” instead.

6. “Commodity technology delivery compacts” refers to the mechanisms by which TAAT-I’s ecosystem delivered program-approved agricultural commodity technologies. Titled “compacts” in some program documents, these mechanisms are not to be confused with the program’s compacts for agricultural commodities (maize, wheat, etc.) or the program’s enabler compacts (soil fertility management, water management, etc.).

7. In DRC, the evaluation team had also planned to collect data on cassava and orange-fleshed sweet potatoes in Bukavu, South Kivu Province. Because of insecurity concerns in Bukavu, they could not do so. As a result, the team in DRC was only able to evaluate cassava interventions in the province of Bas Congo.

8. Source: AfDB’s Feed Africa Strategy 2016–2025


10. The countries were Benin, Burkina Faso, Burundi, Cameroon, Central Africa Republic, Chad, Côte d’Ivoire, DRC, Ethiopia, Ghana, Guinea, Kenya, The Gambia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Uganda, Rwanda, Senegal, Sierra Leone, Sudan, South Sudan, Tanzania, Togo, Zambia, and Zimbabwe. At the program design stage, only 22 countries were planned.


12. The three overlapping phases were Phase I (2018–2021), Phase II (2021–2023), and Phase II (2023–2025).

13. The 18 priority commodities planned for TAAT’s three phases were maize, wheat, cassava, milled rice, parboiled rice, sorghum, millet, sweet potatoes, cocoa, cashew, oil palm, tea, soybean, pulses, tomato, leafy vegetables, livestock, and aquaculture.

14. TAAT-I’s clearing house acted as the main vehicle for implementing the program by selecting proven agricultural technologies to disseminate and scale up using program resources. The clearing house was designed to be autonomous, operating from a work plan and budget approved by the program’s Steering Committee. It facilitated partnerships and provided access to the expertise needed to design, implement, and monitor progress on the program’s crop, livestock, and aquaculture compacts. More details, see Appendix 1 of Technologies for African Agricultural Transformation: Framework Program in Support of “Feed Africa” (the project appraisal report), November 2017.

15. Source: TAAT-I progress reports and the project completion report of April 2022.

16. The African Union launched SEAF in June 2021 to support the delivery of seed and other commodities to at least 16 countries in response to the growing food insecurity caused by the COVID-19 pandemic.


18. The eight countries supported under the Special Emergency Assistance Fund for Drought and Famine in Africa that requested support from TAAT-I were Burkina Faso, Central African Republic, Liberia, Mali, Sierra Leone, Somalia, Sudan, and Zimbabwe.

19. The regional economic communities were the Common Market for Eastern and Southern Africa, the East African Community, the Economic Community of Central African States, the Economic Community of West African States, and the Southern African Development Community.

20. National agricultural implementing plans (NAIPs) are multisectoral plans for operationalizing CAADP in RMCs.

21. In Niger, the program collaborated with seven seed companies to produce and distribute seeds to farmers. The companies were ALEHRI, Manoma, Halal, AINOMA, Husa’a, Ainoma, and Amatey Farm.

22. Fifteen countries were supported to strengthen their seed system: Burkina Faso, Burundi, Côte d’Ivoire, DRC, Liberia, Mali, Nigeria, Rwanda, Sierra Leone, Uganda, Malawi, Tanzania, Kenya, Zambia and Zimbabwe.


24. Six countries were supported to loosen bottlenecks in the implementation of seed policy: Ethiopia, Ghana, Malawi, Mozambique, Tanzania, and Uganda.

25. The 11 compacts that leveraged resources mainly from programs supported by other development partners were Enable TAAT, Rice, Cassava, Sorghum & Millet, Wheat, Aquaculture, Soil Fertility, Capacity Development and Technology Outreach (CDTO), Maize, Livestock, and Orange-Fleshed Sweet Potato.
26 The seven countries were Benin, DRC, Kenya, Nigeria, Tanzania, Uganda, and Zambia. Five of these countries—Benin, DRC, Kenya, Nigeria, and Zambia—were part of the project cluster.

27 Another benefit of using Fortenza Duo is that it reduces the costs of production. Fortenza Duo eliminates the need to apply crop protection products to control for other soil pests: this eliminates at least one foliar spray. Fortenza Duo also helps farmers manage seeds by freeing their time for other work. Without Fortenza Duo, farmers start spraying crops from the first week of emergence; with Fortenza Duo, farmers must wait until the third or fourth week. Finally, Fortenza Duo improves soil health: unlike other foliar sprays, it does not affect beneficial soil microbes. With Fortenza Duo, only 58 m² of 10,000 m² of soil comes into contact with the spray. With other sprays, all of the soil comes into contact.

28 Farmer conditions are the conditions experienced by real farmers in the field. They differ from the controlled conditions used by agriculture research centers.

29 The yield gap refers to the difference in yields recorded at research institutions and demonstration plots, and yields actually achieved by small-scale farmers under farmer conditions.

30 Microdosing is the application of small doses of fertilizer—just a “three-finger pinch”—in the seed planting hole at sowing, or at the base of plants two weeks after planting. The concentration of nutrients at the source helps roots grow out quickly and profusely, which in turn helps plants capture more of the native nutrients in soil, as well as counteract late-season drought and adapt to climate variability.

31 Monocropping is the agricultural practice of growing a single crop on the same land year after year. It occurs when farmers do not rotate the production of different crops on the same land. Agroecology, in contrast, takes natural ecosystems into account and uses local knowledge to promote planting a diversity of crops: this boosts the sustainability of the farming system as a whole. In this way, agroecology promotes sustainable food systems that respect people and the environment.

32 The right beneficiaries are those meeting the criteria defined by national development program and strategy documents for targeted compacts.

33 Choice of focus group discussion participants will be done after getting initial data about implementation progress of interventions from Key Informants.

34 Nigerian Institute of Social and Economic Research (NISER)

35 Regional Strategic Analysis and Knowledge Support System – West Africa (ReSAKSS WA) International Institute of Tropical Agriculture (IITA)
About this evaluation

This summary report presents the key findings, lessons, and recommendations of a project cluster evaluation of the African Development Bank Group (AfDB or “the Bank”) Technologies for African Agricultural Transformation (TAAT) Program, Phase I (TAAT-I) over the period 2018-2021. The evaluation assessed the relevance, coherence, effectiveness, efficiency, and sustainability of the TAAT-I program with a focus on selected countries, nine commodity compacts and six enabler compacts.

Overall, the evaluation found that the program was aligned with the strategies and initiatives of the Bank, as well as the priorities and needs of RMCs regarding agricultural development and transformation. However, the program was centrally coordinated from AfDB Headquarter offices with limited involvement of AfDB Regional and Country Offices. The program, in terms of effectiveness, performed well in achieving its intended output results, in the face of modest resources and the effects of COVID-19 pandemic on implementation. Indeed, evidence indicates that the promoted technologies had positive effects on productivity, production levels, incomes, and the food security of beneficiary households. The evaluation assessment of efficiency was rated partly satisfactory due to challenges in resource allocation and disbursements, as well as procurement of commodities and the COVID-19. The design of the TAAT-I program was based on sustainability principles, focusing on partnership building at various levels of implementation which had positive results. However, the limited funding to critical partners and inadequate response to emerging and potential economic, environment and climate change-related risks threatened the sustainability of interventions. Finally, the focus on inclusivity, in terms of mainstreaming gender and youth had mixed results, and the application of environmental safeguards, overall, was limited.

The evaluation recommends the Bank to strengthen the design and implementation arrangements for TAAT-II and future related programs. It also recommends pursuing increased private sector participation in TAAT-II and related agriculture operations; and strengthening the monitoring, evaluation, and learning (MEL) systems of TAAT-II and future related programs by integrating the design of a MEL system from the onset and providing adequate resources to operationalize the system in a timely fashion.