



Final evaluation of the project "Partnership for sustainable rice systems development in sub-Saharan Africa"

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**Final evaluation of the project
“Partnership for sustainable rice
systems development in
sub-Saharan Africa”**

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Acronyms and abbreviations

FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer field school
JFFLS	Junior farmer field and life school
NERICA	New Rice for Africa
NRDS	National Rice Development Strategy
SO	Strategic Objective
SRI	Systems of Rice Intensification
USAID	United States Agency for International Development

Executive summary

Introduction

1. The project GCP/RAF/489/VEN "Partnership for sustainable rice systems development in sub-Saharan Africa" was funded by the Government of the Bolivarian Republic of Venezuela. The project was implemented by the Regional Office for Africa (RAF) of the Food and Agriculture Organization of the United Nations (FAO), in partnership with the Governments of ten beneficiary countries, i.e. Benin, Cameroon, Côte d'Ivoire, Guinea, Kenya, Mali, Nigeria, Senegal, the United Republic of Tanzania and Uganda. The project used a South-South Cooperation approach. The purpose of this final evaluation is threefold: ensure accountability to stakeholders, contribute to knowledge-building of sustainable rice systems development in Africa, and improve the design of similar future interventions. The intended users of this evaluation are the Project Management Team and Project Task Force based at FAO headquarters and the FAO Country Offices, their colleagues, as well as the donor and all national Government counterparts. The project sought to develop sustainable and productive rice systems in Africa to increase food security and enhance sustainable development of the rice food chain among smallholder farmers in the region.
2. The final evaluation covered the period from the project's actual entry-on-duty date (February 2016) to its close date (December 2019). It relied both on primary and secondary data. Primary data were collected through field missions in two representative countries (Senegal and the United Republic of Tanzania) and through online surveys and Skype meetings for the eight other countries. Secondary data were obtained from project progress reports and other relevant documents at country and regional levels. The findings are presented below for each of the five evaluation questions (EQ) guiding the evaluation.

Main findings

EQ 1 – Relevance: Within the context of the country needs assessment, did the project address the specific needs of the countries targeted?

3. The project is well aligned with countries' needs and priorities in terms of rice development for food security and income generation (see Finding 1). It has targeted relevant gaps and weaknesses of the rice value chain at national and regional levels, and has proposed realistic activities as well as methods to tackle these issues. From the proposed activities and methods, each country chose those that best met its priority needs, given its available resources. At country level, activities and methods chosen to develop targeted outputs were generally consistent.
4. However, activities chosen by countries for certain outputs were somewhat limited and insufficient to produce the effect(s) expected from those output(s). This situation is partly linked to the fact that most of the countries chose activities aiming at more than three outputs, resulting in dispersion of available resources. Another weakness is that in the design stage, the project did not identify for each expected output a full set of indicators and targets which would have enabled more result-oriented implementation. It also appears the project's countries needs assessments did not sufficiently highlight or document the dynamics of change already underway in each country for the expected outputs chosen. Furthermore, the project document failed to present/explain the content of the activities proposed under each expected output. This, in turn made it difficult to

allocate actions identified at country level to proposed activities. Despite the weaknesses mentioned above, overall relevance of the project is considered satisfactory.

EQ 2 - Effectiveness: To what extent has the project contributed to the development of sustainable and productive rice systems in the targeted countries?

5. The project made tangible progress in achieving more efficient, sustainable and productive rice systems in Africa especially in terms of promotion of Systems of Rice Intensification (SRI) and adoption of good practices and technologies to improve productivity and rice processing, reduction of post-harvest losses and improvement of grain quality (see main report, Findings 1 to 7). Many actors of the rice value chain have increased their income and diversified their livelihood. Farmer field school (FFS) and junior farmer field and life school (JFFLS) approaches have empowered youth, giving them opportunity to invest in agriculture and strengthening entrepreneurial capacities.
6. The project successfully promoted the use of improved varieties of rice. At least 20 improved varieties were promoted simultaneously along with best practices regarding rice growing and support for better availability and access to quality seeds. Thanks to the FFS and JFFLS approaches, and to other capacity building, learning and dissemination of technologies, the whole SRI or some of its components were adopted by producers. This adoption resulted in doubling and in some cases tripling rice yields, as in Nigeria and the United Republic of Tanzania. The success of the JFFLS approach, especially in the United Republic of Tanzania, has shown the value of this approach: though the project did not study, develop or propose advisory models for the rice sector, the results obtained through implementation of FFS and JFFLS show the need for countries to integrate this approach into their advisory system to improve producer learning and technology transfers. A strength of the FFLS and FFS approach is to involve producers in construction and participatory assessments of technologies and good practices, and its low-cost dissemination to peers with the support of governmental and non-governmental agricultural advisers.
7. The project carried out actions to promote networking of actors in the rice value chain, training of actors, supply of equipment to farmers' groups and support to creation of innovation platforms. The project's facilitation of producers' access to mechanical production equipment in the fields (line markers, power tillers, transplants, push-weeders, etc.) and its granting of post-harvest equipment have attracted great interest from stakeholders as visible outcomes were generated

EQ3 – Efficiency: To what extent have the South-South Cooperation mechanisms, such as the exchange of experiences, best practices, and academic and policy knowledge, been efficient to improve rice systems?

Factors that have increased efficiency

8. Project intervention was based on each country's priorities and needs as highlighted in their National Rice Development Strategy (NRDS). These needs were prioritized and refined, taking into account the resources available and the duration of the project. The project generally benefited from good government ownership, which coordinated its implementation by involving all decentralized services concerned. In several countries such as Senegal and the United Republic of Tanzania, territorial administration and decentralized technical services were highly involved in project implementation, contributing to its success. The project worked in synergy with and as a complement to other rice-oriented projects existing in the countries.

9. The project also integrated the final beneficiaries during implementation, turning them into key actors for the dissemination of technologies and innovations. Some beneficiaries, and particularly young people whose capacities were strengthened by the project, have become agricultural advisers or relay advisers, and have effectively disseminated good rice practices to a larger number of producers. The project opted for capacity building of actors through various approaches (regional, international and national workshops, FFS and JFFLS, training and visits, study tours) which furthered the dissemination of technologies adopted.
10. Overall, the products and technologies offered by the project (namely rice varieties tolerant to climate change, small production and post-harvest equipment, good rice production practices in different ecologies, technologies of rice threshing and milling, good practices for parboiled rice production, various documents for technical advice), have reinforced the adhesion of beneficiaries to the project and its objectives.

Factors that have reduced efficiency

11. The project experienced significant delay before launching, due to provisions of field budget authorizations and to certain implementing partners. Response times when requesting allocation of funds were excessively long, which resulted in the extension of procedures for the procurement of goods and services and the abandonment of some activities after several unsuccessful requests for supply. Some countries requested funds for one specific activity, waiting five to six months for a response, and in the end receiving funds for a different activity. In some countries, the Government has pre-financed some specific activities to remedy delays in the disbursement of project funds, but overall delays in disbursements have hindered the achievement of the outputs and therefore of related outcomes, particularly the procurement and installation of equipment according to the agreed upon time frame.
12. Another constraint concerns the non-disbursement of Government contribution in some countries, which limited the implementation of certain project activities. Furthermore, non-conformities in project budget management are partially a result of the regional coordination's willingness to control budget lines in order to better respond to specific needs. This resulted in somewhat creative accounting during project implementation. Delays experienced by some countries in justifying funds previously disbursed only accentuated these imbalances.
13. Another weakness, originating in project design, is the lack of flexibility and responsibility afforded to Country Representations for budget management. The insufficiency of human resources in terms of regional coordination and the fact that the project regional coordinator is also lead technical officer of other projects and therefore has limited time and concentration to dedicate to this project, have limited his proactivity and extended response times for certain requests.

EQ4 – Sustainability: What is the economic, institutional, social and environmental viability of the productive rice systems constructed by the project?

14. The heterogeneous nature of the project's beneficiary countries, their different institutional arrangement and commitment to the project's goal make it difficult to assess the project's overall sustainability. Nevertheless, the evaluation deems that overall the project satisfactorily ensured economic, institutional, social and environmental viability of the productive rice systems constructed by the project, particularly as pertains to Output 1, 6 and 3 (see Finding 13). As the project ends, additional avenues for diffusion and dissemination of results are to be explored.

15. The project promoted the use of improved seeds and best practices by including key players of the seed system and agricultural advice service. Technologies implemented are small pieces of equipment whose spare parts are locally available. There are also beneficiaries able to repair them in the event of a technical failure. Stakeholders and beneficiaries have acquired suitable capacities to enable them to continue certain project activities. Technologies developed through manuals and technical sheets are accessible and do not require huge resources on the part of beneficiaries.

EQ 5 – Gender analysis and cross-cutting issues: Were gender equality considerations and other social and environmental issues reflected in project objectives and design of the project, and effectively addressed during the implementation?

16. Gender and youth considerations were well taken into account during project implementation despite the fact that specific indicators and targets were neither defined nor applied to better promote and follow their influence on the project (Finding 15). The project was conceived as having a low environmental impact; it satisfactorily applied environmental and social safeguard measures during its implementation (Finding 16). Project results show women and youth have significantly benefited from the project and were able to achieve outcomes, create jobs, as well as improve both income and livelihoods through the project's capacity building efforts. Project focal points view project activity and output (and therefore outcome) achievement in terms of gender integration as on track. The empowerment and leadership of women and young people was strengthened where necessary and relevant, and actions were undertaken to reduce the hardship of work by providing appropriate equipment.

Lessons learned

17. Overall positive project results demonstrate South-South Cooperation is an excellent mechanism for pooling resources and efforts in innovation and development processes. Sharing knowledge with decision makers and political consultation at the highest level have shown their usefulness in reaffirming and updating policies strategies and intervention priorities, and to mobilize partners from a large number of countries. The mechanism also enables countries to measure and assess their own progress in rice development through comparison. The project has shown setting up common indicators as well as common monitoring and analysis frameworks are required to compare progress between participating countries. To improve effectiveness and efficiency, it is also necessary to anticipate the constraints and delays that such a mechanism faces, especially in terms of budget management and delays in the provision of field budget authorizations. Further decentralization of budget management of this type of project to the country level could prevent delays.

Conclusions

18. The evaluation finds FAO was able to respond appropriately to the needs of countries regarding the development of sustainable rice systems, by mobilizing South-South Cooperation mechanism and by proposing, through sound project design, consistent activities to undertake a suitable implementation strategy for each of the ten countries. In fact, the evaluation finds FAO responses significantly contributed to enhance food security and development of sustainable rice systems for smallholder farmers in the region. Irrespective of the activities chosen, and since this led to less than fully achieved expected results, FAO provided assistance that was nevertheless effective and efficient in improving rice systems to Governments. It is worth mentioning that this assistance was provided through South-South Cooperation mechanisms, proving their effectiveness.

19. FAO and Governments identified sustainability concerns regarding economic, institutional, social and environmental aspects and took them into account to ensure project sustainability. More specifically, FAO promoted integration of gender equality considerations and other social and environmental issues into project objectives and contributed to their implementation. For example, the project succeeded in bringing several producers, producer groups and communities to move from subsistence farming to commercial farming by increasing production, reducing post-harvest losses and improving quality of rice through the use of appropriate post-harvest management technologies and equipment.

Recommendations

Recommendation 1. To improve future interventions using the South-South Cooperation approach, FAO must continue to assist governments to better identify their priorities by focusing on activities whose implementation is likely to generate significant and sustainable advantages, benefiting the various actors in the value chain as well as Government (drop in imports due to increased production). FAO must also support countries to better integrate the vulnerability and poverty criteria in the choice of project beneficiaries.

Recommendation 2. At country level, FAO and FAO Representative must support the Government to identify and engaged suitable strategies, resources and partnerships for dissemination and scaling up of project's proven results and achievements to a large population of beneficiaries.

Recommendation 3. FAO must, in the very short-term, capitalize on the project's successful experiences in different countries to highlight the improved technologies that have been adopted and the training, advice and dissemination approaches of technologies and good practices that have proven effective.

Recommendation 4. Within the results framework of any similar future project, FAO should systematically carry out assessments of gender, youth and other vulnerable group needs, and integrate gender and vulnerability specific indicators and targets relevant to project objectives and consistent with the FAO Policy on Gender Equity and Environmental and Social safeguard.

1. Introduction

1.1 Purpose of the evaluation

1. This is the final evaluation of project GCP/RAF/489/VEN "Partnership for sustainable rice systems development in sub-Saharan Africa" implemented by the Regional Office for Africa (RAF) of the Food and Agriculture Organization of the United Nations (FAO), in partnership with ten ministries of Agriculture from the beneficiary countries, i.e. Benin, Cameroon, Côte d'Ivoire, Guinea, Kenya, Mali, Nigeria, Senegal, the United Republic of Tanzania and Uganda. The project was approved in May 2014, but due to delays in the delivery of funds, it only started in February 2016. The project was originally expected to end in December 2017 but received a no-cost extension until December 2019. The total budget is USD 5 000 000, entirely granted by the Government of the Bolivarian Republic of Venezuela.
2. This final evaluation serves a double purpose: accountability and learning. It presents strategic recommendations to establish project accountability to stakeholders and to contribute to knowledge-building of sustainable rice systems development in Africa through South-South Cooperation. It also documents important lessons that may be useful to improve the design of similar future interventions.

1.2 Intended users

3. The main audience and intended users of the evaluation are the Project Management Team and Project Task Force both in FAO headquarters and in FAO Country Offices and their colleagues, the donor, and all national Government counterparts. The Ministries in charge of Agriculture of targeted countries may also use it to take stock of project achievements and learnings.

1.3 Scope and objective of the evaluation

4. This evaluation covers the period from the project's actual entry on duty date (February 2016) to its close date (December 2019), and the project's entire geographical area of implementation. It relies both on primary and secondary data. Primary data were collected through field missions in two representative countries (Senegal and the United Republic of Tanzania) and through online surveys and skype meetings for the eight other countries. Secondary data were obtained from project progress reports and other relevant documents at country and regional levels.
5. The objective of the evaluation is to identify project results and effects, their sustainability and project likelihood of achieving long-term effects. The evaluation will also consider the preconditions and arrangements in place that have contributed to, or hindered, the adequate implementation of planned activities, including linkages and/or partnerships between the project and other major country initiatives.
6. To achieve these objectives, the following evaluation questions, as defined in the evaluation's Terms of Reference (TOR) and based on DAC criteria, were developed and used (see Box 1.).

Box 1: Evaluation questions

EQ 1. Relevance: Within the context of the country needs assessment, did the project address the specific needs of the countries targeted? To what extent has the project targeted relevant gaps and weaknesses of the rice value chains at national and regional level?

EQ 2. Effectiveness: To what extent has the project contributed to developing sustainable and productive rice systems in Africa? To what extent have the project activities contributed to an increase in food security and an enhancement of sustainable development of the rice food chain among smallholder farmers in the region?

EQ 3. Efficiency or Implementation modalities – SSTC: To what extent have the South-South Cooperation mechanisms, such as the exchange of experiences, best practices, and academic and policy knowledge, been efficient to improve rice systems? How sustainable are the partnerships built within the South-South Cooperation framework? To what extent was the support provided to farmers and other actors of the rice value chains efficient to increase production, productivity, and adoption of technologies?

EQ 4. Sustainability: What is the economic, institutional, social and environmental viability of the productive rice systems constructed by the project? To what extent has the project supported the creation of a political, institutional, and economic environment that underpins productive rice systems at national and regional levels?

EQ 5. Gender and social and environmental issues: Were gender equality considerations and other social and environmental issues reflected in project objectives and design to address the needs, priorities and constraints of both women and men, and in the identification of beneficiaries? To what extent have concerns about gender, vulnerable or marginalized groups and environmental safeguard been effectively addressed during the implementation of the project?

1.4 Methodology

7. The evaluation team was made up of two international consultants. The first (team leader) is an experienced evaluator with expertise in agricultural development and environmental management projects, and the second (team member) is an expert in public-private partnership and data analysis in the rice sector. The team member participated in the inception phase and field mission of the evaluation, but was not able to significantly contribute to the report (see section on limitations).
8. The evaluation methodology adheres to the United Nations Evaluation Group (UNEG) Norms and Standards and is in line with the FAO Office of Evaluation (OED) Manual and methodological guidelines and practices. The evaluation approach is systematic and participatory, and relies on an inclusive and transparent process. The evaluation is results-focused and the theory of change of the project is used to inform the evaluation design and to analyse the contributions made by the project to its expected outcomes.

1.4.1 Desk review and data collection

9. During the inception phase, which took place in October 2019, relevant project documents were analyzed and information was gathered to develop a methodological note including: project theory of change, evaluation methodology, evaluation matrix with evaluation questions (see Box 1 above), sub-questions and indicators related to relevant data to be collected (see Evaluation matrix in Annex 1). To answer these evaluation questions, document review, direct observation and semi-structured interviews with individual and group informants were used for data collection and, after triangulation, as evidence.

10. The investigative phase was achieved through field missions in two countries, namely Senegal from 28 October to 1 November 2019 and the United Republic of Tanzania from 4 to 8 November 2019. The evaluation team visited nine farmers groups or communities benefiting from project activities (See Table 1 and Appendix 1) to directly observe and discuss their perceptions of project implementation, activities and achievements. Implementing stakeholders were also interviewed on project performance (See Table 1 and Annex 1) with emphasis on results and sustainability, as well as on factors that affected project implementation, whether positive or negative.

Table 1: Stakeholders interviewed

Category of stakeholders	Organization
Project Executing organization (FAO)	FAO Regional Office for Africa (RAF): Lead Technical Officer FAO National Representation: FAO Representative, Programme Officer, Project Focal Point, other key persons involved in the project
Countries Government	General/Principal Secretary of Ministry of agriculture, Head of regional administration, other governmental key actors involved in research and development on rice value chain
Project Coordination and Implementation Team	FAO Project Focal Point (10 countries) National Project Coordinator (10 countries) Members of the project implementation team (SODAGRI in Senegal, Morogoro Regional Administration and Rice Council of the United Republic of Tanzania)
Final beneficiaries	Senegal: Farmers' groups of Mampatim, Baghere, Faoune, Mbalocounda, Kougne The United Republic of Tanzania: Farmers' groups of Kugugu in Mvomero district, Ilongo and Mvumi in Kilosa district, Msolwa – Ujamaa and Njage in Kilombero District.

11. After field missions, online interviews were conducted with stakeholders from the eight other countries of the project. A questionnaire was submitted from mid-November to mid-December to key implementing stakeholders, namely country project coordinators and project focal points. Additional Skype interviews and discussions were also held to better understand project implementation and to clarify specific issues. Triangulation was used to validate data and analyse all information underpinning the conclusions and recommendations.

1.4.2 Data analysis

12. The evaluation looked into the achievement of planned outcomes¹ referring to the detailed implementation plan and to the table of measurable indicators presented in the project document. The evaluation also looked into unintended outcomes and took into account the fact that each country was not required to carry out or aim for all the outputs and activities proposed in the project document, but had to choose only those corresponding to the intervention priorities as defined by its Government for this project. Consequently, the evaluation analyzed the merits of the activities and outputs chosen by the different countries and the level of their achievement compared to what was planned (see the outputs and activities planned for each country in Annexes 4, 5 and 6). Each output is assessed based on the analysis of the level and quality of achievement of its activities carried out in the countries. A rating table is used for this purpose (see Annex 7).

¹ Please see section 2.2 for a discussion on the semantics used within this specific project to refer to outcomes. The project is articulated around six outcomes called outputs in the project document. The evaluation focuses on results of the project, i.e., achievement of its stated outcomes, referred to as outputs in project documentation.

This assessment also takes into account the indicators and targets of activities and outputs when these exist or are relevant for the considered country.

13. In addition to the results and operating standards made explicit in the project document, the analysis also referred to relevant corporate policies and norms. These are: i) the FAO Policy on Gender Equality (2013) and Environment and Social Standard under the FAO Environment and Social Management Guidelines (2015) – to assess project results in the aspect of women's empowerment and gender equality; ii) the Environment and Social Standard 1 under the FAO Environment and Social Management Guidelines (2015) – to assess project results in terms of environmental sustainability; and iii) the FAO Corporate Strategy on Capacity Development (2010) – to evaluate project results on the capacity development of rice value chain actors.
14. In the two countries visited during field mission, stakeholders contributed greatly to the evaluation process, and they freely and transparently provided information, thus ensuring the credibility of information collected. Contribution of key informants of the eight other countries was also satisfactory; all proof and evidence requested by the evaluation team were provided and so information gathered through online interviews is considered credible.

1.4.3 Limitations

15. The evaluation provision originally set aside for the project final evaluation was not fully available. As a result, field mission was undertaken in two countries only (Senegal and the United Republic of Tanzania) among the ten beneficiary countries. In order to mitigate this small sample of countries, online interviews were carried out with the other eight benefiting countries in addition to documents review, providing adequate data and evidence to be used for the evaluation.
16. The project targets ten countries, each with its own specificities and available information as well as reporting requirements. As a result, cross-comparison between two or more countries is extremely difficult, because existing and reported data is not standardized. The evaluation team, when unable to find the information through publicly available means and through pointed requests to the project team, country focal point or country coordinator resorted to using either proxy data or less specific data, at the expense of more nuanced analysis.
17. During the evaluation reporting phase, the evaluation team was not complete; though this did not affect the quality of its assessments and analyses, it negatively impacted the evaluation in terms of the time necessary to collect information from all project countries and to provide the report on time.

1.5 Structure of the report

18. Following this introduction, Chapter 2 presents the background and context of the project; Chapter 3 illustrates main findings based on evaluation questions. Lessons learned are presented in Chapter 4, followed by conclusions and recommendations in Chapter 5.

2. Background and context of the project

2.1 Context of the project

19. In Africa, rice consumption has dramatically increased over the last decades, growing faster than the consumption of any other major staple on the continent. Demand growth for rice is estimated at more than 6 percent per year according to AfricaRice (SOS Faim, 2016).² Rice consumption in West Africa was 10 kg per person and per year in 1961, 34 kg in 2009, and is expected to reach 53 kg in 2025 (SOS Faim, 2016). However, apart from Egypt, no African country is currently self-sufficient in terms of rice consumption. In 2008, rice prices dramatically increased (in Senegal, they even doubled) (SOS Faim, 2016), triggering regional and national reactions and bringing the issue of food sovereignty to the fore.
20. The Comprehensive African Agriculture Development Programme (CAADP), as the regional policy framework for agricultural transformation, wealth creation, food security and nutrition, economic growth and prosperity for all, has always supported the issue of food sovereignty. More recently, international conferences seized the subject, as did the Tokyo International Conference on African Development (TICAD 6), during its sixth edition in 2016. However, the most notable initiative was the Coalition for African Rice Development (CARD), which gathers 23 countries³ and aimed at doubling rice production in Africa between 2008 and 2018. Other dynamic actors and partnerships emerged such as AfricaRice and the Alliance for a Green Revolution in Africa (AGRA); they seek to develop strategies to increase productivity throughout the continent. Research organizations such as the International Rice Research Institute (IRRI) and the Consultative Group for International Agricultural Research (CGIAR) also rapidly engaged in Africa.
21. Subregional initiatives also emerged, such as the "Rice Offensive" from the Economic Community of West African States (ECOWAS), which plans for rice self-sufficiency in the region by 2025, the Continental Investment Plan for accelerating Rice Self-Sufficiency in Africa (CIPRISSA), and the Competitive African Rice Initiative (CARI), also with notable multi-country strategies in the region.
22. At the national level, strategies are turning towards increasing production and productivity. All ten countries targeted by the project developed National Rice Development Strategies (NRDS) between 2008 and 2010 in partnership with CARD. These strategies cover a ten years period that ends in 2018 (Cameroon, Guinea, Kenya, Mali, Nigeria, Senegal, the United Republic of Tanzania, Uganda) or 2020 (Benin, Côte d'Ivoire). The strategies aim to double rice production in sub-Saharan Africa from 14 to 28 million tonnes by 2018. These strategies are designed in addition to and to complement national rural development plans (for additional information on rice production trends and self-sufficiency, see Annex 2).
23. **Main constraints faced by the rice value-chain.** It is argued that there is a scope for increasing yields in sub-Saharan Africa but that this increase can only be addressed

² AfricaRice estimated that demand for rice was growing at more than 6 percent per year. Source: <http://www.africarice.org/warda/whyrice matters.asp>. Consulted on 01/08/2018

³ The ten beneficiary countries of the project are members of CARD.

through a holistic approach to production, hence the value chain⁴ perspective. For instance, in Cameroon, isolation of producers due to lack of infrastructures causes low access to inputs, knowledge, technologies (such as mechanization) and to markets for selling products. Creating and fostering a business-enabling environment to link production zones and markets seems necessary to increase inputs and knowledge supply, to promote processing and extension services, as well as to enhance financial exchanges.

24. However, rice production cannot be addressed only through its supply side and must also consider its demand-side. Depending on the context, consumers may have more income elastic demand for food quality than for food quantity, as for example in Benin. Along with the quality of the grain chosen, post-harvest processes therefore require more scrutiny.
25. **Gender.** The gender division of labour in rice farming in sub-Saharan Africa can be very complex and is very heterogeneous among project countries. Generally, women are involved in rice post-harvest activities (threshing, pounding/milling, parboiling, cooking, trading, etc.) and in planting, weeding, or bird scaring, but with large variation.⁵ There are important differences within the same country: in Mali, in the Bafoulabé region, rice is grown almost entirely by women (FAO, 2005).
26. **FAO contribution to rice systems development.** FAO is Member of the CARD Steering Committee and is involved in several rice initiative in Africa such as the Tokyo International Conference on African Development. The Organization also helps link regional rice initiatives to country programme frameworks and supports the harmonization of in-country programmes with national investment programmes.
27. FAO also benefits from multiple partnerships with key stakeholders such as AfricaRice or the International Rice Research Institute, and assists research agencies to develop and scale up programmers. FAO has been supporting South-South Cooperation since 1996. The Organization has set-up a dedicated South-South Cooperation team with a broader mandate to sharpen the Organization's support to South-South Cooperation between countries of the Global South.

2.2 Description of the project

28. The project GCP/RAF/489/VEN "Partnership for sustainable rice systems development in sub-Saharan Africa" is granted by the Venezuelan Government and implemented by FAO Regional Office for Africa (RAF) in partnership with the ten ministries of Agriculture from the beneficiary countries. Originally approved in May 2014, project implementation started two years after the preparation of the concept note, in February 2016, due to delays in the delivery of funds. The total budget of the project is USD 5 000 000.
29. The project goal is to develop sustainable and productive rice systems in Africa to increase food security and enhance sustainable development of the rice food chain among smallholder farmers in the region.

⁴ The value chain describes the range of activities required to move a commodity from the first point of production to the last point of consumption. It comprises inputs, technology, post-harvest, and/or commercialization.

⁵ For example, labour supplied by women for rice cultivation varies from 3 percent for floating rice, to 80-100 percent in mangrove-swamp rice in the Gambia cf Agboh-Noameshie A. and al, "Integrating gender considerations in Rice Research for Development in Africa", in Realizing Africa's Rice Promise, CAB International, Cotonou, 2013

30. To reach its objectives, the project was structured around the following six outputs as defined by the project document: these are in fact project outcomes,⁶ as slight editing below will show:
31. Output 1: Efficient rice production systems for Africa supported through the promotion of adoption of best practices and upscaling of proven, tested technologies. *This output deals with the promotion of production and multiplication of improved seeds, best practices and improved technologies (mechanization, irrigation notably), as well as trainings such as internships and farmer field school (FFS).* Related Outcome: Efficient rice production systems for Africa are supported through promoted adoption of best practices and upscaling of proven, tested technologies.
32. Output 2: Developed agribusiness models along the rice value chain for increased production and productivity. *This output deals with capacity building of farmers, access to affordable capital, transparent and accessible markets, enabling environment through policy and institutional reforms, or the creation of innovation platforms for rice development in Africa.* Related Outcome: Agribusiness models along the rice value chain for increased production and productivity are developed.
33. Output 3: Options for effective policies, institutions and markets developed/promoted. *This output deals with the harmonization of existing regional policies and initiatives with subregional, regional and global partners, the mapping of critical inputs to be provided and of current rice initiatives in Africa, and the support to the development of relevant/effective rice policies and institutional frameworks.* Related Outcome: Effective policies, institutions and markets options are developed/promoted.
34. Output 4: Reduced post-harvest losses and improved grain quality. *This output deals with the promotion of appropriate threshing and milling technologies for quality rice grain, and with the support to the private sector participation in promoting local rice.* Related Outcome: Post-harvest losses are reduced and grain quality is improved.
35. Output 5: Irrigated and Integrated rice systems developed. *This output deals with the development of irrigated and integrated rice systems and the overall support to public-private sector involvement in rice systems development.* Related Outcome: Irrigated and Integrated rice systems are developed.
36. Output 6: Sustainable increased production and productivity in the major rice production environments. *This output deals with the support to the identification, dissemination and adoption of improved rice production technologies for Africa, the support to agricultural development organization for rice value chains, and the reinforcement of women and youth capacities to participate in rice value chain.* Related Outcome: Major rice production environments have sustainably increased production and productivity.
37. The distinction between project outputs and outcomes is thin: achieving the output means achieving the outcome. Given the number of activities and the pick-and-choose nature of the project, the evaluation will assess outcome achievement through analysis of activities and output achievement.
38. Uneven rice systems development within beneficiary countries implies needs and challenges in the rice sector vary from country to country. Consequently, each beneficiary

⁶ Project outcome is defined as: events, occurrences, or changes in conditions, behaviour, or attitudes that indicate progress towards project goals which the project defines as outputs.

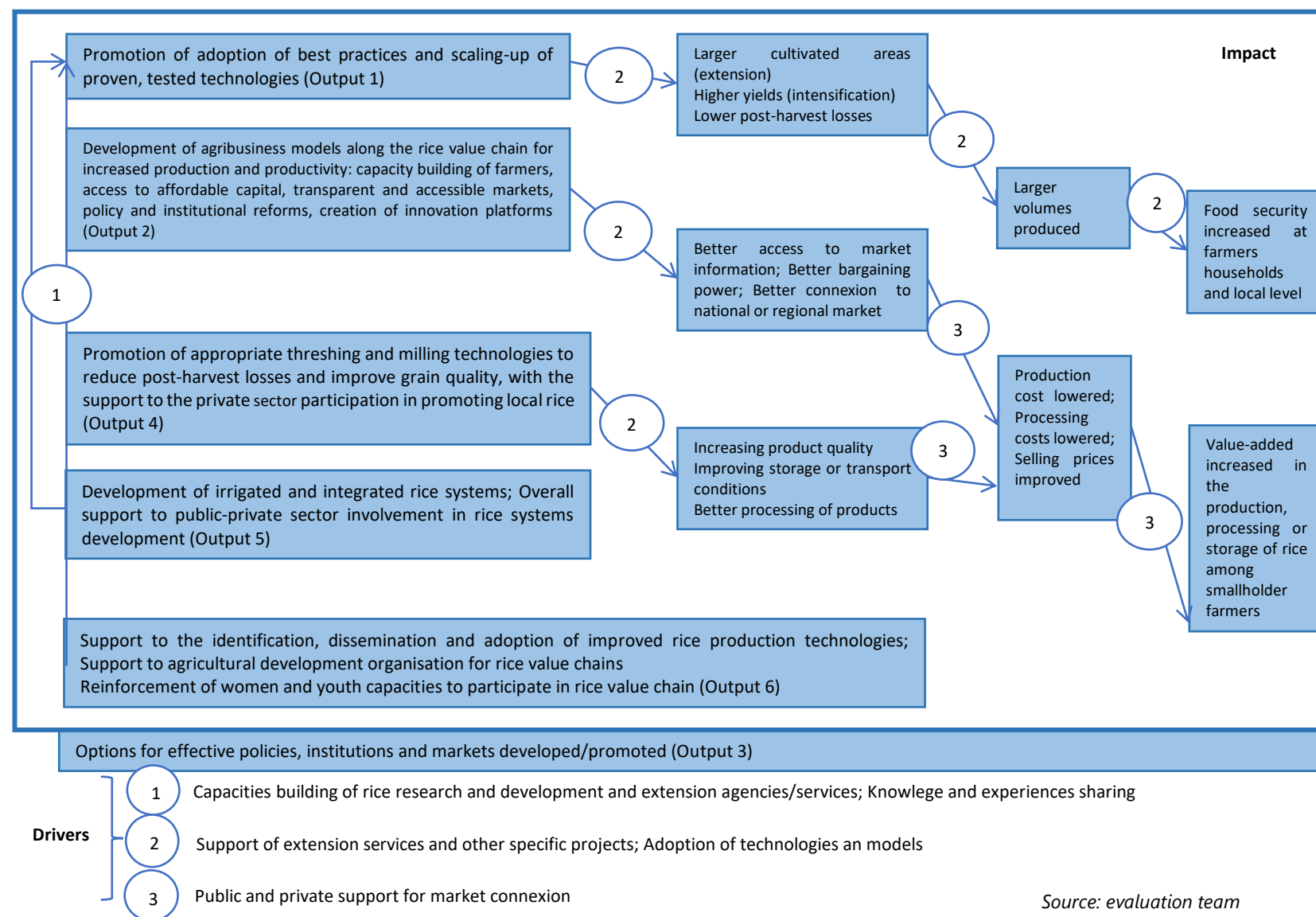
country targets, among the outputs listed above, those most coherent with its situation and priorities.

39. At regional level, this project is consistent with the African Union's Comprehensive Africa Agriculture Development Programme adopted by Governments throughout the region and aims to increase market access through improved rural infrastructure and facilitate regional trade in food staples.
40. The project contributes to the operationalization of three FAO strategic objectives (SO): SO2 - Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner; SO3 - Reduce rural poverty; SO4 - Enable more inclusive and efficient agricultural and food systems.
41. The project is implemented through South-South Cooperation in line with the National Rice Development Strategy and the other national priorities (such as FAO's Country Framework Strategies) in the ten countries (Benin, Cameroon, Côte d'Ivoire, Guinea, Kenya, Mali, Nigeria, Senegal, the United Republic of Tanzania and Uganda). These countries' strategies mainly prioritize value addition, agro-processing, and market access, and emphasize the need for stronger and more equitable engagement of youth and women in food value chains. As mentioned previously, each country picks and chooses which output(s) to tackle based on its specific situation and priorities (see Annex 4 and 6).

2.3 Theory of change

42. At first glance, the overall goal of the project seems overly ambitious. However, considering underpinning conditions detailed below and the countries' needs and objectives, the theory of change presented in Figure 1 is not realistic.

Figure 1: Project theory of change



Source: evaluation team

43. Increased areas, yields and product quality is possible, provided that producers have access to arable land, labour, inputs (seeds, fertilizers and phytosanitary products), equipment, water and technical know-how. Product quality is further enhanced by improving storage, transport or processing conditions. Many of these conditions require, or are at least facilitated by availability of financial resources within the household. Product storage, transport or processing conditions can be improved by the availability of warehouses, equipment, means of transport and access roads. The targeted countries need to provide an enabling environment for the development of rice value chain.
44. To improve farmers' access to the conditions described above, the project based its strategy on capacity strengthening of different stakeholders along the value chain. These include strengthening agricultural extension stakeholders (to improve technical know-how); promoting quality seed access and multiplication; developing the irrigated and integrated rice systems; supporting the private sector in providing cultivation, transport or processing equipment; enhancing access to markets and easier access to financing.
45. Through intensive desk studies and extensive field surveys, a thorough assessment and analysis of national rice development strategies was conducted in beneficiary countries to map institutional and human capacity development needs along the rice value chains and foster an enabling environment. As the situation of rice development varies from country to country within the continent (See Annex 2 for further detail), South-South Cooperation was selected as the vehicle for project implementation.
46. Lastly, there are a number of external conditions that must be satisfied for the expected changes to occur. For example, there is a need for strong Government ownership to promote institutional and policy changes. In addition, for farmers to adopt best practices and multiply quality seeds, they need supervision by competent technical services and regular supplies of foundation seed.
47. Moreover, additional capacity needs assessments (CNA) to better target interventions,⁷ and the missing of the start of the rice agricultural season in some countries, led to uneven implementation status between beneficiaries and to a 23-months no-cost extension to December 2018. The project was further extended to June 2019 with a no-cost extension to enable the completion of activities planned, and then again to December 2019.
48. The budget of the project is to be considered in assessing project achievements and impacts within each country. The total budget of the project is USD 5 000 000, entirely granted by the Venezuelan Government. In fact, each country received on average USD 320 000 with the rest allocated to overall project contributions (not segregated by country).

⁷ Since project approval on 2 February 2016, the programme did not immediately start with programme implementation because most of the countries needs in the context of the programme evolved. In this context, it was agreed that a quick gap needs assessment on the rice sector with each respective country is needed and, as a result, a period of three months was used to consult with the national focal points as well national stakeholders in the rice sector.

3. Findings

3.1 Evaluation Question 1. Relevance: Within the context of the country needs assessment, did the project address the specific needs of the countries targeted?

Finding 1. The project is well aligned with countries needs and priorities of rice development for food security and income generation. It has well targeted relevant gaps and weaknesses of the rice value chain at national and regional level and has proposed consistent and realistic activities and methods to tackle these issues. From these proposed activities and methods, each country chose those that best meet its priority needs, given its available resources. At country level, activities and methods chosen to develop targeted outputs were generally consistent. However, with the exception of output 1 and output 4, activities chosen by countries for the other outputs were somewhat limited and insufficient to produce the effect(s) expected from those output(s). This situation is partly linked to the fact that most of the countries have chosen activities concerning more than 3 outputs, which resulted in dispersion given resources available.

49. The project is consistent with the sustainable development vision and priorities set out in the main development strategic documents of the beneficiary countries, notably the strategic documents for growth, employment and poverty reduction. The project contributes to the implementation of agricultural development priorities reflected in countries' agricultural policies and strategy documents focused on poverty reduction, youth employment promotion, women empowerment, and environmental safeguard. With regard to rice, the main strategic objective of the countries is to significantly increase production to reduce expenditure on rice imports, create jobs for young people, generate additional income, and improve or consolidate food security (see details in Annex 4).
50. The project has targeted some key aspects of the issues highlighted by the NRDS developed between 2008 and 2010 under the CARD initiative. In most beneficiary countries, the aim of the NRDS is to increase rice production, productivity, value-addition and competitiveness through the generation, promotion and application of client-driven knowledge, information and technologies in a sustainable environment. The project is well aligned on the FAO Country Programming Frameworks (CPF) objectives and targets of the ten beneficiary countries (Benin, Cameroon, Côte d'Ivoire, Guinea, Kenya, Mali, Nigeria, Senegal, the United Republic of Tanzania and Uganda). Most CPFs are focused on the creation/increase of value-addition, support to agro-processing and market access, and emphasize the need for stronger and more equitable engagement of youth and women in food value chains.
51. In almost all countries, the project has built on ongoing initiatives and partnerships by assessing or referring to the NRDS to identify strengths and gaps in local rice value chain. The activities chosen and the implementation strategies used are realistic with regard to the priorities highlighted in the countries' NRDS and countries' needs assessments, the overall project objective, the resources available and the implementation time frame. The project mostly targeted the expected outputs whose achievement could bring visible improvements to key links of the rice value chain during the project period.

52. Based on the activities chosen by the countries (see Annex 4 and 6) and the rating criteria (Annex 7), relevance of activities chosen for each output is presented in Table 2 below.

Table 2: Assessment of coherence and realism of activities chosen by countries in relation to the results expected from each output.

Outputs	BEN	CMR	CIV	GIN	KEN	MLI	NGA	SEN	TZA	UGA
1	S	S	S	S	S	S	S	S	S	S
2	MS	U	S	MS	MS	S	S	S	MS	MU
3	MS	MS	MS		MS		MS	UA		
4		MS	S	S	S	HS	S	HS	HS	S
5		MS								MS
6	S							S		S

Legend: Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS); Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU); Unable to Assess (UA)

53. The countries have mostly focused their efforts on expected Output 1, 2 and 4. However, only the activity packages chosen for expected Output 1, 4, 6 are considered sufficiently coherent and realistic in relation to the expected effects.
54. With regard to Output 2, although the activities chosen by the countries are all interesting, they appear hardly sufficient or downright insufficient to generate models of agribusiness in six countries. Those six countries preferred activities likely to generate concrete results in a short time, leaving aside much more complex activities able to facilitate the development and/or testing of agribusiness models. The project hypothesis was that by carrying out the activities proposed in the project document under Output 2, agribusiness models would develop or emerge along the rice value chain. In this perspective, support for the creation of innovation platforms is a central activity of Output 2 since these platforms bring together all the key players of the value chain concerned, including political decision makers and private operators (transformers, transporters, traders, bankers, etc.). However, the evaluation notes that for Output 2, the countries have generally chosen/planned specific activities which are not likely to produce the expected effect (see Annex 4 and 6). The evaluation also found no evidence that activities chosen will likely contribute to the dynamics already underway to generate the expected effect.
55. The project failed, at conception, to propose a specific activity focused on the identification and analysis of existing models at country level and the full-scale test of these models along the rice value chain at local or national level. Such an activity would have been useful to determine or better detail specific support that the countries' Governments must bring to the actors and the necessary reforms to improve the enabling environment and increase productivity and competitiveness of the rice value chain. It appears that the project did not value the rice innovation platforms as laboratory and framework for developing, analysing, testing and simulating agribusiness models. It is nevertheless worth noting that some countries (Côte d'Ivoire, Mali, Nigeria and Senegal) have chosen activities deemed sufficiently consistent and realistic to develop Agribusiness models (marked as satisfactory in Table 2).
56. Output 3 and 5 were respectively selected by five and two countries. For Output 3, at regional level the project proposed, to engage early-on with subregional, regional and global partners to ensure harmonization with existing regional policies and initiatives. At national level, the countries have essentially planned activities focused on NRDSs review

activities (Benin, Kenya and Nigeria), mapping of the 'landscape' of current rice initiatives (Cameroon) and development of communication plan/strategy (Côte d'Ivoire, Guinea)⁸. Though they are very limited, these activities can help generate effective policies, institutions and markets. However, the project and the countries needs assessments did not explain and document the dynamics underway at the national level in this area. This work would have helped better appreciate the relevance of activities chosen by countries for this Output 3. Output 5 aims at developing irrigated and integrated rice systems developed. Cameroon and Uganda have chosen one activity to implement "Assist countries in the development of irrigated and integrated rice systems", and not the other two essential activities "support to public-private sector involvement in rice systems development", and "support resource mobilization for irrigated and integrated rice systems development".

57. Beyond the activities implemented at national level, the project planned supranational activities implemented by the regional coordination (workshops to build the capacities of actors, workshops for knowledge management, high-level meetings).
58. In all benefiting countries, key stakeholders of rice value chains related to each output planned were very well involved in the implementation of activities, namely the central governmental authorities in charge of agriculture; national agricultural research institutes; regional and local authorities and officers in charge of agriculture and rice value chain development; national rice councils and rice desks; rice growers and their organizations; private sector; other key actors of rice value chain; and ongoing projects in rice sector.
59. Overall relevance. In the project design stage, the project did not identify all the adequate indicators and targets for each expected output able to make implementation at country level more result-oriented: the project did not limit the maximum number of outputs in which one country could engage, so three countries were each engaged in three Outputs and seven in four to five Outputs. Furthermore, it appears that the project's countries needs assessments did not sufficiently highlight or document the dynamics of change already underway in each country for the expected outputs chose. Also, the project document has not presented/explained the content of the activities proposed under each expected output, which did not facilitate allocation of actions identified at country level to those proposed activities. Despite the weaknesses mentioned above, overall relevance of the project is considered Satisfactory.

3.2 Evaluation Question 2. Effectiveness: To what extent has the project contributed to the development of sustainable and productive rice systems in the targeted countries?

60. The project was designed around Outputs (see paragraphs 30 and 31) that are in effect its outcomes. The evaluation will therefore focus its assessment of project efficiency on the achievement of Outputs through the different activities undertaken. Given the dispersed nature of these Outputs (outcomes) and activities, and their large numbers, the evaluation will first review all activities. At the end of this section on Effectiveness, it will provide a summary discussion on outcomes and the favorable and unfavorable factors the project faced, keeping in mind the highly heterogeneous nature of project countries and of activities undertaken, outputs tackled and therefore results achieved.

⁸ Guinea rather planned it as one activity of Output 1.

Finding 2 – Output 1 and 6. The project contributed satisfactorily to the development of efficient rice production systems in beneficiary countries through adoption of best practices and newly tested or proven technologies. However, except for FFS and Junior Farmer Field and Life School (JFFLS) approaches implemented successfully in some countries, no work was done to study, identify, develop and propose models or approaches to extend or further disseminate and upscale proven rice technologies in different countries.

61. Given the close similarities and complementarities between expected Output 1 and 6 of the project and for the sake of consistency, the evaluation of achievement of both these expected Outputs is done simultaneously. In fact, all activities proposed under Output 6 appear integrated under Output 1. Both Outputs pursue the same expected effect, but where Output 1 focuses on participatory test/demonstration of improved technologies/innovations at small scale, Output 6 focuses on increasing production through the scaling up of those improved technologies, systems and models.
62. The activities assessed under Output 1 and 6 are presented in Annex 4, 5 and 6 and here below as section titles. Each of the eight activities proposed under Output 1 were carried out by at least one country. It is not the case for Output 6 whose one major activity over the three proposed was not carried out by any country. It is a weakness of the project because this missing activity, i.e. "Support the evolution of effective and relevant extension and agricultural development organizations for rice value chain development in Africa", is at the heart of the issues and challenges for innovation processes in the agricultural sector in sub-Saharan Africa. The import of this missing activity is analyzed in more detail in a section devoted to the implementation of FFS and junior farmer field and life school (JFFLS) approaches and other approaches of dissemination and scaling-up of technologies (see Activity 1.7, page 233).
63. The non-establishment of a framework for comparative analysis of the methods and results of the project between countries is also a weakness. However, as mentioned under section 1.4 of the report on limitations, no such framework used to capture project outputs and outcomes and to capitalize on the methods of implementation of activities was created. Though some countries systematically monitored, documented and capitalized on project results, carried out case studies and presented success stories, this was not the case for other countries. Establishing this framework would have improved the overall quality of implementation and facilitated the sharing of good implementing practices between countries. Nevertheless, despite the weaknesses described above, the project developed convincing results on the improvement of rice productivity as detailed below.
64. The project supported and promoted the selection, multiplication and dissemination of improved seed varieties by providing various supports. More than 1 400 kg of breeder seeds, 24 tonnes of foundation seeds and 988 tonnes of certified or commercial seeds have been produced or procured with project funds and distributed to seed multipliers and producers in order to boost their production capacities or demonstrate the potential of quality seeds. No less than 29 seed companies and farmer cooperatives, 1 200 seed multipliers and 5 000 households benefited from project support and contributed to the promotion of improved varieties. More than 64 tonnes of fertilizer were granted to seed producers to support the production of improved seeds using good practices of cropping and fertilization. In these support processes, priority was given to women and young people. Support to the seed sector has enabled more enterprising seed multipliers to obtain seed multiplication contracts with the private sector. This provision led to improve

- the quality and quantity of seeds marketed. Some seed multiplier groups or cooperatives obtained approval or recognition from public services and became registered businesses specialized in seed supply.
65. Thanks to project support, several varieties of rice adapted to different socio-economic, agroecological and climatic contexts were promoted and disseminated, among which 12 varieties including: the 08 Fan 2 variety called Yiriwamalo or "rice of prosperity" and the WAPMO variety in Mali; the New Rice for Africa (NERICA)-L19, NERICA-L56 and ORYLUX 6 varieties in Benin; the FARO 44 and 52 for lowland and NERICA 8 for upland varieties in Nigeria; the Sahel 108 variety in Senegal; the SARO5 TXD 306 variety in the United Republic of Tanzania; the AR 1189 variety in Uganda.
 66. The project provided the following equipment to strengthen production and post-harvest management of improved seeds: one power tiller, two harvesters and two mechanical weeders for the rice research subprogramme in Benin; kits for post-harvest management (winnowers, threshing machines, moisture meters, scales, sewing machines, bags) for rice farmer group in Cameroon; five seed cleaners and five planters for farmer groups in Uganda. The seed conditioning center was also refurbished and equipped in Côte d'Ivoire.
 67. Due to budget limitations, no training nor internship was undertaken at the Songhai Center. However, several training and capacities building (workshops, different in-door and on-farm trainings, FFS, JFFLS) events successfully took place. At least 170 key actors (agricultural advisers, researchers, representatives of producer groups, etc.) saw their capacities strengthened through regional workshops and another 832 actors (mostly farmers and parboilers, but also extension agents and other participants of the rice value chain) attended workshops and training sessions at national levels. FFS and JFFLS approaches have proven effective in supporting learning and capacity strengthening of producers as well as in scaling up proven technologies to a large number of farmers. In the United Republic of Tanzania for example, through the JFFLS approach, 120 youth (60 women and 60 men) were trained on Systems of Rice Intensification (SRI) and, with project support and extension services, the good practices were extended so that by December 2018, more than 600 youth and 2 000 adult farmers had adopted SRI technologies in the Morogoro Region.
 68. As a result of complementary supports of the project (supply and promotion of improved quality seeds, capacities strengthening and sensitization) and other supports to key actors of rice value chain, efficient rice production systems were effectively promoted and productivity increased. The following examples illustrate progress.
 69. In **Nigeria** productivity increase from 1.5 mt/ha to 6 mt/ha is a result of improved seed quality such as FARO 44 and 52 for lowland and NERICA 8 for upland production, which the project promoted. In **Senegal**, the use of the Sahel 108 variety of improved seed, combined with good agricultural practices (nursery, good fertilization and good seed quality) has doubled yields. Thus, a producer in the Mbalancounda village was able to obtain a yield of 3 T/ha, and members of the Baghère village women's group obtained an average yield of 4 T/ha on demonstration plots supervised by the Agricultural and Industrial Development Company of Senegal (SODAGRI). In **Guinea**, beneficiaries whom the project provided with good quality seeds and fertilizers have increased their yields to up to 4 T/ha (against 1.3-2.7 T/ha before) and were each able to give back 50 kg of seed in order to support other farmers, as previously agreed. In **the United Republic of Tanzania**, rice production in project areas doubled from an average of 20 to 40 bags per acre, thereby improving incomes and livelihoods of youth farmers and their families. In

Mali, a young rice farmer produced 2 640 kg of certified seed of the WAPMO variety on 0.5 ha and another one was able to make a net profit of FCFA 3 700 000 with certified seed of the Yiriwamalo variety during their first season.

70. In **Uganda**, five groups selected and supported by the project produced 68 tonnes of certified seed. Namunasa Mixed Farmers Association, a youth and women seed production group, was upgraded to a registered local seed business group while the other four, namely Anara Rice farmers, ZABTA Farmers Group, Oru-kitam Farmers Group and Aber Commercial Farmers became contracted seed growers. Namunasa Mixed Farmers Association, in 6 out of 11 acres designated for seed production, hired external labour for both puddling and for planting rice. The youth group generated UGX 26 million (USD1 = 3671.91 UGX) from sale of seed and spent UGX 4 million in hiring labour for production. ZABTA farmer group hired services for irrigation: a total of 120 farmers generated UGX 10 million for the group. Oru-kitam farmer group provided hire services for land opening, generating UGX 8 million. Aber Commercial farmers produced rice and marketed for the group, and also provided hire services for land opening for farmers generating UGX 9 million.
71. In **Côte d'Ivoire**, the agricultural advisory approach developed provided clustered leaders and rice projects a guideline to advise producers. The area covered by this agricultural advisory approach is currently 2 500 ha, and producers have expressed satisfaction with the deployment of the approach. Also in Côte d'Ivoire, the pilot phase of implementation of the mechanization approach developed to facilitate the establishment of small and medium enterprise (SMEs) providers of mechanized services (PMEA), enabled going from 100 hectares covered by contracted mechanized services to 3 000 ha covered. The contracts signed have enabled PMEA to apply best practices for the management, maintenance and use of equipment. Trained PMEA were able to obtain, the year following their training, the approval of the Agency for the development of the rice sector (ADERIZ). Their activity in the field generated strong interest from the private sector in providing mechanized services. To date, the number of approved PMEAs has increased from five to nine.
72. Looking at the results obtained from the activities implemented, the achievement of Output 1 and 6 are considered Highly Satisfactory, even if this good performance hides disparities between activities and countries as presented below.

Activity 1.1. Promote the production and multiplication of improved rice seeds.

Activity 1.3. Promote the participation of women and youth groups in rice seed production.

Activity 1.8. Promote the development, adoption and dissemination of improved rice varieties (New Rice for Africa, (NERICA), Advanced Rice Varieties for Africa, (ARICA) and others) for rain-fed and irrigated rice production environments.

73. The project has satisfactorily mobilized resources and involved research institutions, agricultural advisory and extension services, non-governmental organizations (NGOs), the private sector and producer organizations to successfully improve the availability of breeder seeds, foundation seeds, certified seeds (or quality commercial seeds), to meet the needs of several different actors and facilitate dissemination and access of these seeds by different categories of producers. All those seeds are from improved varieties of rice and each of them has one or more capacities sought by the various actors of the rice value chain: adaptation to the effects of climate change; resistance to certain diseases; high yield potential; or best organoleptic qualities. To make this process more efficient and sustainable, in some countries the project has also contributed to the well-targeted

strengthening of basic infrastructure and equipment for rice research and development organizations, and to seed producer organizations. Despite some weaknesses, the achievement of activities is considered generally satisfactory as shown by the results of countries that took part in the implementation.

74. In **Benin**, the project contributed to the conservation of plant genetic resources by providing essential lacking equipment. The Rice Research Sub-Program of the National Institute of Agricultural Research of Benin (INRAB) has been reinforced by equipment granted to improve seed production and post-harvest management: one tiller and its accessories; two harvesters and two mechanical weeders; four air conditioners, two data recorders; pallets and boxes for storing accessions/varieties; and one dehumidifier. One of the visible direct effects is that 732 accessions/varieties were renewed and conserved. The project also catalyzed the dissemination of improved varieties already tested and existing at INRAB. 600 kg of breeder seeds and 5 000 kg of foundation seeds were supplied to six seed companies and to 200 seed multipliers. Three climate-change resistant rice varieties, (NERICA-L19, NERICA-L56 and ORYLUX 6) proposed to farmers through demonstration plot were adopted within two years, as expected by the project.
75. In **Cameroon**, the project provided some basic equipment to certain seed producer organizations like SOCOOPRIS: two peeler/grading machines and protective nets for an area of 3 ha; kits for post-harvest management (winnowers, threshers, moisture meters, scales, sewing machines, bags). Through an agreement with the project, 7 tonnes of certified seeds were produced by the Avangane Irrigated Rice Cultivation Pilot Farm (FPRIA-C) and then distributed to producers. A 3 ha plot was set-up by a rice cooperative in Batchenga for the production of certified rice seeds with project support. A participatory varietal selection of over 200 varieties of rice obtained under the KAFACI AfricaRice initiative, and adaptability tests were conducted by the Institute of Agricultural Research for Development (IRAD). However, the request of additional information to the project national coordination on the outcome of the above-described activities remained unanswered.
76. In **Côte d'Ivoire**, 480 seed multipliers (30 seed multipliers from 16 cooperatives) were trained by AfricaRice. The project granted 5 tonnes of urea, 6 tonnes of NPK and 3 drying tarpaulins to the best seed cooperative (best over a period of two years: Cooperative of rice producers in Yamoussoukro, COPRORIZ) to support its efforts in the production and seed supply to farmers. The seed conditioning center was rehabilitated and received small equipment (100 storage pallets, 25 hand trucks). Also, 25 drying tarpaulins in total were distributed to 15 other cooperatives which participated in trainings. However, the project did not measure nor document the effect or added value of this support on certified seeds supply for producers.
77. In **Guinea**, 400 households, including young people and women, benefited from a total of 4 200 kg of CK variety seeds, 6 300 kg of M6 variety, 17 500 kg of Kaolack variety, 40 tonnes of NPK and 20 tonnes of urea to strengthen their rice productivity and help build an improved-seeds seed-bank. Each household thus received 70 kg of improved rice seeds and 150 kg of fertilizer. This support enabled beneficiaries to increase their yields up to 4 tonnes (against 1 300 to 2 700 kg/ha before). Also, the beneficiaries were able to return an average of 50 kg of good quality seed at the end of the agricultural season as agreed, which helped provide improved seeds to other farmers through the prefectural directorate of agriculture.

78. In **Kenya**, the process of supporting production and maintenance of breeders' seed by national research centers was started but not achieved due to lack of facilitation. Hybrid seeds were purchased, a rice seed and variety handbook was developed and the Rice Researchers Forum was convened and attended by rice researchers the universities, KALRO, NIB and seed companies among others.
79. In **Mali**, 2.4 tonnes of foundation seeds were distributed and used to grow 135.48 hectares of seed plots and to produce 262 tonnes of certified seeds, representing respectively completion rates of 79 percent, 339 percent and 127 percent of targets. Also, 26 varieties of rice were listed by the Institute of Rural Economy (IER) among which 12 new and adapted varieties were chosen and disseminated. Several of these varieties, appreciated by producers, are currently used in all seasons. As mentioned previously, the eight Fan 2 variety also called Yiriwamalo or "rice of prosperity" introduced in the rice perimeter of Kontaga region of Mopti enabled a young seed producer to make a net profit of FCFA 3 700 000 (USD 1 = FCFA 594.97) F with certified seed of the Yiriwamalo variety during his first season. Similarly, a young rice farmer produced 2 640 kg on 0.5 ha of certified seed of the WAPMO variety, another variety introduced by the project. Also in Mali, the project trained 134 seed producers (including 27 women and 38 young people) who produced 552 tonnes of certified seeds and 4 020 tonnes of paddy rice, which corresponds to respective completion rates of 100 percent, 230 percent and 495 percent. The project also supported 750 small farmers (including 191 women) and strengthened capacities of 27 supervisors (including one woman) and 8 heads of sector. Similarly, 12 women's groups were trained and supported and 20 young people (14 men and 6 women) were selected, trained and provided with small materials, and produced 76 tonnes of certified seeds. The 20 young seed producers in the project intervention area have formed a federation. According to the project terminal report stakeholders in the rice value chain, in particular representatives of producers and the administration leaders of the Kayes region, have all recognized the importance of project support in popularizing good quality seeds and good practices that have led to improved rice productivity.
80. In **Nigeria**, 301 seed producers were trained in partnership with AfricaRice and endowed with a 50 kg of quality rice seed starter pack each. A total of 15.05 metric tonnes of rice seed was distributed to six states in Nigeria (Abia, Anambra, Edo, Ekiti, Jigawa, and Nasarawa). In Targeting youth, in addition to support with motorized weeders and reapers, which reduce the arduousness of weeding and reaping work, the project established rice production as a profitable business. As a result, youth now engage in seed and paddy production as entrepreneurs. Quality rice seeds are now more readily available to rice farmers due to the increased capacity of commodity-based seed producers. Overall rice productivity in country increased from 1.5 mt/ha to 6 mt/ha through the project's promotion of improved quality seeds (FARO 44 and 52 for lowland and NERICA 8 for upland).
81. In **Senegal**, 10 tonnes of rice seed of the Sahel 108 variety were distributed during the 2018 campaign under the supervision of SODAGRI. The Mbalacounda village visited by the evaluation team benefited from 5 tonnes of certified seeds distributed to 240 producers from the village and from 12 other neighbouring villages. According to producers, the use of certified seeds combined with good agricultural practices (for example the use of nurseries) have helped them improve their yields. They obtained average yields of around 3 tonnes/ha: double their common yields as a direct result of the project. Other projects that subsidize fertilizers also began supporting seed supply. Considering fertilizers are subsidized, the evaluation questions the sustainability of this

approach and highlights the need to model existing or potential options for rice value chain support in Senegal. The evaluation team has found that producers trained by the project continue to use good agricultural practices, but that when inputs are not subsidized, they use lower than recommended dosages depending on their fertilizer purchasing capacity (see section under Evaluation Question 4).

82. In **the United Republic of Tanzania**, the JFFLS approach was successfully used to disseminate SRI including the improved-variety seeds of SARO 5 TXD 306. By December 2018, the adoption of SRI technologies in the Morogoro region had reached more than 600 youth and 2, 000 adult farmers. Rice production in project areas has doubled from an average of 20 bags to 40 bags per acre. Further recognition of results include that one of the younger farmers trained by the project on SRI, won the Best Farmer Award in Kilosa district and in the overall Morogoro region in 2017 for increased rice production. And Kaza Mwendo, one of the groups formed through the project under the Njage Irrigation Scheme in Kilombero district won the Best Seeds Production Award by the national Agricultural Seed Agency (ASA) in 2016, 2017 and 2018 consecutively. Awareness raising among farmers regarding access to improved seeds and seed multiplication has occurred. The Agricultural Seed Agency led this activity, allowing 135 farmers and 16 extension officers to better understand improved rice seeds, how to access the seeds themselves and how to engage in seed multiplication activities.
83. In **Uganda**, a total of 2 500 kg of breeder seed were provided to 5 selected farmer groups. Then, a total of 2.1 tonnes (1.1 tonnes in 2017 and 1 tonne in 2018) of breeder seed, 5.2 tonne of foundation seed and 68 tonnes of certified seed was produced by these farmer groups. Laboratory test results were made available before marketing was conducted. The seed growers were availed labels for quality declared and for certified seed production, and 11 acres were declared suitable for seed production. These achieved results are in line with targets. Two success stories were documented. First, seed production and marketing by one seed group based in Butaleja, and the second on youth engagement in provision of services through mechanization and irrigation among a second farmer group, the Luweero group. The distinctness, uniformity and stability test (DUS) was conducted for two seasons (January-June 2018 and July-December 2018) and variety released document prepared and submitted to the varieties release committee. Subsequently, two rice varieties namely DU 363 earlier introduced under the South-South Cooperation arrangement and another variety ARIZE 6444 Gold were released in the country. The story of Namunasa Mixed Farmers Association (59 members of which 17 are women) located at Doho scheme within Butaleja district, who received training between May 2017 and December 2017, illustrate the direct benefits of the project. Before, they had been growing land varieties (K85, K5, K23) giving only 800-1 200 kg per acre and with poor grain quality (high breakage, small grains). There was only one seed grower, selling between UGX 5 000 to UGX 10 000 per kg (USD1 = UGX 3672.94). After the training, average yield rose (from 800-1 200 kg per acre) to 2 000-2 500 kg per acre. Up to 40 bags (4 000kgs) of grain were harvested from every 30 kg of seed. Total seed produced in the second season was 9 700 kg with 5 000 kg from 2 acres of AR1189 and 4 700 kg from 3 acres of WITA-9 purple. The seed was sold within a range of UGX 3 500 to UGX 5 000 per kg as opposed to UGX 5 000 per kg to UGX 10 000 per kg as previously. Variety AR 1 189 was reported to be bigger than WITA-9 and its size preferred. Also, the variety AR 1 189 did not break during milling. Farmers prefer AR 1 189 to WITA-9 both because this variety gives higher yields in terms of production and because of its grain size.

Activity 1.2. Facilitate awareness creations and sensitization on use of proven best practices and improved technologies.

Activity 1.6. Support training/internship at the Songhai Centre, Benin and other places for selected young farmers from each of the target countries.

Activity 6.3. Strengthen the capacities of women and youth to participate more effectively and profitably in the rice value chain.

84. At regional and national levels, the project in partnership with AfricaRice, International Rice Research Institute and other national partners, organized several international workshops to strengthen the capacities of key players in the rice value chain (see Annex 8). One of the positive points to mention in the training process with regard to the selection of participants is that the Government of the countries, the project's national coordinations and Country Representation worked together to ensure that beneficiaries were those with the best skills to: acquire the new knowledge; share it with other national actors; and develop those skills to improve their own work and contribute to the development of the rice value chain in their country. These players included government officials, researchers, advisory and extension staff, private operators, producer organizations, women and youth organizations, producers, and processors from different countries. In Kenya for example, three officers participated in training on harvest and post-harvest handling of rice; in Senegal, two officers participated in rice breeding and agribusiness training; and two Senegalese officers attended a training in the Philippines on rice technology, gaining experience in Asia to develop their capacities on sustainable rice value chains. The knowledge and information acquired were disseminated to implementers. For example, the knowledge acquired in the training in Senegal was shared through a similar training with 16 extensions officers drawn from three counties: as a result, one producer group in Kenya is now doing Parboiling in Mwea. The beneficiaries of these training workshops, interviewed in Senegal and the United Republic of Tanzania by the evaluation team, acquired new knowledge useful to their work as advisers or producers.⁹ However, as mentioned previously, budget limitations prevented training and internships at the Songhai Center.
85. **Workshops organized at regional level.** A regional knowledge exchange on the promotion of efficient rice farming practices and value chains in sub-Saharan Africa was organized from 7 to 11 August 2017 in Ghana with 40 participants from ten countries and technical partner institutions involved in the implementation of the regional project. It was agreed that documenting the rice value chain experience from the countries and the programmes would help disseminate and share good practices in the region.
86. A regional training workshop took place on Rice Breeding and Agribusiness in Rice Value Chain at AfricaRice Regional Training Center in Senegal in December 2017. It involved 28 trainees from 11 countries (Benin, Burkina Faso, Côte d'Ivoire, Cameroon, Guinea, Kenya, Mali, Nigeria, Senegal, the United Republic of Tanzania and Uganda), 10 of whom were women. This training enabled participants to take part and play leadership roles in agricultural research and agribusiness pertaining to rice value chains in their respective countries. The training workshop also provided the opportunity to learn from South Korea and for countries to share their experience in rice sector development. Indoor courses

⁹ In the United Republic of Tanzania, one beneficiary from the training held in Senegal told the evaluation team his newly acquired skills serve him daily in his work as agricultural adviser. In Senegal, some young people trained by AfricaRice have been recruited by SODAGRI as agricultural advisers.

were completed with field visits at AfricaRice research station, Compagnie Agricole de Saint Louis (CASL) in Ross Bethio, CMG Agro-industries in Saint Louis and Agritech in Saint Louis. Still in Senegal, another training session was organized on new methods, technologies, best practices and tools for sustainable rice harvesting and post-harvest management from 10 to 14 September 2018 in Saint Louis.

87. RiceAdvice is a decision-support app developed by AfricaRice. Youth training workshops on RiceAdvice service provision for rice cultivation by small-scale farmers combining lectures, interactive discussions and practical exercises was implemented by AfricaRice from July to September 2018 in Burkina Faso, Mali, Nigeria and Senegal. 63 young people from farming communities and public extension agents (30 in Nigeria, 10 in Mali, 10 in Senegal and 13 in Burkina Faso) including 14 women (22 percent) participated. Out of the 63 trainees, 60 were selected at the end of the training for field deployment through other AfricaRice projects and they all received a tablet configured with RiceAdvice to provide recommendations to farmers. The training enhanced capacity of youth for providing RiceAdvice service to small-scale farmers and helped them acquire new knowledge and technology to use in their new business.
88. A training workshop was organized on Rice Technology and Experience in Asia for Developing Capacity for Sustainable Rice Value Chain from 25 June to 6 July 2018 through a joint collaboration between FAO and IRRI. Through a combination of classroom activities, hands-on field exercises and laboratory visits, the 27 participants (21 males and 6 females) from 11 African countries, namely Benin (2), Burkina Faso (3), Cameroon (1), Côte d'Ivoire (5), Guinea (2), Kenya (2), Mali (2), Nigeria (5), Senegal (2), the United Republic of Tanzania (2) and Uganda (1) learned about modern rice breeding techniques and sustainable rice production, interacted with agribusinesses in Asia, gained understanding in rice seed production and distribution systems, prepared themselves for participation in multi-environment varietal testing network in Africa, and prepared an action plan for implementation upon return to home country.
89. **Workshops organized at national level.** A training was organized in December 2017 by AfricaRice in **Côte d'Ivoire** to equip women of Gagnoa with improved parboiling technologies and skills. The resource persons from AfricaRice, FAO, Centre National de Recherches Agronomiques (CNRA), Agence Nationale d'Appui au Développement Rural (ANADER), Office National de Développement de la Riziculture (ONDR), Gagnoa rice platform, partook in the training of 20 parboilers women from two women associations on better parboiling practices.¹⁰ At the end of the training workshop, rice stakeholders in Gagnoa formed an oversight committee to ensure the proper utilization and management of equipment received. The beneficiaries (women parboilers) immediately put in practice the learnings and have even improved/adjusted parboiling procedure. As a result of AfricaRice and FAO intervention, the quality of parboiled rice from Benkadi and Yorominata women groups in Gagnoa has significantly improved. As reported by the oversight committee, their parboiled rice sold out faster than before and generated higher incomes.

¹⁰ Beneficiaries learned good parboiling practices (winnowing, washing, soaking, steaming, drying and milling), how to recognize good quality paddy for a better parboiled result, how to control grain humidity using a moisture meter, and how to use rice husk as a parboiling source of energy. Participants were also sensitized about prioritizing quality over quantity to secure higher sale prices and to build credibility.

90. Also in Côte d'Ivoire, capacity building of small- and medium-sized mechanized service provider at Grand Lahou, on the use and maintenance of the tiller, mower, thresher, and the technical and financial management, maintenance and repair, have made it possible to improve PMES's planning capacity of work on plots, their maintenance, management and use of the equipment received. It is worth noting that these trained PMEAs were able to obtain the approval of the Agency for the development of the rice sector the year after their training. Their activity in the field has aroused strong interest from the private sector in providing mechanized services. To date, the number of approved PMEAs has increased from five to nine.
91. In August 2018 in **the United Republic of Tanzania**, the Rice Council of the United Republic of Tanzania organized a knowledge management and information sharing workshop between rice value chain actors in three districts (Mvomero, Kilosa, and Kilombero). The objective was to address the knowledge management and information sharing gaps that exist among the rice value chain actors in the three districts. A total of 170 participants attended the workshop (97 men and 73 women).
92. In **Nigeria**, in partnership with AfricaRice, the project provided technical assistance for the transfer of rice seed production technologies to farmers in the selected states (February-March 2017). Training workshops were organized for 50 seed producers (male, youth and women) from each of the six participating states coming to a total of 300 trainees from those states. The training included a series of classroom lectures on principle of seed production and field practical sessions on preparation of nursery beds and setting up of demonstration plots in each of the selected states. The project supported the establishment of 18 demonstration plots by AfricaRice in the 18 project sites across the six project states to enhance farmers' skills in new rice production technologies, increase rice production and productivity, and enhance adoption of new proven technologies. Each demonstration plot was monitored by each state in collaboration with the state Agricultural Development Programme (ADPs) with backstopping visit from AfricaRice and Federal Ministry of Agriculture and Rural Development (FMARD) team. Following this training, the project also distributed 50 kg of quality rice seed to each of the trained farmers as a starter pack. A total of 15.05 metric tonnes of rice seeds was distributed by AfricaRice to the six FAO States. It was expected that from 50 kg of breeder seed, the trainees would produce foundation and certified seeds. Also in Nigeria, capacity building of 180 rice farmers and small-scale rice millers, mostly youth and women, was done in four states between 5 and 26 March 2018 (over six days per state) by the project in partnership with Minaaz Agro Services Ltd on post-harvest, processing (improved parboiling technology) and utilization of rice-based value added products.
93. In **Mali**, the project organized eight training workshops for 27 agents and 125 seed producers on: irrigated rice cultivation with technical water control (Ségou, Niono, San and Mopti divisions) for 75 producers (including 10 women, 22 young) and 15 supervisors; rice cultivation in flooded bottomlands (Kayes and Kita divisions) for 25 producers (including nine women and nine young) and six extension agents; rain-fed rice growing (Sikasso and Bougouni divisions) for 25 producers (including eight women and eight young people) and six extension agents. Also, eight training and information workshops were organized for agents and smallholder rice farmers on the use of improved/new best practices in: irrigated rice cultivation with technical water control (Ségou, Niono, San, Mopti divisions) for 100 producers (including 14 women) and 13 supervisors; rice cultivation in flooded bottomlands (Kayes and Kita) for 50 producers (including 18

- women); and 8 extension agents; rain-fed rice growing (Sikasso and Bougouni) for 50 producers (including 19 women) and 7 agents.
94. Other trainings and exchange visits organized in Mali include: one training workshop in Ségou for 20 young people on the production, certification and marketing of rice seeds; one exchange of experience visit to Kita on the new varieties released bringing together in Bérenimba, the rice farmers of Founia Bérédala, Kita Nord Boudefo and Bérenimba; two exchange of experience visits on the intensification of rain-fed rice cultivation in the Sikasso region - one at Bougoula Hameau; one in Kassanso ; one exchange visit of inter-regional experience in Mopti region by one young seed producer from Kayes region on the use of the motorized thresher. A similar equipment was also provided to this young seed producer.
95. In **Senegal**, 50 young people have seen their capacities increased through training in rice production techniques and agricultural entrepreneurship by AfricaRice; some of these beneficiaries are now working as advisers for SODAGRI.
96. In **Guinea**, a training was organized for NGOs and Prefectural Directors of Agriculture (DPA) involved in the implementation of projects at the local level. With the support of rice cultivation experts in the various agro-ecological zones of the country, identified technologies were widely disseminated through training modules organized by the project coordination. Tools on good agricultural practices were distributed to implementing partners and to the 400 households benefiting from the project.
97. In Benin, the project supported four actors from Benin (two managers of rice producers, one researcher and one extension manager) to carry out a study trip to Uganda on the management of cooperatives and the empowerment of farmer organizations. Also, eight actors from Côte d'Ivoire (six women rice parboilers, one staff of the project coordination and one staff of the GCP/497/ROK project) had the opportunity to attend an exchange trip in Benin on parboiling rice.

Activity 1.4. Disseminate innovative and sustainable production processes in Africa through the dissemination of training materials.

Activity 1.7. Through the FFS and JFFLS model, farmers, extension officers, trainer of trainers will be introduced to new rice production methods.

Activity 6.1. Support the identification, dissemination and adoption of proven, improved and appropriate rice production technologies for sustainable rice production intensification in Africa.

98. The project satisfactorily identified proven, improved and appropriate rice production technologies for sustainable rice production intensification, and elaborated technical documents, developed training tools, and implemented proven approaches such as FFS and JFFLS to support the dissemination of innovative and sustainable production processes in the benefiting countries. The project developed and disseminated a great number of information, awareness and training materials and technical documents including five agricultural extension documents in **Benin** (three respectively on rice production on the plateaus, shallows and irrigated plots; one on the system of rice intensification; and one on the production of quality seeds) one guide document for the agricultural adviser and one manual of rice farmer in **Côte d'Ivoire**; one Rice Technologies Handbook and one Rice Varieties Information Book, six brochures (Irrigated Rice Agronomy, Rain-fed Rice agronomy, Rice Seed System, Rice Milling, Information on the activities on the Rice Promotion Programme) in **Kenya**; five thematic booklets for a wide dissemination of technologies and 16 radio messages for broadcasting in **Mali**; 150 copies

of training materials for 120 youth engaged in SRI learning and adoption through JFFLS approach and a TV shows on project's success stories through STAR TV and YOUTUBE under a special programme known as KILIMO BIASHARA in **the United Republic of Tanzania**; one technical document on the small- and medium-sized enterprise approach to the provision of mechanized services integrating promotion of youth employment and one document of the pilot project for implementation of this mechanization approach in **Côte d'Ivoire**; a total of four talk shows were conducted to provide awareness on the project, production methods, information of seed and new rice varieties, and 3 000 brochures were produced and distributed in **Uganda**. In **Mali**, the broadcasting of radio messages along with reports of visits to the fields created high demand for varieties that were well appreciated at the local level. Already in 2018, the seed productions of certain farmers were completely ordered before certification. In mid-December 2019, a demand for the Sahel variety from Senegal was registered for off-season rice cultivation during 2020 in the Mopti region.

99. However, the edition, multiplication and distribution of these booklets in some countries (example: Côte d'Ivoire, Guinea and Mali), though reprogrammed during the extension period, was not done due to hasty accounts closure by the Regional Project Coordination. In Mali, the production of media materials (five Kakemonos, five banners, 200 leaflets, 300 notebooks of 200 pages) and one TV sketch on parboiled rice planned was not achieved due to lack of resources.
100. Several trainings approaches were undertaken for final producers, among which JFFLS and FFS have proven effective in terms of technologies dissemination, productivity increases, and life skills enhancement.
101. In **the United Republic of Tanzania**, the JFFLS approach was successfully used to train 120 youth (60 women and 60 men) on SRI. With assistance, youth also installed demonstration plots through allocation of funds for plowing and harrowing of these plots and procurement of agricultural inputs (750 kg of high yield variety rice seeds (SARO 5 TXD 306) and 80 bags of fertilizers). The capacity of 288 youth farmers, extension officers and government agriculture experts was also strengthened on the use of improved seed varieties and rice breeding. Tangible effects and outcomes are visible, well explained and demonstrated by youth encountered during the evaluation mission. These beneficiaries enhanced their life skills and entrepreneurship capacities through the JFFLS approach training and adopting the newly-acquired knowledge.
102. Young farmers having adopted SRI technologies in Morogoro (see paragraph 77) are now hired to provide extension services and training to other farmers even beyond project areas. Many of them (600 youth) have started different income generating activities besides rice farming including, among others, building houses for rent, hair dressing salons, motorcycle taxi business and livestock keeping. Rice production in project areas has doubled from an average of 20 to 40 bags per acre and therefore improved incomes and livelihoods of the youth farmers and their families through construction of better houses, paying school fees for children and affording health insurance costs. Several success stories confirm the good results of the project (see Annex 9**Error! Reference source not found.**).
103. In **Nigeria**, 18 demonstration plots were established by AfricaRice in the 18 project sites to enhance farmers' adoption of new proven technologies like SRI and the use of improved seeds. In the Rice Training Center in Ndoumba/Nkoteng, **Cameroon**, the project planned to popularize the school field approach, including trainings and visits,

distribution of illustrated manuals on rice growing developed by different projects and introduction of the SRI. Two sessions of FFS were organized to train farmers in partnership with another project (FPRIAC project). However, the request of additional information to the National Project Coordination on the content of the training, its quality, beneficiaries and effects, went unheeded.

104. In **Senegal**, the project capitalized on the FFS approach established by another FAO project (TCP/SEN/3504 "Support for rain-fed rice cultivation in Senegal through Farmer Field School (FFS) approach)" in partnership with the Agricultural and Industrial Development Company of Senegal to disseminate good rice-growing practices. The project uses SODAGRI's advisory services regarding integrated rice management, using an extension device made of eight agricultural advisers and 63 relay facilitators. These relay facilitators were recruited from young dynamic farmers in the community and trained by agricultural advisers and master trainers of farmers field school. Each relay adviser takes care of 15 to 45 villages by managing five FFS. The project further strengthened their capacities through two training sessions given by AfricaRice on integrated management of rice systems, one for agricultural advisers and one for relay facilitators. Farmers interviewed show great interest in the FFS approach and hope that FAO and partners will help pursue it to consolidate and spread achievements to other villages and municipalities.
105. In **Uganda**, three season-long training sites were established in three locations (Namulonge, Olweny Irrigation Project and Doho among Namumasa Mixed Farmers group). Lead farmers from the five projects sites and nearby rice farming communities were invited to fields where rice was planted in a staggered pattern. A total of 521 farmers, extension staff and NGO facilitators attended the in-field, hand-on trainings. Overall, three sets of trainings were conducted covering: i) management of seed production fields; ii) mechanized land preparation and seed cleaning; iii) post-harvest management of rice seed. Three direct effects/benefits from this training include: one group was upgrade to be quality seed producer under the Netherlands funded ISSD rice project; the volume of seed increased; all seed samples taken passed as quality seed after testing in the laboratory.
106. In **Mali**, FFS approach was used to demonstrate SRI and surface water conservation technics on rain-fed rice plots. The project developed a summary document on good improved/new production practices; trained 750 smallholders, compared to the original 200 planned (375 percent) including 191 women; accompanied 27 supervisors; trained 12 women's groups, and supported the establishment of 456 ha of rice, including 134 ha for seed production.

Activity 1.5. Support extension capacity building to increase access to mechanization technologies, irrigation and agricultural water management facilities and production inputs.

Activity 6.2. Support the evolution of effective and relevant extension and agricultural development organizations for rice value chain development in Africa.

107. In the majority of countries engaged in Activity 1.5, the project mostly procured small mechanization equipment to farmers groups: power tillers; hydro-tiller; line markers, push-weeders; motorized weeders; manual rice transplanters; mowers/harvesters; cleaners; etc. The use of these machines and the advantages observed generated great interest in beneficiaries for the small mechanization of specific cultivation operations. Beyond the focus on procurement of equipment, Côte d'Ivoire has been more ambitious in working on the development and testing of a model for the provision of mechanization

services by small- and medium-sized enterprises. Overall, each country carried out the actions planned well.

108. In **Côte d'Ivoire**, the document for the small- and medium-sized enterprise approach to the provision of mechanized services integrating the promotion of youth employment was developed, as well as the project document to implement the mechanization approach .The pilot phase was implemented with eight companies. These PMEAs benefited from five training courses given by the Training Center in agricultural machinery (CFMAG) on the use and maintenance, and technical and financial management of equipment. This pilot phase of the approach made it possible to go from a hundred hectares covered in mechanization under contract to 3 000 ha covered in the provision of mechanized services under contract. The contracts signed have enabled PMEAs to apply good rules for the management, maintenance and use of equipment. They also improved their plots, work planning capacities, and the respect of commitments made with producers.
109. In **the United Republic of Tanzania**, the project procured and distributed various gender-sensitive, time and labor-saving farm inputs including line markers, push-weeders and manual rice transplanters. In **Kenya**, machineries were procured and delivered to beneficiaries : two rice mills, five rice graders, six fertilizer applicators, 12 single row motorized weeders, 16 paddy push weeders, ten spring dial scales and two digital weighing balances. In **Uganda**, four power tillers, one hydro-tiller, five cleaners and six planters were procured and used in training seed growers. Training was conducted on mechanized land opening, planning and weed management among all target farmers groups namely Namunasa Mixed Farmers Association located at Doho scheme within Butaleja district, Namunasa Mixed Farmers Association farmers group in Butaleja, Anara Rice farmers group in Alebtong, ZABTA farmers group in Luweero, oru-kitam farmers group in Nwoya and Aber Commercial farmers in Oyam. In **Nigeria**, power tillers and weeders were procured and distributed to cluster farmers to ease land preparation activities. In **Mali**, the project provided equipment to beneficiaries: five rice threshers; one tiller; four motorized rice mowers/harvesters; 20 weeding machines (contained in the kits offered to young seed producers). All beneficiaries were trained in using and maintaining equipment.
110. Overall, Output 1 and 6: Activities undertaken under the Output 1 and 6 have overall been successful and have contributed to the stated output. However, the project did not carry out a major activity expected in Output 6 related to the evolution of extension and agricultural development organizations in Africa. Seen as "A set of approaches and devices to provide support to farms and their organizations in managing production (choice of techniques, work organization, etc.), economic management of the farm and collective structures (producers organizations, cooperatives), management of a territory's resources (natural, financial, labor), and the acquisition and mastery of skills and knowledge", agricultural advice is complex and requires constant adaptation to the challenges, contexts and objectives pursued.
111. A variety of advice systems and approaches exist today (farmers' field schools, management advice for family farms and producer organizations, innovation platforms, farmer-to-farmer advice, etc.). According to Faure *et al.* (2019) "the advice approach chosen depends on the complexity of the problem to be solved and the type of solution desired". It was therefore necessary for the project to develop or test and propose suitable models for the dissemination of innovation contributing to the improvement of productivity along the rice value chain in different countries and contexts (agro-environmental, socio-economic, institutional, etc.). Successful use of the school fields

approach in some countries such as the United Republic of Tanzania suggests it would be worthwhile to study the conditions for its sustainable integration into the support mechanisms for innovation processes in agriculture both in general and in the rice sector. The overall assessment for Output 1 and 6 is Satisfactory.

Finding 3 – Output 2. Actions contributing to increase production and productivity along the value chain have been successfully conducted but without leading to development of real and functional agribusiness models integrating the key links of the value chain.

112. In addition to capacities strengthening of the actors along the rice value chain (Finding 3), the project also intervened to connect various actors and create synergies between the different links of the rice value chain. Actors were trained on practices of parboiling, rice upgrading, and on creation of innovation platforms. Those trainings led to better rice processing by benefiting women groups, and to the creation of functional platforms involving youth. The project also supported the creation or revitalization of innovation platforms for rice development. Value chain analyses were undertaken in some countries to complement existing knowledge in NRDSs. With the exception of Côte d'Ivoire and Senegal, no country developed a comprehensive agribusiness model, nor did any carry out specific activities supporting political and institutional reforms. In Côte d'Ivoire the project satisfactorily developed the mechanization approach based on the involvement of the private sector in the exploitation and management of agricultural equipment in order to sustainably meet the needs of rice farmers through the establishment of PMEAs (see Paragraph 108). In Senegal, a public-private partnership was signed between the Government and a private company to pull up the rain-fed rice value chain.

Activity 2.1. Support capacity building of participants in the rice value chain.

113. In **Benin**, to support capacity building as planned, the project developed a technical manual capitalizing good practices in rice processing, trained 30 rice parboilers from ten processing groups on good practices for parboiled rice production, and trained 30 rice-processing women from six groups on how to add value and promote the consumption of broken rice. A study trip to Uganda by representatives of Beninese rice producers' organizations also took place. A documentary targeting rice value chain actors was produced to inform and raise awareness on the objectives and achievements of the project.
114. In **Kenya**, actors and missing links in the rice value chain were identified through a baseline study between three counties and awareness was raised on existing quality standards. The information collected was useful during the preparation of NRDS 2 (2019-2030), and also triggered the need to create a rice millers association and strengthen existing farmer groups for improved production and marketing. Awareness on existing quality standards was raised in all three counties as standards are observed and enforced. The project also planned to mobilize farmers into groups for sustainable rice production but this was not achieved due to lack of facilitation.
115. In **Mali**, the study of agro-food models had identified the capacity building needs of participants in the Rice Value Chain. In response, the project organized three workshops (Sikasso -Ségou - Bamako) where 90 actors were trained on the value chain. One other workshop was organized in Bamako to promote effective participation of the private sector in the rice value chain. This led to a reduction in the information gaps between actors, and especially between producers and wholesale or intermediate buyers. Information on input supply points was widely disseminated, and concerns of the Consumers Association of Mali (ASCOMA) addressed. However, the lack of funds did not

allow the purchase of equipment, including air blowers, parboilers, tarpaulins and hullers, necessary to further build the capacities of actors.

116. In **Uganda**, the five farmer organizations supported by the project (Namunasa Mixed Farmers Association located at Doho scheme within Butaleja District, Anara Rice farmers group in Alebtong, ZABTA farmers group in Luweero, Oru-kitam farmers group in Nwoya and Aber Commercial farmers in Oyam) were trained to strengthen their organization. The training covered farming as a business, which includes book keeping and marketing and was conducted twice for each organization. After training, farmers clearly accounted for their efforts and presented evidence of profit accrued each season. A total of 409 individuals benefited through participation, visits and consultations (15 district officers, 460 farmers and 34 representatives of rice millers).
117. In **Nigeria**, as presented in Output 1 (See Paragraph 92), in March 2018 and in partnership with Minaaz Agro Services Ltd, capacity building of 180 rice farmers and small-scale rice millers, mostly youth and women, was strengthened in terms of rice post-harvesting, rice processing and rice-based value added product utilization increase incomes. 500 manuals on agribusiness models and improved parboiling technology and packing were developed and distributed to all beneficiaries during training workshops.
118. In **Cameroon**, the project trainings strengthened producer organizations' capacity in entrepreneurship and in appropriation of OHADA law relating to the rights of cooperatives. The four existing rice producer organizations' legal status (SOCOOPRIM 32 members, SOCOOPRIN 36, RIBACOOOP 36, and SOCOOPRIS 37) was formalized through drafting and recording onto administrative records legal texts. The project supported the acquisition of cooperative community equipment but did not set-up innovation rice development centers in Upper Sanaga and/or Santchou as planned. Requests for further explanation on relevance, achievements and outcome of activities went unheeded by the project national coordinator.

Activity 2.5. Support the creation of innovation platforms for rice development in Africa.

119. In **Benin**, the project carried out an inventory of innovations platforms put in place by the National institute of Agricultural research and AfricaRice in 2015-2016. It strengthened the capacities of three innovation platforms (Malanville, Glazoué and Bantè) on good agricultural practices for rice production, on management of innovation platforms and on bookkeeping practices. A total of 133 producers were trained.
120. In **Guinea**, 25 active actors of the rice value chain (producers, parboilers, huskers, transporters, traders) were trained on the establishment of both an innovation platform and business relationships, leading to the effective implementation of five innovation platforms. The innovation platform of BOKE is particularly dynamic, especially through the Koba mini-rice mill and its part in the rice value chain transforming Koba into a convergence pole.

Activity 2.6. Promote effective private sector participation in the rice value chain.

121. In **Côte d'Ivoire**, the mechanization approach developed is based on the involvement of the private sector in the exploitation and management of agricultural equipment in order to sustainably meet the needs of rice farmers through the establishment of PMEAs. After the five initial PMEAs trained, four others followed. The skills acquired from this training and the approach developed made the players in this field (producers-PMEA) responsible for respecting their commitments. Plots covered by mechanized contracted services are increasing: this gives producers access to agricultural loans within financial institutions, in

particular la cooperative d'epargne et de credit (COOPEC), and the PMEAs thus formed are in the process of obtaining credit lines specific to their activities.

122. In **Senegal**, the project facilitated a partnership agreement between the National Rice Self-Sufficiency Program and the Sahelian Company for Distribution and Agro-Business (SEDAB) to install and manage the mini-rice mill provided by the project. This public-private partnership agreement was signed on 28 August 2017 between the Ministry of Agriculture and SEDAB with the Government's strong belief SEDAB will become a major actor that will pull up the entire value chain of Senegalese rain-fed rice systems. It is worth noting that around thirty rice development models already existed in Senegal for irrigated and motorized rice cultivation, whose producers have access to the agricultural bank's rural credit. Nevertheless, no formal development model existed for rain-fed rice cultivation that is based on traditional production system. The results of the model proposed by the project will serve as a guide to Government to develop other relevant models for rain-fed rice cultivation. In addition, **Senegal** also developed a 40-second audiovisual spot promoting the consumption of local Senegalese rice.
123. **Nigeria** planned to support group formations for rice out growers and to link these groups to offtakers and financial institutions to facilitate their access to credit facilities. Nigeria also sought to implement activities to facilitate access to affordable capital for smallholder farmers. The evaluation team did not find evidence of achievement.

Activity 2.7. Support learning, knowledge management and sharing between rice value chain

124. **Kenya** held the National Rice Forum and stakeholders debated and prioritized the challenges in the sector. In **Guinea**, the project supported learning, management and knowledge sharing within the rice value chain; thus five implementing partners, all NGOs, were recruited and trained, as were 25 rice producers and five Prefectural Directors of Agriculture. In **Nigeria**, the project supported learning and knowledge management between rice value chains. In **the United Republic of Tanzania**, a two-day workshop conducted in each of the three districts, namely Mvomero, Kilosa and Kilombero districts in the Morogoro region, sought to create equal opportunities for key actors along the rice value chain and to improve rice production for food security and economic growth. More specifically, capacity and awareness were enhanced in 105 men and 71 women in terms of knowledge management and of information sharing among key stakeholders in the rice value chain. The workshop was gender-sensitive, providing equal opportunities to women, men and youth to express their challenges and achievements along the rice value chain. In **Cameroon**, support for learning, management and knowledge sharing within the rice value chain was planned but not achieved.
125. Overall, Output 2: Three key activities proposed by the project under Output 2 were not planned nor undertaken by countries, namely: Facilitate access to affordable capital for smallholder farmers (Activity 2.2.); Support establishment of transparent and accessible markets and increased distribution (Activity 2.3.); and Support improved enabling environment through policy and institutional reforms (Activity 2.4.). This activity was also undertaken by some countries under Output 3 (Activity 3.3) where it will be further discussed. Taking into account only planned activities, Output 2 is only deemed Moderately Satisfactory in terms of achievement, as is its related Outcome.

Finding 4 - Output 3. The project has developed/promoted options for effective policies, institutions and markets satisfactorily at regional level, but moderately unsatisfactorily at country level.

126. Four activities were proposed as a means to develop this output: Engage early-on with subregional, regional and global partners to ensure harmonization with existing regional policies and initiatives (Activity 3.1.); Map out critical inputs to be provided by key players and desired outcomes from the meetings (Activity 3.2.); Support the development of relevant/effective rice policies and institutional frameworks in the beneficiary countries (Activity 3.3.); Map the 'landscape' of current rice initiatives: Actors; Geographic focus; Levels of investment (Activity 3.4.). Only two of the four paths were attempted.

Activity 3.1. Engage early-on with subregional, regional and global partners to ensure harmonization with existing regional policies and initiatives.

127. The High-Level African Ministerial Conference on Rice, held in Senegal on 25 September 2018, sought to generate a more collective policy direction and to support further implementation of investment programmes geared towards both rice self-sufficiency in African countries and the creation of gainful employment for youth and women along the entire rice value chain. The conference formulated the following recommendations geared towards national governments, donors, international and subregional research and development institutions, regional economic communities, the private sector, civil society, farmer's organizations: i) adoption of Self-Sufficiency Policies on Rice Production in Africa; ii) increasing Investments in the Agricultural Sector; iii) scaling up agricultural mechanization in Africa; iv) making factors of production (seed systems, high yielding varieties) available and accessible to farmers and farmer groups; v) supporting rice research and development; vi) reducing post-harvest losses; vii) institutionalizing support to enhance information, capacity development and training of rice value chain actors in Africa; viii) establishing land reform in all countries to ensure a win-win partnership.

Activity 3.3. Support the development of relevant/effective rice policies and institutional frameworks in the beneficiary countries.

128. **In Mali**, a study planned to update and implement the needs of political and institutional reforms on the basis of SNDR and make it possible to prepare and propose to adopt the relevant reform texts, could not be achieved. Indeed, the study's real cost was very high and the complexity and duration of requested administrative procedures went beyond the scope of the project. To adapt, the project mainly focused its efforts on the dissemination of the NRDS in support of the Government's efforts in this area. Five workshops were convened to disseminate the NRDS, bringing together 119 actors from governmental technical services, projects and/or programmes, as well as NGOs and producer organizations active in the rice sector. These initiatives were greatly appreciated not only by participants but also by Government.
129. In **Benin**, the project carried out the SNDR assessment from 2011 to 2016 and proposed that, within the framework of the development of the second SNDR phase, its exit strategy integrate the actions of this project. In **Nigeria**, the project also contributed by reviewing the existing NRDS and engaged relevant stakeholders in harmonization between project and existing National Rice Transformation Agenda (RTA), mapping out critical inputs needed under the project. To do so, consultative meetings were held with partners including United States Agency for International Development (USAID) MARKETS III, Japan International Cooperation Agency (JICA), AfricaRice, Farm Input Support Services (FISS)

Department, National Agricultural Seeds Council and farmers' needs assessment and profiling were carried out. In **Kenya**, the project contributed to the evaluation of the NRDS 1 achievements and to the development of the NRDS 2 (2019-2030 to guide development of the rice sector towards rice self-sufficiency). In **Cameroon**, the study mapping current rice initiatives aimed to become the basis on which to revitalize the SNDR Steering Committee, the main platform for dialogue and exchange. Two sessions of the Steering Committee responsible for monitoring the implementation of the SNDR (second phase) were organized, with project support. In **Côte d'Ivoire**, promotion of Ivorian rice in the areas of San Pédro, Korhogo and Abidjan categorized consumers' perceptions of local rice to identify needs in terms of communication and promotion.

130. Overall, Output 3: With the exception of its contribution in organizing High-Level African Ministerial Conference on Rice, the project's intervention focused on evaluating, reviewing and updating NRDS. Due to the low achievement of activities at country level, the achievement of Output 3 in terms of results is considered Moderately Satisfactory.

Finding 5 - Output 4. The project has satisfactorily promoted access and utilization of appropriate threshing and milling technologies and other post-harvest equipment for improved quality of rice grain.

131. The project has satisfactorily promoted access and utilization of appropriate threshing and milling technologies and other post-harvest equipment for improved quality of rice grain (Activity 4.1). Post-harvest equipment were provided to producer groups or communities, and capacities of beneficiaries were strengthened to promote the sustainable management of these equipments. This led to: a reduction in post-harvest losses, boosted rice production and processing, other partners supporting project beneficiaries, synergies and filling gaps between projects working in the rice sector development, public-private partnerships creation, hardship reduction in manual labour for women in threshing and husking of rice, quality and standard of local rice improvement. As mentioned during evaluation of Output 2, the project also undertook actions supporting private sector participation in promoting local rice (Activity 4.2., similar to Activity 2.6).

Activity 4.1 Promote appropriate threshing and milling technologies for quality rice grain, as well as other small scale equipment.

132. In **Senegal**, six threshers and six rice hullers for 12 producer organizations and ten power tillers were aimed at improving production for another ten producer organizations. A mini-rice mill is being installed in Goudomp through a private partnership between MAER and SEDAB. The National Agricultural Credit Fund (CNCAS) accompanied this dynamic, especially since it is already a partner of the DEDAB. The Ministry of agriculture and Rural Equipment wants to make SEDAB a key player in the rice value chain in the region. The mobilization of SEDAB in the operation of the rice mill is directly attributable to the project. In other producers organizations supported by the project, equipment received works well and appears as a key driver of production increases. The supply of power tillers and post-harvest equipment has generated great interest and motivation for rice production and processing in all the benefiting producer organizations. Another direct effect is that the project increased the level of equipment for rain-fed rice systems. The project is viewed by Government as a remarkable contribution to its objectives of supporting rain-fed-rice production and an example of cooperation between contributors Japan International Cooperation Agency (donated seeders, tillers), Italian Agency for Development and Cooperation (AICS) and World Bank. The expected impact of the rice

mill is to boost production from family consumption only to marketing at the local level. Where South-Senegal rice consumption was mainly supplied from the Senegal River valley (North), the rice mill with its 2.5 t per hour capacity is expected to process and boost production in three regions of South-Senegal.

133. In **Senegal**, the equipment received benefited ten villages in all, and the evaluation team visited the Mampatim Village whose producers organization received a rice thresher and husker; the village also benefited from government support (subsidy of 60 percent of the total cost) to procure one tractor for its 280 members. The village cultivates 167 ha including 100 ha of rice and producers pay around FCFA 700 per bag of paddy rice threshed. The majority of rice consumed in this village is imported and sold at FCFA 325 /kg. The producer organization intends to produce enough rice to sell at FCFA 225/Kg. The tractor currently services plot preparation for a fee. In Baghere village (also visited by the evaluation team in Senegal), a women's group, received a rice husker that also benefits women of two neighbouring villages. Rice is husked at an average price of FCFA 25 per kg. The profits generated by the equipment helped increase the funds of the existing credit union: women can now borrow more money to finance their small business. These women expect to increase their production by increasing yield from a maximum of 2 tonnes/ha (low fertilization) to nearly 4 tonnes/ha (good agricultural practices). However, limited access to fertilizers will likely affect the increase in yields. In the Senegalese production model, SODAGRI provides seeds but fertilizers must be purchased.
134. In **the United Republic of Tanzania**, following the recommendation of the situation analysis of available infrastructures in Morogoro, capacity building of 288 youth farmers, extension officers and government agriculture experts was undertaken on post-harvest management. The project procured and distributed various gender responsive, time and labour-saving farm inputs to the Ministry of Agriculture and farmer groups, including: tarpaulins, weighing scales, aluminum ladders, moisture meters, plastic pallets and sampling probes. Four complete sets of rice processing machines for de-husking, destoning, grading and packing with the ability to process between 1 000 kg to 1 200 kg per hour. The project promoted the construction of four sheds for the installation of rice milling machines using collaborative efforts by stakeholders. Producer groups and communities supported by the project have attracted other partners who have already provided them with additional equipment such as threshers and harvesters. There are strong synergies between the project and another governmental project named Expanding Rice Production Project (also known by its acronym, ERPP) which aims to increase rice produced and marketed in targeted areas of Morogoro including support to manage the irrigation scheme as a block, to facilitate bulk purchase of inputs, and to coordinate crop sales through a warehousing programme. The Expanding Rice Production Project supports producers by building warehouses for their paddy. The opinion of one informant is that "without the rice milling machines provided, it was not sure that farmers would store their rice in warehouses until the selling price is good. But now with availability of milling machines, producers can easily store because they now have a good equipment to produce a rice of good standard at the end of the process". The four rice milling machines are installed near warehouses, where the probability is high, more producers will store their paddy, de-husk it and sell it at best price on site.
135. In **Mali**, the project acquired for farmer groups: five rice threshers; one tiller; 20 kits of small agricultural equipment; four motorized rice harvesters against one planned. 26 beneficiaries have been trained in the use and maintenance of this equipment. The procurement of threshers helped reduce the lack of equipment in certain localities,

especially at the level of the municipalities of Kayes region where rice threshing was mainly done manually, resulting in poor rice grain quality. For budgetary restrictions and especially given the security situation prevailing in central Mali (Ségou region and Mopti rice areas where these visits were planned), planned activities could not take place: only the exchange trip regarding the rice thresher took place. This exchange trip organized for actors of Kayes region to Mopti region, on appropriate post-harvest technologies (threshers, hullers, harvesters, etc.), helped strengthen their capacities and knowledge of motorized rice threshing. The tiller, which was in high demand from the Sikuraso de Dioro Association, helped avoid delays in the installation of seed plots. Small materials kits allowed for significant improvement in rice quality both during and post-harvest. The moisture meters greatly helped producers check the humidity level before sending samples to the laboratory for analysis. As for motorized harvesters, their introduction was beneficial, in particular for the Association of Rice-growers of San Ouest (ARPASO), where shortage of labour was a big issue during harvest. This motorized harvesting tool has been highly appreciated.

136. In **Nigeria**, the project reduced post-harvest losses through capacity building on post-harvest handling and through supporting producers with motorized rice reapers. Capacity building of 180 rice farmers and small-scale millers, mostly youth and women on rice post-harvest handling, processing and utilization of rice-based products enhanced their incomes. The rice milling quality and packaging improved due to capacity building of small-scale millers on processing and branding. The project also helped develop capacities of rice farmers on processing and post-harvest handling, as well as capacities on packaging and marketing.
137. In **Benin**, the project acquired nine ASI-type rice threshers manufactured for the benefit of nine rice production groups whose members were trained to better use the equipment. In **Guinea**, 16 parboiling kits were made available to 16 groups as well as 16 hullers to another 16 parboiling groups. Also, 32 women from 16 parboiling groups were trained to use the equipment. Given the budget, a single rice mill with a capacity of 2 tonnes/ha was purchased and installed in Koba in favour of a youth cooperative (COJIDAGUI) and with the additional purpose to train other youth on rice processing. Seven motorized threshers and 18 cart motorcycles were supplied to producers and rice processors groups. The project has trained six huller operators as well as six operators and six maintainers of motorized threshers. In **Kenya**, the following equipment was procured and delivered to beneficiaries : two rice mills, five rice graders, six fertilizer applicators, 12 single row motorized weeders, 16 paddy push weeders, ten spring dial scales, and two digital weighing balances. In **Uganda**, the project promoted appropriate post-harvest practices equipment for quality grain and procured five threshers, five reapers, two mills procured for group. A rice milling machine with ZABTA farmers group milled 33 tonnes of rice for group members and helped market rice in bulk. In **Cameroon**, farmer organizations received expert training by PRODERIP in post-harvest management.
138. Overall, Output 4: promotion of appropriate threshing and milling technologies for quality rice grain, as well as other small scale equipment, despite great variations between countries, was undertaken in a satisfactory manner; the result is deemed Satisfactory.

Finding 6 - Output 5. Project did not plan nor support the activities focused on increasing area of irrigated and integrated rice systems.

139. The development of this Output 5 was to be done through implementation of three activities: Assist countries in the development of irrigated and integrated rice systems

(Activity 5.1); Support public-private sector involvement in rice systems development (Activity 5.2); Support resource mobilization for irrigated and integrated rice systems development (Activity 5.3). Except for Uganda and Cameroon, other countries did not address this output due to the short implementation timeline and tight budget. In **Uganda**, the project procured six irrigation pumps with six 200 meter horse pipes to promote use of small-scale irrigation equipment by farmers. All five selected farmer organizations received training to strengthen their organization. Training on water management, control of flood, irrigation and use of mobile pumps in rice irrigation was also undertaken. Training was conducted twice and farmers were able to use water more efficiently for increased production. Also, youth belonging to the farmer organization hire service for rice production field of farmers and they generate income. In **Cameroon**, lack of funds prevented development of irrigated and integrated rice systems through the project.

140. Overall, Output 5: Due to the poor engagement of countries in this output, the level of achievements cannot be assessed.

Finding 7. The project made tangible progress in achieving more efficient, sustainable and productive rice systems in Africa especially in terms of promotion of SRI and adoption of good practices and technologies to improve productivity and also to improve rice processing, reduce post-harvest losses and improve grain quality. Many actors of the rice value chain have increased their income and diversified their livelihood. FFS and JFFLS approaches have empowered youth, giving them opportunity to invest in agriculture and improve entrepreneurial capacities.

Table 3: Effectiveness in achieving results

Outputs (outcomes)	Rating
1. Efficient rice production systems for Africa supported through the promotion of adoption of best practices and upscaling of proven, tested technologies	S
6. Sustainable increased production and productivity in the major rice production environments	
2. Developed agribusiness models along the rice value chain for increased production and productivity	MS
3. Options for effective policies, institutions and markets developed/promoted.	MS
4. Reduced post-harvest losses and improved grain quality.	S
5. Irrigated and Integrated rice systems developed.	UA
Overall	S
<i>Legend: Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS); Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly; Unsatisfactory (HU); Unable to Assess (UA)</i>	

Outcomes – referred to as outputs as per project document

141. The project has successfully promoted the use of improved varieties of rice. At least 20 improved varieties were promoted simultaneously with good practices of rice growing and support for better availability and access to quality seeds (Output 1 and 6). Thus, several actors are engaged to produce or use breeders' seeds, foundation seeds and certified or commercial seeds. Through the project, individual actors and especially young people, as well as several public and private organizations are now engaged in the production and supply of seeds as a business. Seed quality, rice productivity and production, sales and incomes have all increased, leading to improvement of livelihoods of beneficiaries, illustrated by several success stories (see Annex 8).
142. Thanks to the FFS and JFFLS approaches, and to other capacity building, learning and dissemination of technologies, the whole SRI or some of some components were adopted

by producers. This adoption resulted in doubling and in some cases tripling rice yields, as in Nigeria and the United Republic of Tanzania. The success of the JFFLS approach, especially in the United Republic of Tanzania, has shown the need to value this approach: though the project did not study, develop or propose advisory models for the rice sector (Output 2), the results obtained through implementation of FFS and JFFLS show the need for countries to integrate this approach into their advisory system to improve producer learning and technology transfers. A strength of the FFLS and FFS approach is to involve producers in construction and participatory assessments of technologies and good practices, and in low-cost dissemination to peers with the support of governmental and non-governmental agricultural advisers.

143. The project contributed to building the capacities of young people and women. Several women are active in rice processing in West Africa (e.g. Benin, Côte d'Ivoire and Guinea), while young people have improved their production and generated profits, enabling them to make investments and finance other diversification activities. According to AfricaRice, beneficiaries reported that the training and equipment have significantly improved the quality of rice, resulting in higher selling prices on the markets and a net profit of FCFA 50-100 per kg (Output 3). A successful value chain for parboiled rice is developing in Gagnoa (Côte d'Ivoire) as well as a rice dynamic innovation platform in Koba (Guinea) with the installation of a mini-rice mill in this locality. The project has carried out actions to promote networking of actors in the rice value chain, training of actors, supply of equipment to farmers' groups and support to creation of innovation platforms.
144. The project's efforts to facilitate producers' access to mechanical production equipment in the fields (line markers, power tillers, transplants, push-weeders, etc.) and its granting of post-harvest equipment have attracted great interest of stakeholders and visible outcomes were generated (Output 4). The granting of threshers and hullers reduced the drudgery of hand work, and the granting of mini-rice mills helped improve the quality of the grain and energized the entire rice value chain. In some countries, such as Senegal, support for post-harvest equipment has made it possible to create public-private partnerships supervised by the Government; others could learn from this agribusiness model. In Guinea, the creation of innovation platform combined with the installation of a mini-rice mill in Koba has created a real dynamic in the rice value chain turning Koba into a convergence pole for rice development, by attracting other governmental partners.

Favorable factors

145. Project intervention was based on each country's priorities and needs as highlighted in their NRDS. These needs were prioritized and refined, taking into account the resources available and the duration of the project. The project generally benefited from good government ownership, which coordinated its implementation by involving all decentralized services concerned. In several countries such as Senegal and the United Republic of Tanzania, the territorial administration and the decentralized technical services were highly involved in the implementation of the project, contributing to its success. The project worked in synergy with and as a complement to other rice-oriented projects existing in the countries, like FAO Technical Cooperation Projects in Senegal and Côte d'Ivoire, or the Expanding Rice Production Project in the United Republic of Tanzania, and farmer communities partook in the construction of sheds to house rice milling machines.
146. The project also integrated the final beneficiaries during implementation, turning them into key actors for the dissemination of technologies and innovations. In the United Republic of Tanzania, for example, the young beneficiaries of SRI training have adopted the technology and then popularized it, both in their own and in neighbouring

communities. Some beneficiaries, and particularly young people whose capacities were strengthened by the project, have become agricultural advisers or relay advisers, and have effectively disseminated good rice practices to a larger number of producers. The project opted for capacity building of actors through various approaches (regional, international and national workshops, FFS and JFFLS, training and visits, study tours) which furthered the dissemination of technologies adopted. In Senegal, some young people trained were subsequently recruited as agricultural advisers by SODAGRI. The evaluation team noted that these young people have since participated in the creation and animation of the school fields to train other relay advisers and producers. In the United Republic of Tanzania, young people trained through the JFFLS approach stimulated the adoption of SRI by project direct beneficiaries. These later disseminated the technologies to other producers in the intervention areas, and used the JFFLS approach to further their own entrepreneurial capacities.

147. Overall, the products and technologies offered by the project (namely rice varieties tolerant to climate change, small production and post-harvest equipment, good rice production practices in different ecologies, technologies of rice threshing and milling, good practices for parboiled rice production, various documents for technical advice), have reinforced the adhesion of beneficiaries to the project and its objectives.

Unfavorable factors

148. The project experienced significant delay before launching, due to provisions of field budget authorizations and to certain implementing partners. Response times when requesting allocation of funds were excessively long, which resulted in the extension of procedures for the procurement of goods and services and the abandonment of some activities after several unsuccessful requests for supply. In some countries, like the United Republic of Tanzania, the Government has pre-financed some specific activities to remedy the delays in the disbursement of project funds but overall, delays in disbursements have hindered the achievement of the outputs and therefore of related outcomes, particularly the procurement and installation of equipment according to the agreed time frame.
149. In Benin, for example, editing and printing of the technical documents prepared within the framework of the project was not carried out because the request for funds (through field budget authorizations) was sent several times to the regional coordination of the project but was repeatedly ignored (no response). Budget execution was seldom in accordance with the action plan. Some countries requested funds for one specific activity, waiting five to six months for a response, and in the end receiving funds for a different activity. In Côte d'Ivoire, budget disbursement issues limited the rehabilitation activities of the seed conditioning center to a few cold rooms only.
150. Another constraint concerns the non-disbursement of the Government contribution in some countries, which limited the implementation of certain project activities. In Guinea, for example, the absence of Government funds prevented the installation of a second rice mill as initially planned, and did not allocate the necessary capital to the COJIDAGUI cooperative to purchase paddy and enable better utilization of the rice mill.
151. Non-conformities in project budget management are partially a result of the regional coordination's willingness to control budget lines in order to better respond to specific needs. This resulted in somewhat creative accounting during project implementation. Furthermore, delays experienced by some countries in justifying funds previously disbursed only accentuated these imbalances. Another weakness, originating in project design is the lack of flexibility and responsibility afforded to Country Representations for

budget management. The insufficiency of human resources in terms of regional coordination and the fact that the project Regional Coordinator is also the Lead Technical Officer of other projects has limited time and concentration to dedicate to this project, his proactivity, and also extended the response times for certain requests.

3.3 Evaluation Question 3.– Efficiency: To what extent have the South-South Cooperation mechanisms, such as the exchange of experiences, best practices, and academic and policy knowledge, been efficient to improve rice systems?

Finding 9. The project has a results framework and tools for the implementation and monitoring and evaluation of activities and results. However, most of the output indicators are not well defined and monitoring is mainly based on activities indicators defined at the country level. No outcomes were defined.¹¹

152. The project document has a detailed implementation plan for a two-year programme describing the activities, and a result framework with expected outputs. For each output, activities to be carried out, the measurable indicators and the means of verification are presented. However, these indicators are not well defined. Some are vague and only two of three indicators of Output 6 have a target. The absence of targets makes the results framework somewhat ineffective for results-based management. Furthermore, the two targets indicated for Output 6 are too ambitious for a project of this scope: 65 percent of total rice area using the improved rice technologies in programme intervention countries by 2020; 50 percent of rice farmers in the 22 programme countries adopting the improved technologies. The activities under each output are also presented and provided with indicators, but always without targets.
153. Activities are monitored in the field with support of the FAO focal points and national coordination. Data is communicated through progress reports which provide good information on the achievements made in the countries in principle by quarter. However, the numerous interruptions of activities have reduced the frequency of reporting and only few countries, such as the United Republic of Tanzania, have regularly sent in reports. Performance monitoring follow the level of achievement of activities in relation to indicators and the targets set for these activities in the country work plan: without them, monitoring cannot take place and evaluation has little to no basis.

Finding 10. The project is considered efficient in terms of taking into account the products and benefits generated in relation to the resources mobilized and the project implementation mechanisms.

154. The project created a dynamic for improving rice systems in the countries by working on the priorities of the NRDS not yet addressed by the major national projects. The project was able to capitalize on the interventions of previous projects and to create synergies with ongoing projects to offer concrete responses to gaps limiting the productivity, quantity and quality of the rice available for consumers. Examples include the case of previous FAO Technical Cooperation Projects in Côte d'Ivoire and Senegal, or the Expanding Rice Production Project by the Government in the United Republic of Tanzania.

¹¹ See section 2.2 of the report: project was articulated around Outputs that are really Outcomes.

155. Promotion of the development, dissemination and adoption of improved varieties of rice, small equipment for mechanization of technical operations in fields and post-harvest management equipment, and promotion of capacity building approaches (particularly approaches FFS and JFFLS) have had remarkable success and have made it possible to demonstrate to governments and other partners technical and organizational models as well as approaches that can be used to make remarkable gains in productivity and competitiveness at low cost. Strong beneficiary involvement, particularly young people and women, is a positive aspect of the project.
156. However, overall project efficiency was reduced by the delays faced when starting the project and carrying out the activities. These delays limited the quality and number of exchange visits and the sharing of successful experiences between countries. The initial project implementation deadline of one year was simply unrealistic and did not allow countries to carry out their own activities, capitalize on their experiences and share them through South-South Cooperation mechanisms.
157. Funding delays were common (see Unfavorable factors, Paragraph 143 to 146). Several times, the national coordinators waited two to three months for a response from the regional coordination regarding budgetary requests; response was often unsatisfactory since the budget finally obtained did not always match the needs initially expressed.
158. To facilitate the disbursement of funds for the various activities, it would have been more efficient to base the funds at the level of FAO Country Representations, so that countries with the best execution rates would not be penalized by latecomers (see section on lessons learned).

Finding 11. Key stakeholders were well involved in the management of the project.

159. The partnerships developed by the project at both national and regional levels provided sufficient and diverse skills needed for implementation. Public and private partners as well as producer organizations were involved in project management and in the implementation of field-activities. In all countries, government departments and rice sector stakeholders were consulted, allowing for the development of synergies with other ongoing projects and facilitating better national ownership of the project and its achievements. Stakeholders, including services providers, were involved through the planning and design of activities. When the project required external capacities, contracts were signed between FAO and the consultants/other service providers under the project national coordination.
160. Some countries used the project as a short-term response to people's expectations (two out of ten), but many have used it as a means to provide a sustainable response to priority problems in the rice value chain. Regrettably, in some cases, producer organizations were mere beneficiaries and not true "drivers" of the innovation processes explored or initiated.
161. Delays were noted in the construction of sheds for mini-rice mills and hullers. These delays were linked to the time necessary for beneficiaries (and communities) to negotiate and mobilize their own resources and contribution, but also to the service providers responsible for constructing the structures (e.g. case of a sizing error reported in Senegal).

Finding 12. Technical assistance provided to the project (project coordination unit and implementing partners) by FAO was adequate, but often delayed by budget management issues.

162. FAO assistance is considered generally Satisfactory. The project regional coordination fully enabled and oversaw project supervision and carried out missions in different countries during the different implementation phases. It was proactive and attentive to collaborators (national coordinators, focal points) and to partners at country level, particularly with respect to activity planning, technical monitoring and advisory support. With the exception of the delays and non-conformities linked to budget issues as previously mentioned, the dynamism and responsiveness of the project regional coordination made it possible to advise countries on technical and management choices and to prevent and resolve a number of technical and administrative issues falling under its prerogatives. Back at FAO headquarters, a technical team was responsible for defining and checking the technical specifications of the equipment acquired by the project, verifying its adequacy in relation to project needs, assets and constraints.
163. FAO mobilized its expertise to facilitate South-South Cooperation, which has made it possible to raise the interest of countries and to improve their capacities with regard to exchange of experiences and resource-pooling. FAO assistance is also recognized and appreciated with regard to raising awareness and mobilizing key regional, international and national actors to pursue advocacy and actions for the development of efficient and sustainable rice farming systems in Africa. The project regional coordination forged partnerships with AfricaRice and IRRI and organized regional and international workshops, thus further motivating project managers/coordinators and participants, and strengthening the capacities of beneficiaries.
164. At country level, FAO representations played a key role in establishing functional collaboration frameworks between the project coordination team and the various stakeholders, including with Government. FAO Country Representations mobilized by providing specific assistance, making it possible to create synergies between the project and other projects and initiatives underway at FAO (for example farmers field schools projects and other rice projects) and to build on the achievements of previous projects. In beneficiary countries, FAO continues to consult with Government to find solutions and resources to complete certain essential project activities stopped or delayed due to budget insufficiency or unavailability. These recurring budget constraints were generally linked to either the administrative closure of the project, the reallocation of funds initially planned to other project activities, or the untimely mobilization in terms of planning of certain activities by the national counterpart. For example, this is the case of building sheds to house milling machines, the editing and dissemination of technical documents on rice (Benin, Mali for example), and the incomplete production/completion of radio or television broadcasts (Mali). This is also the case of a rice processing cooperative in Guinea, which had not yet benefited from the working capital needed to better operate the mini-rice mill (and which was to be granted by the Government).
165. Funding disbursement was a weakness. The funds were supplied with delays of three to four months and allocated funds did not always correspond requests. This was linked to the regional coordination's need to balance budget lines as well as to a lack of human resources (the Project Coordinator also serves as Lead Technical Officer for this project as well as others). Some coordinators reported surprise when confronted with budget closure given the delays in supplying necessary funds which delayed the implementation of certain activities.

166. Overall, Efficiency: Despite two notable weaknesses, first in terms of financial/budgetary difficulties, and with regard to nature and quality of indicators to determine efficiency, project efficiency is deemed Satisfactory: South-South Cooperation mechanisms, such as exchange of experiences, best practices, and academic and policy knowledge, have, overall, improved rice systems in beneficiary countries.

3.4 Evaluation question 4. Sustainability: What is the economic, institutional, social and environmental viability of the productive rice systems constructed by the project?

Finding 13. Sustainability concerns regarding economic, institutional, social and environmental aspects were well taken into account in the implementation of the project.

167. The project benefited from a political will affirmed at the level of the Ministry of Agriculture (leader in establishing partnerships with donors in different countries) in each of the ten countries. The socio-economic sustainability of the project has been strengthened by choosing to promote simple and inexpensive technologies capable of generating sustainable resources and by establishing rules of good management. The project carried out activities contributing to the sustainable improvement of producers' food security and income (by selling their surplus). The project succeeded in bringing several producers, producer groups and communities to move from subsistence farming to commercial farming by increasing production, reducing post-harvest losses and improving quality of rice through the use of appropriate post-harvest management technologies and equipment.
168. The project promoted the use of improved seeds and best practices by including key players of the seed system and agricultural advice service. In the United Republic of Tanzania, for example, benefits realized by youth from best practices have motivated them to scale-up the SRI technology in the entire production-basin irrigated rice perimeter and to involve adult farmers. In many countries, the project also contributed to improve final products by promoting the use of appropriate milling equipment and by training beneficiaries in their sustainable use. It promoted the installation of mini-rice mills which will help to improve the competitiveness of local rice on the national market compared to imported rice, and to stimulate production increases at the community level. These mini-rice mills are managed by local private partners supervised either by government (through a public-private partnership) or directly by cooperatives or producer organizations at the level of production basins. Innovation platforms have also been created (Guinea) or revitalized with the same purposes.
169. Technologies implemented are small pieces of equipment whose spare parts are locally available. There are also beneficiaries able to repair them in the event of a technical failure. Stakeholders and beneficiaries have acquired suitable capacities to enable them to continue certain project activities. Technologies developed through manuals and technical sheets are accessible and do not require huge resources on the part of the beneficiaries.
170. At the environmental level, the project contributed to the development and dissemination of good rice production and processing practices. Technologies promoted along the value chain have negligible impact on the environment. The two risks that negatively impacted implementation were: i) an early rains break in certain localities attributed to climate change. This situation lead to water-stress resistant variety promotion and to crop-calendar revisions. Environmental safeguards issues were integrated in producer trainings and the key actors of the rice value chain were sensitized by various means on

environmental risks and means of safeguarding the environment and adapting to climate change at country and local level – (best practices, hands-on training FFS, among others); ii) subsidization of fertilizers. Current results in certain countries are based on current government subsidies for fertilizer; should these be eliminated or phased out, results would hinge on producer purchasing capacity.

171. The FFS and JFFLS approach enabled producers to learn and build their capacity, particularly when identifying problems hampering production, but also with regard to certain aspects of daily life and to approach sustainable resolution of these problems. Experimentation with FFS and JFFLS approaches also helped demonstrate to governments their effectiveness in both sustaining the diffusion of innovation processes and in reaching more producers at a lower cost than most alternatives. Given the limited resources, however, countries have neither planned nor carried out studies to build, propose or show what to include in their national agricultural advisory systems. The project has not worked on rice-marketing but will be able to capitalize on other ongoing projects in this area.

Finding 14. In each country, the project was led by Government, through its main administrative departments and its specialized services in rice consulting, research and development. This Government ownership, added to the authorities' satisfaction with results obtained, and suggests further resources and other partnerships will be mobilized to consolidate the achievements and continue the work.

172. The situation of the different countries varies greatly in terms of priorities and political commitment for the development of rice. Some examples are presented below to illustrate the challenges concerning the consolidation and sustainability of the intervention at country level.
173. In **the United Republic of Tanzania**, the Government's asserted leadership in project implementation and its ownership of the project at different levels (central administration and decentralized services at the regional level and Morogoro district) have been important factors for sustainability. The involvement of local extension officers at every stage of project implementation proved key in ensuring sustainability of best practices in the districts. Also, involvement of community members as well as support from the Local Government Authority in shed-construction to house rice milling machines clearly indicate community members will continue with these best practices. To strengthen and consolidate project sustainability, the following critical issues need to be addressed by Government: i) farmers expressed the need for support in accessing markets for their produce. As rice production has increased, it is necessary to have well defined marketing systems; ii) regarding best practices adopted in the districts and leading to increased rice production, farmers still lack reliable storage facilities as well as access to mechanization (simple and gender responsive farm tools); iii) currently only one type of seed is available and accessing other varieties would be useful; iv) where possible, appropriate soil test kits should be made available to village extension workers for smallholder farmers.
174. In **Guinea**, several challenges must still be met to consolidate achievements and strengthen the sustainability of project results. The first relates to beneficiary cooperative of the rice-mill: it did not have working capital to buy necessary paddy to be processed, considerably reducing the yield of the equipment (USD 10 000 would be required to buy the paddy – project estimates); editing and distribution of the guide for popularizing best practices is stalled due to lack of funds (USD 14 000 would be required); study tours for farmers to learn from the experience of farmers abroad have yet to take place

- (USD 20 000). FAO should advocate with the Government to contribute to finance projects through the national budget (see Recommendation 4).
175. In **Mali**, the good involvement of the Government through the pursuit of activities by technical supervision on the ground is an important factor for sustainability. Technical innovations disseminations meet the needs of rice farmers and producers quickly adopted new rice varieties brought by the project. The introduction of new harvesting technologies helped reduce losses. The project has contributed to the consolidation of professional families, the motivation of young entrepreneurship in the rice seed sector, and subsequent creation of a union of young rice seed producers. The continuation and consolidation of project achievements through other projects implemented by FAO is evident. For example, in Kona (Mopti region) 30 ha were rehabilitated and 1 800 kg of seed, 6 000 kg of DAP1 fertilizer, one motor pump, one tiller, one threshing machine, one multifunctional platform, 4 000 liters of diesel, 480 liters of lubricant were provided by OSRO/MLI/804/SWE. Such synergies should be consolidated.
176. In **Nigeria**, to ensure sustainability, the project is mainstreamed into the Government's national annual budgetary allocation whereby budget will be released to scale-up the project to other states of the federation. Government attention was drawn to the achievements of the project through sharing of progress reports with Federal Ministry of Agriculture and Rural Development management. In addition, an annual scaling up Government programme plans to replicate the project to all other states of the federation. This will enhance relationships between rice farmers and the major actors along the value chain for easy access to market and financial inclusiveness. The value chain that was fragmented and whose linkages were weak was strengthened by the project and the chain's major actors established ties with financial institutions. The Government is liaising with relevant authorities to support scaling up the project to three other states for maximum impacts (before nation-wide scaling up).
177. In **Senegal**, to ensure sustainability of the agricultural equipment made available to producers, FAO collaborated with SODAGRI for monitoring of operation, maintenance and upkeep. The farmer organizations committed to operate and keep the equipment in working order; should they fail to do so, SODAGRI reserves the right to withdraw and to be replaced by another organization. Organizational criteria and group dynamics were also taken into account in the granting of equipment. All beneficiary producer organizations have set-up management committees to ensure sustainable use of the equipment. Some young people trained by AfricaRice have been employed by SODAGRI as extension workers.
178. Overall, Sustainability. The heterogeneous nature of the project's beneficiary countries, their different institutional arrangement and commitment to the project goal make it difficult to assess the project's overall sustainability. Nevertheless, the evaluation deems that, overall, the project satisfactorily ensured economic, institutional, social and environmental viability of the productive rice systems constructed by the project, particularly for Outcomes 1, 6 and 3. As the project ends, additional avenues for diffusion and dissemination of results are to be explored.

3.5 Evaluation Question 5. Gender analysis and cross-cutting issues: Were gender equality considerations and other social and environmental issues reflected in project objectives and design of the project, and effectively addressed during the implementation?

Finding 15. Gender and youth considerations were well taken into account during project implementation and management despite the fact specific indicators and target were not defined and applied to better promote and follow their influence on the project.

179. In each country, needs assessments were carried out to identify priority outputs to be developed and specific activities to be implemented. However, the documents reporting on these needs assessments are very succinct and superficial: baseline and target objectives in relation to identified needs have not been clearly described, quantified nor sufficiently documented. As a result, the baseline of vulnerability, livelihood, food security and poverty of women and youth involved in rice value chains remain unquantified and undocumented. The project did not develop specific indicators or targets to monitor gender as a whole nor in its choice of beneficiaries. Also, though the project did carry out certain activities accounting for women and young beneficiaries, these were not systematically documented nor was gender integration information reported. Tackling these weaknesses at the design stage will certainly improve the integration of gender, young people and other vulnerable groups in future similar projects.
180. Despite this weakness, the empowerment and leadership of women and young people was strengthened where necessary and relevant, and actions were undertaken to reduce the hardship of work by providing appropriate equipment. In Senegal, for example, equipment distribution respected the Ministry in charge of agriculture's requirements (in the implementation of projects, 30 percent of the equipment is given to women and the rest (70 percent) is attributed with equal opportunity to all applicants, including women). In the two intervention areas, women occupied the most important positions in the value chain and were instrumental in choosing beneficiary organizations. Threshing machines and hullers were mainly donated to mixed organizations because, traditionally, threshing is the men's activity of men and hulling is of women.
181. At design, activities targeted not only the needs and priorities of adult beneficiaries/stakeholders, both men and women, but also of youth. four activities directly targeted women and youth namely: 1.3. Promote the participation of women and youth groups in rice seed production ; 2.1 Support capacity building of participants in the rice value chain; 4.1 Promote appropriate threshing and milling technologies for quality rice grain, as well small scale harvester; 6.3 Strengthen the capacities of women and youth to participate more effectively and profitably in the rice value chain. Women and youth are not excluded from other project activities.
182. Women and youth saw their capacities strengthened through attendance to regional and national workshops and training sessions (see paragraph 67 and Annex 8). Among the 1 002 actors who attended regional and national workshops and national training sessions, at least 27 percent were women. For exemple, in the United Republic of Tanzania, 60 women were among 120 youth who benefited from the training on SRI through the JFFLS approach. After this training women were also well represented amongst the 600 youth and 2 000 adult farmers who adopted SRI technologies in the

Morogoro Region (see paragraphs 67 and 101). Also in the United Republic of Tanzania, capacity and awareness was enhanced in 105 men and 71 women in terms of knowledge management and information sharing among key stakeholders in the rice value chain (see paragraph 124). In Uganda, Namunasa Mixed Farmers Association seed production group (59 members of which 17 are women), was upgraded to a registered local seed business group (see paragraph 70) and had a success story (see paragraph 83). This youth group generated UGX 26 million from sale of seed and spent UGX 4 million in hiring labour for production. In Guinea, 400 households, including young people and women, supported by the project through improved seed variety and fertilizers, strengthened their rice productivity and helped build an improved-seeds seed-bank (see paragraph 77). In Mali, the project trained 134 seed producers (including 27 women and 38 young people) who produced 552 tonnes of certified seeds and 4 020 tonnes of paddy rice (see paragraph 79). The project also supported in Mali 750 small farmers (including 191 women) and trained and supported 12 women's groups and 20 young people (14 men and 6 women). These youth produced 76 tonnes of certified seeds and created their federation (see paragraph 79). In Côte d'Ivoire, 20 parboilers women from two women associations were trained and equipped with improved parboiling technologies and skills (see paragraph 89).

183. Project results regarding Output 1, 2, 4 and 6 clearly show women and youth have significantly benefited from the project and were able to achieve outcomes, create jobs, as well as improve both income and livelihoods through the project's capacity building efforts. Project focal points view project activity and output (and therefore outcome) achievement in terms of gender integration as on track.

Finding 16. The project was conceived as having a low environmental impact; it satisfactorily applied environmental and social safeguard measures during its implementation.

184. The project was conceived as having a low environmental impact; implementation did not change that. None of the proposed project activities pose a significant direct risk to the environment. All the project activities carried out integrated environmental safeguard and the reduction of climate change effects, as well as the reduction of arduous work through production materials and equipment. Environmentally friendly measures in creating and managing rice production plots included: good agricultural practices, low dosages of chemical fertilizer, and efficient use of irrigation water.
185. Furthermore, the SRI promoted also helped combat climate change: SRI minimized quantities of inputs used and led to higher yields; these higher yields were achieved without increasing surface areas cultivated, contributing to reducing the clearing of new plots and therefore to combating climate change. The use of new advanced varieties offers several possibilities for producers to choose the variety best suited to each rice growing system or production environment (including resistance to diseases and the negative effects of climate change).
186. The introduction of power tillers, reapers, threshing machines, milling machine and other small equipment reduced the arduousness of the work, especially for women who where, in some countries, in charge of these very arduous and time-consuming operations, in addition to housework. Their increased capacity helped reduce post-harvest losses along the value chain, further limiting increases in surface areas cultivated.
187. Overall, cross-cutting: gender equality and equity considerations, as well as other social and environmental issues reflected in project design were addressed during implementation in a satisfactory manner.

4. Lessons learned

188. Overall positive project results demonstrate South-South Cooperation is an excellent mechanism for pooling resources and efforts in innovation and development processes. Sharing knowledge with decision makers and political consultation at the highest level have shown their usefulness in reaffirming and updating policies strategies and intervention priorities, and to mobilize partners from a large number of countries. The mechanism also enables countries to measure and assess their own progress in rice development through comparison. The project has shown setting up common indicators as well as common monitoring and analysis frameworks are required to compare progress between participating countries. To improve effectiveness and efficiency, it is also necessary to anticipate the constraints and delays that such a mechanism faces, especially in terms of budget management and delays in the provision of field budget authorizations. Further decentralization of this type of budget management to the country level could prevent delays.

5. Conclusions and recommendations

5.1 Conclusions

Conclusion 1. FAO was able to respond appropriately to the needs of countries regarding the development of sustainable rice systems, by mobilizing South-South Cooperation mechanism and by proposing, through sound project design, consistent activities to undertake under a suitable implementation strategy.

189. Each country chose activities in line with its priorities, taking into account available resources and execution deadlines. Some inadequacies occurred in the activities chosen by countries but these did not affect the overall relevance of the project. The project made it possible to update and reaffirm the challenges of rice development at the regional level and to inform partners on the priority areas of intervention at both regional and national levels. The organization of regional and national knowledge exchanges and capacities building workshops and training sessions, and regional high-level partners meetings, as well as the revision and updating of the NRDs and the permanent dialogue with Government(s) at country level, have contributed to better sharing of experiences between South-South countries, to advocating for greater investment in the rice sector, and to maintaining these issues on the Government's agenda. Projects results and smallholders' success stories in many countries show that through a South-South Cooperation approach, this type of intervention can impact the quantity and quality of rice produced, food insecurity and smallholders' incomes, including women and youth, in the very short-term. The project was also a major opportunity to create jobs and empower young people and women.

Conclusion 2. FAO responses significantly contributed to enhance food security and development of sustainable rice systems for smallholder farmers in the region.

190. The project promoted production and multiplication of improved rice seeds, development and adoption of best practices, and newly tested or proven technologies of production and post-harvest management. As mentioned for example in paragraphs 64 and 65 under Finding 2 and in Annex 2) **Error! Reference source not found.**, these all remarkably increased seed-supply, seed quality, rice yields, rice quality, and producers' incomes. Women and young people actively participated in these innovation processes and have benefited substantially. FFS and JFFS approaches have demonstrated effectiveness in learning and sharing/dissemination of good practices. The project, however, missed the opportunity to work in more detail on the identification or development of agricultural advisory systems for: dissemination of innovations on a larger scale, enabling environment support, agribusiness models' development finalization and documentation.

Conclusion 3. FAO provided assistance that was effective and efficient in improving rice systems to Governments through South-South Cooperation mechanisms.

191. The project engaged key stakeholders of the rice value chain in the project and demonstrated engagement for innovation by working on the priorities of the NRDS not yet addressed by major national projects. The project was able to capitalize on the interventions of previous projects and to create synergies with ongoing projects to offer concrete responses to fill the gaps and bottlenecks limiting the productivity, quantity and

quality of the rice available for consumers. FAO provided adequate technical assistance to countries through the project regional coordination and other FAO technical bodies, but delays in field budget authorizations due to budget management arrangements adopted for this project have reduced the efficiency and timeliness of this assistance.

Conclusion 4. FAO and Governments identified sustainability concerns regarding economic, institutional, social and environmental aspects and took them into account to ensure project sustainability.

192. In each beneficiary country, the project was led by Government, which engaged its main administrative departments and specialized services in rice extension, research and development. The authorities' satisfaction with the results obtained suggests that resources and other partnerships will be – and need to be – mobilized to consolidate achievements and continue the work. The project takes the option of promoting simple and inexpensive technologies capable of generating sustainable resources and establishing rules of good management. It succeeded in bringing several producers, producer groups and communities to move from subsistence farming to commercial farming by increasing production, reducing post-harvest losses and improving quality of rice through the use of appropriate post-harvest management technologies and equipment.

Conclusion 5. FAO promoted integration of gender equality considerations and other social and environmental issues into the project objectives and contributed to their implementation.

193. Women and youth have benefited from the project and were involved in specific activities. However, the project missed the opportunity to undertake gender assessment and vulnerability analyses with regard to rice value chain actors, and to define and follow-up on specific indicators and targets that could have further improved gender integration and consideration of vulnerability and poverty issues. From project conception, it was a low environmental impact project; it also satisfactorily applied environmental and social safeguard measures during implementation.

5.2 Recommendations

Recommendation 1. To improve future interventions using the South-South Cooperation approach, FAO must continue to assist governments to better identify their priorities by focusing on activities whose implementation is likely to generate significant and sustainable advantages, benefiting the various actors in the value chain as well as Government (drop in imports due to increased production). FAO must also support countries to better integrate the vulnerability and poverty criteria in the choice of project beneficiaries.

194. FAO must provide support so that countries can position themselves not only primarily on simple and ordinary technical activities but much more on strategic and complex ones such as: support for improving the project-carrying environment which includes support to policy reforms, strategies and laws; development and simulation of agro-food models and agribusiness models at different scales; support for the improvement of support, advice and agricultural extension systems; support to adaptation research on seeds and proven sustainable production systems. FAO must ensure that implementing deadlines for

such types of projects are reasonable, that the start-up, budget execution and implementation of activities comply as best as possible with the action plans defined.

195. Efforts must continue to ensure the improvement of production factors and livelihoods of actors in the value chain, with special priority to producers, processors, and women, youth and other vulnerable actors engaged in the rice value chain. Specific actions must be developed to promote and encourage the active participation of private operators in the rice value chain. FAO must also promote and support the exchange of experiences between countries and encourage governments to pool their resources and their know-how to develop more South-South partnerships. FAO must set-up a framework for monitoring and for comparative analysis of the performance and results of the countries in order to foster competition between countries, enable result-based management, and also allow drawing lessons from good implementation experiences and share them.

Recommendation 2. At country level, FAO and FAO Representative must support the Government to identify and engaged suitable strategies, resources and partnerships for dissemination and scaling up of project's proven results and achievements to a large population of beneficiaries.

196. The project has demonstrated at small-scale a set of techniques, technologies, good practices, models and options that are suitable for rice production and processing. To consolidate, amplify and make these results sustainable, FAO must help the Government take ownership and ensure the wider dissemination of these technologies, systems and options with proven effectiveness in the development of efficient and sustainable rice systems. To this end, FAO must not only support the wider dissemination of these technologies and systems, but must also ensure any missing links, which may hamper the sustainability of project achievements, are addressed and filled.

Recommendation 3. FAO must, in the very short-term, capitalize on the successful experiences of the project in different countries to highlight the improved technologies that have been adopted and the training, advice and dissemination approaches of technologies and good practices that have proven effective.

197. FAO should elaborate and share information and knowledge highlighting the innovation efforts of different countries in the project, informing others of the various technologies and proven practices available and currently used in the countries thanks to project intervention/contribution. This will favour further exchanges of experience between countries, and can inform development partners about existing prospects to further the intervention and consolidate achievements.

Recommendation 4. Within the results framework of any similar future project, FAO should systematically carry out assessments of gender, youth and other vulnerable group needs, and integrate gender and vulnerability specific indicators and targets relevant to project objectives and consistent with the FAO Policy on Gender Equity and Environmental and Social safeguard.

198. The project planned and achieved activities specifically targeting women and young people, as is good practice. However, conducting gender assessment and vulnerability analysis, and defining gender-specific indicators and targets would have helped increase the number of and impacts on farmers, women, youth and other vulnerable groups supported by the project or engaged in the rice value chain.

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Appendix 1. People interviewed

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Ministry of Agriculture, Diamniadio, Senegal, 28 October 2019			
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SODAGRI, Kabendou, Senegal, 29 October 2019			
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Mampatim, Senegal, 29 October 2019			
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Baghère, Senegal, 30 October 2019			
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Ba	Adama	Beneficiary	
Ba	Fatoumata	Beneficiary	
Bandia	Mansata	Beneficiary	
Cissé	Mabinta	Beneficiary	
Corrobo	Maïmouna	Beneficiary	
Diallo	Fatoumata	Beneficiary	
Diallo	Kamatoulaye	Beneficiary	
Diawara	Diabou	Beneficiary	
Diawara	Dionfolo	Beneficiary	
Diedhiou	Abdoulaye	Beneficiary	
Faty	Aliou	Beneficiary	
Gassama	Kossa	Beneficiary	
Kambaye	Maïta	Beneficiary	
Kambaye	Amicolé	Beneficiary	
Kouyaté	Fatoumata	Beneficiary	
Ndiaye	Banna	Beneficiary	
Sadio	Faty	Beneficiary	
Seydi	Mamadou	Beneficiary	
Sonko	Baba	Beneficiary	
Faune, Senegal, 30 October 2019			
Banora	Oumar	Beneficiary	
Barry	Ibrahima	Beneficiary	
Cissé	Karamo	Beneficiary	
Cissé	Karfa	Beneficiary	
Diallo	Awa	Beneficiary	
Diallo	Rouckiatou	Beneficiary	
Diallo	Aminata	Beneficiary	

Surname	Name	Function	Contact
Djitté	Ansoumane	Beneficiary	
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Annexes

Annex 1. Evaluation matrix

<http://www.fao.org/3/cb0228en/cb0228en.pdf>

Annex 2. Production trends and self-sufficiency

<http://www.fao.org/3/cb0230en/cb0230en.pdf>

Annex 3. Additional information on project alignment with countries needs and priorities of rice development for food security and income generation

<http://www.fao.org/3/cb0231en/cb0231en.pdf>

Annex 4. Outputs chosen by each country and actions planned

<http://www.fao.org/3/cb0232en/cb0232en.pdf>

Annex 5. List of countries involved in the implementation of various activities proposed for each output of the project

<http://www.fao.org/3/cb0233en/cb0233en.pdf>

Annex 6. Details on the activities selected by countries

<http://www.fao.org/3/cb0234en/cb0234en.pdf>

Annex 7. Ratings criteria

<http://www.fao.org/3/cb0235en/cb0235en.pdf>

Annex 8. Capacities building workshops organized under the project

<http://www.fao.org/3/cb0236en/cb0236en.pdf>

Annex 9. Success stories

<http://www.fao.org/3/cb0237en/cb0237en.pdf>

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