TechnoServe Prosper Cashew Project

Baseline Report

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TechnoServe Prosper Cashew Project
Baseline Report

Program: Food for Progress

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Implemented by: TechnoServe Inc.

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Abbreviations, Acronyms and Symbols

ACA	African Cashew Alliance
AFI	Association of Food Industries
BRC	British Retail Consortium
CCA	Conseil du coton et de l'anacarde
CFAF	African Financial Community Franc
CICC	Consultative International Cashew Council
CITA	Centre d'innovations et de technologies de l'anacarde
CNFA	Cultivating New Frontiers in Agriculture
CNSL	Cashew nutshell liquid
FDA	United States Food and Drug Administration
FGD	Focus group discussion
GIZ	German Corporation for International Cooperation
HACCP	Hazard analysis and critical control points
INPHB-ESA	Higher School of Agronomy of the Polytechnic Institute Felix Houphouët-Boigny
ISO	International Organization for Standardization
KII	Key informant interview
KOR	Kernel out-turn ratio
KPI	Key performance indicator
L	Litres
M&E	Monitoring and evaluation
MFI	Microfinance institution
MT	Tons
NAFDAC	National Agency for Food and Drug Administration and Control
NGO	Non-governmental organization
OCA	Organizational capacity assessment
PMP	Performance monitoring plan
Prosper Cashew	Promoting Opportunities for Cashew Processing in West Africa
RCN	Raw cashew nut
SME	Small and medium-sized enterprise
TAF	Technical Assistance Facility
TNS	TechnoServe Inc.
UK	United Kingdom
USD	United States Dollar

Abbreviations, Acronyms and Symbols (continued)

USDA	United States Department of Agriculture
USG	United States Government

Executive Summary (English)

Promoting Opportunities for Cashew Processing in West Africa Project (Prosper Cashew) is a five-year, USD 26 million initiative (2020 to 2025) implemented by TechnoServe Inc. (TNS) and funded by the United States Department of Agriculture (USDA). The Prosper Cashew project will promote investment for the West African cashew processing sector by strengthening cashew processing facilities across Côte d'Ivoire, Ghana, and Nigeria. The project complements other USDA investments and programs in West Africa to address market barriers, through technical assistance and financing solutions to improve cashew sector productivity, increase incomes, and create jobs. The overall goal of the project is that 50% of raw cashew nut (RCN) production is processed into kernels in Côte d'Ivoire, Ghana, and Nigeria. The specific objectives to achieve this goal include increased investment in local cashew processing, and increased processing capacity and capacity utilization. To achieve these objectives, the project has identified four main activities. TNS will develop a fund strategy that fills a demonstrated market gap, select a fund manager with a strong track record, and subsequently set up a Cashew Catalyst Fund that will provide access to long-term working capital. In parallel, a Match-Making Facility will be set up, identifying investment-ready companies (both new and existing) in cashew processing and related businesses, such as local equipment manufacturers, and connecting them to existing capital providers. The project will also strengthen and increase commercially viable cashew processing enterprises through a Technical Assistance Facility (TAF), which will provide investees and beneficiaries of the financial activities with the necessary technical support to become strong industry players. Finally, the project will aim to link farmers, farmer groups, and farmer associations capacitated by other donor-funded projects—including the USDA-funded PRO-Cashew project —directly to processors funded by Prosper Cashew, as well as supporting cashew processors to identify and successfully access new markets for their products.

The information in this baseline report is meant to guide TNS and its implementing partner, Initiative for Smallholder Finance (ISF Advisors), to understand the starting point against which progress achieved over time should be measured, using the performance monitoring plan. Out of the 24 indicators (at outcome and output levels), 10 require baseline data other than "zero" or "not applicable," all of which used a processor survey tool to collect primary data or relied on secondary data. Additionally, data was collected for seven other indicators, to serve as benchmarks for future reporting.

The baseline report is the result of an extensive primary data collection and analysis that began in January 2021 and ended with the final data analyses and report writing in June 2021. Overall, a total of 32 processors undertook the survey and 23 were interviewed, in addition to 48 other stakeholders interviewed and three roundtables/focus group discussions (FGDs) conducted. The overall study framework consists of an adequacy assessment, which importantly requires no control group as Prosper Cashew intends to work with all relevant stakeholders in the three focus countries, and allows quantitative results to be compared with set criteria (e.g., indicator targets) over time. The study also focused very significantly on qualitative data collection to demonstrate the future link between the project's assistance and its results. Several limitations of the study included: reluctance of processors and other stakeholders to participate in the baseline; reluctance of processors to provide processing and business data*;* the necessity of *e*xtrapolations as not all processors could be surveyed; no control group as TNS plans to work with all processors; and the COVID-19 pandemic that undoubtedly affected all processors to some degree or another.

Secondary data (N'Kalo 2021) revealed that for the 2020 season, 8.2% (Côte d'Ivoire: 7.9%, Ghana: 9.5%, Nigeria: 8.8%) of domestic RCN production was processed into kernel prior to export. Overall, surveyed

Executive Summary (English) (continued)

processors reported processing 6,478 MT of kernel, which when extrapolated leads to 25,110 MT of kernel. Subsequently, 5,906 MT of kernel, (extrapolated: 22,893 MT) was reportedly sold. For other cashew commodities, 7,798 MT of RCN, 1,161 L of cashew juice, 480 L of CNSL, 185.2 MT of charcoal, and 16 MT of waste were reported as sold, although each by five or fewer processors. Côte d'Ivoire sold the highest volume of kernel followed by Nigeria, while larger processors sold a greater volume than smaller processors. Processors from Nigeria reported selling the highest amount of RCN and CNSL, while those from Ghana reported selling the greatest volume of charcoal. Only processors from Côte d'Ivoire reported selling cashew juice and waste. In terms of kernel, 11.5% was sold in domestic market, 0.7% in the regional market, and the majority, at 87.8%, in the international market.

Survey results found that Côte d'Ivoire sold the greatest monetary amount of kernel, closely followed by Nigeria. However, in terms of total product sales, Nigeria sold the greatest amount, driven by one large multinational that also sold significant quantities of RCN. In contrast, Ghana sold lower amounts, especially in terms of kernel sales. A total of USD 27,172,534 in kernel was reportedly sold by processors, while USD 39,992,571 in total products was sold. Extrapolated values are USD 105,319,898 and USD 155,224,638, respectively. Combined, processors in 2020 experienced negative actual income or profit (actual: USD -8,843,552, extrapolation: USD -34,324,803); however, results varied by individual processors. In Côte d'Ivoire, of the eight processors that appeared to provide accurate profit data, six reported negative actual income. In Ghana, although profit amounts were small, all processors reported positive actual income. In Nigeria, four of the five processors reported positive actual income values; however, one processor reported a very high negative value. Finally, a total of 13 processors were able to comment on the average processing cost of kernels, with the overall average being 3.85 USD per kilogram of kernels (768 USD/MT RCN) (Côte d'Ivoire: 3.17 USD/kg, Ghana: 6.79 USD/kg, Nigeria: 3.90 USD/kg).

Currently, 2,260 (extrapolated: 9,356) part-time and full-time jobs (21+ days) were reported by processors, and a total of 3,130 (extrapolated: 12,958) jobs including casual labor. More females were employed than males; However, females were most commonly employed in manual labor and were also much more commonly reported as casual workers. The overall average organizational capacity score was 58.4% with processors in Nigeria (73.7%) having the highest average score, followed by processors in Côte d'Ivoire (63.1%), and processors in Ghana who had a significantly lower average score (18.1%).

Of the 22 active processors, a total of 13 exported to various countries in 2020. These processors exported kernels to 21 unique countries (34 total country mentions) and CNSL to one country. Fourteen processors reported having a total of 65 clients in 2020, with Nigerian processors reporting the greatest number of clients followed by Côte d'Ivoire processors. Only five (22.7%[1]) active processors reported attending or being represented (e.g., by means of collateral marketing material, brochures, samples) at one or several international or regional trade fairs or conferences and trade missions in 2019 or 2020. Four of these companies were from Côte d'Ivoire and one from Nigeria. Subsequently, only one of the five processors that participated in international or regional trade fairs or conferences and trade missions in 2019 or 2020 had a purchase contract result from this participation (this was a medium-sized processor from Côte d'Ivoire). Notably, three purchase contracts stemmed from their participation in three events in 2019.

[1] Compared to 50.0% that said no, and 27.3% that chose the "No response" option.

Executive Summary (English) (continued)

Overall, 30.8% of active processors stated having some certification of industry and/or sustainability standards, with medium- and large-sized processors being more likely to report certification than small processors. Only seven (25%) of the 28 active and in-project processors reported receiving financing, with again large processors receiving financing more often than medium and small processors.

As a result of the data collection, a series of conclusions and recommendations were developed as follows:

Sharing of Documentation

There have been considerable efforts by the development sector to engage with the cashew value chain in West Africa in recent years, but a sense of limited returns for processors on their time (and often financial) investments. The majority of stakeholders consulted demonstrated interest in receiving feedback/insights on this study, and it is recommended that a version of the information contained in this baseline report is shared with all participating stakeholders.

Institutional Architecture and Regulatory Framework

While Côte d'Ivoire has a comprehensive institutional architecture and regulatory framework for the cashew value chain, including fiscal incentives for processors and protectionist measures on exports of RCN, Ghana and Nigeria are still in their early stages. The lack of a regulatory framework for processors in Ghana and Nigeria is an important challenge that will ultimately influence the project outcome and which Prosper Cashew is not directly addressing. We recommend that Prosper Cashew consider the feasibility of engaging with authorities and processors in supporting countries to mobilize processors and help strengthen their institutional presence to advocate for their interests. There is also an opportunity to operationalize this approach by closely working on strategies with PRO-Cashew, but the interests of producers, represented by PRO-Cashew, and processors, represented by Prosper Cashew, are not necessarily aligned.

Regional Integration

Working towards harmonized regional policies would influence access to all-year supply, cost of doing business, access to financing and technical services, appropriate infrastructure to support growth, and capacity to meet quality standards. These are all areas that directly impact competitiveness and sustainability.

Multiple Capacity Building Modalities

There are increasing numbers of modes for the delivery of capacity-building activities. Processor inputs received for this study stated that flexible continuous training, and training aligning theory and practice, would be the most relevant. In line with this, there are important technological resources available to develop good quality training materials for all processors, and even delivering some trainings virtually. For equipment/maintenance providers, TNS has developed an innovation hub in Cotonou, Benin, a facility where participants can use the physical space and technological resources to design, test and build required tools and parts. This could lead to the development of quality regional part suppliers for processors.

Executive Summary (English) (continued)

Local Consumption/National market – Food Production

The India and Vietnam experience has shown that the expansion of the cashew sector includes not only continuous improvements in production and an increase in regional or domestic processing, but also the promotion of domestic consumption (kernels and by-products), as well as the expansion of secondary processing (roasting, seasoning, niche markets). For all three countries, there seems to be a growing national demand that could prove to be an interesting opportunity. A further interesting avenue is selling of cashew by-products for food production.

Gender

As the employment data show, there is an important gender dimension to cashew processing around the world. In most factories, the vast majority of workers are women, and they are therefore the ones who are overwhelmingly exposed to health risks. The data also show that management and decision-making tasks are almost exclusively performed by men. These inequalities highlight an opportunity for Prosper Cashew to promote gender transformation policies within processing itself, but also by supporting advocacy efforts to strengthen the role of women throughout the value chain.

Processor Eligibility for Participation

It was suggested that processor eligibility for funding/support would be based on processor size (>5,000 MT), which would essentially exclude small processors that make up a large percentage of the processing units in the Prosper Cashew countries. We would recommend further investigation into working with not only medium- to large-sized processors, but also small-sized processors

Certification

The global demand for cashew kernels is on a sustained growth path, which creates new opportunities for numerous actors to enter the market. Adherence to traceability, sanitary, security, sustainability, and transparency standards are also increasingly important for consumers and retailers worldwide. The development of certified products in Côte d'Ivoire, Ghana, and Nigeria that respond to the worldwide demand for these, is also an opportunity to capture the premium pricing for these products.

Ultimate Outcome

Prosper Cashew is targeting a significant increase in domestic processing with a goal of 50% of 2020 production. Barring some of the additional opportunities highlighted in this report, the project is well designed to support processors towards this ambitious goal, but the feasibility of reaching 50% in five years is unlikely, given the wide range of challenges faced by West African processors. This includes not only the financial and technical challenges addressed by the project, but all the other challenges presented in this report that are tied to both the long-term profitability of existing processors, and the sustainability of interventions launched by Prosper Cashew.

Executive Summary (French)

Le projet de promotion des opportunités de transformation de la noix de cajou en Afrique de l'Ouest (Prosper Cashew) est une initiative sur cinq années de 26 millions de dollars US (2020 à 2025) mise en œuvre par TechnoServe Inc. (TNS) et financée par le Ministère de l'Agriculture des États-Unis (USDA). Le projet Prosper Cashew favorisera les investissements dans le secteur de la transformation de la noix de cajou en Afrique de l'Ouest en renforçant les installations de transformation de la noix de cajou en Côte d'Ivoire, au Ghana et au Nigeria. Le projet se veut un complément d'autres investissements et programmes de l'USDA en Afrique de l'Ouest pour s'attaquer aux barrières du marché, par le biais d'une assistance technique et de solutions de financement visant à améliorer la productivité du secteur de la noix de cajou, à augmenter les revenus et à créer des emplois. L'objectif global du projet est que 50% de la production de noix de cajou brute (NCB) soit transformée en amandes en Côte d'Ivoire, au Ghana et au Nigeria. Les objectifs spécifiques pour atteindre ce but comprennent l'augmentation des investissements dans la transformation locale de la noix de cajou, et l'augmentation de la capacité de transformation et de l'utilisation des capacités. Pour atteindre ces objectifs, le projet a identifié quatre activités principales. TNS développera une stratégie de fonds qui comblera une lacune démontrée du marché, sélectionnera un gestionnaire de fonds avec de solides antécédents, et mettra ensuite en place un Cashew Catalyst Fund qui donnera accès à des fonds de roulement à long terme. Parallèlement, un mécanisme de rapprochement sera mis en place pour identifier les entreprises prêtes à investir (nouvelles et existantes) dans la transformation de la noix de cajou et les activités connexes, telles que les fabricants d'équipements locaux, et les mettre en relation avec les fournisseurs de capitaux existants. Le projet renforcera également et augmentera le nombre d'entreprises de transformation de la noix de cajou commercialement viables grâce à un mécanisme d'assistance technique (TAF), qui fournira aux entreprises bénéficiaires de Proposer Cashew le soutien technique nécessaire pour devenir des acteurs solides du secteur. Enfin, le projet visera à relier les agriculteurs, les groupes d'agriculteurs et les associations d'agriculteurs soutenus par d'autres projets financés par des donateurs - y compris le projet PRO-Cashew financé par l'USDA - directement aux transformateurs financés par Prosper Cashew, ainsi qu'à aider les transformateurs de noix de cajou à identifier et à accéder avec succès à de nouveaux marchés pour leurs produits.

Les informations contenues dans ce rapport de ligne de base ont pour but de guider TNS et son partenaire d'exécution, Initiative for Smallholder Finance (ISF Advisors), afin de comprendre le point de départ par rapport auquel les progrès réalisés au fil du temps devraient être mesurés, en utilisant le cadre de mesure du rendement. Sur les 24 indicateurs (au niveau des résultats et des produits), 10 requièrent des données de base autres que "zéro" ou "non applicable". Tous ces indicateurs ont reposé sur un sondage mené auprès des transformateurs pour collecter les données primaires ou se sont appuyés sur des données secondaires. En outre, des données ont été collectées pour sept autres indicateurs, afin de servir de repères pour les futurs rapports.

Le rapport de ligne de base est le résultat d'une vaste collecte et analyse de données primaires qui a commencé en janvier 2021 et s'est terminée par les analyses de données finales et la rédaction du rapport en mai 2021. Dans l'ensemble, un total de 32 transformateurs ont pris part au sondage et 23 ont été interrogés par entrevue, en plus de 48 autres parties prenantes interrogées et de trois tables rondes/discussions de groupe de discussion (FGD) organisées. Le cadre général de l'étude consiste en une évaluation non expérimentale, qui, fait important, ne nécessite pas de groupe de contrôle puisque Prosper Cashew a l'intention de travailler avec toutes les parties prenantes concernées dans les trois pays cibles, et permet de comparer les résultats quantitatifs à des critères définis (par exemple, les cibles des indicateurs) au fil du temps. L'étude s'est également concentrée de manière très significative

Executive Summary (French) (continued)

sur la collecte de données qualitatives afin de démontrer le lien futur entre l'assistance du projet et ses résultats. Parmi les limites de l'étude, on peut citer : la réticence des transformateurs et des autres parties prenantes à participer à l'étude de base ; la réticence des transformateurs à fournir des données sur le traitement de la NCB et des données financières ; la nécessité d'extrapolations car tous les transformateurs n'ont pas pu être interrogés ; l'absence de groupe de contrôle car TNS prévoit de travailler avec tous les transformateurs ; et la pandémie de COVID-19 qui a sans doute affecté tous les transformateurs à un degré ou à un autre.

Les données secondaires (N'Kalo 2021) ont révélé que pour la saison 2020, 8,2 % (Côte d'Ivoire : 7,9 %, Ghana : 9,5 %, Nigeria : 8,8 %) de la production nationale de NCB a été transformée en amandes avant d'être exportée. Dans l'ensemble, les transformateurs interrogés ont déclaré avoir transformé 6,478 MT d'amandes, ce qui, par extrapolation, donne 25,110 MT d'amandes. Par la suite, 5,906 MT d'amandes (extrapolation : 22,893 MT) ont été vendues. En ce qui concerne les autres produits de la noix de cajou, 7,798 MT de NCB, 1 161 L de jus de cajou, 480 L de liquide de coques de noix de cajou (LCNC), 185,2 MT de charbon de bois et 16 MT de déchets ont été déclarés vendus, bien qu'ils aient été vendus par cinq transformateurs ou moins. La Côte d'Ivoire a vendu le plus grand volume d'amandes, suivie du Nigeria, tandis que les grandes entreprises de transformation ont vendu un plus grand volume que les petites. Les transformateurs du Nigeria ont déclaré avoir vendu la plus grande quantité de NCB et de LCNC, tandis que ceux du Ghana ont déclaré avoir vendu le plus grand volume de charbon de bois. Seuls les transformateurs de Côte d'Ivoire ont déclaré vendre du jus et des déchets de cajou. En termes d'amandes, 11,5% ont été vendus sur le marché intérieur, 0,7% sur le marché régional et la majorité, soit 87,8%, sur le marché international.

Les résultats du sondage ont montré que la Côte d'Ivoire a vendu la plus grande quantité monétaire d'amandes, suivie de près par le Nigeria. Cependant, en termes de ventes totales de produits, c'est le Nigeria qui a vendu la plus grande quantité, sous l'impulsion d'une grande multinationale qui a également vendu des quantités importantes de NCB. En revanche, le Ghana a vendu des quantités plus faibles, surtout en termes de ventes d'amandes. Au total, les transformateurs auraient vendu pour 27 172 534 USD d'amandes, tandis que les produits totaux vendus s'élevaient à 39 992 571 USD. Les valeurs extrapolées sont respectivement de 105 319 898 USD et 155 224 638 USD. En 2020, les transformateurs ont enregistré un revenu ou un bénéfice réel négatif (réel : -8 843 552 USD, extrapolation : -34 324 803 USD) ; toutefois, les résultats varient selon les transformateurs. En Côte d'Ivoire, sur les huit transformateurs qui semblaient fournir des données précises sur les bénéfices, six ont déclaré un revenu réel négatif. Au Ghana, bien que les montants des bénéfices soient faibles, tous les transformateurs ont déclaré un revenu réel positif. Au Nigeria, quatre des cinq transformateurs ont déclaré des valeurs de revenu réel positives ; cependant, un transformateur a déclaré une valeur négative très élevée. Enfin, 13 transformateurs au total ont pu commenter le coût moyen de transformation des amandes, la moyenne générale étant de 3,85 USD par kilo d'amandes (768 USD/MT NCR) (Côte d'Ivoire : 3,17 USD/kg, Ghana : 6,79 USD/kg, Nigeria : 3,90 USD/kg).

Actuellement, 2 260 (extrapolé : 9 356) emplois à temps partiel et à temps plein (21+ jours/mois) ont été déclarés par les transformateurs, et un total de 3 130 (extrapolé : 12 958) emplois incluant du travail occasionnel (saisonnier). Les femmes sont plus nombreuses dans l'industrie que les hommes, mais elles sont plus souvent employées à des travaux manuels et beaucoup plus souvent déclarées comme travailleuses occasionnelles. Le score moyen global de la capacité organisationnelle était de 58,4 %, les transformateurs du Nigeria (73,7 %) ayant le score moyen le plus élevé, suivis des transformateurs de

Executive Summary (French) (continued)

Côte d'Ivoire (63,1 %) et des transformateurs du Ghana qui avaient un score moyen nettement inférieur (18,1 %).

Sur les 22 transformateurs actifs, 13 au total ont exporté vers divers pays en 2020. Ces transformateurs ont exporté des amandes vers 21 pays uniques (34 mentions de pays au total) et du LCNC vers un pays. Quatorze transformateurs ont déclaré avoir un total de 65 clients en 2020, les transformateurs nigérians ayant déclaré le plus grand nombre de clients, suivis des transformateurs de Côte d'Ivoire. Seuls cinq transformateurs actifs (22,7 %) ont déclaré avoir participé ou avoir été représentés (par exemple, au moyen de matériel de marketing, de brochures, d'échantillons) à un ou plusieurs salons ou conférences internationaux ou régionaux et à des missions commerciales en 2019 ou 2020. Quatre de ces entreprises étaient originaires de Côte d'Ivoire et une du Nigeria. Par la suite, un seul des cinq transformateurs ayant participé à des foires ou conférences et missions commerciales internationales ou régionales en 2019 ou 2020 a vu un contrat d'achat résulter de cette participation (il s'agissait d'un transformateur de taille moyenne de Côte d'Ivoire). Notamment, trois contrats d'achat ont découlé de leur participation à trois événements en 2019.

Dans l'ensemble, 30,8 % des transformateurs actifs ont déclaré avoir une certaine certification des normes de l'industrie et/ou de durabilité, les transformateurs de taille moyenne et grande étant plus susceptibles de déclarer une certification que les petits transformateurs. Seuls sept (25 %) des 28 transformateurs actifs et en projet ont déclaré recevoir un financement, les grands transformateurs recevant à nouveau plus souvent des financements que les moyens et les petits transformateurs.

Suite à la collecte de données, une série de conclusions et de recommandations ont été élaborées comme suit :

Partage de la documentation

Le secteur du développement a déployé des efforts considérables pour s'engager dans la chaîne de valeur de la noix de cajou en Afrique de l'Ouest au cours des dernières années, mais les transformateurs ont le sentiment d'un retour limité sur leurs investissements en temps (et souvent en argent). La majorité des parties prenantes consultées ont manifesté leur intérêt à recevoir un retour d'information/des idées sur cette étude, et il est recommandé qu'une version des informations contenues dans ce rapport de ligne de base soit partagée avec toutes les parties prenantes.

Architecture institutionnelle et cadre réglementaire

Alors que la Côte d'Ivoire dispose d'une architecture institutionnelle et d'un cadre réglementaire complets pour la chaîne de valeur de la noix de cajou, y compris des incitations fiscales pour les transformateurs et des mesures protectionnistes sur les exportations de NCB, le Ghana et le Nigeria en sont encore à leurs débuts. L'absence d'un cadre réglementaire pour les transformateurs au Ghana et au Nigeria est un défi important qui influencera en fin de compte les résultats du projet et que Prosper Cashew n'aborde pas directement. Nous recommandons à Prosper Cashew d'envisager la possibilité de s'engager avec les autorités et les transformateurs afin de soutenir les pays dans la mobilisation des transformateurs et aider à renforcer leur présence institutionnelle pour défendre leurs intérêts. Il est également possible de rendre cette approche opérationnelle en travaillant étroitement sur les stratégies

Executive Summary (French) (continued)

avec PRO-Cashew, mais les intérêts des producteurs, représentés par PRO-Cashew, et des transformateurs, représentés par Prosper Cashew, ne sont pas nécessairement alignés.

Intégration régionale

Travailler à l'harmonisation des politiques régionales influencerait l'accès à un approvisionnement tout au long de l'année, le coût de revient, l'accès au financement et aux services techniques, une infrastructure appropriée pour soutenir la croissance et la capacité à respecter les normes de qualité. Tous ces domaines ont un impact direct sur la compétitivité et la durabilité.

Modalités multiples de renforcement des capacités

Il existe un nombre croissant de modes de prestation des activités de renforcement des capacités. Les informations transmises par les transformateurs pour cette étude ont indiqué que la formation continue flexible et la formation alignant la théorie et la pratique seraient les plus pertinentes. Dans cette optique, d'importantes ressources technologiques sont disponibles pour développer du matériel de formation de bonne qualité pour tous les transformateurs, et même pour dispenser certaines formations de manière virtuelle. Pour les fournisseurs d'équipement/de maintenance, TNS a développé un centre d'innovation à Cotonou, au Bénin, une installation où les participants peuvent utiliser l'espace physique et les ressources technologiques pour concevoir, tester et construire les outils et pièces nécessaires. Cela pourrait conduire au développement de fournisseurs régionaux de pièces de qualité pour les transformateurs.

Consommation locale/marché national - Production alimentaire

L'expérience de l'Inde et du Vietnam a montré que l'expansion du secteur de la noix de cajou comprend non seulement des améliorations continues de la production et une augmentation de la transformation régionale ou nationale, mais aussi la promotion de la consommation locale (amandes et sous-produits), ainsi que l'expansion de la transformation secondaire (torréfaction, assaisonnement, marchés de niche). Pour les trois pays de Prosper Cashew, il semble y avoir une demande nationale croissante qui pourrait s'avérer être une opportunité intéressante. Une autre piste intéressante est la vente des sous-produits de la noix de cajou pour la production alimentaire.

Genre

Comme le montrent les données sur l'emploi, la transformation de la noix de cajou dans le monde comporte une importante dimension de genre. Dans la plupart des usines, la grande majorité des travailleurs sont des femmes, et ce sont donc elles qui sont majoritairement exposées aux risques sanitaires. Les données montrent également que les tâches de gestion et de décision sont presque exclusivement effectuées par des hommes. Ces inégalités mettent en évidence une opportunité pour Prosper Cashew de promouvoir des politiques de transformation de genre au sein même de la transformation, mais aussi en soutenant les efforts de plaidoyer pour renforcer le rôle des femmes tout au long de la chaîne de valeur.

Admissibilité des transformateurs à la participation au projet

Executive Summary (French) (continued)

Il a été suggéré que l'éligibilité des transformateurs au financement/soutien serait basée sur la taille du transformateur (>5,000 MT), ce qui exclurait essentiellement les petits transformateurs qui représentent un grand pourcentage des unités de transformation dans les pays de Prosper Cashew. Advisem recommande une étude plus approfondie pour travailler non seulement avec les transformateurs de taille moyenne à grande, mais aussi avec les transformateurs de petite taille.

Certification

La demande mondiale d'amandes de cajou est sur une trajectoire de croissance soutenue, ce qui crée de nouvelles opportunités pour de nombreux acteurs d'entrer sur le marché. Le respect des normes de traçabilité, d'hygiène, de sécurité, de durabilité et de transparence revêt également une importance croissante pour les consommateurs et les détaillants du monde entier. Le développement de produits certifiés en Côte d'Ivoire, au Ghana et au Nigeria, qui répondent à la demande mondiale pour ceux-ci, est également une opportunité de profiter du potentiel de prix plus élevés pour ces produits.

Résultat final

Prosper Cashew vise une augmentation significative de la transformation domestique avec un objectif de 50% de la production de 2020. En considérant certaines des opportunités supplémentaires soulignées dans ce rapport, le projet est bien conçu pour soutenir les transformateurs vers cet objectif ambitieux, mais la possibilité d'atteindre 50% en cinq ans est peu probable, étant donné les défis nombreux auxquels sont confrontés les transformateurs ouest-africains. Cela inclut non seulement les défis financiers et techniques abordés par le projet, mais aussi tous les autres défis présentés dans ce rapport qui sont liés à la fois à la rentabilité à long terme des transformateurs existants, et à la durabilité des interventions lancées par Prosper Cashew.

1. Introduction

This report presents the baseline data for the Promoting Opportunities for Cashew Processing in West Africa Project, thereafter called "Prosper Cashew." This five-year initiative (2020 to 2025), carried out by TechnoServe Inc. (TNS), will promote investment for the West African cashew processing sector by strengthening cashew processing facilities across Côte d'Ivoire, Ghana, and Nigeria. The baseline report is the result of an extensive primary data collection and analysis that began in January 2021 and ended with the final data analyses and report writing in June 2021. Overall, a total of 32 processors undertook the survey and 23 were interviewed, in addition to 48 other stakeholders interviewed and three roundtables/focus group discussions (FGDs) conducted. TNS commissioned a Canadian consultant company, Advisem Services Inc. (Advisem for short) to undertake this task, and provided support throughout the process.

The information in this report is meant to guide TNS and its implementing partner, Initiative for Smallholder Finance (ISF Advisors), to understand the starting point against which progress should be measured, using the performance monitoring plan (PMP). Out of the 24 indicators (at outcome and output levels), 10 require baseline data other than "zero" or "not applicable," all of which have used a processor survey tool to collect primary data. Additionally, data was collected for seven other indicators, to serve as benchmarks for future reporting, but by definition the indicator baseline is zero.[2] All indicators are documented in Appendix 1,[3] and each is discussed in the results section of the report.

On the whole, the tools administered have yielded a vast quantity of data, which aids in understanding the profiles, characteristics, challenges, opportunities, and opinions of processors and other stakeholders in the cashew value chain in Côte d'Ivoire, Ghana, and Nigeria. As such, this report can serve as a reference manual to guide TNS in the implementation and monitoring of activities, and to re-evaluate project strategies and targets ultimately geared towards sustainably strengthening processing capacity and well-positioning the cashew sector in the three focus countries, to compete effectively on the global market.

The report is structured so that Sections 2 and 3 discuss the background, the purpose of the baseline study and the methodologies used. Section 4, the heart of the report, presents the results of the baseline—with subsections dealing with each of the different indicators, as well as addressing most of the relevant study and learning questions. Section 5 touches on lessons learned and monitoring and evaluation (M&E) considerations, and Section 6 on conclusions and recommendations, as well as industry challenges and opportunities. The appendices present all the indicator disaggregations, as well as all the tools used to collect data.

[2] For example, for the indicators 'Number of loans disbursed as a result of USDA assistance (Standard #7)' and 'Number of jobs attributed to USDA assistance (Standard #20)', currently, at baseline, no loans or jobs can be attributed to USDA assistance, meaning that the indicator value is 0. But the study assessed the number of loans processors obtained over the last year and the number of jobs in cashew processing plants for comparison purposes.

[3] Appendices are supplied in a separate document.

2. Background and Purpose of the Study

2.1 Project Description and Geographic Scope

Currently, West Africa is the world's leader in cashew production, accounting for more than 45%[4] of the raw cashew nuts (RCN) harvested around the globe each year. The majority of RCN are exported to Asia, where they are processed into kernels before being shipped to consumer markets around the world. Importantly, less than 10% of RCN produced are processed within West Africa. This low level of domestic processing deprives West African countries of higher value-addition and jobs, and can translate into reduced and highly fluctuating prices for smallholder farmers and domestic processors.

TNS brings extensive project management capacity in Prosper Cashew's three focus countries (Côte d'Ivoire, Ghana, and Nigeria), as well as a history of generating results in the cashew sector across sub-Saharan Africa. To date, TNS has improved the incomes of more than 137,000 cashew farmers, increased the profitability of 45 medium-scale cashew processors, and created over 11,900 new jobs in eight countries across Africa.

Prosper Cashew is a five-year, USD 26 million project funded by the United States Department of Agriculture (USDA). TNS commenced the start-up phase of Prosper Cashew in October 2020, promoting investment for the West African cashew processing sector across Côte d'Ivoire, Ghana, and Nigeria. The project complements other USDA investments and programs in West Africa to address market barriers, through technical assistance and financing solutions to improve cashew sector productivity, increase incomes, and create jobs. The overall goal of the project is that 50% of RCN production is processed into kernels in Côte d'Ivoire, Ghana, and Nigeria. The specific objectives to achieve this goal include increased investment in local cashew processing, and increased processing capacity and capacity utilization. To achieve these objectives, the project has identified the following four main activities.

Activities 1 and 2: Financial Services

These activities will seek to unlock capital flow in the cashew sector. In partnership with ISF Advisors, TNS will develop a fund strategy that fills the demonstrated market gap, select a fund manager with a strong track record, and subsequently set up a Cashew Catalyst Fund that will provide access to long-term working capital. The Cashew Catalyst Fund is also envisaged to allow some currently dormant processors to become operational and commercially sustainable. In parallel, a Match-Making Facility will be set up, identifying investment-ready companies (both new and existing) in cashew processing and related businesses, such as local equipment manufacturers, and connecting them to existing capital providers. This will be achieved through engaging national/subnational chambers of commerce, export promotion agencies, and industry associations to link promising businesses to providers of long-term financing in their region. Additionally, the project will coordinate with the African Cashew Alliance (ACA) and its investment promotion services to stimulate the creation of new cashew processing facilities, strengthen and modernize existing facilities, and support the expansion and professionalization of the broader cashew sector.

Existing and new cashew businesses across the target countries will gain access to public and private resources as a result of their improved skills and knowledge gained under Activity 3, below, building confidence in their investment worthiness and helping them increase their use of financial services. All

[4] Source: <https://www.technoserve.org/our-work/projects/prosper-cashew-project/>.

in all, financial services delivered by the project will address critical financing gaps that constrain the processing sector, while also reducing some of the risks that have to date stopped existing capital providers from investing in cashew processing businesses.

Activity 3: Technical Assistance Facility

The project will strengthen and increase commercially viable cashew processing enterprises through a Technical Assistance Facility (TAF), which will provide investees and beneficiaries of Activities 1 and 2 with the necessary technical support to become strong industry players. This technical support will include training on aspects such as business planning, financial management, investment facilitation, human resource and workforce management, marketing, specific processing aspects, supply chain development, food safety management systems, traceability systems, environmental practices, and effective waste management. This support will help companies become strong and sustainable industry players, thus reducing risk for investor partners engaged through the Cashew Catalyst Fund and the Match-Making Facility. The capacity and knowledge gaps of each actor will be assessed and appropriate support provided. For example, Prosper Cashew will ensure that technical support explicitly includes modules for new processors, including business plan development, site selection, facility design, and equipment selection. Additionally, the project will build the capacity of selected training centers—such as Côte d'Ivoire's Conseil du coton et de l'anacarde (CCA), and the Centre d'innovations et de technologies de l'anacarde (CITA) in Yamoussoukro—to deliver curriculum for cashew processing operations and management, strengthen local processing equipment servicers or providers, help set up and support by-product processing, and assist the formation of supply chain management companies.

Activity 4: Buyer-Seller Relationships

The project will identify areas for collaboration with cashew farmer cooperatives/producer groups receiving support from other initiatives to strengthen local supply chains. In particular, the project will aim to link farmers, farmer groups, and farmer associations capacitated by other donor-funded projects—including the USDA-funded PRO-Cashew project (discussed later in the report; see description of goals in Box 1)—directly to processors funded by Prosper Cashew. The project will also support cashew processors to identify and successfully access new markets for their products by facilitating trade missions and participation in regional and international trade shows, and through coaching on best practices for deal-making and networking.

Box 1. The PRO-Cashew Project

A sister project to Prosper Cashew is PRO-Cashew, implemented by Cultivating New Frontiers in Agriculture (CNFA). This initiative is also funded by USDA, and it focuses on the production aspects, and the institutional and regulatory strengthening of the value chain.

PRO-Cashew's main goals are:

- To increase the productivity and efficiency of actors in the cashew value chain through strengthening the capacities of cooperatives/producer organizations, nursery systems and input suppliers, and strengthening data collection and dissemination systems.
- To improve and expand the trade of cashew and cashew products through improving crop quality; rehabilitating and renovating orchards; addressing gaps in data collection, analysis and dissemination; strengthening public-private partnerships; and encouraging harmonized regional policies to supply products that meet market demands.

2.2 Purpose and Objectives of the Study

This baseline study was commissioned by TNS to document the project's key performance indicators (KPIs) that require baseline data, with a view to providing the means to assess progress achieved over time, using baseline data as a reference. Additionally, the study provides key supporting information on these KPIs and on learning questions (where possible), and develops study questions that follow the criteria outlined in USDA's M&E documentation. Information gathered has helped to identify opportunities that Prosper Cashew can build upon and gaps that need to be addressed.

3. Methodology

3.1 Study Framework and Overall Approach

The overall study framework consists of an adequacy assessment,[5] which requires no control group[6] and allows quantitative results to be compared with set criteria (e.g., indicator targets) over time. The study has focused very significantly on qualitative data collection to demonstrate the future link between the project's assistance and its results. Furthermore, sectoral data for all the countries of interest and other cashew processing countries, as well as macroeconomic data, has been used to substantiate and provide context to results.

The study matrix presented in Appendix 2 has guided and formed the basis of the baseline in terms of evaluation criteria and questions that were answered during the study. Indicator mapping revealed that all baseline indicators would be answered through a processor survey and through document review, using supporting information provided by these two methods. Advisem analyzed all indicators to determine which indicators would require the collection of baseline data (i.e., would be informed by relevant, non-null baseline information) (see list in Table 1).

Table 1: Indicator List (Outcome and Output), if a Baseline was Required and the Method of Data Collection

Level	No.	Indicators	Baseline required (Y/N)	Methods/tool
IMPACT/ GOAL	1	Percent of domestic RCN production processed into kernel prior to export (based on 2020 production figures)	Yes	Document review (Survey)
OUTCOME	2	Value of annual sales of farms and firms receiving USDA assistance (Standard #18)	Yes	Survey (document review)
	3	Volume of commodities sold by farms and firms receiving USDA assistance (Standard #19)	Yes	Survey (document review)
	4	Number of jobs attributed to USDA assistance (Standard #20)	Yes – Baseline jobs will be assessed (0 "attributed" at baseline)	Survey

[5] Adequacy assessment can provide attribution to questions of provision and utilization (whether the goals, set by program developers, were met) but not for impact. For impact, however, the method can provide an inference on whether the change in behavior is of the expected direction or magnitude. A quasi-experimental design (to assess impact) could not be used as there is no control group.

[6] No control group is available as Prosper Cashew intends to work with all relevant stakeholders in the three focus countries.

Level	No.	Indicators	Baseline required (Y/N)	Methods/tool
	5	Number of individuals in the agriculture system who have applied improved management practices or technologies with USDA assistance (Standard #4)	No – 0 "improved" at baseline	Pre-/post-test
	6	Number of organizations with increased performance with USDA assistance (Standard #12)	Yes	Survey (document review)
	7	Average processing cost per unit (USD/MT) of output for selected agricultural commodities as a result of USDA assistance	Yes	Survey
	8	Total volume of additional kernel output processed by USDA-supported firms	Yes – Baseline kernel output needed for future comparison (0 "additional" at baseline)	Survey
	9	Value of new USG commitments and new public and private sector investment leveraged by USDA to support food security and nutrition (Standard #14)	No – 0 at baseline	Project records (loan records)
	10	Percentage increase in actual income of participating firms as a result of USDA support (profitability)	Yes – Baseline actual income required for future comparison (0 "increase" at baseline)	Survey
	11	Number of distinct markets to which selected agricultural products are exported	Yes	Survey
	12	Number of purchase contracts resulting from processor attendance at international trade fairs/conference and trade missions [note 1]	Yes – to have an indication of a starting point 0 – At baseline because not "project supported attendance"	Document review (records)
	13	Value of cashew products sold into domestic, regional and international markets	Yes	Survey (document review)
	14	Number of new certifications of industry and/or sustainability standards (e.g., HACCP, BRC, SEDEX, organic) received as a result of USDA assistance	Yes – to have starting point (0 "new" at baseline)	Survey
OUTPUTS	15	Number of individuals accessing agriculture-related financing as a result of USDA assistance (Standard #5) [note 2]	No – 0 at baseline Consultants will assess the baseline situation to the degree possible [note 3]	Project records (loan records)
	16	Number of loans disbursed as a result of USDA assistance (Standard #7)	No – 0 at baseline Consultants will assess the baseline situation to the degree possible [note 3]	Project records (loan records)
	17	Value of agriculture-related financing accessed as a result of USDA assistance (Standard #8)	No – 0 at baseline Consultants will assess the baseline situation to the degree possible [note 3]	Project records (loan records)
	18	Number of public-private partnerships formed as a result of USDA assistance (Standard #13)	No – 0 at baseline	Document review
	19	Number of cashew sector entities that receive technical assistance as a result of USDA support	No – 0 at baseline	Document review
	20	Number of new clients/trade partners obtained as a result of USDA assistance	Yes – to have starting point (0 "new" at baseline)	Survey
	21	Number of firms attending or represented at international/regional trade shows	No – 0 at baseline Consultants will provide a general assessment of participation in such shows at baseline.	Document review

Level	No.	Indicators	Baseline required (Y/N)	Methods/tool
	22	Number of individuals who have received short-term agricultural sector productivity or food security training as a result of USDA assistance (Standard #21)	No – 0 at baseline	Document review
	23	Number of individuals participating in USDA food security programs (Standard #22)	No – 0 at baseline	Document review
	24	Number of individuals benefiting indirectly as a result of USDA assistance (Standard #23)	No – 0 at baseline Consultants will assess via national statistics the average household size per country	Survey and document review

Notes:
1. A question was included in the survey to assess the current situation.
2. Questions were asked to understand the current financing situation of processors.
3. It must be noted that processors were reluctant to provide financial information.

3.2 Data Collection Methods

The methodology featured four lines of inquiry: a document and data review, a processor survey, key informant interviews (KIIs), and roundtables/FGDs.

Document and Data Review

An important step for the assignment was to examine thoroughly all documentation supplied by TNS. This included project descriptions, project documents and work plans, the evaluation plan, other relevant sources of information on Food for Progress interventions, and information from market associations. It also included key sectoral and macroeconomic data (e.g., ACA for West Africa; Global Cashew Council, N'Kalo) to substantiate and provide context for the data analysis at country, regional and international levels. It was also necessary to seek additional material from value-chain operators, public sector associations, partner non-governmental organizations (NGOs), and general information related to the cashew sector to gather the evidence needed to document indicators requiring data based on the desk review, to assess the current state of the cashew sector, and to answer key study questions. Additionally, secondary data was utilized to assess the context in Prosper Cashew countries, compared to other countries in the same region (e.g., Benin, Burkina Faso, Senegal, Gambia, Guinea-Bissau, etc.[7]) as the project has ambitious targets that will likely require TNS to work with almost all existing processors (with an installed capacity of at least 5,000 MT), equipment manufacturers, and other stakeholder businesses in the three target countries. This will help contribute to a clearer understanding of the achievements of the project at midterm and endline evaluation levels. Please see Appendix 3 for a list of the documents reviewed.

Processor Survey

Advisem used a cashew processor survey to gather quantitative data and a limited amount of qualitative data (e.g., through open-ended questions) from processors (see Appendix 4). Indicators from the results framework and PMP requesting first-hand quantitative information were firstly documented through

[7] It should be noted, however, that other USDA-supported projects are also working (or have worked) with processors in most African cashew-producing countries, thus somewhat reducing their ability to serve as comparisons. Advisem has looked at RCN production rates and processing rates per country regionally, and some other countries globally at baseline, and will evaluate at midline and endline to assess progress towards processing goals established for Prosper Cashew, as well as examine potential influencing factors.

the survey, and complemented through documentation and the qualitative data collection tools. The survey was designed to collect key procurement, processing, business, and management indicators at baseline to support performance monitoring.

Processor data was collected electronically using Kobo Toolbox and Enketo.[8] Due to the busy schedule of processors, we provided them the survey via email and URL link. A short document explaining some of the more complicated data to be collected was also provided. When processors did not respond electronically, calls and/or onsite visits were made to aid the processors complete the survey. TNS also played a significant role in obtaining processor participation. Please see Appendix 5 for information that was supplied advising stakeholders of the pending baseline data collection.

The survey was piloted before the collection of baseline data, and data was continuously verified during the implementation of data collection (e.g., reviewing all uploaded questionnaires to ensure completeness and conduct data validity checks; as well as reviewing against qualitative notes). Further verification through follow-ups with processors was done during data analysis.

Key Informant Interviews

Qualitative data gathering was an important line of inquiry of this baseline study, particularly the KIIs. Interviews were typically held with a single representative of a stakeholder group, but in some cases other individuals from the same organization joined. Stakeholders included government/public stakeholders (research institutions, investment promotion services, chambers of commerce, relevant ministry representatives), market associations, service providers, finance institutions, capacity building providers (e.g., individual consultants and organizations providing technical assistance), cashew processors, TNS Prosper Cashew project staff and implementing partners (ISF), donors (e.g., USDA), private investors/capital groups, international buyers, and cashew producer, processing and exporting cooperatives. Particular attention was given to key stakeholders that have demonstrated innovative approaches in the cashew value chain. A total of nine semi-structured interview guides were developed for the KIIs (see Appendix 6), specifically for processors, finance institutions/providers, government/public stakeholders, intermediaries/aggregators/exporters, international buyers, market associations, service providers, producer cooperatives, and TNS/ISF/USDA staff. Each interview took approximately one hour.

Roundtables/Focus Group Discussions

FGDs were held with representatives of multiple stakeholder groups in the form of roundtables. In all three countries, one roundtable conversation/FGD was held where producer cooperatives, processors, intermediaries, an international buyer, and a finance institution representative were invited to discuss the best ways to optimize relationships between value chain stakeholders. Please see Appendix 6 for the roundtable guide. Each roundtable took approximately one hour and thirty minutes and grouped five participants in Côte d'Ivoire, four in Ghana, and six in Nigeria.

[8] KoBo Toolbox is an open-source tool for mobile data collection. It allows you to collect data in the field using mobile devices such as mobile phones or tablets, as well as computers using webforms. Enketo is an open-source web application that uses a popular open-source webform format. Surveys were self-administrated by processors who were sent a URL link to the Enketo webform. Significant follow-up was done by the Advisem consultants (no training necessary as main consultants implemented this) when any inconsistency was noted.

3.3 Sampling Strategy

This section includes detailed information on the sampling methodology and the samples ultimately selected. Please see Appendix 7 for the fieldwork schedule. Based on the project information examined, the overall criteria applicable to the baseline study included the following:

- *Geographic location –* In Côte d'Ivoire, most processing facilities are situated close to RCN production in Odienné, Korhogo, Bouaké, Kolia, with others based in Abidjan and San Pédro. Most of the processors also have offices in Abidjan, where senior management is based. The Brong-Ahafo region in Ghana is the largest producer of RCN in the country and home to one of two large processors, as well as several small-scale dormant processors, with others based in Tema. In Nigeria, Prosper Cashew will target processors in Kwara, Kogi, Oyo, and Osun. The sampling ensured that stakeholders were selected in each of the countries and in the majority of regions.

- *Categories of beneficiaries –* The sample provided adequate representation of stakeholders that will be influenced through the project, including all processors in the project zone, government and other individuals across the value chain, as well as key TNS and ISF personnel. These groups of individuals were reached through a combination of quantitative and qualitative methods.

The specific methods for determining the sample for each of the quantitative and qualitative methods applied are discussed below.

3.3.1 Quantitative Sampling Strategy

Using an online survey platform, attempts were made to undertake a census of the 89[9] existing processors (operational, dormant/defunct, and in-project stage) in Prosper Cashew's countries (46 in Côte d'Ivoire, 16 in Ghana, 27 in Nigeria). The ability to conduct such a census relied heavily on TNS having up-to-date contact information for processors, and having engaged with these processors so they feel incentivized to undertake the survey. Overall, there were a total of 20 processors for whom valid contact information was never obtained. Notably, there were 20 processors that were non-operational (dormant or defunct) and 14 processors in the planning stage at the time of the survey, and although the survey had sections for these groups of processors, in-person visits were not done to ensure survey completion. In contrast, operational processors that did not successfully submit their data via the online survey were emailed/called numerous times to secure participation and were, in some cases, visited in person.[10]

Table 2: General Sample for Processors

[9] This is based on a mapping TechnoServe conducted during project start-up that included processors of all sizes (not only the proposed project target size of at least 5,000 MT) and was based on available information at the time. As there is no centralized, public database of processors in the region, the list may not include all processors.
[10] A total of 16 in-person visits were conducted, with 14 in Côte d'Ivoire, 2 in Nigeria, and 0 in Ghana.

Description		Population			Population with valid contact information			Population that confirmed receipt			Sampled		
		Côte d'Ivoire	Ghana	Nigeria	Côte d'Ivoire	Ghana	Nigeria	Côte d'Ivoire	Ghana	Nigeria	Côte d'Ivoire	Ghana	Nigeria
Large firms (10,000 MT+)	Operational	14	1	4	14	1	4	13		3	2		2
	Dormant												
	Defunct	1	1										
	Planned	4		1	4		1	3		1	3		0
	Unknown	4			3								
Medium firms (5,000-9,999 MT)	Operational	3		3	2		3	1		2	3		1
	Dormant												
	Defunct	1		1									
	Planned	1		1	1								
	Unknown	2			1								
Small firms (<4,999 MT)	Operational	7	8	5	7	8	5	6	6	3	6	4	4
	Dormant	4	1	1	4	1	1	3	1	1	2	1	1
	Defunct	3	3	7			2						
	Planned	1			1		4	1		4	0		3
	Unknown	1											
Unknown	Operational		1			1							
	Dormant												
	Defunct												
	Planned		2			1							
	Unknown												
Total		46	16	27	37	12	20	27	9	14	16	5	11

Overall, of the 46 operational processors and 24 non-operational processors for which up-to-date contact information was provided, a total of 22 and 10 respectively were surveyed. See Table 2 for the distribution by country, processor size, and operational status.

3.3.2 Qualitative Sampling Strategy

Qualitative sampling was purposeful.[11] To canvass the widest range of stakeholders and gather the richest of responses, the consulting team gave special attention to identifying, understanding, and documenting innovative approaches in the cashew value chain. Advisem conducted a total of 71 KIIs and three roundtables (see distribution in Table 3 and list of participants in Appendix 8), including 23 KIIs with processors across the three focus countries.

Table 3: Number of Interviews/Focus Groups Conducted by Country and Stakeholder Type

	Côte d'Ivoire	Ghana	Nigeria	Interna-tional	Total number	Percentage
Processors	14	4	5	0	23	31.1%

[11] Purposeful sampling refers to sampling a diverse range of stakeholders to get differing views. Sampling similar stakeholders means that response "saturation" is reached much more quickly in the qualitative work.

	Côte d'Ivoire	Ghana	Nigeria	Interna-tional	Total number	Percentage
Cooperatives	3	1	2	0	6	8.1%
Government/public institutions	3	3	4	1	11	14.9%
Market associations	2	2	2	1	7	9.5%
Equipment and service providers	2	1	0	1	4	5.4%
Finance institutions	2	1	2	0	5	6.8%
International buyers	0	0	0	2	2	2.7%
Intermediaries	1	1	1	0	3	4.1%
TNS/USDA/partner	0	0	0	10	10	13.5%
Roundtables	1	1	1	0	3	4.1%
Total	28	14	17	15	74	100.0%

Table 4 below shows the distribution of processors interviewed representing large, medium and small firms, operational, dormant, defunct, or planned firms, within all three countries. Although our initial sampling strategy was designed to cover the most diverse number of processors possible, due to limited availability of certain processors, we were able to conduct a total of 23 KIIs, out of a planned 29 KIIs. We are confident, however, that the interviews cover a sufficiently diverse pool of stakeholders.

A total of three roundtables were conducted with producer cooperatives, processors, and intermediaries (see Table 5 for details). Roundtable conversations discussed models on how to optimize partnerships between the value chain stakeholders. Roundtable participants were selected following the KIIs conducted with participants. Informants that seemed to have the most relevant experiences and inputs to contribute to a discussion on how to optimize relationships between stakeholders were invited to participate.

Table 4: Interviews Conducted with Processors

Description		Côte d'Ivoire	Ghana	Nigeria	Total
Large firms (10,000 MT+)	Operational	5	0	2	7
	Dormant	0	0	0	0
	Defunct	0	0	0	0
	Planned	1	0	0	1
	Total	6	0	2	8
Medium firms (5,000-9,999 MT)	Operational	3	0	2	5
	Dormant	0	0	0	0
	Defunct	0	0	0	0
	Planned	0	0	0	0
	Total	3	0	2	5
Small firms (<5,000 MT)	Operational	3	2	1	6
	Dormant	1	1	1	3
	Defunct	0	0	0	0

Description		Côte d'Ivoire	Ghana	Nigeria	Total
	Planned	0	1		1
	Total	4	4	2	10
Total		13	4	6	23

Table 5: Roundtable Participants

Stakeholders represented at roundtables		
Nigeria (6 participants)	Côte d'Ivoire (5 participants)	Ghana (4 participants)
• Processors (3) • Farmers' cooperative (1) • Finance institution (1)	• Cooperative (1) • Processor (1) • Equipment provider (1) • International buyers (2)	• Intermediary (1) • Processor (1) • Finance institution (1) • International buyer (1)

3.4 Data Analysis

Quantitative Analysis

Advisem's consultants developed databases in Excel to store survey data and conduct analyses. Output tables and figures of means and proportions were created, as needed, to answer indicators and evaluation questions. Data was disaggregated by the various levels of disaggregation (e.g., country, processor size, processor type[12], processor gender and age[13], etc.), with the caveat that the margin of error of results obtained increases with each disaggregation level. The detailed data analysis plan for the quantitative indicators is found in Appendix 9.

Qualitative Analysis

The qualitative analysis of KIIs, roundtables/FGDs and documentary data complemented and deepened the statistical data of the surveys by explaining and elaborating on the quantitative evidence and relationships between variables, thereby enabling more robust answers to the key study and learning questions, as well as indicator values. Data generated through the KIIs and roundtables/FGDs was analyzed through a variation of the *constant comparative triangulation* approach, through which the analysis of each set of data was considered when reviewing the next.

Concretely, this meant analyzing the information from the various consultations conducted in a systematic manner until information saturation was reached. For example, with regards to processors, the initial interviews would offer important new information, new information that would diminish as various processors interviews were analyzed. The collated information was than coded and analyzed.

[12] Microenterprises employed <10 people in the previous 12 months, small enterprises employed 10-49 people, medium enterprises employed 50-249 individuals and large enterprises and corporations employed >250 individuals.

[13] Processor gender = Male (all male owners); Female (all female owners); Mixed (both male and female owners). Processor age = Over 30 years (all owners over 30 years); Less than 30 years (all owners under 30 years); Mixed (owners both over and under 30 years).

Information gathered across stakeholders (for instance, information on buying RCN from processors, intermediaries, and producers) was triangulated to ensure that the experience and suggestions of the various stakeholders was analyzed and featured in this study.

This allowed the evaluation team to identify and confirm patterns and highlight any inconsistencies. An analysis matrix was developed for the qualitative data from the KIIs and roundtables/FGDs, focused on the study and learning questions. Subsequently, qualitative and quantitative data was analyzed jointly by the team to identify trends, counterfindings, risks, opportunities, and recommendations.

3.5 Challenges, Issues, Limitations, and Potential Sources of Biases

Advisem has identified the following challenges, issues, limitations, and potential sources of biases for this baseline study:

- *Reluctance of processors and other stakeholders to participate in baseline:* Processors and other stakeholders were not always willing to participate in the survey or the KIIs (e.g., because of busy schedules, procuring RCN, survey fatigue as PRO-Cashew interviewed individuals at the end of 2020, individuals being approached by other projects in the design phase,[14] ISF sending out a survey at the same time as the baseline data collection, and an overall lack of transparency and caution within this nascent and emerging sector). TNS explaining the Prosper Cashew project and the purpose of the baseline survey, introducing Advisem, and asking for their participation helped to increase buy-in. Advisem followed up with processors and other stakeholders numerous times through both email and phone calls, to encourage participation. Also, in April 2021, TNS requested and received approval from USDA for an extension of the submission of the baseline study until June 15, 2021 to allow processors to have extra time to complete the processor survey. However, in the end, it was not possible to take a complete census of processors. Notably, results must be regarded with caution because of the relatively small sample sizes, especially when results are disaggregated. When examining operational processors, a total of 47.8% responded to the survey (Côte d'Ivoire: 45.8%, Ghana: 40.0%, Nigeria: 58.3%), with 70% (Côte d'Ivoire: 85.7%, Ghana: 50.0%, Nigeria: 80.0%) of small-sized processors responding to the survey and 32.0% (Côte d'Ivoire: 29.4%, Ghana: 0.0%, Nigeria: 42.9%) of medium- and large-sized processors responding to the survey (see Table 2 for numbers).

- *Reluctance of processors to provide processing and business data:* Some processors were not willing to provide detailed information relating to their processing operations (e.g., sales, volumes, employees, etc.) as this can be seen as a competitive risk in the cashew sector. Additionally, some processors felt that financial information was too sensitive to provide. Large-size processors were especially reluctant to provide data. For example, one large, multinational processor stated that they considered 95% of the requested information commercially sensitive. Although they did undertake the survey, they refused to answer a large majority of the questions. Notably, TNS has not yet worked with these processors, so confidence and trust are not yet strong at this point in time.[15] Where possible, publicly

[14] Thus, have undertaken surveys, but have not seen results, when projects have not been funded.

[15] TNS expects that once they start working intimately with these companies and build mutual trust, they will become privy to this type of information. They also anticipate using the processor survey with processors who refused or did not have time to complete the survey during the baseline. If processors provide significant information specifically for the 2020 season, baseline indicator values could potentially be re-calculated. However,

available statistics have been used to augment values. As noted at inception, all financial indicators need to be assessed through monitoring by the fund manager.

- *Only a high-level Theory of Change:*[16] Currently, Prosper Cashew is based on a results framework that was built upon the standard USDA Food for Progress results framework. It is mostly the choice of standard USDA indicators. As a result, it seems that one of the components of the Theory of Change – "Stakeholders have incentives to establish and maintain local supply chains" – has a limited number of indicators.

- *No control group available:* Prosper Cashew's target population is the entire processing industry in each of the three focus countries, thus limiting the availability of any control group for comparison. To manage this, Advisem used an adequacy design. Adequacy assessments require no control group, and quantitative results are compared with set criteria (e.g., indicator targets).

- *Extrapolations:* The original plan was to undertake a census of all processors, particularly active processors. However, there were processors that did not respond to requests or that chose not to partake in the survey. As a result, extrapolations are done for some indicator values, involving volume of kernel sold, sales of kernel, and employee numbers. The best method was deemed to be utilizing the information obtained from the document review (i.e., N'Kalo) on how much RCN processors from each Prosper Cashew country processed during 2020, and dividing by the amount of RCN actually processed by processors answering the questions for an indicator, thus developing a multiplication factor. Both actual survey values and extrapolations are provided in the report. All extrapolated factors must be regarded with caution. For the disaggregations by country, differentiated multiplication factors can be used for extrapolation, but for other disaggregations the overall or total extrapolation factor must be utilized as no overall value or limit is available for these disaggregations (e.g., N'Kalo does not have report on the overall RCN processed by size of processors). It must also be noted that Prosper Cashew data collected during processor landscaping on installed capacity and utilized capacity is often different from that which processors provided in the survey, thus limiting the use of this processor landscaping data. Generally, processors provided lower installed capacity values in the survey, although some did provide higher values. Additionally, for Côte d'Ivoire and Nigeria the processor landscaping utilized capacity (assumption 2020 data was provided) was respectively around two times and three times higher than the estimated national processing values provided by N'Kalo.

- *COVID-19 pandemic:* The COVID-19 pandemic has restricted international and national travel. The international team members were only able to travel to Côte d'Ivoire. Restrictions on movement and in-person meetings tightened in Ghana the month before fieldwork, and Nigeria required a 10-day quarantine. Advisem national consultants helped to mitigate this. Furthermore, the pandemic has caused economic stress and shifted policy focus, which are issues the consultants actively pursued during data collection and analysis. Both quantitative

if this occurs slightly later during program implementation these values may be more appropriate for year one of monitoring.

[16] "IF cashew processing and other agri-enterprises in Côte d'Ivoire, Ghana and Nigeria have better access to appropriate investment capital and technical expertise, AND stakeholders have incentives to establish and maintain local supply chains, THEN local processing capacity will increase, AND the competitiveness of the West African cashew processing industry will improve."

and qualitative data collection provided actors an opportunity to comment on how COVID-19 has affected them, so the Prosper Cashew project can recognize potential constraints and tailor its approach.

3.6 Ethics

For this baseline, the following ethical standards were maintained:

- *Data privacy and protection:* The Advisem team will follow General Data Protection Regulation (GDPR) guidelines[17] in the storage of documents and anonymization of any identifying information. All notes and data will be protected. No names will be used in data analysis or the report. All material will be transferred to TNS post evaluation. For the use of quotes in the report, only the country, role (if applicable), type of participant and gender of participant will be used.
- *Voluntary participation:* Participation in all exercises was voluntary, and participants were informed that their engagement with the Prosper Cashew project is not related to their participation in interviews or surveys.
- *Non-bribery:* Advisem will ensure no bribery or unrelated incentives will be given to any participants in the study. Refreshments may be provided if necessary.
- *Collection of sensitive information:* The information gathered will be used for the purposes of this study only. The raw data gathered will be presented to TNS at the end of the baseline.
- *Informed consent:* Participants were requested for informed consent to participate at the beginning of the exercises and were given the opportunity to end the interview/survey and withhold their answers from the study up to two weeks after the conclusion of the exercise.
- *Confidentiality/anonymity:* The data gathered will be used internally for the purposes of this study and given to TNS at the end. For the purposes of this study, confidentiality and anonymity will be kept if the participating informant specifically requests for this.
- *Intrusion:* Advisem's role in this baseline is as an external, third-party independent evaluation partner, and as such it will not intrude in project design or implementation. Recommendations will be proposed and given to the Prosper Cashew project for consideration.
- *Conflict of interest:* As per the Foreign Agricultural Service M&E policy, all Advisem evaluation team members provided a signed statement attesting to a lack of conflict of interest, or disclosing any real or potential conflicts of interest.

[17] Source: <https://gdpr-info.eu/>.

4. Study Findings

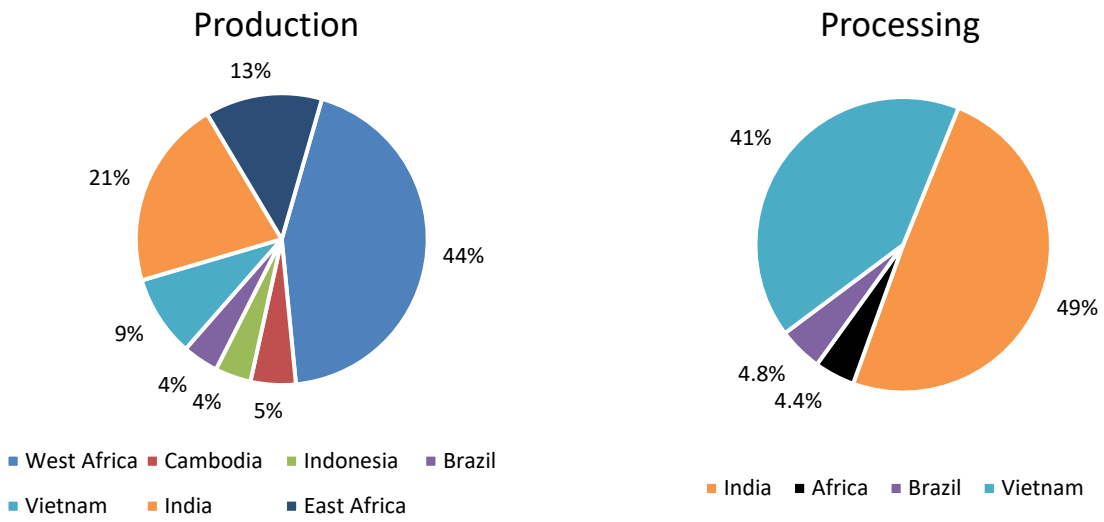
General Background

According to the ACA in 2019,[18] Africa accounted for 58% of global cashew production, but only 4.4% of global kernel processing. In contrast, Vietnam and India accounted for the lion's share of global processed kernel, while interestingly it appears that Brazil is processing all the RCN that it produces (see Figure 1, below). However, as estimated at the start of the 2020 season, it appears that West African production saw a slight decline in 2020. The West African 2021 harvest is projected to be above that of 2020; however, the East African harvest that finished in early 2021 was lower than forecasted, especially in Tanzania.[19]

An important part of the RCN produced in West Africa is traded through land borders between the producing countries. According to N'Kalo,[20] most of this trade is unofficial, and little reliable data is available about it, thus estimates tend to be made based on local trader's information and monitoring of the entire cashew season. This unofficial trade has changed a lot during the last decade, depending on political instability, public regulations and competing policies, domestic processing levels, and evolution of trader networks. Countries such as Côte d'Ivoire, Nigeria, Burkina Faso, Mali, Guinea-Bissau, and Senegal have a net export RCN, while Benin, Togo, Guinea, Gambia, and especially Ghana have a net import of RCN from the previously mentioned countries. The export from Côte d'Ivoire is important considering the country has banned land export (see Table 6, below). However, as these land restrictions have limited resources to be enforceable, they create incentive for smuggling and informal trade. Notable for the 2021 season, with the resurgence of COVID-19, land borders were formally tightened. For example, in early 2021, increasing COVID-19 cases in Ghana meant the government stepping up measures to curb the spread of disease, and these include tightening of land borders limiting the formal import of RCN from Côte d'Ivoire.[21]

[18] African Cashew Alliance. 2019. *Invest in Africa: Cashew.*
[19] Fitzpatrick, J. February 2021. *AfricasheW450 – Cashew Market Outlook.*
[20] Nitidæ. June 2019. *The West African Cashew Sector in 2018 – General Trends and Country Profiles.*
[21] N'Kalo. February 17, 2021. *Cashew Market Bulletin.*

Figure 1: 2019 Production and Processing Percentages by Country/Region



Source: Derived from African Cashew Alliance. 2019. I*nvest in Africa: Cashew.*

Table 6: Estimated Cashew Production in 2019 and 2020, as well as RCN Exports for West African Cashew Producing Countries

Country	Estimated production in RCN		RCN exports (March 2020 to February 2021)				
	2019	2020	India	Vietnam	To others (out of Africa)	Through land borders in Africa	
Côte d'Ivoire	890,000	887,500	105,000	570,000	2,500	140,000	to Ghana
Nigeria	285,000	273,000	34,000	155,000		60,000	to Benin
Ghana	140,000	131,500	115,000	185,000	5,000	-186,000	from Côte d'Ivoire, Mali and Burkina
Benin	160,000	155,000	165,000	40,000		-60,000	from Nigeria
Togo	21,000	19,500	23,000	25,000	5,000	-37,500	from Mali and Burkina
Burkina Faso	115,000	100,500	22,000	30,000		35,000	to Togo/Ghana
Mali	60,000	56,500	3,000	2,000	1,000	50,000	to Togo, Ghana and Gambia
Guinea	65,000	56,000	32,000	40,000		-16,500	from Côte d'Ivoire and Guinea-Bissau
Guinea-Bissau	220,000	190,000	120,000	45,000	2,000	20,000	to Guinea and Gambia
Senegal	45,000	38,500	8,000	15,000		15,000	to Gambia
Gambia	18,000	11,500	23,000	8,000		-20,000	from Guinea-Bissau, Senegal and Mali
Total	2,019,000	1,919,500	650,000	1,115,000	15,500		

Source: Data derived from N'Kalo. January 8, 2021.

Large industrial, medium-sized and small processing units should be differentiated, as they each have their own dynamics. Some reports suggest that a minimum processing capacity is required to be competitive, but this minimum capacity varies among studies from 1,500 MT to 5,000 MT a year or more. It should be noted that these larger units may indeed be more efficient, but they will deliver fewer jobs per MT of RCN and may have fewer multiplier effects in the local economy. Also, smaller

units may not fully depend on kernel processing, but rather target specific market segments, such as local markets, and combine operations with other economic activities.[22] Additionally, kernels are not the only product (for snack food and making confectioneries) that can be produced, allowing for companies to diversify (see Table 7).

Table 7: Cashew By-Products and their Uses

Product	Description and uses
Cashew nutshell liquid (CNSL)	• Top by-product gotten from cashew nut processing because of its unique chemical properties • 30-35 % of the raw nut shell is the nut shell liquid • Main utilization of the CNSL is in the polymer sector, where it is the raw materials for brake production, varnishes and surface coating • Also, component in drugs, paper ink, textiles, and cosmetics
Cashew skin extract	• Reddish-brown testa that covers the kernel and is rich in hydrolyzable tannis and polyphenols (e.g., cardol, anacardic acid and cardanol) • Natural antioxidant, rich animal feed, useful resource in leather manufacturing industry
Cashew shell cake/outer shell	• Derived after the removal of the nutshell liquid • Utilized as fuel – directly burnt as biomass or is used as feedstock for gasification or is converted into briquettes • Directly used in cashew nut processing factories and in shell liquid extraction or energy can be sold • Reported that the calorific value is higher than sawdust
Cashew apple	• Food production – jam, syrup, chutney, beverage and juice • Medicinal uses – treatment of scurvy, diarrhoea, pharyngitis and chronic dysentery
Other minor products	• Cashew kernel oil, cashew kernel powder, cashew kernel butter and cashew kernel milk

Sources: Karthickumar, et al. 2014; Kehinde Ademola, A., et al. 2021.

4.1 Key Performance Indicator Results

4.1.1 General Demographics of Processor Survey Respondents

Table 8 below provides the general demographics of the sampled processors. In total 32 processors were sampled, 22 of which were active, 4 inactive, and 6 at in-project stage. Generally, quantitative results will revolve around information provided by active processors. In the case that inactive or in-project processors are included in the analysis, these are specifically stated in the text. The largest number of processors were sampled in Côte d'Ivoire (16), followed by Nigeria (11) and Ghana (5). Also, many processors sampled (21) were small-sized (4,999 MT or less) (22 consider themselves small and medium-sized enterprise (SMEs[23])), followed by large (7) (10,000 MT or more) and medium (4) (5,000 to 9,999 MT) processors. Only one in-project processor is solely female-owned, and only one inactive processor is owned by individuals less than 30 years of age (see Table 8). Please note that one active processor did not provide the sex or age of owners.

[22] Ton, et al. December 2018. *Cashew Nut Processing in West Africa. Value Chain Analysis. Benin and Côte d'Ivoire.*
[23] Small enterprises employed 10-49 people, medium enterprises employed 50-249 individual.

Table 8: Processor Survey Respondents by Status, Country, Processor Size, Processor Type, Sex of proprietor, and Age of Proprietor

Category		Active	Inactive	In-project	Total
Country	Côte d'Ivoire	11	2	3	16
	Ghana	4	1	0	5
	Nigeria	7	1	3	11
Processor size	Small	14	4	3	21
	Medium	4	0	0	4
	Large	4	0	3	7
Processor type	Large multinational	3	0	1	4
	Large national	4	0	1	5
	SME	15	3	4	22
Sex of proprietor	Female	0	0	1	1
	Male	10	3	3	16
	Mixed	11	1	2	14
Age of proprietor	Less than 30 years	0	1	0	1
	More than 30 years	19	2	6	27
	Mixed	2	1	0	3
Total		22	4	6	32

All processors are selling cashew kernels, while a limited number also sells cashew juice (2) and cashew nutshell liquid (CNSL) (2). Although many processors reported processing and selling RCN in some cases this was not being directly sold, but only processed. In the case of waste, companies were not tracking sales (see Table 9).

Table 9: Cashew Products Company's Reported Processing and Selling[24]

Category	Reported	Total	Percentage
RCN	14	22	63.6%
Cashew kernels	22	22	100.0%
Cashew juice	2	22	9.1%
CNSL oil	2	22	9.1%
RCN shells for charcoal	5	22	22.7%
RCN for electricity generation	1	22	4.5%
Cashew waste (animal feed, fertilizer)	7	22	31.8%
Other(s)	3	22	13.6%

The average RCN kernel out-turn ratio (KOR) reported by processors in 2020 was 46.38, with similar values across the Prosper Cashew countries (Côte d'Ivoire: 46.11, Nigeria: 46.72, Ghana: 46.00). The

[24] Please note that some companies only processed RCN and did not sell RCN.

average expected RCN KOR for the 2021 harvest is 47.37 (Côte d'Ivoire: 47.16, Nigeria: 47.86, Ghana: 47.00). The approximate percentage of output kernel in grade WW320 for 2020 was 38.0% (Côte d'Ivoire: 33.0%, Nigeria: 45.5%, Ghana: 39.25%; Small-sized: 42.4%, Medium-sized: 34.8%, Large-sized: 23.3%). A total of 54.5% of active processors (n = 22) expect to see a change in kernel outputs (grade WW320) in 2021 (13.6% no; 31.8% do not know). All those that expect to see a change stated that the WW320 percentage would be higher, owing to improved sourcing strength to procure greater amounts of higher-quality RCN and internal controls for 2021 (reduction in waste, fewer breakages, improved grading) being the most commonly reported reasons.

The majority of processors stated that they could provide processing statistics for the period of February 1, 2020 to January 31, 2021.[25] Other processors stated that they could respond from January 1, 2020 to December 31, 2020. All values are used as provided, as processors will likely continue to respond using the same period at subsequent survey intervals, and one month's variation should not make a difference. One processor did state that they would respond from January 1, 2019 to December 31, 2019, a result of their inactivity in 2020. Generally, this processor's values have been removed from indicator analyses; however, where they are included, this will be indicated.

4.1.2 Overall Production and Processing Levels

Overall, in 2020, the Prosper Cashew countries reported production of 1,292,000 MT of RCN, and local processing units were estimated to process 106,600 MT of RCN,[26] resulting in 8.2% of domestic RCN production being processed into kernel. Côte d'Ivoire had significantly higher production and processing levels than either Ghana or Nigeria, but all processed similar percentages of their countries' RCN production (Côte d'Ivoire: 7.9%, Ghana: 9.5%, and Nigeria: 8.8%) (see Table 10). In comparison to other West African cashew producing countries, only Togo (20.5%) and Burkina Faso (13.4%) reported processing more of their locally produced RCN (see Table 11). These percentages are best estimates, as other factors may influence results. For example, survey results revealed around 91% of kernels processed in 2020 were sold; furthermore, although less relevant to the actual indicator definition, processors may also sell locally rather than export.

Table 10: Baseline Values for the Indicator Percentage of Domestic RCN Production Processed[27]

Indicator	Baseline value [note]
Indicator #1: Percent of domestic RCN production processed into kernel prior to export (based on 2020 production figures)	Côte d'Ivoire: 7.9% Ghana: 9.5% Nigeria: 8.8% Total: 8.2%

[25] The rationale behind the decision to default to an annual February to January period is to align with the start of the RCN harvest season, which does not usually start before February. On the processing side, the previous year's harvest may continue to be processed into January of the new year. The factory usually only starts receiving the new year's harvest as of February and this timeframe therefore allows to best monitor a full year of processing levels against a full year's production (harvest) levels.

[26] Based on secondary data from: N'Kalo. January 8, 2021. *Cashew Market Bulletin.*

[27] Please note that no other disaggregations except for country can be provided for Indicator 1. This indicator is derived from secondary data and secondary sources do not provide information on any other disaggregations. The consultants do not view extrapolation to be appropriate for this indicator and would recommend that the only disaggregation is country.

Indicator	Baseline value [note]

Note: Based on secondary data supplied by N'Kalo. January 8, 2021.

Table 11: Estimated Percentage of Nationally Produced RCN Processed within Prosper Cashew Target Countries and Other West African Countries

Country	Estimated production in 2020	Local processing	Percentage processed
	in RCN (MT)	in RCN (MT) (kernel * 5)	
Côte d'Ivoire	887,500	70,000	7.9%
Nigeria	273,000	24,000	8.8%
Ghana	131,500	12,500	9.5%
Benin	155,000	10,000	6.5%
Togo	19,500	4,000	20.5%
Burkina Faso	100,500	13,500	13.4%
Mali	56,500	500	0.9%
Guinea	56,000	500	0.9%
Guinea-Bissau	190,000	3,000	1.6%
Senegal	38,500	500	1.3%
Gambia	11,500	500	4.3%
Total (West Africa)	1,919,500	139,000	7.2%

Source: Based on N'Kalo. January 8, 2021.

N'Kalo estimates were similar to those from other sources. For example, ACA estimated in Côte d'Ivoire during the 2020 season that 715,000 MT of RCN was exported, and domestic processors bought 90,000-100,000 MT, some of which may have been exported as RCN eventually,[28] whereas Adegbite (2020) stated that Nigeria processors only processed an estimated 10% of the total RCN produced. Compared to the 2019 estimates reported by Prosper Cashew (Côte d'Ivoire: 6%,

Box 2. Brazil – Cashew Season Summary

Brazil may be a prime country to which Prosper Cashew should look to gain important insights on improving the percentage of RCN processed in its target countries. *Cashew Week* reported that Brazil currently is estimated to process in-country 100% of its RCN production. In 2020, there was a small decrease in Brazilian RCN production, mainly due to the extension of the rainy season, which contributed to a delay in the beginning of the harvest in different regions. As a result, the RCN crop was 138,700 MT, which is similar to production levels in Ghana. In the last five years, there has been an increase in domestic consumption, with an estimated 55% of cashew kernels being exported (2020: 15,456 MT), while 45% are destined for the domestic market (2020: 14,200 MT). Of great importance is the fact that approximately 40% to 45% of the cashew kernel produced in Brazil is processed by small and medium-sized entrepreneurs.

Source: Vitor Oliveira. Instituto Caju, Brasil.

[28] African Cashew Alliance. *AfriCashewSplits Market Report. Week 4: January 25-31, 2021.* N°1.

Ghana: 10%, Nigeria: 16%)[29], Côte d'Ivoire has slightly increased the percentage of RCN processed, Ghana remains almost the same, and Nigeria has somewhat decreased.

The Prosper Cashew target of processing 50% of domestic production is based on the collective RCN production in 2020 of the three countries. Currently, according to Nitidæ, there is an upward trajectory in production: 2017 (965,000 MT), 2019 (1,260,000 MT), and 2020 (1,315,000 MT). However, Kehinde Ademola et al. (2021) reported that cashew production in Nigeria is on the decline, therefore, to scale up production, revitalization of old plantations and establishment of new plantations are recommended. Although the Ghanaian government is focused on increasing cashew production, some experts have raised concerns about increasing devotion to RCN production in Ghana's breadbasket (as often agriculture focused on other crops related to food security in Ghana is replaced), seeing that the vast majority of RCNs produced in Ghana are destined for export.

4.1.3 Sales and Profitability

Table 12 presents the baseline values for the three indicators related to sales (monetary and volume) and profitability. All indicators have baseline values that have been extrapolated to provide an estimate of the baseline situation, and each will be discussed in detail below. Please note that indicator tables in the text will tend to focus on total values, while values for all disaggregations can be found in Appendix 1.

Table 12: Baseline Values for the Indicators Related to Sales (Monetary and Volume) and Profitability

Indicator	Baseline value
Indicator #2: Value of annual sales of farms and firms receiving USDA assistance (Standard #18)	Kernel (actual): USD 27,172,533.71 Kernel (extrapolation): USD 105,319,898.10 All products (actual): USD 39,992,571.32 All products (extrapolation [note 1]): USD 155,224,638.10
Indicator #3: Volume of commodities sold by farms and firms receiving USDA assistance (Standard #19)	Kernel (actual): 5,906 MT Kernel (extrapolation): 22,893 MT [note 2]
Indicator #7: Average processing cost per unit (USD/MT) of output for selected agricultural commodities as a result of USDA assistance	3.84 USD/kg kernel (actual) 768 USD/MT RCN (actual) [note 3]
Indicator #8: Total volume of additional kernel output processed by USDA-supported firms	Kernel (actual): 6,478.3 MT Kernel (extrapolation): 25,110 MT [note 2]
Indicator #10: Percentage increase in actual income of participating firms as a result of USDA support (profitability)	Actual: USD -8,843,551.79 Extrapolation: USD -34,324,802.84
Indicator #13: Value of cashew products sold into domestic, regional and international markets	Kernel (actual): Domestic: USD 3,129,104.70 Regional: USD 194,900.00 International: USD 23,847,560.51

Notes:
1. This should be regarded with caution, as it includes all commodities, but extrapolation is based on kernel sales.
2. See extrapolation table below.

[29] TechnoServe Inc. 2020. *Food for Progress – West Africa Regional, Prosper Cashew USDA Proposal.*

Indicator	Baseline value

3. MT RCN = kg kernels * 200.
Source: Baseline Processor Survey. March-April 2021.

In 2019, Prosper Cashew identified processing capacity[30] to be 195,000 MT, 40,300 MT and 85,500 MT and utilized capacity to be 46,105 MT, 11,800 MT and 38,100 MT, in Côte d'Ivoire, Ghana, and Nigeria, respectively. This represents a total processing capacity of 320,800 MT, which would mean a processing level of 274,284 MT, assuming each plant has an optimal utilization rate of 85%. The 2019 utilization rate was estimated to be approximately 30%. This corresponds with estimates from other studies,[31] suggesting that many processing units run at 20% to 30% of their technical processing capacity, some even at 10%. For 2020, the average utilization rate of surveyed processors was 37.8%, with results by processor size being fairly similar (small-sized: 36.9%, medium-sized: 41.2%, and large-sized: 37.3%). Nigerian processors reported having a higher average utilization capacity (48.4%) than either Côte d'Ivoire (33.2%) or Ghana (30.6%). The highest individual processor utilization capacity was 78%, while a couple of processors reported having utilization capacities of less than 5%. The utilization rate of installed processing capacity is often a good parameter for understanding the state of efficiency in an industry. In cashew nut processing, however, this may not be the case, as the parameter does not explain why low-performing processing units remain operational. Economically, it may be feasible for some companies in West Africa to only process part of the year, when they have access to RCN. In contrast, some larger units may continue processing to generate maximum revenue to sustain investments, generate cash flow, and repay loans, even if they must operate at a deficit.

Volume of Sales

All results of volumes of cashew kernels will have both the actual survey value and the extrapolated value. Extrapolations are based on dividing the total reported RCN processed by N'Kalo by the RCN processed by processors[32] reporting kernels volumes sold. Extrapolations at the country level will be unique, but all other disaggregations will utilize the overall multiplication factor (as there are no total estimates of RCN processed by processor size or type) (see Table 13). In addition, please note that it is not possible to extrapolate other commodities as we do not know overall amounts sold.

Table 13: Overall and Country Multiplication Factors for Volume Extrapolations

Country	Multiplication factor
Côte d'Ivoire	3.75
Nigeria	2.92

[30] As mentioned in the Prosper Cashew project proposal, it is important to note that installed processing capacity figures, although widely relied on, are often misleading, with no generally accepted standard of calculation. Reasons include the fact that a) factories that are too small—less than 3,000 MT—are unlikely to survive and typically cannot be upgraded at a reasonable cost; b) plants are often incentivized to overstate their installed capacity, for example to secure project financing; c) factories may lack all of the necessary equipment or physical plants to execute at reported capacity; and d) the operational capacity is an estimate by the equipment supplier, and is overstated (e.g., assumes operations 24 hours a day, 365 days a year).
[31] Ton, et al. December 2018.
[32] This may or may not include locally sold nuts. Also, N'Kalo may report processor-processed RCN as a function of exported kernel.

Country	Multiplication factor
Ghana	20.60
Overall	3.88

Overall, survey processors reported selling 5,906 MT of kernel, which when extrapolated leads to 22,893 MT of kernel. Additionally, values were reported for other cashew commodities, but each by five or fewer processors, including 7,798 MT of RCN sold, 1,161 L of cashew juice, 480 L of CNSL, 185.22 MT of charcoal, and 16 MT of waste. Côte d'Ivoire sold the highest volume of kernel followed by Nigeria, while larger processors sold a greater volume than smaller processors. Processors from Nigeria reported selling the highest amount of RCN and CNSL, while those from Ghana reported selling the greatest volume of charcoal. Only processors from Côte d'Ivoire reported selling cashew juice and waste (see Table 14).

Table 14: Volume of Commodities Sold, by Type of Commodity, Country, and Processor Type (Indicator #3)

Commodity	Number of processors providing data	Country			Processor type			Total
		Côte d'Ivoire	Ghana	Nigeria	Large multinational	Large national	SME	
Kernel – survey data (MT)	17	3,442	94	2,370	2,100	2,699	1,107	5,906
Kernel – extrapolation	17	12,908	1,945	6,932	8,140	10,461	4,291	22,893
Kernel – N'Kalo (MT)	-	14,000	2,500	4,800				21,300
RCN (MT) [note 1]	5	668	0	7,130	7,000		798	7,798
Cashew juice (L) [note 2]	2	1,161	-	-	-	-	1,161	1,161
CNSL (L) [note 2]	1	-	-	480	480	-	-	480
Charcoal (MT) [note 2]	3	5.22	180	-	-	-	185.22	185.22
Waste (MT) [note 2]	1	16	-	-	-	-	16	16

Notes:
1. No extrapolation because we do not have an overall value for RCN MT exported by processors.
2. No extrapolation because we do not have overall value produced.
Source: Baseline Processor Survey. March-April 2021.

RCN sales could overlap with PRO-Cashew values; however, it is not possible to know if Prosper Cashew processors bought nuts specifically from PRO-Cashew producers (or those sampled at baseline). For this to be calculated or even estimated, PRO-Cashew and Prosper Cashew will need to implement some sort of tracking system to see if PRO-Cashew producers are selling to Prosper Cashew processors. This could become even more complicated as intermediaries play a large role in the supply chain. We also know that traceability is a considerable challenge in the cashew value chain. Please see Section 4.2 for a more extensive discussion of the degree of alignment between PRO-Cashew and Prosper Cashew

Following this, Indicator #8 revolves around the total volume of kernel output. Overall, 91.2% of kernels produced were sold (reported above through Indicator #3). Survey respondents reported producing

6,478.3 MT of kernel, which when extrapolated[33] leads to 25,110 MT.[34] Côte d'Ivoire produced the highest volume of Kernel followed by Nigeria, while larger processors produced a greater volume than smaller processors (see Table 15, below).

N'Kalo stated that Côte d'Ivoire continues to experience good growth, with a 20% increase in its exports in 2020, but apparently this could be lower than growth in processing due to batches of cashew kernels in early February 2021 still being in production.

Table 15: Volume (Number and Extrapolation) of Kernel Produced (MT), by Country, Processor Size, and Type (Indicator #8)

Category		Number (MT)	Extrapolation (MT)
Country	Côte d'Ivoire	3,857	14,464
	Ghana	109.3	2,255
	Nigeria	2,512	7,347
Processor size	Small	478.3	1,854
	Medium	2,415	9,360
	Large	3,585	13,895
Processor type	Large multinational	2,237	8,671
	Large national	2,752	10,667
	SME	1,489.3	5,772
Total		6,478.3	25,110 [note]

Note: Please note this is slightly higher than N'Kalo, which may or may not include locally sold nutsl.
Source: Baseline Processor Survey. March-April 2021.

Value of Sales

All results of sales of cashew kernels will have both the actual survey value and the extrapolated value. Extrapolations are based on dividing the total reported RCN processed by N'Kalo by the RCN processed by processors[35] reporting kernels sold. Two processors reporting the volume of kernel sold did not report their kernel sales, and one processor not reporting their volume sold still reported the sales values. The sales of the processor reporting 2019 sales values are included here. Extrapolations at the country level will be unique, but all other disaggregations will utilize the overall multiplication factor (as there are no estimates of RCN processed by processor size or type) (see Table 16). Also, please note that it is not possible to extrapolate other commodities as we do not know overall amounts sold.

[33] Multiplication factor: total 3.88, Côte Ivoire 3.75, Nigeria 2.92, Ghana 20.6. Total multiplication factor used for all disaggregations apart from country.
[34] Note that extrapolated values are less reliable here as N'Kalo-processed estimates are likely based on exported or sold quantities.
[35] This may or may not include locally sold nuts.

Table 16: Overall and Country Multiplication Factors for Extrapolation

Country	Multiplication factor
Côte d'Ivoire	3.70
Nigeria	2.87
Ghana	59.2
Overall	3.88

Table 17 provides the currency conversion rates used, which are based on the average exchange rate for 2020.

Table 17: Currency Conversion Rates

Currency	Conversion rate
West African franc	0.0017
Naira	0.0026
Cedi	0.17632

Overall, kernel sales made up the majority (67.9%) of cashew product sales, with RCN sales making up the majority of remaining sales (32.0%). All other products reported very limited amounts of sales (see Tables 18 and 19).

Côte d'Ivoire sold the greatest monetary amount of kernel, closely followed by Nigeria. However, in terms of total product sales, Nigeria sold the greatest amount, driven by one large multinational that also sold significant quantities of RCN. In contrast, Ghana sold lower amounts, especially in terms of kernel sales. As expected, large-sized firms sold more than medium-sized and especially small-sized firms, with a similar trend being seen between large multinational and national processors compared to SMEs. A total of USD 27,172,533.71 in kernel was reportedly sold by processors, while USD 39,992,571.32 in total products was sold. Extrapolated values are USD 105,319,898.10 and USD 155,224,638.10, respectively.

Table 18: Sales (Number and Extrapolation) of Kernel and all Products (USD), by Country, Processor Size, Processor Type, Age and Sex of Proprietor (Indicator #2)

Category		Kernel only (USD)		All products (USD)	
		Sales	Extrapolation	Sales	Extrapolation [note]
Country	Côte d'Ivoire	14,803,245.11	55,514,151.81	15,326,793.13	56,844,098.71
	Ghana	133,320.10	2,750,001.98	138,609.70	8,211,474.88
	Nigeria	12,235,968.50	35,790,767.09	24,527,168.50	70,463,495.81
Processor size	Small	1,528,256.40	5923474.00	2,055,819.01	7,979,326.00
	Medium	10,579,586.72	41,006,150.00	10,840,861.72	42,077,035.00
	Large	15,064,690.59	58,390,274.00	27,095,890.59	105,168,277.00

Category		Kernel only (USD)		All products (USD)	
		Sales	Extrapolation	Sales	Extrapolation [note]
Processor type	Large multinational	11,000,968.50	42,639,413.00	23,032,168.50	89,395,603.00
	Large national	12,310,486.72	47,715,065.00	12,310,486.72	47,781,145.00
	SME	3,861,078.49	14,965,420.00	4,649,916.10	18,047,890.00
Sex of proprietor	Male	19,628,509.81	76,079,495.39	31,675,199.41	122,942,116.60
	Female	-	-	-	-
	Mixed	7,544,023.90	29,240,402.70	8,317,371.913	32,282,521.55
Age of proprietor	Less than 30 years	-	-	-	-
	More than 30 years	26,996,865.91	104,639,015.10	39,305,090.61	152,556,293.90
	Mixed	175,667.80	680882.95	687,480.72	2668,344.20
Total		27,172,533.71	105,319,898.10	39,992,571.32	155,224,638.10

Note: This should be regarded with caution, as it includes all commodities, but extrapolation is based on kernel sales.
Source: Baseline Processor Survey. March-April 2021.

Table 19: Sales in USD by Type of Cashew Product

Commodity	Sales (USD)
Kernel – survey data	27,172,533.71
Kernel – extrapolation	105,319,898.10
RCN [note 1]	12,818,992.97
Cashew juice [note 2]	275.40
CNSL [note 2]	Values had to be deleted because they were unreasonably high
Charcoal [note 2]	19,014.25
Waste [note 2]	28,635.00
Other [note 2]	1,870.00

Notes:
1. No extrapolation because we do not have an overall value for RCN MT exported by processors.
2. No extrapolation because we do not have overall value produced.
Source: Baseline Processor Survey. March-April 2021.

When asked if kernel sales differed significantly between 2020 and 2019, 72.7% of active processors (n = 22) said yes, followed by 18.2% that said no, and 9.1% that chose not to respond. Notably, processors from Nigeria were less likely to say that their sales had been affected (42.9%). Of the 16 processors with differing sales, 75% stated that their sales were lower in 2020, with processors from Côte d'Ivoire and Ghana being more likely to report lower sales. Primary reasons for lower sales included more than 50% stating this was in part because of the COVID-19 pandemic, followed by the average selling price of kernels decreasing in 2020 and they were unable to purchase enough RCN to process at optimal capacity for a full year (due to lack of funds or other resources). Two of the three Nigerian processors that reported changed sales reported higher sales in 2020, with one processor noting that a lot of smaller players could not get to the market, so they increased sales. The two other

processors reporting increased sales were from Côte d'Ivoire. According to survey results, other common reasons for increased sales were investments made by processors in training staff and improved productivity levels, investments made by processors in automation/technology which helped to process greater amounts of RCN, and increases in the processors' capacity to buy RCN and process higher quantities (due to more funds or other resources).

> *"The COVID-19 pandemic has negatively impacted all the activities of our cooperative (raw nuts, cashew kernels, juice and even hull charcoal) by impacting the needs of customers; moreover the lack of financial means to strengthen our processing equipment, procure raw material and other small production equipment."* — Côte d'Ivoire processor (translated)

It was found that combined, processors in 2020 experienced negative actual income or profit; however, results vary by individual processors. In Côte d'Ivoire, of the eight[36] processors that appeared to provide accurate profit data, six reported negative actual income. In Ghana, although profit amounts were fairly small, all processors reported positive actual income.[37] In Nigeria, four of the five processors reported positive actual income values; however, one processor reported a very high negative value.

Box 3. Inactive Processors

When inactive processors responding to the survey were asked to identify the reasons for their closure, all four stated they could not access adequate financing for upgrading operations, while three each indicated they could not access adequate financing for buying sufficient RCN, RCN buying price was too high to be profitable, and kernel selling price was too low to be profitable. However, all claimed that they plan to reopen. One processor from Côte d'Ivoire stated that changes at the national level, specifically the establishment of a guarantee fund with financial structures, will improve their chances of profitability. The other three processors referred to more intrinsic changes. All stated the use of improved technology (i.e., machinery to automate processing steps); two, processing larger volumes; and one a new location with closer proximity to production areas and establishing processor-farmer linkages, as well as product value addition and certification.

Overall, surveyed processors reported USD 8,843,551.79 in lost income, which extrapolated leads to losses of USD 34,324,802.84. However, these extrapolated values need to be regarded with extreme caution as they are based only on kernel sales, and here all commodities are being included (see Table 20).

The fact that many processors are reporting losses, but have kept persisting for numerous years, suggests a volatile situation as well as confidence in sector growth.

Overall, based on survey results, 87.8% of all kernel sales were in the international market, while 11.5% were in the domestic market, and 0.7% in the regional market. One hundred percent of CNSL sales were in the international market, while cashew juice, charcoal, other cashew products were 100% sold in the domestic market (see Table 21, below).[38]

Table 20: Profit (Number and Extrapolation) of Cashew Product Sales (USD), by Country, Processor Size, Processor Type, Age and Sex of Proprietor (Indicator #10)

Category		Profit (USD)	Extrapolation (USD)
Country	Côte d'Ivoire	-4,726,577.07	-17,529,956.27

[36] One processor provided sales but not profit data, and another provided very low values for both sales and profit.
[37] One processor would not provide kernel values.
[38] As this indicator measures values for processed products, RCN and waste are not included.

Category		Profit (USD)	Extrapolation (USD)
	Ghana	11,725.28	694,625.59
	Nigeria	-4,128,700.00	-11,861,240.12
Processor size	Small	-6,061,362.41	-23,526,189.00
	Medium	-2,824,489.38	-10,962,795.00
	Large	42,300.00	164,181.00
Processor type	Large multinational	-4,260,000.00	-16,534,495.00
	Large national	-3,840,369.38	-14,905,767.00
	SME	-743,182.41	-2,884,541.00
Sex of proprietor	Male	-8,432,608.72	-32,729,794.41
	Female	-	-
	Mixed	-410,943.07	-1,595,008.43
Age of proprietor	Less than 30 years	-8,956,820.72	-34,764,437.72
	More than 30 years	-	-
	Mixed	113,268.935.00	439,634.88
Total		-8,843,551.79	-34,324,802.84

Source: Baseline Processor Survey. March-April 2021.

Table 21: Sales in USD by Type of Cashew Product into Domestic, Regional, and International Markets (Indicator #13)

Commodity	Domestic sales (USD)	Regional sales (USD)	International sales (USD)	No response sales (USD)
Kernel – survey data	3,129,104.70	194,900.00	23,847,560.51	968.50
Kernel – extrapolation	12,145,109.16	756,472.54	92,560,413.81	-
Cashew juice [note]	275.4	0	0	0
CNSL [note]	Values had to be deleted because they were unreasonably high; the one processor stated they sold internationally			
Charcoal [note]	18,989.60	0	0	24.65
Other [note]	1,870	0	0	0

Note: No extrapolation because we do not have overall value produced.
Source: Baseline Processor Survey. March-April 2021.

Processors in Côte d'Ivoire and Nigeria primarily sold kernel in the international market, whereas processors in Ghana sold more kernel in the domestic market. Medium-sized and large-sized processors and large multinational and large national processors more commonly sold in the international market, while small-sized processors and SMEs more commonly sold in the domestic market. Only a limited number of sales were made at a regional level (see Table 22).

Table 22: Sales (Number) of Kernel (USD) into Domestic, Regional, and International Markets, by Country, Processor Size, and Processor Type (Indicator #13)

Category		Domestic sales (USD)	Regional sales (USD)	International sales (USD)
Country	Côte d'Ivoire	1,325,547.80	45,900.00	13,431,797.31
	Ghana	131,556.90	0.00	1,763.20
	Nigeria	1,672,000.00	149,000.00	10,414,000.00
Processor size	Small	1,197,524.70	84,900.00	244,863.20
	Medium	326,000.00	0.00	10,253,586.72
	Large	1,605,580.00	110,000.00	13,349,110.59
Processor type	Large multinational	1,100,000.00	110,000.00	9,790,000.00
	Large national	597,380.00	45,900.00	11,667,206.72
	SME	1,431,724.70	39,000.00	2,390,353.79

Source: Baseline Processor Survey. March-April 2021.

A total of 13 processors were able to comment on the average processing cost of kernels, with the overall average being 3.85 USD per kilogram of kernels (768 USD/MT RCN). Côte d'Ivoire processors reported the lowest processing costs, followed by Nigerian processors, whereas Ghanaian processors reported processing costs almost twice as high as those from Côte d'Ivoire. Large-sized processors reported the lowest processing cost, but medium-sized processors reported higher costs than small-sized. Additionally, there was little difference between the processing costs reported by large national processors and SMEs (see Table 23).

Table 23: Average Processing Cost of Kernel (USD/kg), by Country, Processor Size and Type (Indicator #7)

Category [note 1]		Cost (USD/kg)	Cost (USD/MT RCN) [note 2]
Country	Côte d'Ivoire	3.17	634
	Ghana	6.79	1358
	Nigeria	3.90	780
Processor size	Small	3.55	710
	Medium	4.75	950
	Large	2.55	510
Processor type	Large multinational	-	-
	Large national	3.94	787
	SME	3.81	762
Total		3.84	768

Notes:
1. For this table, we removed one unreasonably high value provided by a processor in Nigeria.
2. MT RCN = kg kernels * 200.
Source: Baseline Processor Survey. March-April 2021.

A total of 81.8% of processors (n = 22) stated that they expect to see a change in the unit cost of processing in 2021 compared to 2020. Of those 18 processors that expect to see a change, 66.7%

anticipate a decrease and 27.8 an increase.[39] Two processors each said the foreseen increase in costs will be a result of not being able to purchase enough RCN in 2021 to process at optimal capacity for a full year (due to lack of funds), and lacking funds to invest in maintenance, new equipment, or construction. Half of all processors foreseeing a decrease in cost stated this was because they expect the buying price of RCN to be lower in 2021 and that will allow them to buy more stock and process greater amount, while other responses included, they have made investments in automation/technology to help them process greater amounts of RCN and they have made investments in training their staff and improving productivity levels.

According to the literature, data on competitiveness of the West African cashew nut processing industry is difficult to obtain. The competitiveness gap between West Africa and Vietnam is estimated at between USD 150 and USD 350 per MT of RCN in favour of Vietnam.[40]

Competitive advantages of the West African cashew processing industry over its key competitor Vietnam include the following:

- Availability of good quality raw material (RCN).
- Geographical access to markets.
- Traceability resulting from source proximity.
- Low negative environmental impacts.

Competitive disadvantages of the West African cashew processing industry over its key competitor Vietnam include the following:

- Very high costs for energy and water.
- Labor is significantly more expensive.
- Labor productivity is lower (by a factor of approximately 2 or 3).
- Lower efficiency of RCN use.
- Less usage of by-products (processing of cashew nut shells, which is common in Vietnam and India, could provide West African processors with an additional income of up to USD 100-125 per ton of RCN).
- Lower confidence in quality by international buyers.
- Less know-how on best techniques and technology.

According to the CCA, in 2015, the cost of cashew nut processing was USD 704 per MT of RCN in Côte d'Ivoire (slightly higher than the finding for this study at USD 634 per MT), but only USD 254 per MT in India and USD 217 per MT in Vietnam. Processing was reportedly also much cheaper in other African countries such as Tanzania (USD 309 per MT), Mozambique (USD 368 per MT), Nigeria (USD 520 per MT)

[39] One processor supplied no response.
[40] Ton, et al. December 2018.

and Ghana (USD 534 per MT).[41] However, this baseline's findings suggest the cost may be higher in Nigeria and Ghana, but these results should be regarded with high caution because of the small sample sizes.

4.1.4 Jobs and Participation

Table 24, below, provides the baseline values for the three indicators related to jobs, indirect beneficiaries, and project participation. All these indicator baseline values are zero as they require project implementation to occur. The number of individuals participating directly in the project will be reported only through monitoring. Baseline values for the current number of jobs reported by processors are provided below and can be used as a benchmark. The number of indirect beneficiaries will be subsequently assessed using the number of jobs created, coupled to a multiplication factor based on family size.

Extrapolation was based on dividing the total RCN processed reported by N'Kalo by the RCN processed by processors reporting employees (multiplication factor: 4.139), based on the assumption that we have a fairly representative sample of survey respondents in terms of country and processor size. Overall, processors reported their companies having slightly more workers in the full-time category (260+ days), than in the part-time (21-259 days) or casual worker categories (20 days or less). In addition, there were more than twice as many females employed compared to males, although the majority of casual workers were females (see Table 25, below).

Table 24: Baseline Values for the Indicators Related to Jobs, Indirect Beneficiaries, and Project Participation

Indicator	Baseline value	Additional suggested measurement method
Indicator #4: Number of jobs attributed to USDA assistance	Reported: 2,260 Extrapolated: 9,356 0 attributed	-
Indicator #23: Number of individuals participating in USDA food security programs	0	-
Indicator #24: Number of individuals benefiting indirectly as a result of USDA assistance	0	-

Source: Baseline Processor Survey. March-April 2021.

Table 25: Reported and Extrapolated Number of Employees, by Sex and Type of Employee

Category	Survey data	Extrapolated
Males casual (20 days or less)	128	530
Males part-time (21-259 days)	206	853
Males full-time (260+ days)	466	1,929
Females casual (20 days or less)	742	3,072

[41] Ton, et al. December 2018.

Category	Survey data	Extrapolated
Females part-time (21-259 days)	718	2,972
Females full-time (260+ days)	870	3,602
Casual worker (20 days or less)	870	3,602
Part-time (21-259 days)	924	3,825
Full-time (260+ days)	1,336	5,531
Males (21+ days)	672	2,782
Females (21+ days)	1,588	6,574
Total (21+ days)	2,260	9,356
Total (all)	3,130	12,958

Source: Baseline Processor Survey. March-April 2021.

Some larger processors reported very high levels of annual processed RCN to employee ratio (80-90 MT, which greatly exceeds the Prosper Cashew assumption that the ratio is 10 MT RCN per year); thus there is a strong likelihood of underreporting in the number of employees in some cases, especially considering these processors only reported full-time employees.[42] With all entries the yearly average was 14.8 MT of RCN per part-time and full-time employee; removing these two large values, the average drops to 6.5 MT (this average would drop further if casual workers are included). Two processors also had very low values (<1 MT); however, it was noted that these two processors were also involved in cashew juice processing.

Fifty percent (36.4% no, 13.6% no response) of processors stated that their number of employees fluctuates significantly during the year (e.g., high seasonal employment). The most common reasons for high turnover were the inability to purchase/store enough product for a full year and therefore staff must find other jobs when the factory is not functioning (45.5%);[43] the inability to recruit or retain staff due to higher wages paid elsewhere (45.5%); and the inability to pay staff due to lack of sufficient cashflow throughout the year (27.3%). This aligns with secondary data suggesting that, in many cashew nut processing units in West Africa, work is temporary, providing employment only for a limited number of months per year.[44]

Prosper Cashew is working on the assumption of 600 direct jobs being created per 10,000 MT factory[45] (one person can process 6 MT RCN).[46] To process 400,000 MT additional volume of RCN (to reach 50%[47] of RCN processed), a total of 24,000 additional people would be required.

Prosper Cashew has estimated that most plants developed will be in the range of 5,000-7,000 MT. Subsequently, this means that approximately 66 new processing plants must be developed in the three focus countries, either directly or indirectly through TNS assistance. The number of known processors

[42] They may have been reluctant or worried to declare part-time and seasonal employees/casual workers.
[43] Sample size of 11.
[44] Ton, et al. December 2018.
[45] Prosper Cashew program implementers and indicator target document.
[46] Although, as previously mentioned, smaller processing units tend to have more employees per unit of RCN processed compared to larger processing units. This falls in line with other reports that "recently built factories are estimated to create about 80-100 jobs per 1,000 tons of RCN" (Ton, et al. December 2018).
[47] Because the goal is to process 500,000 Mt. Current volume is about 100,000 MT.

has risen from 52 (operational, dormant/defunct, planned) at the beginning of the baseline[48] to 89 when the data collection began. Fourteen of these processors are at the in-project stage, suggesting some growth in the sector. However, one could also argue that the same number (or more) are defunct or slowly heading towards bankruptcy. Also, it is not known if any processors have closed and then opened under a different name for reasons such as tax incentives. This baseline study suggests that a few operations have merged, and some have moved to new ventures and split from other companies.

Based on estimates made by the ACA,[49] processing plants in the range of 5,000-7,000 MT would require between USD 3.0 million to USD 4.2 million in fixed capital (plant and machinery costs), which would subsequently scale up to around USD 231 million USD required for developing 66 plants. This excludes working capital, which would be estimated at approximately USD 3.5 million to USD 4.9 million per plant. Such capital amounts are generally in line with the target of USD 496,800,000 for Indicator #9 "Value of new USG commitments and new public and private sector investment leveraged by USDA to support food security and nutrition." There must be a large amount of natural growth in the sector for targets to be achieved, as the work plan indicates that only one or two entrepreneurs will be met with in Côte d'Ivoire in Year 1 to establish processing units, followed by one or two entrepreneurs in potentially each of the three countries in Year 2 (no exact numbers provided in the subsequent years). Thus, it would be important for TNS to realistically assess the number of processing units that they can directly support and the number that will need to occur through intrinsic growth. For large-scale intrinsic growth to occur, it would be necessary for operational units to show profitability.

The number of individuals benefiting indirectly will be calculated by multiplying the number of new jobs as a result of USDA assistance by the average household size minus the individual directly benefiting for each of the target countries (see Table 26). These values were derived from the United Nations Department of Economic and Social Affairs Population Division Database on Household Size and Composition.[50] They resemble the average household size calculated from the PRO-Cashew baseline study of producer households (Côte d'Ivoire: 4.6, Nigeria: 5.2, and Ghana: 3.5). Currently, the Prosper Cashew estimate of five indirect jobs for each direct job created may be an overestimate.

Table 26: Average Household Size and Suggested Indirect Beneficiary Multiplier for Each of the Three Prosper Cashew Countries

Country	Household size	Multiplier
Côte d'Ivoire	5.1	4.1
Nigeria	4.9	3.9
Ghana	3.5	2.5

Source: United Nations Department of Economic and Social Affairs Population Division Database on Household Size and Composition.

[48] Versus 49 listed in the TNS Prosper Cashew project proposal to USDA. Final number will be provided by TNS.
[49] African Cashew Alliance. 2019. *Invest in Africa: Cashew.*
[50] Source: <https://population.un.org/Household/index.html#/countries/566>. Côte d'Ivoire DHS 2012; Nigeria DHS 2015; Ghana DHS 2014. Estimates are conservative as these are Department of Health statistics from the previous decade.

4.1.5 Improved Practices

Table 27 provides the baseline values for the four indicators related to improved practices. All of these values are zero as they require project implementation to occur. Two measure the number of individuals and companies that directly receive training and will be reported through monitoring. The number of individuals applying improved management practices or technologies will be measured through pre- and post-tests (please see Appendix 10 for an example of the template that will be used), while processors with increased performance will be measured against the baseline organizational capacity assessment (OCA).[51]

Table 27: Baseline Values for the Indicators Related to Improved Practices

Indicator	Baseline value	Additional suggested measurement method
Indicator #5: Number of individuals in the agriculture system who have applied improved management practices or technologies with USDA assistance	0	"Percentage of individuals:" 0.0%
Indicator #6: Number of organizations with increased performance with USDA assistance	0	Average score: 58.4%
Indicator #19: Number of cashew sector entities that receive technical assistance as a result of USDA support	0	-
Indicator #22 Number of individuals who have received short-term agricultural sector productivity or food security training as a result of USDA assistance	0	-

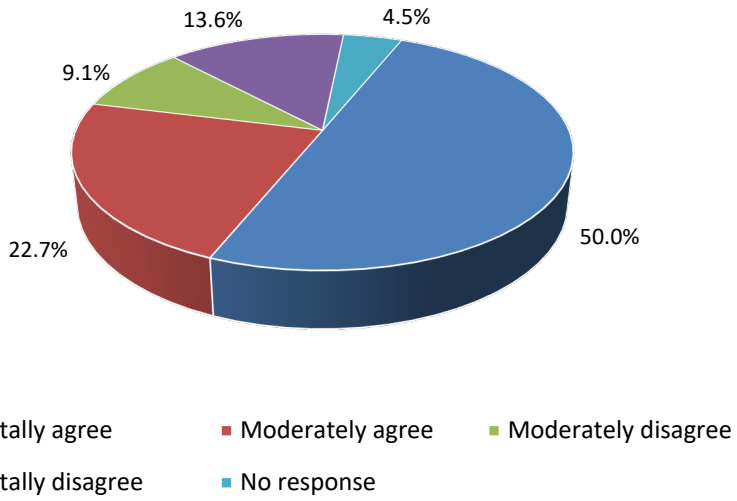
Source: Baseline Processor Survey. March-April 2021.

Processors identified the management practices and technologies where they feel that training would provide the greatest benefit. When asked if companies currently lack factory processing skills and if this weakens their company's competitiveness against processors in India or Asia, 50.0% totally agreed and 22.7% moderately agreed (see Figure 2). Processors from Ghana (75.0%) and Côte d'Ivoire (63.6%) were more likely to totally agree than processors from Nigeria (14.3%). In fact, 28.6% of processors from Nigeria totally disagreed.

Processors (active, except for those who totally disagreed; inactive; and in-project) were then asked to select up to five factory skill areas where they felt that they most needed improvement, with maintenance of processing machines, quality control, traceability, certification standards, and operating processing machines being most commonly provided (see Table 28). Qualitative interviews provided the same findings.

[51] If possible, individual processors' OCA scores at baseline will be compared with their score at other evaluation points to assess if their organizational capacity has improved. It would be beneficial to have all targeted processors complete the OCA before they can receive project assistance.

Figure 2: Percentage of Companies Agreeing that a Lack of Factory Processing Skills is Reducing their Competitiveness (n = 22)



Source: Baseline Processor Survey. March-April 2021.

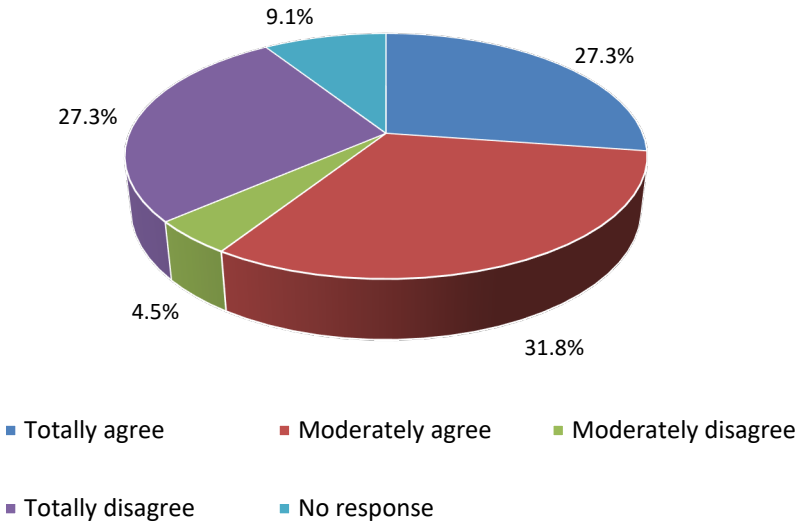
Table 28: Factory Skill Areas where Training is Most Required

Area	Total number of possible responses	Number	Percentage
Procurement	28	5	17.9%
Drying	28	3	10.7%
Warehouse (RCN)	28	3	10.7%
RCN grading – calibration	28	5	17.9%
Cooking	28	3	10.7%
Shelling	28	7	25.0%
Steaming (oven drying/borma treatment)	28	9	32.1%
Peeling	28	10	35.7%
Kernel grading	28	7	25.0%
Fumigation	28	2	7.1%
Packing	28	1	3.6%
Warehouse (kernels)	28	1	3.6%
Quality control	28	14	50.0%
Traceability (production analytics)	28	13	46.4%
Operating processing machines	28	12	42.9%
Maintenance of processing machines	28	16	57.1%
Supervision (of factory staff)	28	3	10.7%
Certification standards	28	13	46.4%

Area	Total number of possible responses	Number	Percentage

Source: Baseline Processor Survey. March-April 2021.

Figure 3: Percentage of Companies Agreeing that a Lack of Business Skills is Reducing their Competitiveness (n = 22)



Source: Baseline Processor Survey. March-April 2021.

The issue remains that much of cashew nut processing work is temporary, providing employment only for a limited number of months per year,[52] and that many processors use performance-based compensation, where staff are paid according to production targets[53]—two issues that affect worker loyalty and expertise, and imply frequent and repeated training of both established and new personnel. However, this comes at a cost to the processors and means that results from the training must be observed. In most processing operations, the bulk of staff are engaged in peeling, a human resource-intensive activity. Peeling has a direct impact on the income of a processor. Broken kernels command significantly less value from buyers; therefore, it is of great importance to have dexterous staff assigned to peeling duties. Capacity building in this area could have a direct effect on revenue generated by the processors.

Subsequently, when asked if a current lack of business skills weakened their competitiveness against processors in India or Asia, 27.3% of companies totally agreed, 31.8% moderately agreed, and 27.3% totally disagreed (see Figure 3). Processors from Côte d'Ivoire (45.5%) were more likely to totally agree and processors from Nigeria (57.1%) to totally disagree. Interestingly, those processors that totally disagreed had both high scores on the OCA or moderate to low scores (thus no obvious relationship).

[52] Ton, et al. December 2018.
[53] There are suggestions that make a case for fixed compensation, or at least a combination of fixed and variable compensation. This would significantly improve staff retention and reduce the cost of training and supervision.

Processors (active, except for those who totally disagreed or provided no response; inactive; and in-project) were then asked to select business skill areas where they felt that they most needed improvement, with almost all options being selected more than 50% of the time (see Table 29).

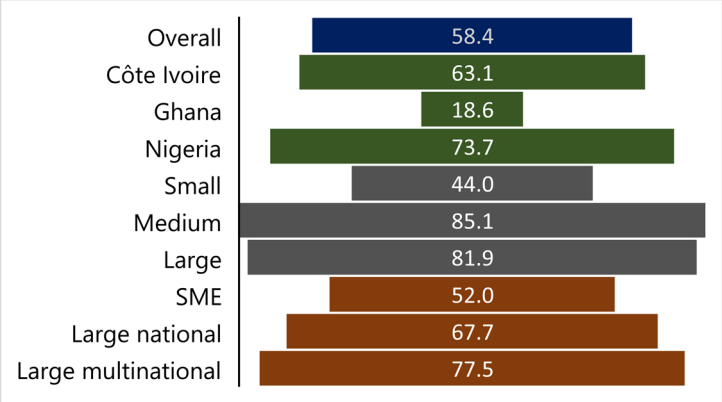
Table 29: Business Skill Areas where Training is Most Required

Area	Total number of possible responses	Number	Percentage
Business management	24	15	62.5%
Financial management	24	15	62.5%
Investment facilitation	24	15	62.5%
Human resources	24	11	45.8%
Workforce management	24	14	58.3%
Marketing	24	16	66.7%
Supply chain development	24	13	54.2%
Other(s)	24	1	4.2%

Source: Baseline Processor Survey. March-April 2021.

The organizational capacity of processors was measured through a series of 47 questions with a maximum potential final score of 144 and a minimum score of 0. A score of 100% illustrates extremely high organizational capacity (with the highest capacity answer being provided for all questions) and a score of 0% illustrates extremely low organizational capacity (most systems and processes are not in place). Data suggests that processors likely said “no response” in many cases where the score should have been zero (or low). Thus, denominators were not adjusted based on “no response” answers, as this may have artificially increased scores. The overall average organizational capacity score was 58.4% with processors in Nigeria (73.7%) having the highest average score, followed by processors in Côte d’Ivoire (63.1%), and processors in Ghana who had a significantly lower average score (18.1%). Small-sized processors (44.0%) had a lower average score than medium-sized (85.1%) and large-sized (81.9%) processors. Similarly, SMEs (52.0%) had a lower average score than large national (67.7%) and large multinational processors (77.5%) (see Figure 4). The highest scores reported were those of a Nigerian, large-sized, multinational (96.5%) and a Nigerian, medium-sized, SME (95.1%). The lowest scores were less than 10% and were two small-sized SMEs from Ghana.

Figure 4: Average Organizational Capacity Score, by Country, Processor Size, and Type



Source: Baseline Processor Survey. March-April 2021.

Two of the highest scored questions were "Does your company keep supporting documentation for accounting entries (journal vouchers, payment vouchers, receipts, and invoices)?" (95%) and "Does your company have a child labor policy?" (94%), indicating that almost all processors have these systems/policy in place. In contrast, some of the lowest score questions were "How much of your company's staff would need to substantially improve their capacity to do their jobs well?" (39%); "Does your company have a gender policy?" (47%); "Which of the following best describes your company's policies and procedures for personnel recruitment and retention?" (50%); and "What proportion of your company's workforce gets paid overtime or compensatory leave as required by law?" (50%).

4.1.6 Export of Cashew Products

Table 30, below, displays the baseline values for the two indicators related to export markets and clients/trade partners. In 2020, processors exported kernels to 21 unique countries (34 total country mentions) and CNSL to one country. It will be necessary to consider individual countries as distinct markets (there were no occasions where a processor reported exporting to two or more regions within a country), as most processors seemed reluctant to provide regions.[54] Overall, active processors reported exporting to 65 international clients.

Table 30: Baseline Values for the Indicators Related to Export Markets and Clients' Trade Partners

Indicator	Baseline value	Additional suggested measurement method
Indicator #11: Number of distinct markets to which selected agricultural products are exported	Kernel – 21 unique countries CNSL – 1 country	All country mentions [note]: Kernel – 34 countries CNSL – 1 country
Indicator #20: Number of new clients/trade partners obtained as a result of USDA assistance	65 international clients (kernels), 1 international client (CNSL) 0 new	Inclusion of local clients: 30

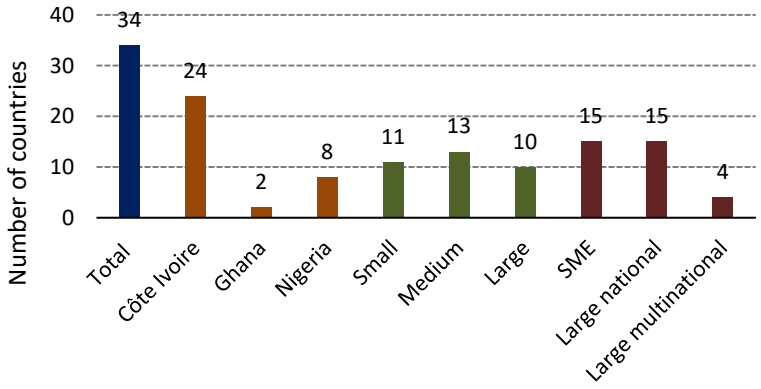
[54] Only in a limited number of cases was the name of a city provided.

Indicator	Baseline value	Additional suggested measurement method

Note: Advisem suggests that having more processors exporting to the same country would be more important rather than just adding new unique countries.
Source: Baseline Processor Survey. March-April 2021.

Of the 22 active processors, a total of 13 exported to various countries in 2020. The maximum number of export countries per processor[55] was eight, the minimum one, and the average 2.6 countries. Overall, 34 countries were mentioned (see Figure 5), including 21 unique countries.[56] The Netherlands and Germany were mentioned by four different processors and the United States by three. The Chinese market remains mainly supplied by Vietnam (at 99%), but N'Kalo noted a beginning flow of a few hundred tons of kernels from West Africa this year;[57] moreover, one Nigeria processor survey reported exporting to China. Additionally, processors exported to a significant number (7) of Middle Eastern and North African countries.

Figure 5: Total Number of 2020 Export Countries Mentioned, by Processor Country, Processor Size, and Processor Type

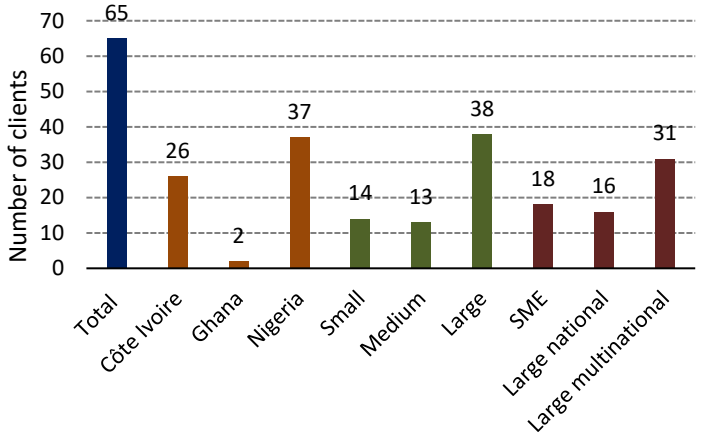


Source: Baseline Processor Survey. March-April 2021.

Very few processors were willing to provide detailed client data, but many did indicate the number of export clients/trade partners they work with. Fourteen processors reported having a total of 65 clients in 2020, with Nigerian processors reporting the greatest number of clients followed by Côte d'Ivoire processors. Large-sized processors and multinationals also had the greatest number of clients (see Figure 6).

[55] Of the 13 processors reporting to export.
[56] Australia 1, Belgium 1, Canada 2, Netherlands 4, France 1, Germany 4, India 1, Japan 1, Portugal 2, Saudi Arabia 1, United Arab Emirates 1, United Kingdom 2, United States 3, Vietnam 2, Italy 2, Turkey 1, Jordan 1, Kuwait 1, Morocco 1, China 1, Lebanon 1.
[57] N'Kalo. January 29, 2021. *Cashew Market Bulletin.*

Figure 6: Total Number of 2020 Export Clients/Trade Partners Mentioned, by Processor Country, Processor Size, and Processor Type



Source: Baseline Processor Survey. March-April 2021.

In Nigeria, 75% of exporting processors reported more clients than countries to which they exported, while in Ghana processors had the same numbers of clients as countries (one client per country). Of the eight exporting processors in Côte d'Ivoire, half had equal numbers of clients and countries, while a couple had more clients than countries, and one had more countries than clients. One processor reported a client but not an export country; thus, it is assumed this client was local.

If a company did not indicate they had any clients/trade partners for cashew kernel exports in 2020, they were asked to whom they sold their cashews. Of the six small-sized companies (i.e., two in each of the Prosper Cashew focus countries), two sold to local exporting companies, two to local exporting individuals, one to another processor, and five to direct customers locally. For example, in Ghana, one processor mentioned selling to 15 direct customers, including several roasters and a supermarket. A processor in Côte d'Ivoire reported having eight direct customers, including four supermarkets, an office store, and a hotel, while a Nigerian processor reported six local clients.

One small cooperative-run Côte d'Ivoire processor (1,000 MT) reported that they had previously had two customers, one in France and one in Switzerland; however, the contract was suspended due to their low capacity (could not fulfill orders on time). This suggests that supporting small-size processors could help them access international markets.

In 2020, secondary data shows that imports into the major markets of Europe and the United States were estimated to be up by 17% and 8% according to ACA,[58] or by 14.6% and 9% according to N'Kalo,[59] respectively (see Table 31). This was in part due to the COVID-19 pandemic lockdowns and teleworking, and consumers looking for diversified, healthy snack foods. Although this sounds encouraging for overall consumption, imports from most African countries were down mainly due to the COVID-19 pandemic restrictions and pressures on the global supply chain. In fact, Fitzpatrick (2021) reported only Nigeria,

[58] Fitzpatrick, J. February 2021. *AfricasheW450 – Cashew Market Outlook.*
[59] N'Kalo. February 17, 2021. *Cashew Market Bulletin.*

Burkina Faso, and Mozambique showed increases in exports compared to 2019,[60] while information from N'Kalo[61] suggested that Côte d'Ivoire also increased its exports. The repeated lockdown episodes and continued teleworking may last for a good part of 2021, exerting positive pressure on consumption to grow at a solid pace. This could push Western importers and roasters to increase their spot orders to complete forward contracts (long-term), to ensure a minimum supply for the coming months.[62] All this could spell positive news for Prosper Cashew country processors.

Table 31: Import Growth between 2019 and 2020

Region/country	Change in % 2020 vs 2019
North America	7%
United States	9%
European market	14.6%
Oceania (Australia and New Zealand)	8%
Asia (China, Japan, and South Korea)	12.9%

Source: Derived from N'Kalo. February 12, 2021.

With respect to cashew kernel imports into the United States, Table 32, below, shows the countries from which the United States buys cashew kernels and the change that occurred between 2019 and 2020. Vietnam provides the largest imports to the United States, and this proportion increased in 2020. In terms of the Prosper Cashew countries, only Nigeria increased its cashew kernel exports to the United States between 2019 and 2020.

Survey responses were varied on how the COVID-19 pandemic influenced processors' 2020 cashew kernel exports. In Ghana, neither of the two exporting processors or the two non-exporting processors reported COVID-19 influencing their cashew kernel exports (we assume that non-exporting processors commented on their local sales). In Nigeria, three of the seven processors reported no influence from the COVID-19 pandemic, while the others felt that it had negatively affected their kernel exports, identifying issues such as port congestion, limited containers, lockdowns preventing workers from going to work (and hence a reduction in productivity), as well as clients stopping orders. Effects of COVID-19 on kernel export/sales in Côte d'Ivoire were even more pronounced, with only one of 11 processors saying that there was no effect. One processor did reveal there was a positive effect, and they were able to increase exports; however, all others listed negative effects, such as downsizing or not producing at all, loss of funding, falling kernel prices; furthermore, several processors reported the loss of contracts/slowing of sales. This might be an indication of Côte d'Ivoire being more regulated, and thus being more significantly impacted by market shocks to the global formal sector.

Table 32: United States Cashew Kernel Imports in 2019 and 2020 and Percentage Change in Imports

Country	2019		2020		Change in % 2019 vs 2020
	Tons	000 USD	Tons	000 USD	
Vietnam	132,559	1,003,875	149,146	962,197	12.5%

[60] Fitzpatrick, J. February 2021. *AfricasheW450 – Cashew Market Outlook.*
[61] N'Kalo. January 29, 2021. *Cashew Market Bulletin.*
[62] N'Kalo. February 12, 2021. *Cashew Market Bulletin.*

Country	2019		2020		Change in % 2019 vs 2020
	Tons	000 USD	Tons	000 USD	
Brazil	6,064	48,268	4,513	30,177	-25.6%
India	4,570	37,003	2,470	19,231	-45.9%
Indonesia	3,653	28,324	3,450	21,361	-5.6%
Côte d'Ivoire	2,062	17,004	1,945	11,345	-5.7%
Mozambique	1,601	11,750	1,692	9,518	5.7%
Thailand	1,231	13,252	1,119	11,678	-9.0%
Benin	1,012	7,627	543	3,207	-46.4%
Nigeria	744	5,666	1,015	6,010	36.4%
Ghana	373	2,727	249	1,217	-33.2%
Guinea-Bissau	244	1,682	96	432	-60.8%
Burkina Faso	221	1,944	290	1,835	31.4%
Tanzania	187	1,316	304	1,962	62.1%
Kenya	80	572	88	608	9.9%
Others	186	1,550.1	90.85	716,004	-51.2%
Total	154,787	1,182,560	167,011	1,081,494	7.9%

Source: Derived from *Cashew Week. A Weekly Newsletter.* Issue 22, Volume 7.

With respect to other cashew processing countries, India saw a slight increase in its imports and a drop in exports in 2020. This increase in imports suggests that Indian consumption was not so affected by the COVID-19 crisis. India and Brazil continued to lose export market share, each year focusing more on their domestic demand. In contrast, Vietnam, which appears to have had a good 2020 production, has also been increasing its export market share.

Table 33: Change in Market Share for Various Regions/Countries between 2019 and 2020 from the Kernel Exporting Regions/Countries

Market share												
Exporting country	North America		Europe		Oceania	China		Japan		South Korea		
	2019	2020	2019	2020	2019-2020 (little change)	2019	2020	2019	2020	2019	2020	
Vietnam	84%	88%	69%	76%	97%	100%	99%	26%	41%	63%	77%	
Brazil	4.8%	3.3%	4%	4%								
West Africa	3.2%	2.8%	5.3%	6.4%			<1%					
Indonesia	2.4%	1.5%			±1.5%					12%	12%	
India	1.9%	1.5%	16%	11%	±1.5%			73%	58%	21%	9%	
East Africa	2.9%	1.4%	1.5%	1%								

Source: N'Kalo. February 17, 2021. *Cashew Market Bulletin.*

Opportunities

In view of the current dominance of Vietnam in the international cashew kernel market, the diversification of cashew kernel sourcing by buyers represents an opportunity for West Africa. Furthermore, as direct sourcing and traceability is increasingly important to customers in Europe and the United States, buyers are keen on seeing it implemented in West Africa.

In 2018, the Nigerian Export Promotion Council identified Vietnam, the United States, The Netherlands, and Germany as the largest export destinations for Nigerian cashew kernels. Vietnam is currently the largest export destination for Nigerian cashew kernels, but also Nigeria's largest competitor on a global scale. Those markets with the largest untapped potential are Germany, the Netherlands, the United Kingdom, Poland and France.[63]

Next Season

Since November 2020, all global sea freight has been affected by the container deficit experienced in Asia. This situation has affected trade between Asia and other destinations such as Europe or the Middle East, for which the cost of a 20-foot container (generally containing 16 MT of cashew nuts) has increased four times. On average, container transport over long distances (Asia-Europe, Asia-Africa) has gone from approximately USD 50 per MT of RCN, to more than 200 USD per MT on trade from Asia to the rest of the world. Importantly, trade between other destinations (Africa-Europe, Africa-America, Europe-America) has been significantly less impacted, and prices have only increased slightly (+5% to +10%). Clearly, containerized trade to Asia is not severely affected as sea transport companies seek to repatriate as many containers as possible. Thus, the export costs of West African RCN to Vietnam and India should be little impacted by this global imbalance, whereas the export costs of cashew kernels from these two major processors in Asia towards consumer countries in the West could suffer.[64]

Cashew Nutshell Liquid

Of the two processors that reported processing CNSL, only one reported exporting to one client in Vietnam.

4.1.7 Trade Conferences/Missions and Purchase Contracts

Table 34, below, provides the baseline values for the two indicators related to trade conferences/missions and purchase contracts, with five processors attending such trade conferences, and one processor receiving three purchase contracts. Questions were asked for both 2019 and 2020, considering that COVID-19 likely affected 2020 activities.

Of the 22 active processors, only five (22.7%[65]) reported attending or being represented (e.g., by means of collateral marketing material, brochures, samples) at one or several international or regional trade fairs or conferences and trade missions in 2019 or 2020. Four of these companies were from Côte d'Ivoire and one from Nigeria, with one being small-sized, three medium-sized, and one large-sized. All five of these processors attended events in 2019 (minimum of one and maximum of three conferences per firm), while three from Côte d'Ivoire attended in 2020 (minimum of one and maximum of two conferences per firm).

[63] Nigerian Export Promotion Council. July 2018. *Promising Markets – Cashew Kernels.*
[64] N'Kalo. January 22, 2021. *Cashew Market Bulletin.*
[65] Compared to 50.0% that said no, and 27.3% that chose the "No response" option.

Table 34: Baseline Values for Indicators Related to Trade Conferences/Missions and Purchase Contracts

Indicator	Baseline value	Additional suggested measurement method
Indicator #21: Number of firms attending or represented at international/regional trade shows	5 (2019 and 2020)	22.7% of active processors attended
Indicator #12: Number of purchase contracts resulting from processor attendance at international trade fairs/conference and trade missions	3 (2019)	20% of processors attending fairs/missions

Subsequently, only one of the five processors that participated in international or regional trade fairs or conferences and trade missions in 2019 or 2020 had a purchase contract result from this participation (this was a medium-sized processor from Côte d'Ivoire). Notably, three purchase contracts stemmed from participation in three events in 2019.

4.1.8 Certification

Table 35 provides baseline values for the indicator related to certifications of industry and/or sustainability standards (e.g., HACCP, BRC, Sedex), with 19 certifications and 30.8% of active processors certified.

Table 35: Baseline Values for the Indicator Related to Certification

Indicator	Baseline value	Additional suggested measurement method
Indicator #14: Number of new certifications of industry and/or sustainability standards (e.g., HACCP, BRC, Sedex) received with USDA assistance	20 (19 active + 1 inactive) baseline 0 new	Percentage of active processors certified: 30.8%

Source: Baseline Processor Survey. March-April 2021.

A total of 19 certifications were held by eight active processors (n = 22), along with one certification (e.g., Ghana standards authority certification) by an inactive processor (n = 4). The number of certifications by processor are varied; three processors (one small-sized, one medium-sized, and one large-sized) reported having a single certification, whereas one reported having seven (medium-sized processor). Table 36, below, displays the percentage of all active processors holding the various certifications. Three processors have the organic/bio certification (13.6%), while all other certifications are held by one (4.5%) or two (9.1%) processors.

Table 36: Number and Percentage of Specific Certifications of Active Processors

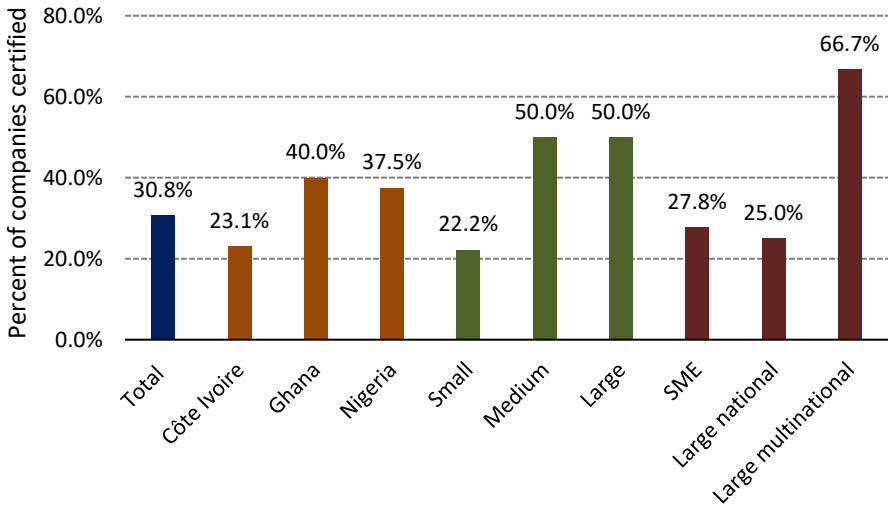
Certification	Total number of potential responses	Number	Percentage
HACCP	22	2	9.1%

Certification	Total number of potential responses	Number	Percentage
ACA	22	1	4.5%
BRC	22	2	9.1%
Sedex	22	1	4.5%
Organic/bio	22	3	13.6%
Fairtrade	22	2	9.1%
ISO	22	1	4.5%
Flocert	22	2	9.1%
Ecocert	22	2	9.1%
FDA	22	2	9.1%
NAFDAC	22	1	4.5%

Source: Baseline Processor Survey. March-April 2021.

Overall, 30.8% of active processors stated having some certification of industry and/or sustainability standards, with medium- and large-sized processors being more likely to report certification than small processors, and similarly large multinationals[66] more commonly having certification (see Figure 7).

Figure 7: Percentage of Active Processors Reporting to Have One or More Certifications



Source: Baseline Processor Survey. March-April 2021.

[66] Three multinationals surveyed.

The different types of certifications require various degrees of investment and technical expertise. We recognize that there is a continuum or a hierarchy of certification, with nationally and regionally available certification, such as the 'African Cashew Alliance Quality and Sustainability Seal' (ACA) being among the initial steps of a comprehensive sourcing and quality assurance certification, such as the British Retail Consortium' (BRC) certification. This hierarchy includes HACCP, ISO, among other certifications. Processors choose to invest in the relevant certification for their target markets. Export focused Côte d'Ivoire processors may plan and aim to reach BRC certification, whilst Nigerian internal market-focused processors, may be content with ACA certification. Some processors also sought market specific certifications, such as Kosher certification.

Similarly, it was found in the literature that product certification (e.g., organic and fair trade) is not yet very common in West Africa. Ton et al. (2018) reported that in Benin, the certification of processing units is more generalized, and these units are more involved in specialty cashew kernels such as organic and fair trade, than in Côte d'Ivoire.

Nowadays, especially in export trade, the standardization of processes and procedures is fundamental for meeting basic food safety requirements and obtaining specific certifications that allow for sale on high-value market segments. The process leading to certification may be long and challenging, but it will contribute to rationalizing the financial, economic, and administrative parts of the business. This is an important area where improvement is possible. For example, in early March 2021, N'Kalo reported that kernel prices were stable or down slightly depending on the grade, with sales being at the lower end of the range except for processing plants holding BRC certification. Additionally, Ton et al. (2018) mentioned that several Dutch importers expressed their interest for organic cashew kernels from West Africa.

Processors were asked to identify the certifications that they believed would result in the greatest benefit to their company. Removing those who already have a certain certification, Table 37 shows that 80.0% of processors believe that HACCP certification will result in the greatest benefit to their company, followed by BRC (40.0%) and ACA (38.1%).

Table 37: Priority Certifications Revealed by Active Processors

Certification	Want a certification	Already have the certification	Total potential responses	Percentage
HACCP	16	2	20	80.0%
ACA	8	1	21	38.1%
BRC	8	2	20	40.0%
Sedex	2	1	21	9.5%
Organic/bio	5	3	19	26.3%
Fairtrade	3	2	20	15.0%
ISO	2	1	21	9.5%
Flocert	2	2	20	10.0%
Ecocert	6	2	20	30.0%
Other (e.g., B Corps, Kosher)	3	0	22	13.6%

Source: Baseline Processor Survey. March-April 2021.

The primary reasons cited by the 15 active processors who do not have certification is they never had enough funds to invest into obtaining certification (53.3%), never achieved minimal standards to apply for certification (20.0%), and lacked the technical know-how to implement the necessary protocols (20.0%). Two Côte d'Ivoire processors also mentioned they are in the process of obtaining certification(s).

4.1.9 Financing

Processors were asked how much capital they invested to start up their company,[67] and, as expected, small processors had invested a lesser average amount than medium and especially large processors. In addition, in-project processors—several of which are planning to become very large—stated investing even more than active processors (see Table 38). The overall average for startup investment is USD 2,446,219.94, which is much higher than the overall median (USD 385,000.00), indicating that several very large values are pulling the average up (e.g., two investments of approximately USD 12-13 million). Generally, processors reported more often that this capital came from domestic sources only (59.4%), as opposed to both domestic and foreign sources (21.9%), or foreign sources only (12.5%) (see Figure 8).

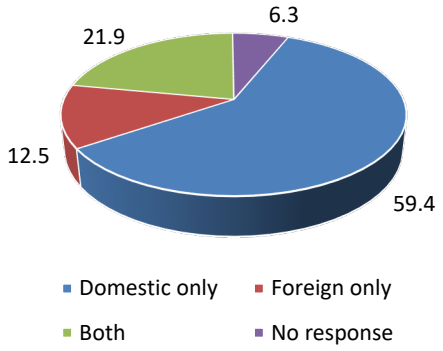
Table 38: Average and Median Amount Invested by Capital Processors to Start Up their Company, by State and Size

Category	USD
Active processors	1,988,065.32
Inactive processors	136,152.00
In-project processors	5,852,000.00
Small processors	373,857.40
Medium processors	2,552,500.00
Large processors	7,901,666.67
Overall average	2,446,219.94
Overall median	385,000.00

Source: Baseline Processor Survey. March-April 2021.

[67] Please note that, in almost all cases for the question" What is the amount of working capital and fixed capital deployed in your business so far?," the value provided was less than or equal to the amount of capital investments reportedly made to start-up the company; thus, these numbers are not reliable and will not be utilized.

Figure 8: Sources of Capital for Processor Start-Up



Source: Baseline Processor Survey. March-April 2021.

Cashew processor units require a minimum of two types of financing, namely investment (fixed) capital for factory and machinery purchase; and working capital for RCN purchase and processing.

In terms of sources of working and fixed capital,[68] processors reported receiving these from finance institutions, followed by family members, personal/owner/partner funds, and in some cases buyers for working capital (see Table 39, below).

Table 40 presents the baseline values for the four indicators related to finance. All indicators have a baseline value of 0, as they measure the direct results of project implementation. The baseline situation related to these indicators is discussed below; however, the fund manager or project must put in place a tracking system so that all investments, grants, and loans (i.e., through banks or other entities) resulting from the Prosper Cashew project directly or indirectly can be measured. Some processors have and will likely continue to refuse to provide this information as they consider it confidential.

Table 39: Sources of Working and Fixed Capital

Source of capital	Total number of potential responses	Working capital		Fixed capital	
		Number	Percentage	Number	Percentage
Finance institutions	28	11	39.3%	6	21.4%
National government loan programs	28	1	3.6%	1	3.6%
Friends	28	3	10.7%	1	3.6%
Family	28	7	25.0%	5	17.9%
Buyers	28	5	17.9%	1	3.6%
Shareholders	28	2	7.1%	5	17.9%
Personal/owner funds	28	3	10.7%	4	14.4%
Partners	28	2	7.1%	3	10.7%
Not relevant	28	5	17.9%	6	21.4%

Source: Baseline Processor Survey. March-April 2021.

[68] No time limit was specified here.

Table 40: Baseline Values for Indicators Related to Finance

Indicator	Baseline value	Additional suggested measurement method
Indicator #9: Value of new USG commitments and new public and private sector investment leveraged by USDA to support food security and nutrition	0 USD	-
Indicator #15: Number of individuals accessing agriculture-related financing as a result of USDA assistance	0	Percentage of active/project processors financed: 25.0%
Indicator #16: Number of loans disbursed as a result of USDA assistance	0	-
Indicator #17: Value of agriculture-related financing accessed as a result of USDA assistance	0 USD	-

Source: Baseline Processor Survey. March-April 2021.

Only seven (25%) of the 28 active and in-project processors reported receiving financing, with large processors receiving financing more often than medium and small processors. Additionally, male-owned companies did report receiving financing more often, but comparisons cannot adequately be made as there is only one female-owned company (see Table 41, below). Specifically, three processors reported receiving loans, one processor a grant, one processor a loan and a grant, and two processors credit.

Five loans were disbursed to three Côte d'Ivoire processors. This could have been six or more loans to four processors, but one processor in Nigeria chose not to provide any details related to their financing. Four of the loans reported were provided to large-sized, male-owned processors, and one loan was granted to a medium-sized, male- and female-owned processor.

Table 41: Number and Percentage of Processors Accessing Agricultural-Related Financing in the Last Year by Processor Size, Sex of Proprietor and Age of Proprietor

Category		Number	Total sample	Percentage
Processor size	Small	2	17	11.8%
	Medium	1	4	25.0%
	Large	4	7	57.1%
Sex of proprietor	Male	5	13	38.5%
	Female	0	1	0.0%
	Mixed	2	13	15.4%
Age of proprietor	Less than 30 years	0	0	-
	More than 30 years	6	25	24.0%
	Mixed	1	2	50.0%
Total		7	28	25.0%

Source: Baseline Processor Survey. March-April 2021.

Overall, the total value of the aforementioned financing was USD 878,124 in grants and USD 20,284,700 in bank loans, totaling USD 21,162,824. Of the seven processors involved, three each reported using this financing to buy new machinery, maintain/replace existing facilities and equipment, and buy raw materials; two reported improving processing (productivity, cost reduction), and one each reported using financing to start up, purchase a turnkey facility, purchase a warehouse, upgrade to respond to certification standards, and increase processing capacity. A majority (57.1%) of the seven processors felt that accessing finance was very difficult, while views on the ability to pay financing back were more varied, ranging from moderately easy to very difficult.

Of those processors that reported not accessing finance (n = 18), 33.3% stated not needing it and therefore not asking for it, 16.7% that banks/microfinance institutions (MFIs) would not lend, 16.7% that interest rates were too high and borrowing would have been detrimental, 11.1% that they are not involved in any government or foreign non-governmental assistance projects, and 22.2% other responses, including pointing out the unpopularity of agricultural loans.

One in-project processor explained the most critical issue for them, at present, is quick access to finance, even if on commercial terms. This processor stated that the credit appraisal process took nearly three years and in the end yielded little because a commercial bank is now expected to provide a bank guarantee; thus, the processor will need to go through the same process once more.

Ultimately, finance institutions tend to go where they can earn money at the lowest risk. Agriculture is generally considered risky for several reasons, including the weather dependency of agricultural yields and the often highly volatile nature of agricultural prices. Risk further increases in the cases of specialty crops with more limited markets. Furthermore, cashew processing units in West Africa are too young and have shown limited profitability, thus lacking the necessary multi-year track record that is considered pivotal for banks to grant loans. Also, some processing units reportedly still lack adequate financial management, or a bankable business plan. In addition, the reluctance of banks in West Africa to provide capital for purchasing RCN translates into significant delays in awarding loans, with processors missing out on a limited procurement window. During qualitative consultations, we heard mentions of a requirement for 120% guarantee in order to access funds. In the case of processing, where the value required to access RCN for processing throughout the year is at times higher than the value of assets owned by processors, this is a further challenge to secure loans.

It is clear that financing to support the necessary investment and economic development of domestic processing is a key area of difference between West African and Asian processors. In West Africa, the industry has not yet managed to whet the appetite of many banks and finance institutions for large-scale investment and financing at attractive rates. Depending on country and currency, cashew processors face average interest rates between 8% and 12% in Côte d'Ivoire and Benin, and up to even 30% and 35% in Ghana. Similarly, qualitative exercises also found that processors will access capital at between 13% and 25% depending on the country, institution, and perceived risk of the borrower. In contrast, interest rates in India and Vietnam are reported at 7% or 8%, if not lower. [69]

4.1.10 Public-Private Partnerships

A public-private alliance (partnership) is considered formed when there is a clear agreement, usually written, to work together to achieve a common objective.[70] This indicator's baseline is zero as these

[69] Ton, et al. December 2018.

[70] See https://www.worldbank.org/en/topic/publicprivatepartnerships for details on PPPs.

public-private partnerships need to be formed during project implementation and will be reported through monitoring (see Table 42). Currently, the Government of Côte d'Ivoire offers fiscal incentives and in-kind support. Some processors claimed to have been given land to build a factory on by the government. Government is also keen to provide infrastructure improvements to make processing in Côte d'Ivoire more competitive. The Nigerian government also appears open to listening to the needs of all cashew actors.

Table 42: Baseline Values for the Indicator Related to Public-Private Partnerships

Indicator	Baseline value
Indicator #18: Number of public-private partnerships formed as a result of USDA assistance	0

Source: Baseline Processor Survey. March-April 2021.

All three Prosper Cashew focus countries recognize the importance of the private sector to generate growth and sustainability in the cashew value chain, and to this end they have created incentive structures, with a varying degree of support and implementation. In Côte d'Ivoire, this support is most felt, creating an added incentive not only to engage in processing, but also engage in processing of volumes above 5,000 MT. Ghana has created the policy statement of "one factory, one district." In Nigeria, government officials at state and federal level recognize the importance of the private sector and are keen to see the engagement of processors in supporting producers improve their skills.

> *"Honestly, we cannot do without the private sector. The private sector has the skills, expertise, capacity and resources. They need to engage more with the actual producers through technology transfer."* — Nigeria state government official

At the regional level, and with regards to international technical and financial partners, governments appreciate private sector support but wish it would be aligned with national policies and national leadership. Governments want to have the capacity to lead the process, rather than have to follow the partners' guidance. For Prosper Cashew, it will be important to include governments in key decisions within the project, and keep them regularly informed of project implementation.

> *"Technical and financial partners should see themselves as monitors in a vehicle where the country's actors are in the driver's seat. At any point in the vehicle's evolution, the monitor brings his or her expertise but should be able to step out and let the actor drive on his or her own."* — Public body/international government association

The World Bank and its Public Private Partnership Lab have been creating an important deposit of best practices on PPPs and providing opportunities for resourcing these accordingly. In Côte d'Ivoire specifically, the World Bank has been supporting strategic government investments to improve the infrastructure and governance around the cashew value chain, with a specific focus on supporting the processing environment.

4.2 Key Study Questions

4.2.1 Relevance, Adequacy of Design, and Coherence

4.2.1.1 Study Question 1.1

Are proposed activities appropriately designed to meet the priority needs of processors within the cashew sectors? If relevant, how can their design be optimized?

Box 4. Assistance Priorities

Surveyed processors provided' the same general areas as top priorities to gain from international assistance, with financial assistance being at the top of the list, whether through grants or loans/debt with reasonable repayment terms and interest rates. This finance would then be used to purchase improved processing equipment (grants of processing equipment was also mentioned), increasing production capacity, working capital, and certification. One processor even mentioned the introduction to an efficient and effective automatic equipment supplier.

Accessing markets, especially international markets, and receiving technical training were also key priorities for many processors. One processor mentioned help to increase farmgate buying and vertical integration, while another mentioned access to a pool of certified cashew bio growers.

One of the main areas of interest that processors mentioned they would like to learn from this study (or future studies conducted by TNS) was gaining a better understanding of market dynamics, trends and players, and understanding international market requirements. Additionally, it was commonly mentioned they wanted to understand the options for financing in the cashew sector. Others mentioned interest in receiving updated, best/good management and technical practices that can improve their processing operations. A few more specific knowledge areas were cost positioning of African processors; global interest in sustainable local processing of agricultural produce before export; and the total annual percentage of RCN processed compared to the total quantity of RCN produced in their country.

The project's activities are, to a great extent, clearly aligned with the priorities identified by processors and other stakeholders. The vast majority of processors consulted identified access to financing as a critical bottleneck to their operations. Processors who did not express access to capital as a priority are associated with much larger international groups that provide the financing support required to access RCN. For all other processors, financing is critical to access RCN, for which there is a brief period (4 to 5 months) during which the RCN for the whole year needs to be procured, in direct competition with other processors and, perhaps more importantly, with exporters. This is a sizeable investment in raw material, and often at a scale similar or larger than the initial capital investment and set-up costs. Critically, this is capital that is required on a cyclical, yearly basis; if not secured, the entire processing cycle for the year will be below installed capacity. For 2020, the average utilization rate of surveyed processors was 37.8%.

A further important financing requirement is for capital expenditure. Equipment in cashew processing is fast evolving, with a limited life expectancy, and more importantly, improvements in equipment can decrease processing costs significantly. With the purchasing price of RCN and the selling price of kernels being dictated by national price-fixing mechanisms and international market forces, the only variable on which processors can focus is the cost of processing (profit margins). It is generally expected that parts of the equipment (shelling) should be, ideally, replaced every three to five years to allow a processor to remain competitive, while other elements of the processing cycle (grading, peeling and packing equipment) allow for a longer amortization period. These investments represent important capital commitments on a cyclical basis.

Finance institutions are active in the cashew value chain, although they usually struggle with financing processors due to a seeming lack of understanding of processing activities, and the existing challenges with processing profitability in West Africa. This particularly affects smaller and domestic processing companies. Finance institutions generally prefer to finance value chain actors with a greater degree of certainty regarding their revenues and track record.

Access to finance activities designed for the Prosper Cashew project align well with the priorities identified by processors. The Cashew Catalyst Fund proposes to develop financing mechanisms to provide sustainable, long-term capital for processors at rates that will be competitive with capital accessed by Vietnamese and Indian processors. The Match-Making Facility will provide equity investment and longer-term capital, ideal for investments in equipment, infrastructure, and other investments for processors.

The capacity of staff was also identified as one of the main priorities for the processors' operations and sustainability, across the three countries. With regards to technical capacity, as mentioned above, 50% of processors totally agree and 23% or processors moderately agree that there is a lack of factory processing skills, which impacts their competitiveness. With regards to business skills, 27% of processors totally agree and 32% of processors moderately agree that a lack of business skills is impacting their competitiveness.

> *"Training needs to be a hands-on activity: Factory management has to buy into the capacity building of technical staff and ensure that best practices are implemented. Management also needs training to understand all processing activities, so that they can understand, manage and support the implementation of technical best practices in their factories."*
> — Market association

The need for more holistic management practices has been mentioned as an area where the sector is struggling. For instance, to achieve a specific sales target that includes exporting to various international markets, certification requirements will have to be met, which means the processing plant requirements for certification have to be implemented; the factory floor staff must align with the required health and safety protocols; and, critically, RCN has to flow within these operations to meet the sales targets. Management needs to be able to understand all aspects and ensure these are all operating in a synergistic manner.

With regards to the commercial aspects, management needs to ensure reliability of supply, and quality, which we have discussed above. A further aspect in commercial requirements of management is the ability to identify new market opportunities, such as new countries to export to or how to identify opportunities to increase local consumption, doing further processing to increase sales margins, or identifying potential uses of by-products that emerge from cashew processing, such as animal feed (cashew waste) or paste (from broken pieces).

In order to mobilize capital for operations (e.g., access to RCN) or secure other forms of investment, management needs to be able to develop comprehensive business plans, forecast revenues, and often have an entrepreneurial mindset to be able to develop these. This will be a critical training need to promote during the Prosper Cashew project, particularly in light of the activities proposed. Processors need to be able to develop the required business plans and ensure financial management procedures are in place to access finance or equity investments.

> *"Capacity building needs to be holistic and tackle a number of priorities. 1) Knowledge: Processors need knowledge to understand the dynamics of commodity trends as it relates to consumers; 2) Market information: There is a need to understand what is happening in the market and why prices are fluctuating. This is the ability to project what farmer production capacity might be in the coming years and develop models around it; 3) Technical competencies: The processors need business mindsets and business plans, especially on how to have access to credit; 4) Project competence/management dynamics: This means that if you give the processor financial support and if the points listed above are not there, then money will be wasted. In addition, processors need to understand where the changing trends are in terms of cashew consumption. Also, note that the capacity mentioned cuts across all processors, small, medium and large."* – Ghana government/public organization

Equipment operation and maintenance is another important area of capacity building. Equipment is generally imported, and there is limited technical support available nationally to processors. To a large extent, this is an area of capacity in which to invest.

Access to equipment parts (or lack of their availability) can adversely impact processor activities. As equipment suppliers are mostly located internationally, the ordering and transportation of parts can take extended periods of time. Additionally, follow-up technical assistance would require international travel when required. COVID-related travel restrictions underscored the problematic dependency of processors on foreign technology and assistance, further highlighting the need to improve regional know-how and production of equipment. Some processors have shared anecdotal feedback of technical staff being able to adapt or build parts locally. Such capacity could be promoted within local equipment and maintenance providers, as it could reduce costs and stoppage time for processor equipment. A national equipment provider consulted stated that their company has the technical capacity to install and provide maintenance to equipment from any international provider. However, they have also stated that international equipment suppliers are secretive about their equipment.

Prosper Cashew has performed an extensive needs analysis, and the activities proposed for capacity building extensively cover the needs of processors and value chain stakeholders. The areas of capacity building proposed under management support (general business management, financial management, investment facilitation, human resources/workforce management, marketing support, and supply chain development) and technical support (food safety management systems/certification, supporting the introduction of traceability, environmental practices) comprehensively cover the capacity-building needs of processors. This finding is supported by both the qualitative and quantitative evidence supplied by the baseline study.

Delivering support to cashew producers entering into processing and strengthening cashew processing ecosystem enterprises (local manufacturing and servicing of processing equipment, training centers, and the ecosystem of financial services) has the potential to create a sustainable enabling environment for cashew processors in Côte d'Ivoire, Ghana and Nigeria. Reflecting on the processors' distribution across the three countries, Prosper Cashew will have to pay particular attention to developing models of delivery of support to ecosystem actors in the three countries to ensure all processors have equitable and sustainable access to services offered.

CITA and the Higher School of Agronomy of the Polytechnic Institute Felix Houphouët-Boigny (INPHB-ESA) are leading institutions in capacity building provision for the cashew value chain. Both are located in Côte d'Ivoire. For equipment/maintenance providers, TNS has developed an innovation center in Cotonou, Benin—a facility where providers can use the physical space and technological resources to

design, test and build required tools and parts. There are a number of other capacity building providers in the three focus countries that have previously partnered with TNS and other projects in the region, and these providers would be available for Prosper Cashew. International capacity building firms such as Away4Africa, consultants associated with the African Cashew Alliance, or other international consultants, could perform capacity building/technical assistance services in the Prosper target countries. Additionally, local Nigerian resources include national consultants and organizations (e.g., Huios Global Alliance Ltd; B-Consulting (Belyta Nigeria Limited), and Rossland Consulting Limited) that could provide capacity building services for cashew processors and other actors in the value chain. Perhaps supporting the establishment of a network of resource institutions and training providers in the region that could leverage the established strengths of CITA, INPHB-ESA and the TNS innovation hub will allow for the efficient use of resources to distribute capacity across the region.

There are an increasing number of ways to deliver capacity building. Inputs gathered for this baseline study point out that flexible continuous training, and training aligning theory and practice, would be the most relevant ways. In line with this, there are important technological resources available to develop good quality training materials for all processors. One such example is TNS's own high-quality blended learning online platform, with some cashew processing materials already developed, and this could be a good resource to build upon for future capacity building delivery. Other interesting examples of capacity-building initiatives (i.e., extension services and technical assistance) available from other actors in the value chain are discussed later in this report. Still, notwithstanding these resources and opportunities, unless a critical reflection is made on how to resource the project's capacity-building activities, Prosper Cashew has the potential to distort the technical assistance and capacity-building market in Côte d'Ivoire, Ghana, and Nigeria. The importance of having an element of cost sharing in the technical assistance provision has been noted, in order to ensure buy-in from processors, and also to ensure that technical assistance is of high quality.

International kernel buyers, when asked what they value most about a processor, stated two things: reliability of supply, and quality of product (certification). International buyers recognize that relationships with processors take time to build and to get to a desired level of reliability and quality. Nevertheless, there is an interest in sourcing kernel from as close to the source as possible, and in that sense Côte d'Ivoire, Ghana and Nigeria have a competitive advantage. Furthermore, in our discussions with processors and other stakeholders, it became clear that organic, and fair-trade certified products command an important premium. It was also interesting to note that there are a range of alternative products, such as cashew oil, cashew butter, and even cashew brandy (derived from the cashew apple) that processors are willing to explore as secondary, added value revenue generating product lines.

In Nigeria, the national market has proven to be an interesting opportunity for processors who invest in secondary processing (roasting), branding and packaging. In Ghana also there seems to be a growing national demand, particularly due to the relatively small scale of national processors. In Nigeria, the premium received for roasting and packaging for the final consumer varied between 45% and 60%, although quantities of product sold were significantly lower, as were the variable costs (lower requirement of RCN). In Côte d'Ivoire, the national market and informal market have also been interesting, especially because they do not require premium kernel. While export markets prefer more marketable grades (WW320 kernels are popular), national markets in middle-class Côte d'Ivoire and the region are less discerning. In Nigeria and Côte d'Ivoire, two processors interested in supplying national markets stated that their strategy was to explore opportunities to enter into international supermarket chains by first becoming local suppliers to their national affiliates. A further interesting avenue is the selling of cashew by-products (broken bits and baby bits) for food production.

Prosper Cashew's Activity 4 (Buyer-Seller Relationships), is designed to strengthen buyer-seller relationships across the value chain, from producer to processor to international buyer of kernels. There are some important challenges identified by various actors across the value chain. Due to the price fluctuation of RCN and kernels, there is great reluctance on the part of all actors to enter into binding contracts with regards to quantities and prices. This is true both on the part of producers and producer cooperatives who in practice sell to the highest price offered, and with international buyers who although interested in diversifying and buying kernels close to production origin, are reluctant to do so if the price difference with other markets is too high.

There are activities designed to strengthen the relationship between processors and producers. Although we have limited knowledge on how these will play out in practice, they are relevant activities. Strengthening the capacity of producers to increase the quantity and quality of RCN will be beneficial for processors and will have a direct relation to the quantity and quality of kernels produced. By increasing the technical and managerial capacity of processors, including quality assurance mechanisms and certification processes, the project is inherently strengthening the relationship between processors and international buyers, who see reliability of supply, and quality of kernel (including certification), as the main defining factors for a sustainable and successful relationship with processors. Price is also an important factor, but international buyers are seemingly willing to accept a small price difference to diversify the sources of kernel and procure kernel as close to production as possible.

> *"There is a market for kernels, but we cannot supply, we need to be competitive enough to supply the market, sometimes we do not have the capacity".* – Ghana processor

> *"Quality consistency is an issue in Cote d'Ivoire, Ghana and Nigeria. […] consistency in terms of supply and in terms of quality."* – International buyer

Prosper Cashew will collaborate with PRO-Cashew to establish links between processors and producers to strengthen local supply chains. We have seen that there is mistrust between the various value chain actors, and difficulties in entering contracts and having these contracts adhered to. There are also underlying challenges to fulfilling contracts linked to the volatility of RCN prices. Although there are opportunities to strengthen the production through extension services, and processors can develop and deliver or support cooperatives to deliver extension services, it cannot be assumed these will lead to contractual relationships for privileged access to RCN for processors.

> "*Because of problems in the past, I don't believe in taking loans (from processors/local buying agents in exchange for RCN). Just buy my product, and leave…*" – Nigerian Cooperative Representative

Trade fairs are an important vehicle to introduce processors to international buyers, although only a limited number (22.7%) of processors partook according to survey results. Of the processors interviewed that participate in trade fairs, they stated that it was an important avenue to establish contact with international buyers.

Activity 4 is best seen in conjunction with Activities 1, 2 and 3, which also seek to respond to challenges identified by processors. There is a great benefit in integrating elements of these activities so that they become mutually supporting.

4.2.1.2 Study Question 1.2

To what extent does the project design integrate country and regional agricultural development plans and sectoral strategies?

The regulatory framework and governance of the cashew value chain is one area of work that is not contemplated by the project, but it is of great importance (see Table 43 for background information on this topic). While Côte d'Ivoire has a comprehensive regulatory framework for the cashew value chain, including fiscal incentives for processors and disincentives for exports of RCN, Ghana and Nigeria are still in the early stages of developing a legal framework that recognizes the added value of processors, protects their access to RCN and motivates investment.

Table 43: African Cashew Sector Policies, both RCN and Processing Focused, as well as More General Policies that Could Promote Cashew Processing (2019 or Otherwise Indicated)

Country	RCN focused	Processing focused
Côte d'Ivoire	• Ban on RCN land export • 0.23 USD/kg tax on RCN export (2019); 180 USD/MT (2021) [note 1] • License required for buying and exporting • Minimum price 0.68 USD/kg (2019); 0.55 USD/kg (2021)	• No buying before launch of the campaign, farmgate for processors only • 15% of exporters volume to linked processors • Subsidy of 0.73 USD/kg of kernels to processors • Guaranteed access to finance • Government subsidy of 0.68 USD/kg of locally processed white kernels and 0.25 USD/kg of locally processed deshelled kernels • Credit guarantee scheme to facilitate domestic financial lending to processors • Duty-free importation of processing equipment for 5 years • Export tax exemption for processors of cashew kernels • A 4-year total exemption from Value-Added Tax on costs at project preparation phase • Prioritized access to industrial land and serviced agro-industrial parks
Nigeria	• Trucking charges in Nigeria range from 170 to 200 Naira/kg, while sea export freight to European and Asian destinations range from USD 2,200 to USD 3,500 for a 20-foot container load	• Nigeria targets 840,000 MT of RCN production by 2024 • Price reduces from 1,350 Naira, to 1,400 Naira last year, to 1,200 Naira • High-yielding seeds are given to farmers for free • The Federal Ministry of Food and Rural Development launched the Cashew Expansion Program • Nigeria lifts ban on Export Expansion Grant to boost non-oil exports • Cashew nut already been recognized as strategic non-traditional export commodity in 2016 • Five-year tax holiday if granted pioneer status, i.e., located in a rural area • Import tax exemption facilities for agro-industrial equipment • 0% export tax on cashew kernel export • Easy Land facilitation – long-term leasing for abandoned locations
Ghana	• Transportation of domestic goods to Tema Port costs about USD 0.0333, while sea export freight to European and Asian destinations range from USD 850 to USD 1,500 for a 20-foot container load	• Corporate tax is set at 25% for all companies • Income from non-traditional exports is subject to 8% income tax, though no export tax is levied on cashew kernels • Tax holidays (from start if in operation) for a period of 3 years • Location incentives; Ghana has Free Zones, providing tax and duty reductions and exemptions for businesses that invest in the country • Beginning 2018, all RCN exporters are required to register with the Ghana Export Promotion Authority (GEPA) and the Plant Protection and Regulatory Services Directorate (PPRSD); the registration process involves payment of various fees • Signed on to the Consultative International Cashew Council (CICC) • The government has initiated the process to pass a Tree Crop Development Bill to set up an authority to regulate the cashew sector; other crops to be regulated under this Bill include shea, oil palm and rubber

Country	RCN focused	Processing focused
Benin	• Ban on RCN land export • 0.13 USD/kg tax on RCN export • Minimum price 0.73 USD/kg; 0.54 USD/kg (2021)	• Processors are allowed to buy before the launch of the campaign
Burkina Faso	• 0.045 USD/kg tax on RCN export • License for exporting required from the Ministry of Trade [note 2] • Minimum price 0.68 USD/kg	• No points found
Guinea-Bissau	• License required for buying and export • Minimum price 0.66 USD/kg • Intermediary protected direct purchase of raw nuts from producers by export companies is prohibited (2021) • Taxes on RCN: 15 CFAF/kg for producers, 13 CFAF/kg for intermediaries; 50 CFAF/kg for exporters (2021)	• No points found
Kenya	• Ban on RCN land and sea export	• Ban on RCN land and sea export
Tanzania	• 0.15 USD/kg tax on RCN + 15% if no money to processor • Cooperative buying, license required to tender; state controlled • Minimum price 1.43 USD/kg	• No points found
Mozambique	• 0.75 USD/kg tax on RCN, if not supplied to processor	• No buying of RCN for one month, or beyond the point where more than 50% of processor stock needs are fulfilled

Notes:
1. The African Financial Community franc has strengthened against the United States dollar in early 2021.
2. Traders and exporters refused to adhere to the decision of the Ministry of Trade, Industry and Handicrafts—through its General Directorate of Trade—to set up a system of licenses for cashew product marketing activity for 2021. These actors do not consider such a licensing mechanism to be appropriate at a time when they are facing many difficulties with the marketing of cashew nuts, given the situation of the COVID 19 pandemic.
Sources: Derived from African Cashew Alliance. 2019; and N'Kalo. February 17, 2021.

With respect to the cashew value chain, the institutional architecture is also nascent. While Côte d'Ivoire has CCA, a strong active and well-resourced public body with various representatives of members of the cashew value chain, Ghana has just recently created the Ghana Tree Crop Development Authority, and Nigeria is still in the planning stages, with the creation of a national inter-ministerial and interagency committee charged with developing a 10-year development plan for the value chain.

Both Ghana and Nigeria would benefit greatly from support in the creation of an enabling regulatory and institutional framework for the cashew value chain in their respective countries. This would have a significant impact on the viability and sustainability of cashew processors. Processors cannot compete with exporters, which receive stronger financial support from international buyers and finance institutions. In the current context, it is more profitable for producers to sell to exporters in Ghana and Nigeria rather than to local processors. This leaves processors in a challenging position with regards to accessing RCN. If processors could get support in this area too, notably through pricing and procurement policies, it could help establish a better balance between producers and processors.

4.2.1.3 Study Question 1.3

How do the four sets of activities complement each other in order to achieve the expected results? Are there any gaps that need to be considered?

At this point in time, we have only been able to gather a high-level understanding of the activities, and have not seen a granular description of how these will take place. As such, it is difficult to identify how, in practice, the planned activities complement each other.

We would suggest that a certain level of integration in the planning of activities is considered. For instance, it would be optimal if technical training on financial management is given within the practical exercise of developing business and financial plans to access funds from the Cashew Catalyst Fund or preparing documentation for potential investors through the Match-Making Facility. Conversely, there is potential for synergies on accessing international markets, if capacity building to assist processors to achieve BRC certification is done in parallel with identifying international buyers through participation in trade fairs.

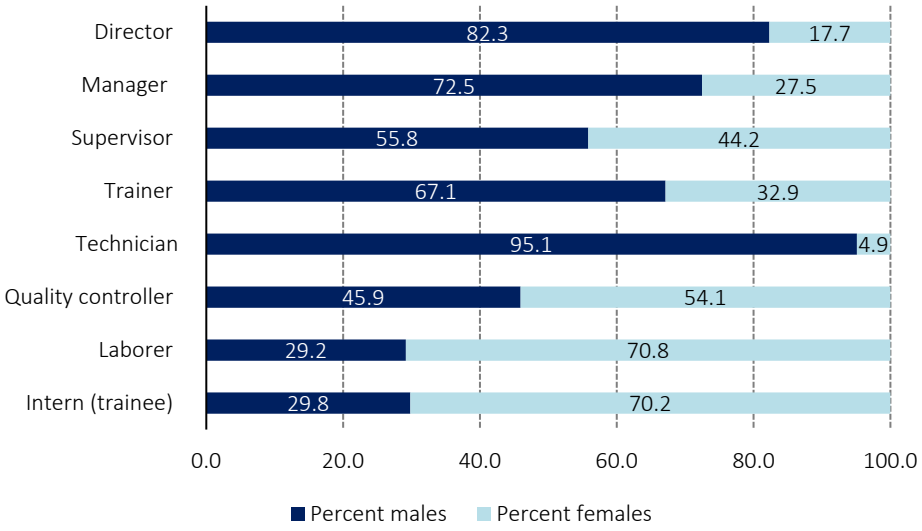
4.2.1.4 Study Question 1.4

Are the proposed activities appropriately designed so that women and other vulnerable groups will benefit equally compared to men?

Women are a critical element of the value chain, playing a key role in cashew production and processing. However, they often occupy the most vulnerable employment positions. There is increasing participation of women in the hierarchy of processing companies, although they are still significantly underrepresented in senior management and ownership structures. Survey results found that males more often held the positions of director (82.3%), manager (72.5%), and technician (e.g., mechanic, electrician, machine operator) (95.1%), whereas females more often were laborers (70.8%) and interns (trainees) (70.2%) (see Figure 9). Additionally, of the 32 surveyed processors, only one was completely female-owned. Thus, in absolute numbers, women represent most of the workforce engaged in processing, although their numbers are substantially higher in factory labor, and lower as one goes up the management and ownership structure. Additionally, the survey found that women were most likely to undertake casual labor, and having a gender policy was one of the lowest scoring components of the OCA.

Due to their higher representation in the manual aspects of processing, women are more likely to be adversely impacted by increased automation of processing, although more qualified technical staff will likely be required to operate equipment, and more manual work may become available in other sections of processing. Thus, greater automation could represent either an opportunity or a threat for women.

Figure 9: Average Percentage of Males and Females in Various Employment Types in Cashew Processing Companies



Source: Baseline Processor Survey. March-April 2021.

Women in processing are negatively impacted by the current compensation structure where, particularly in peeling, they are paid according to their performance (kilograms of nuts peeled), as opposed to most other functions where staff receive a fixed remuneration. Under this regime, if they are sick or face other challenges, women (and men) may suffer, as their income is not protected. While this is, in essence, a management decision of individual processors, and a reflection of current practice in the industry, perhaps information could be shared on the benefits of setting up a hybrid model of fixed compensation and performance-based compensation, namely a potential decrease in staff turnover and inherent staff training costs. In interviews with processors, we were told that staff who get stable compensation are more loyal to their company and are more likely to take ownership over and comply more actively with processes they are asked to perform.

Box 5. Female-Led Success

One of the top processors in Côte d'Ivoire is led by a woman (Chief Executive Officer), and has over 50% females in senior management positions. They have also chosen a different compensation method for factory staff—most of them women—by choosing to pay them fixed wages, as opposed to performance pay, which is the norm. This way, the company has increased staff retention and productivity, reduced staff training costs, and created a strong bond with their staff. This is one of the only processors in Côte d'Ivoire to have received BRC certification, which is one of the most rigorous food and safety certifications. According to the Chief Executive Officer, all her staff, including factory workers, received training on the certification requirements, and took ownership of the responsibility to fulfill these. When the staff received the news of having passed the certification requirements, the whole factory broke into a spontaneous celebration!

Furthermore, all factories need to ensure adequate infrastructure and gender-supportive strategies are in place. Factories should, at minimum, ensure compliance to all regulation regarding infrastructure, health and safety, and governance (e.g., including ensuring that harassment policies are enforced). The TNS-led BeninCajù project, for instance, supported processors to upgrade facilities to attract women,

such as creating childcare facilities, so that women could focus on work. Other examples of facility improvements could include ensuring proper lighting, toilets, proper ventilation and thermal comfort of work areas, and providing transportation where required. All these investments could contribute to a reduction in turnover, and in training costs. Finally, processors could be encouraged to make a comprehensive review of procedures to ensure sexual harassment/sexual policies that protect women in the workplace are in place.

All surveyed processors reported having at least one social program for their workers, with flexible working hours (63.6%) and health support (50.0%) being the most common, though daycare for children is still limited (13.6%) (see Table 44).

Table 44: Processor Social Programs, by Country and Processor Size

Category		Sample size	Social program				
			Daycare for children	Free meal	Transport	Health support	Flexible working hours
Country	Côte d'Ivoire	11	18.2	0.0	18.2	54.5	54.5
	Ghana	4	0.0	50.0	75.0	0.0	75.0
	Nigeria	7	14.3	28.6	28.6	71.4	71.4
Processor size	Small	14	7.1	21.4	28.6	35.7	71.4
	Medium	4	25.0	0.0	25.0	75.0	50.0
	Large	4	25.0	25.0	50.0	75.0	50.0
Total		22	13.6	18.2	31.8	50.0	63.6

Source: Baseline Processor Survey. March-April 2021.

As women are not proportionally represented in the management and ownership structures of processors, they will conversely not benefit equally from these activities in equal measures. It is recommended that specific, targeted actions should be designed to ensure this is addressed. Such activities could include requests that women be represented in capacity-building initiatives developed, and that specific targets be set for access to finance for women-owned processors.

As per TNS's gender policy, staffing in the Prosper Cashew project itself should be gender balanced. Although we recognize that not all positions have been filled to date, the current staff structure is not gender balanced, with only one female in the senior management structure.

4.2.1.5 Study Question 1.5

How can Prosper Cashew adapt its design and implementation model for each particular target country?

All three focus countries have context-specific risks and opportunities. Côte d'Ivoire is the largest producer of RCN in the world and has a strong regulatory framework to promote processors' access to RCN. Côte d'Ivoire continues to evolve and develop innovative mechanisms for the promotion of the value chain, such as a warehousing guarantee system, where traders and producers can deposit RCN and use this as a collateral for future investment. Government is also exploring the development of a commodity trading board for RCN, after the codification/normalization of RCN done by Côte d'Ivoire

Normalisation (CODINORM), in addition to continuous investment in infrastructure and support to industrialize in the country.

Nigeria is now beginning to think about developing a regulatory framework. Cashew (both RCN and kernel) is seen as a valuable foreign currency mobilizing export, one of 22 that the government is actively promoting. Nigeria also has a sizable domestic market, which has proven to be an opportunity for a number of national processors. It is often difficult to pinpoint the role of value chain actors in Nigeria. There are several processors in Nigeria performing multiple roles within the value chain. They operate as intermediaries, exporters, primary (kernel) and secondary (roasting, branding and marketing) processing activities. The variety of roles they perform within the value chain allows them to generate multiple income streams (e.g., export or RCN and/or kernels, secondary roasting for the national markets), which helps them to be resilient and benefit from multiple opportunities. The most successful actors in Nigeria are those who are most innovative and versatile. For instance, if these actors identify RCN of high quality, but too expensive for export or processing into kernels, they can always buy it to be used for secondary processing for the national market, which commands a higher profit margin. One of the processors in Nigeria stated that he currently commands 40% of the national consumption market.

The institutional architecture for the cashew value chain in Nigeria is perceived by some stakeholders as problematic. It is felt that the National Cashew Association of Nigeria does not accurately represent all the actors of the value chain, predominantly representing intermediary interests, and it has had some governance challenges in the past. As actors in the cashew value chain in Nigeria play multiple roles at any given time, the role of intermediary is the most challenged here, with many stakeholders questioning if intermediaries add value or enlarge the market. In our exchanges, we found that intermediaries do not appear to play an important aggregator role, not only for cashew but also for other agricultural products.

Also, in Nigeria, challenges in infrastructure are reported to cause important delays in the transportation of RCN (roads in poor conditions), and exports (very congested ports). Moreover, corruption has been flagged as the only way to overcome these challenges.[71]

Ghana faces a particular set of challenges concerning the development of appropriate fiscal and legal incentives to promote processors' access to RCN. Under the current policy environment, where there are no fiscal disincentives for export of RCN (Ghana being one of the only countries in the region without fiscal barriers to export), processors have a hard time competing with exporters who can mobilize financing at more competitive rates than processors. The government has in the past attempted to tax exporters, but these faced vehement opposition from the producers. As producers represent an important part of the electorate, the government decided to withdraw the proposed taxes on exports of RCN. In the current scenario, it is very difficult for processors to access RCN. In order to successfully meet its processing targets, one of the largest processors in the country had to resort to importing RCN from Guinea-Bissau. This situation may continue, as the government's priority in the sector is to strengthen production (with nurseries, organizing producer cooperatives, etc.).

There is currently a ban on export of RCN from Côte d'Ivoire through land borders, but there is an important influx of contraband from Côte d'Ivoire to Ghana. It is rumored that as much as 20% of RCN reported as produced in Ghana is of Côte d'Ivoire origin (N'Kalo estimated 13.2% in 2020). As Prosper

[71] On the subject of corruption, in our study, there was anecdotal reference to bribing quality assurance staff (i.e., personnel who assess the quality of RCN), so that they report higher quality than found, and neglect the fact that older RCN batches are mixed with newer ones.

Cashew will be financing the acquisition of RCN in Ghana, there is an important risk that it ends up funding the unlawful import of RCN. It will be important for TNS to verify the origins of RCN bought with project-facilitated funds to mitigate against this risk. As per the Ghana Cashew Industry Association, Ghana saw an increase of 35% in RCN production in 2018 alone. The "Cashew 10 Year Development Plan For Ghana," published in 2018 by the Ghana Export Promotion Council and the Ghana Cashew Industry Association, forecasts a total RCN production for Ghana at 300,000 MT by 2027. If cashew production continues to grow at this rate, and if effective policies are implemented, domestic processors will access RCN in sufficient numbers to ensure sustainability.

In Ghana, there are opportunities to support small-scale processing, but at a reduced scale. Processors below 500 MT per year seem to thrive in Ghana. Below these processing levels, processors can offer product for the national market, and also seem to be able to access RCN throughout the year. They may pay higher prices for RCN, but less capital is required and processors can acquire smaller quantities of produce, then process, sell, and continue the cycle. In discussions with Ghanaian processors, this model of RCN acquisition changes once you reach above 1,000 MT per year, at which scale financing to procure RCN for the whole year at the beginning of the season poses a significant challenge. In Ghana, a priority is therefore to support processors to establish the right links to producers and financing capacity to acquire RCN in a very competitive environment.

Ghana and Nigeria need a great deal of assistance for the development of an appropriate regulatory framework and institutional framework to support the sustainability of the value chain in general, and to promote processing in particular.

Box 6. Innovative methods

In both Nigeria and Ghana, it was mentioned that processors undertake contract processing, or tolling processing. This is a model where the processor only provides the processing service for a fee, without being responsible for buying RCN nor selling kernels. This is an interesting model that could be replicated, as it reduces the exposure to volatility risks for processors. By processing on an agreed price, processors essentially become service providers, not responsible for the acquisition of RCN nor the sale of kernels.

In both Ghana and Côte d'Ivoire, we have been presented with satellite processing modules, where small partial processing units (shelling functions) are set up for a relatively small price (approximately USD 20,000) allowing cooperatives and other producer groups to generate and capture additional value. These cooperatives or satellite partial production units would then feed into a central factory that would focus on peeling. Some of the traditional processors are skeptical about this model. They see the shelling part of the process as the easiest one, where there is generally more built capacity, and peeling as the slower, more human-resource intensive part of processing. The satellite processing model would require main processors to become centers of excellence in peeling. A further benefit of this model is that main processors would need to acquire semi-processed cashews gradually from cooperatives, throughout the year, without facing such capital-intensive requirements as traditional processors do.

4.2.1.6 Study Question 1.6

What lessons from other cashew promotion projects have been used to improve the design of Prosper Cashew? How is Prosper Cashew aligned with and benefiting from the experience and current work of other cashew promotion projects elsewhere (regionally and globally)?

The activities proposed by TNS are a reflection of their experience in cashew value chain programming in West Africa. TNS have identified the critical aspects, such as access to finance, training, market linkages, for the success and sustainability of cashew processors. In many ways, it could be said that Prosper Cashew's activities are based on learning derived from previous programs. Some of the resources and value chain actors (e.g., some of the intermediaries, and capacity building providers) have been engaged in previous TNS cashew value chain projects in the region.

In concrete terms and with regards to Prosper Cashew, TNS has considered some of the learnings of the implementation of the BeninCajù project, particularly the latter's M&E framework. For BeninCajù, there were a total of over 100 indicators in the performance measurement plan, whereas for Prosper Cashew this number was substantially reduced. For BeninCajù also, the project had used multiple M&E systems across implementation partners, and TNS ensured that for Prosper Cashew only one was used. Finally, while in BeninCajù different consulting companies had been selected for the baseline, midterm and endline evaluations, for Prosper Cashew the decision was made to engage only one company for all evaluations. Finally, TNS has developed a freely available app for BeninCajù that assists in the quality assessment of RCN. This app could be disseminated widely to processors and intermediaries, as it may support in quality assessment of RCN during the procurement process.

Turning out to existing projects, we found that Prosper Cashew aligned with them, but little direct collaboration was noted. Some of the projects we were exposed to during this study include the following:

- The Competitive Cashew initiative (ComCashew), a GIZ-funded program focusing on production, processing, market linkages and institutional strengthening of the cashew value chain in Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mozambique and Sierra Leone.

- The Tony Blair Institute's cashew programme, which supports the ambition of the Government of Côte d'Ivoire to increase domestic cashew processing by helping the country attract and retain foreign investment in the sector.

- The UK Trade Partnerships Programme, funded by the Foreign, Commonwealth & Development Office (FCDO) of the United Kingdom of Great Britain and Northern Ireland, focusing on the promotion of trade between the UK and Côte d'Ivoire and Ghana, among other countries. For Côte d'Ivoire, the focus of trade is the agri-business sector, with cashew nuts and tropical fruits identified as potential export growth industries. For Ghana, cocoa is the main agricultural product identified.

Another important initiative is PRO-Cashew, a sister project to Prosper Cashew that focuses on improvements at the farmer-level, and is also funded by USDA (see Box 1). PRO-Cashew is designed to support the increase of production and income generated for producers, which does not entirely match with the goal of Prosper Cashew. While both initiatives are the initial stages, it is important to flag this potential source of misalignment. PRO-Cashew's main stakeholders are producers, and for producers, selling RCN to exporters is of greater interest than selling to processors, as exporters pay a premium, and they have better organized processes, including stronger financing mechanisms and pre-payment agreements for intermediaries. Processors are generally more concerned with ensuring the quality of RCN and are more risk averse in the assessment of quality of RCN, taking a longer time to decide on buying. In addition, processors have less access to financing, and are more vulnerable to fluctuations in the price of RCN.

Herein potentially lies an important opportunity to balance interests between PRO-Cashew focusing on producers, and Prosper Cashew focusing on processors. As PRO-Cashew is responsible for lobbying and regulatory support, it is only natural that they focus on protecting the income security of farmers, and restrain from promoting processor supporting legislation, as it is contrary to their interest. These two key sets of players often act as competitors, but would gain in strength and shift power dynamics if they mobilized. This could be achieved with more regional integration and harmonization of the regulatory framework in West Africa—a challenge that, by design, PRO-Cashew is better equipped to take on than Prosper Cashew.

4.2.1.7 Study Question 1.7

If relevant, how can activities and relationships between various value chain stakeholders be optimized?

Actors in the cashew value chain engage in constant activity and maintain ongoing relationships at every step of the business cycle. For instance, all processors need to develop links to producers, either directly or through intermediaries or cooperatives. Usually, processors develop a portfolio of RCN procurement strategies, including a mix of direct acquisition from producers, or acquisition from cooperatives and intermediaries. It is important to maintain a relationship with producers throughout the year to develop trust that can be helpful during the sourcing season.

> *"I buy RCN from cooperatives between (10-15%), but mostly I buy with producers, either directly from producers, or through local buying agents (pisteurs) and friends – they contact us and say how much quantity they have, we visit, bring samples to the factory to analyze quality, return to the field, verify the quantity available, and send a buying team (transportation). It is not easy to buy. We pay gradually, because of the risk of carrying too much money in one trip."* — Côte d'Ivoire processor (translated)

Overall, the survey revealed, the highest percentage of active processors stated buying RCN from producer cooperatives/groups (63.6%), followed by intermediaries (59.1%), and from individual producers (50%) (see Table 45).

Table 45: Processors Who State Buying RCN from Different Groups

Category		Sample size	Group			
			Individual producers	Producer cooperatives/ associations/ groups	Intermediaries/ traders	Other(s)
Country	Côte d'Ivoire	11	63.6	72.7	36.4	0.0
	Ghana	4	75.0	25.0	75.0	0.0
	Nigeria	7	14.3	71.4	85.7	0.0
Processor size	Small	14	50.0	50.0	64.3	0.0
	Medium	4	75.0	100.0	0.0	0.0
	Large	4	25.0	75.0	100.0	0.0
Total		22	50.0	63.6	59.1	0.0

Source: Baseline Processor Survey. March-April 2021.

Processors reported to be doing business with a minimum of 10 and a maximum of 2,000 producers (average: 450); a minimum of one and a maximum of 50 producer groups (average: 14); and a minimum of one and a maximum of 100 intermediaries (average: 15).

Of the 18 processors that purchase RCN from either individual producers or producer cooperatives, a total of 72.2% stated that they have linkages with these producers. This includes 100% of the medium- and large-sized processors and 54.5% of small-sized processors. In Nigeria, 100% of processors said they are linked with producers, while 60% in Côte d'Ivoire and 66.7% in Ghana said the same. Overall, 53.8% of processors reported using formal contracts, 46.2% doing business without formal contracts, and 30.8% not distinguishing between the two (see Table 46). Several processors use more than one of these means for procurement.

Table 46: How Processors Tend to Purchase from the Producers or Producer Cooperatives

Category		Sample size	Group			
			Through formal contracts	Indirect relations (no official contracts)	Do not distinguish between the two	No response
Country	Côte d'Ivoire	6	50.0	50.0	16.7	0.0
	Ghana	2	0.0	50.0	100.0	0.0
	Nigeria	5	80.0	40.0	20.0	0.0
Processor size	Small	6	50.0	66.7	33.3	0.0
	Medium	4	50.0	50.0	0.0	0.0
	Large	3	66.7	0.0	66.7	0.0
Total		13	53.8	46.2	30.8	0.0

Source: Baseline Processor Survey. March-April 2021.

In Côte d'Ivoire, both cooperatives we spoke with had admitted breaking supply contracts, not because the cooperatives found a better price, but because producers that were members of the cooperatives chose to sell at a higher price to other buyers. In one such cooperative, members chose to sell to buyers from across the border (Ghana), who paid a premium for RCN. Cooperatives themselves tried to convince producers to keep contracts by offering their own commission to offset the price difference between the contract signed and other offers, and by offering social incentives for families (e.g., school bursaries and loans to cover school costs to be offered from the cooperative profits).

All in all, the entire cashew value chain is very competitive, capital intensive, and price sensitive. In the absence of strong regulation and organization of the value chain, there is a high degree of price volatility, and a general lack of appetite to commit to fixed-price contracts on the part of *all* cashew value chain stakeholders, from producers who can choose not to sell to intermediaries or processors as per agreed contracts; to international buyers, who will refuse to commit to buy a fixed quantity at a pre-agreed price as prices in a different market may be lower at that given time. There is also a lack of regulatory framework to allow for enforcing of commercial contracts. The lack of transparency and asymmetry of information, further leads to mistrust among stakeholders. For instance, when a producer knows the price an intermediary sells to an exporter, he or she tries to negotiate as close to that price as possible, without considering the post-harvest handling, transportation, and pre-financing services provided by the intermediary.

In this context, strengthening the processor-producer relationship, and the international buyer-processor relationship could significantly help to benefit processors and the value chain in general. We found evidence of two concrete examples of efforts already pointing in this direction:

- The most important and relevant point of entry for a processor to engage with a producer is through the provision of extension services (e.g., processors providing training to producers). Although there is a cost associated with extension services, if extension services provided are of good quality, then the quality and quantity of RCN produced will be positively impacted by the services provided. In the past, some processors have engaged in the provision of extension services, but were not able to enforce the associate buying contracts, as producers decided to sell for a better price elsewhere. Olam, one of the larger processors in the industry, has been offering extension services and post-harvest handling training to farmers, but it does so without any expectation in return. This is part of their Corporate Social Responsibility program, albeit one that has a positive impact on the quality of RCN available to them for buying. Olam's field staff and partners are reportedly supporting over 100 cashew cooperatives, reaching some 50,000 smallholder farmers across rural Africa and Asia, and helping them to increase their yields, ensure consistent quality and be more productive.[72]

- A similar dynamic was identified in the provision of technical assistance to processors by international buyers. One such buyer has selected a number of processors to whom it provides technical assistance in a variety of areas, including certification procedures. In the past, technical assistance provided to processors was paid by international buyers, and came associated with an obligation of processors to sell to international buyers at a previously agreed price. This buyer decided to embark on a different model, one where technical assistance was still provided, but there was a cost share between the processor (50%) and buyer (50%), and no contractual obligation to sell or buy from either actor. This has led to processors reaching certification requirements required by the buyer, which in turn also opened processors to accessing other international buyers.

4.2.1.8 Study Question 1.8

To what extent have initial proposed activities been adapted to take into consideration the potential economic and health effects of COVID-19?

To a large extent, we have not observed how the proposed activities will be implemented on the ground, and we have not seen the granulated details of how these will be put in place. However, it is possible to envisage ways of implementing these activities to a great extent via virtual formats or, if face-to-face, ensuring social distancing is kept.

Although there were no clear indications of how project activities would be implemented, either through presential capacity building and technical exchange exercises, online trainings, or managerial in-person or virtual meetings. The high prevalence of smart devices with internet capability (i.e., smartphones, tablets, computers, etc.) held by the various processors, and the general comfort of processors and staff to use some of the tools (i.e., WhatsApp, Zoom, etc.) would lead us to believe that there are the required infrastructure and skills to conduct basic activities and communication. More

[72] Source: <https://olamnuts.com/types-of-nuts-blog/post/addressing-sustainability-challenges-in-cashews?utm_source=LinkedIn&utm_medium=Social&utm_cam%E2%80%A6>.

complex activities may require some technical capacity building, but it would be possible to do so with limited investment on the part of TNS and partners.

If best practices and health regulations on social distancing, monitoring of temperature, and wearing of personal protective equipment, such as masks, is strictly adhered to, the risks of COVID-19 will be reduced substantially. The factories visited in Côte d'Ivoire were in general, respecting basic social distancing and PPE procedures. It is recommended that national policy on health and safety pertaining to COVID-19 be followed and requested of all participating stakeholders.

The discussions on COVID-19 invariably turned to the commercial impact of COVID-19 on the access to RCN (initial movement restrictions) or the selling of kernel (prices dropped sharply).

4.2.1.9 Study Question 1.9

Is Prosper Cashew planning to provide the right combination of training, tools and resources to achieve its planned outcomes? If anything, what aspects might need further attention in the early stages to ensure the success of the project?

Prosper Cashew aims to increase the percentage of processed RCN in Côte d'Ivoire, Ghana and Nigeria from an estimated 4% (at proposal) and 8.2% (at baseline) to 50%; aiming to mobilize USD 422 million in foreign exchange currency for the three focus countries. This objective seems difficult to achieve within the lifespan of the project. We recognize that the project is well designed, and that eventually, processing may reach 50% of the RCN production, although this could be particularly challenging if the regulatory framework and fiscal policy do not support processing better in Ghana and Nigeria.

The chamber of commerce and industry in Côte d'Ivoire noted with some frustration that, in spite of a well-designed regulatory framework, incentives for investment, and a continuous development of the base infrastructure (e.g., roads, electricity, etc.) in Côte d'Ivoire, cashew processing went from 5% in 2013 to 9.1% in 2019. When the 50% processing goal was discussed with CCA (the Cashew and Cotton Council of Côte d'Ivoire), an objective shared by government and the institution, they stated that it was a case of "aiming for the stars, so that we can land on the moon" sort of an objective statement.

With regards to Ghana and Nigeria, either there is a change in the regulatory framework, or not only will the objective not be met, but there is a risk to see processing diminish in these countries. If the larger processor in Ghana, USIBRAS,[73] which already has to source RCN from Guinea-Bissau to meet its RCN requirements, closes its operations, then Ghana will lose a substantial part (an estimated 80%) of its current production capacity.

At the early stage of the project, it is important to staff all the needed positions. This will take a significant level of effort. Prosper Cashew has been able to benefit from the support of the TNS regional and global teams in the initial stages of work, and this has been a valued support.

It is also important to design the activities in a way that they are aligned and mutually reinforcing. For instance, the access to finance, capacity building and links to international market activities could be developed in ways that each of these contributes to the success of the other activities.

[73] Source: KII with market association. It was mentioned that USIBRAS is currently sourcing RCN from Ghana and supplementing their needs with RCN from Guinea-Bissau. A "large" processor is defined as having capacity to process a minimum of 5,000 MT annually.

We have not seen a concerted effort for the development of a sustainability strategy, and we believe it would be important to have one in place soon, so that all activities can contribute towards the sustainability of the outcomes and activities. We recognize that, due to their market-driven nature, the financial activities (Cashew Catalyst Fund and Match-Making Facility) will achieve sustainability in a natural manner. It is less clear that the capacity building and linkage to international markets activities will be sustainable in the long run. These issues are further discussed in Section 4.2.4, below.

4.2.2 Effectiveness

4.2.2.1 Study Question 2.2

Have a proper risk analysis and proper mitigation strategies been devised for Prosper Cashew? If relevant, which strategic options can viably be incorporated in the implementation plan to foster the likeliness of achieving expected results?

We have not seen a risk assessment and mitigation plan developed for Prosper Cashew. In the proposal document, a risk assessment has been planned to be conducted in Years 1 and 2, although this has not been documented in the work plan. For the financial components, ISF has planned to integrate risk assessments into their product development, as risk assessment is generally an important operational component of financial product development.

In the work plan document, a series of critical assumptions have been identified, which could affect project implementation. We have divided these into high risk, moderate risk and low risk, which also takes into consideration the probability of these occurring.

High Risk/High Probability

One of the critical assumptions identified is that "West African cashew processors are able to overcome the current competitive advantage of Indian and Vietnamese processors" within the life of the project. While we recognize that activities are well designed to support processors in the three countries, it is unlikely that processors in Côte d'Ivoire, and even less so in Ghana and Nigeria, will overcome the competitive advantage of Vietnamese and Indian processors. Cost of processing inputs such as energy and labor is comparatively much higher in West Africa, and domestic consumption of both kernels and by-products is higher in both India and Vietnam, and the project has limited influence over this.

Access to technology, know-how, productivity levels and availability of factory workers, and the ability to source RCN globally all year are further competitive advantages for Vietnamese and Indian processors.

In our consultations, we understood that international buyers take a portfolio approach to kernel procurement (also as a risk mitigation measure), choosing to purchase at least a portion of their kernel from West Africa. Procuring kernel as close as possible to the RCN source is also a competitive advantage for West Africa, which has been producing RCN of steady quality in the past years and is increasingly able, as in Côte d'Ivoire, to provide a minimum level of traceability in a context where consumers are increasingly aware of the environmental and social impact of products consumed. This proximity responds well to farm-to-table traceability needs, and has been a factor for buyers turning to West Africa.

Medium Risk/Medium Probability

USDA has funded activities to strengthen the cashew value chain in West Africa across two implementers, Prosper Cashew (TNS/ISF) and PRO-Cashew (CNFA). It is assumed that "Prosper Cashew will be able to coordinate with other USDA- and other donor-funded projects focused on production such as PRO-Cashew to identify and link farmers, farmer groups, and farmer associations capacitated by those projects directly to processors funded by Prosper Cashew." We have identified a risk here, as for producers, selling to processors, particularly in Ghana and Nigeria, may make less commercial sense, especially in the short-term, than selling to exporters. Selling to exporters usually commands greater economic gain for producers. As PRO-Cashew focuses on production and trade of RCN, there is a potential misalignment of project goals (as mentioned earlier in this report). However, given that both projects are financed by USDA, there is an important opportunity to mitigate this risk and for both implementing partners to bring some balance by also advocating for processor interests, which serves the long-term interests of the West African cashew sector as a whole. USDA is keen to see healthy collaboration between projects.

A further assumption is that there is no extraordinary political or financial instability in the region that may deter investors from providing capital for this region. This is difficult for TNS to manage. We recognize that there are potential political and security risks that can destabilize financial performance, although we also recognize that these types of potential risks are prevalent in Africa and investors are aware of them.

Low Risk/Low Probability

The project is also operating with the assumption that "The Cashew Catalyst Fund together with the Match-Making Facility offer a unique value proposition from past and existing funding options." Due to the lack of competitive financing mechanisms available in the three focus countries, the high capital requirements of processors, and Prosper Cashew's intent to develop competitive financial products and services, this seems like a low risk and a low probability.

One other assumption identified in the work plan is that "macroeconomic conditions in the three countries stabilize or recover from COVID-19 and relevant governments continue to ease COVID-19-related restrictions." We have identified this as low-risk, as the current official level of new cases in all three countries (on the 15th of May there were 44 new confirmed cases in Nigeria, 114 in Ghana and 32 in Côte d'Ivoire) is low, and the economic risk is also fairly limited. Although we do recognize that the impact of the pandemic is very fluid and data is limited in these countries, we also recognize a strong sense of resilience to external shocks, due to the multiple layers of health, socio-economic, and political risks that populations and businesses in West Africa have been facing for generations.

Prosper Cashew activities have been designed as mutually reinforcing, and this is, in itself, a relevant risk mitigation strategy. Access to finance from the Cashew Catalyst Fund or Match-Making Facility will be supported by technical assistance to processors, and market linkages to access RCN and international kernel buyers.

4.2.3 Efficiency and Value for Money

4.2.3.1 Study Question 3.2

How adequate is the M&E system developed to meet the needs for accountability, results demonstration and learning? What current indicators could be used to monitor the program and track longer-term change?

The M&E system, with its KPIs, learning questions, and study/evaluation questions, is well placed to meet the needs for accountability, results demonstration, and learning. However, as mentioned in the sections above discussing indicator results, many indicators are based on absolute results, which in the current environment of processor secretiveness and non-willingness to disclose data they feel is sensitive can be difficult to answer. Only some can be answered through extrapolations, and these, of course, are estimations. Thus, several suggestions were made on how to measure some indicators using percentages, which are better able to display results when the entire population cannot be sampled (please note these are based on the same data being collected, so very little additional effort is required to report on these). Also, there does not seem to be an indicator to track the progress of Activity 4 (refer to Section 2.1 for details) (e.g., supply chain improvement, better access to RCN, farmer-processor contracts/commitments, direct farmer linkage programs). Thus, it is suggested to add the indicator, "Percentage of processors that have formal direct linkages with farmers." It could also be important to consider adding some indicators to measure other important aspects of the project, such as improved training facilities (output level) and better access to equipment and technical support (outcome level).

4.2.4 Sustainability

Regarding whether the benefits achieved by Prosper Cashew will last, we anticipate that, once set up, the Cashew Catalyst Fund and Match-Making Facility, will likely be self-sustaining if processors are competitive, as these activities follow market forces and respond to the business feasibility and sustainability needs of the private sector.

With regards to capacity-building activities, these would be sustainable if an appropriate costing and cost-sharing strategy is developed. If the provision of these services is highly subsidized by Prosper Cashew, then it is likely that it will distort the market and undermine post-project sustainability. If, however, the project sees its role as a facilitator and supporter of capacity-building provision, with adequate cost-sharing between processors and other stakeholders, the sustainability of these activities will be greatly enhanced. If processors see the value in paying for capacity building services, as they do with ACA or private sector actors, and capacity provision remains of good quality and competitive pricing, then capacity-building service provision should be sustainable.

With regards to market linkages, it is considered that links established during the life of the project will remain in place, and grow organically, and establish best practices that other processors and international buyers can follow.

In terms of sustainability of the overall cashew sector, we do think that viability currently depends on the political, economic, social and enabling environment and these vary across the three focus countries, although common pathways have been identified. The value chain actors, particularly in Nigeria and Ghana which have nascent regulatory frameworks, need to organize by stakeholder category; so, then, processors can better lobby the government for an enabling environment that encourages domestic and regional processing. In Nigeria and Ghana, processors will need to grow their influence through national regulatory bodies (CCA is well advanced in Côte d'Ivoire, but none set up in Nigeria yet, and the Ghana Tree Crop Development Authority is in its early stage) to ensure the promotion of an enabling regulatory environment. Finally, the sector will achieve greater sustainability once it is able to harmonize its policies regionally through the Consultative International Cashew Council (CICC), becoming more equitable throughout the value chain and across the region.

4.2.4.1 Study Question 4.1

To what extent does the Prosper Cashew implementation model bring about sustainable changes for processors, farmers and rural communities, and other stakeholders?

There are activities that will be regional in nature, such as the Cashew Catalyst Fund and the Match-Making Facility, and if the risk assessments are calibrated to take into consideration the national risks, these should be sustainable as a market-driven initiative.

With regards to the sustainability of the overall cashew sector and the various actors in the value chain, this is somewhat outside of the direct sphere of influence of TNS, through the Prosper Cashew project will nonetheless be an area of influence as processors end up financially and technically stronger, and their leadership will further look at uniting to influence policy making, as we are seeing in Côte d'Ivoire.

We have noted that there is a substantial governance risk, in that the lack of regulatory frameworks for the cashew value chain in Nigeria and Ghana are an exogenous risk to the project. It would be important to reflect on ways to support institutional development of the cashew value chain in Nigeria and Ghana, and more generally in Côte d'Ivoire as well, to support Prosper Cashew's ambitious processing targets.

4.2.4.2 Study Question 4.2

How conducive are the political, economic, and social environments in each country and globally to achieving project results, with a view to having them last over time?

While Côte d'Ivoire has a comprehensive regulatory framework for the cashew value chain, including fiscal incentives for processors and disincentives for exports of RCN, Ghana and Nigeria are still in their early stages of elaborating a regulatory framework and implementing policies that recognize the added value of domestic processing, protect their access to RCN, and incentivize investment. The institutional architecture is still nascent too. While Côte d'Ivoire has CCA (its Cashew and Cotton Council, and a strong active and well-resourced public body with various representations of members of the cashew value chain), Ghana has just recently created the Ghana Tree Crop Development Authority, and Nigeria is in the planning stages, with the creation of a national inter-ministerial and interagency committee to develop a 10-year development plan for the value chain.

Developments in the regulatory framework during the lifetime of the project, and accompanying regional harmonization, would support domestic processing and be conducive to reaching the project's ambitious targets.

4.2.4.3 Study Question 4.3

How adequate is the exit and sustainability strategy for all the project components?

No sustainability or exit plan has been developed at this stage, and we note sustainability and exit strategies are planned to be conducted on Year 5 for the Cashew Catalyst Fund and on Year 3 for the Match-Making Facility. We would urge Prosper Cashew to consider the sustainability and exit strategies at the onset of project implementation, so that a sustainability strategy is coherently integrated into the work plan.

4.3 Learning Questions

4.3.1 Learning Question 5.1

What value do intermediaries bring in expanding markets? What methods of engaging intermediaries to expand markets through the services and trade they provide are effective?

One of the intermediaries' most added-value activity is their capacity to act as aggregators. This, at minimum, reduces transaction costs for processors and exporters by bringing RCN to one place. Buying RCN can be a time-consuming and costly activity, as it requires travelling for extensive periods of time across cashew producing regions and buying small quantities of RCN from individual producers.

Some of the activities intermediaries perform are well suited to provide additional added value functions—such as the provision of extension services and technical support to producers, and facilitating access to finance, although this is a risky proposition as farmers can often default on RCN supply contracts without consequence. Intermediaries also have a strong local contextual knowledge and linkages that assist them in buying RCN from producers. For instance, local intermediaries will be aware of where it rained and other environmental patterns, and this will assist them to identify where production is at its best in a given season. If intermediaries keep a constant relationship with producers, they will also be able to know which producers have used chemicals in their production processes (important for identifying producers for bio certification), and assist with traceability, among other tasks.

It could be argued that the aggregator function of the intermediary will always exist, although processors, cooperatives and exporters may choose to integrate it within their own activities to capture these profit margins. As with all stakeholders relationships, there are trust issues, and productive producer-intermediary-processor relationships take a long time to develop.

In Nigeria specifically, due to the lack of regulation and controls on the various roles many actors play (value chain actors in Nigeria can cumulate the roles of intermediaries, exporters, processors, and secondary processors), intermediaries are under a lot of pressure in the country, and this tension was felt in our multi-stakeholder conversations. The National Cashew Association of Nigeria is dominated by intermediaries that have to constantly protect their role. This puts them at odds with processors who do not feel represented in this body.

4.3.2 Learning Question 5.2

To what extent does increasing horizontal and vertical market linkages among agricultural actors at various levels, such as companies, SMEs, smallholders and intermediaries, promote economic benefits for actors and market expansion overall?

There are clear benefits to vertical integration within the value chain, particularly between processors and producers, and international buyers and processors.

Strengthening the vertical integration between processors and producers, perhaps introducing intermediaries to assist where there are gaps in the supply chain, could be beneficial for all parties involved. This relationship model sees processors/intermediaries provide extension services to ensure best practices on cashew production; and assistance with post-harvest care and handling, ensuring RCN

is sorted and dried appropriately. These tasks would increase the quality of RCN for processors and provide more resilient revenue for producers.

With regards to vertical integration between international buyers and processors, both actors could also benefit from stronger integration. If international buyers assist processors with technical assistance regarding quality assurance and certification processes, this would assist international buyers to have access to higher quality, certified nuts, and increase the reliability and quantity of kernels produced. It would also assist processors to reassure other international buyers about the strength of their improved kernel production.

However, in both the extension services provided by processors to producers, and technical assistance provided by international buyers to processors, best practices encountered would suggest these should be de-linked from purchasing contracts. These types of contracts are difficult to reinforce and create challenging power dynamics between actors.

With regards to horizontal integration, there are some interesting models encountered. In Côte d'Ivoire, two small-scale producers (who are open to more processors joining in) have created an economic interest group that allows them to benefit from government incentives otherwise inaccessible due to the limited scale of their activities. One of the objectives of the interest group is also to be able to pool kernels produced to ensure international buyers can have access to a more reliable supply. The interest group will also approach finance institutions for credit provision, spreading the risk and responsibility across various processors.

In Ghana and Nigeria, greater vertical cooperation between processors would be an important strategy, in order to leverage influence to lobby the government to ensure processor interests are being valued in the development of their regulatory frameworks and policies.

4.3.3 Learning Question 5.3

What are the best linkage models to help small- and medium-sized producers, traders, and postharvest market actors, who frequently lack collateral, registration, and credit history to access loans or other financial instruments to effectively expand their businesses?

Prosper Cashew could consider offering a partial guarantee, or identify mechanisms that would be able to offer a guarantee, to loans accessed by small-scale processors in addition to a commitment to offer technical assistance and linkage to markets. Finance institutions would derive significant insight from this type of support from a development project.

4.3.4 Learning Question 5.4

What types of incentives are effective in encouraging the adoption of risk reduction and mitigation products and practices (i.e., insurance, loans, crop diversification, new technology) among agricultural actors?

When active processors were asked what they view as the most significant primary, secondary, and tertiary risk to their processing business, the most common combined response was legislative or regulatory changes, followed by staff shortage risk, sales contract default, and quality risk. Staff shortage risk was the most cited primary risk (see Table 47).

Table 47: Risks Identified by Active Processors (n = 22)

Category	Risk 1	Risk 2	Risk 3
Sales contract default	18.2	18.2	9.1
Procurement contract default	9.1	13.6	13.6
Quality risk	18.2	9.1	18.2
Currency risk	9.1	4.5	13.6
Security risks (cash-only transactions in procurement)	4.5	4.5	0.0
Staff shortage risk	22.7	13.6	13.6
Health risks (Ebola, COVID-19)	0.0	4.5	9.1
Legislative or regulatory changes (government price fixing, increase in the minimum wage, increase in the cost of electricity, etc.)	9.1	27.3	13.6
No response (no other foreseen risk)	0.0	4.5	9.1
Other(s)	9.1	0.0	0.0

Source: Baseline Processor Survey. March-April 2021.

Several processors revealed an emphasis on training and coaching to ensure quality staff to mitigate against staff shortage risks, while others mentioned increasing wages and providing premiums based on performance. Additionally, a number of processors mentioned automating their lines further to require less human intervention, increase production levels, and reduce production costs.

In terms of sales contract default, mitigation measures included having assistance to develop and enforce legally binding sales contracts, diversification of the client portfolio, ensuring customer satisfaction by meeting delivery deadlines and delivering quality products, and taking advantage of branded products.

To control for quality, areas for improvements were mentioned along the entire processing chain. For instance, one processor mentioned improving storage practice and moisture content. Others mentioned constant sensitization on hygiene and health management and staff awareness of the risks related to poor quality. A couple of processors mentioned they are currently undertaking certification and ensuring strict application of quality rules, and one mentioned hiring a quality control technician.

Other more general measures for mitigating risks included planning ahead, anticipation of resource requirements related to purchases, and reducing production costs.

Interestingly, qualitative findings suggested acquisition of RCN and currency volatility to be the most important risks. With regards to the acquisition of RCN, processors have developed a portfolio of sourcing strategies, varying from direct acquisition from farmers (farmer linkage programs), buying from intermediaries, and, in particular cases, importing from other regional markets (particularly true in Ghana). Processors have been very dynamic in this regard, and this diversification of sourcing can be seen as a risk mitigation measure. Some intermediaries have mentioned reaching out to community and village leadership to help settle disputes with producers in regard to the acquisition of RCN and elaboration of purchasing contracts.

In Nigeria, processors have been able to integrate various supply functions within their operations to diversify risks and increase income opportunities. For instance, it is not uncommon to see processors who also operate as exporters, and intermediaries, acquiring RCN at farmgate to feed their export and processing operations. In Nigeria too we have seen a growing number of processors focusing on secondary processing (roasting) for the large internal market, and also engaging in contract (toll) processing, therefore also diversifying their risk portfolio.

In terms of currency volatility, one large processor reported having insurance against currency fluctuation. A Nigerian survey respondent noted hedging of currency, while one from Côte d'Ivoire mentioned arranging sales contracts in Euros as much as possible.

In Ghana (Ghana Incentive Based Risk Sharing Mechanism – GIRSAL) and Côte d'Ivoire (CCA) there are currently guarantee mechanisms to support processors, with partial first loss guarantees. However, the initial risk assessment must be done by the primary lending institutions.

4.3.5 Other Learning Questions

What are the perspectives of child labor in the cashew value chain?

When active and inactive processors were asked if they believe controls are necessary for looking at issues of child labor in their supply chain, only 7.7% said no, but 23.1% provided no response (see Table 48). Generally, processors in Côte d'Ivoire and Nigeria were most likely to say that controls are necessary and reporting they implement these, while in Ghana processors also believed controls are necessary, but stated that they were not implementing these. Almost all active processors pointed out that they do have a child labor policy, although it is unclear the degree at which these policies are comprehensive and how they are operationalized to safeguard against child labor in the sector.

Table 48: Processor's Understanding of the Need for Controls to Look for Child Labor in the Supply Chain

Controls	Côte d'Ivoire		Ghana		Nigeria		Total	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Yes, implement	5	38.5%	0	0.0%	3	37.5%	8	30.8%
Yes, don't implement	2	15.4%	3	60.0%	1	12.5%	6	23.1%
Yes (inactive)	2	15.4%	1	20.0%	1	12.5%	4	15.4%
No	2	15.4%	0	0.0%	0	0.0%	2	7.7%
No response	2	15.4%	1	20.0%	3	37.5%	6	23.1%
Total	13	100.0%	5	100.0%	8	100.0%	26	100.0%

Source: Baseline Processor Survey. March-April 2021.

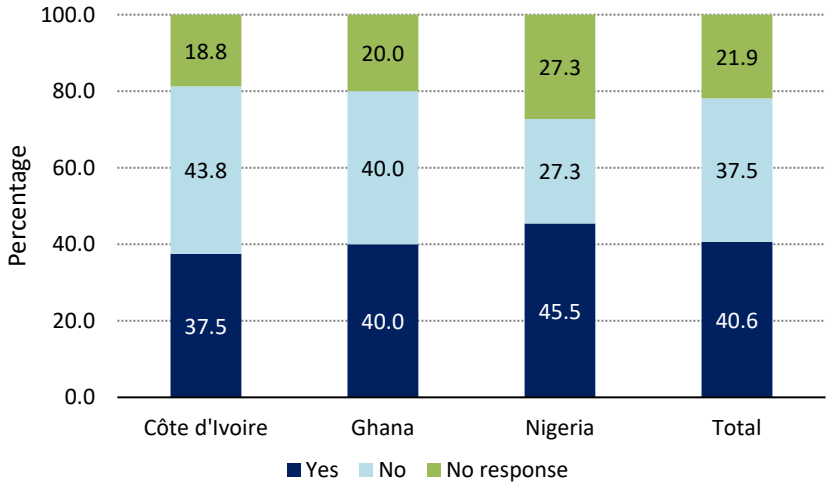
When enquiring through qualitative discussions about children participating in production activities, it was consensual that parents encourage children to be fully engaged in education. Children may spend some time in cashew orchards outside of school time in leisure activities or spending time with family, but it was generally believed that their active role in cashew production is secondary to their playing and education activities. In Côte d'Ivoire, their contribution to cashew production was not perceived to be important, although in Nigeria cooperative members thought that children played a role.

> *"When their mothers harvest, these children are given the task of gathering the cashew in small quantities. By packing in small quantities, they put the cashew together to make large volumes. Also, they help transport the cashew from the farm to where it can be taken away. For school and play time, the children usually go to the farm after school hours during the week and work for some time on weekends (between 10 am and 1 pm), and also during the holidays. You should note that these children usually take harvesting as a way to play around because many of us (fathers) have introduced it to them as such. Hence, we allow them to play, rest and eat."* — Nigerian cooperative

Overall, 40.6% (n=32) of processors believe that child labor is an issue in the cashew value chain, with Nigerian processors most commonly stating this (45.5%), followed by Ghana (40,0%) and Côte d'Ivoire (37.5%) (see Figure 10). All these processors stated that child labor occurred at the production level, with the exception of one who stated both production and processing.

A total of 40.6% of processors know of a government monitoring system where cases of child labor can be reported. In Côte d'Ivoire (43.8%), commonly reported institutions were the Ministère de la Femme et de l'enfant and NGOs. In Ghana (40.%), the Ministry for Gender and Child Protection and the Labor Commission were mentioned, while in Nigeria (36.4%), the Kaduna State Ministry of Humanitarian Service, the National Labor Congress, the Child Right Enforcement and Development Agency (CREDA), and the Federal Ministry of Youth and Sports Development were mentioned. Fewer processors (21.9%; Côte d'Ivoire 31.3%; Ghana 20.0%; Nigeria 9.1%) could name initiatives (governmental or non-governmental) that have implemented a code of conduct related to child labor in the cashew value chain. Apart from those responses already mentioned above, in Côte d'Ivoire, the NGO Children of Africa Managed by the First Lady's Office and, in Ghana, Comcashew, were identified.

Figure 10: Percentage of Processors Who Believe Child Labor is an Issue in the Cashew Value Chain, by Country



Source: Baseline Processor Survey. March-April 2021.

In 2019, Olam Food Ingredient's cashew team trained 2,500 farmers on child labor awareness. In addition to providing training and actions plans, they invested over USD 20,000 in education

infrastructure (refurbishing school buildings and canteens, and providing school kits), thereby supporting the community's future generation.[74]

5. Lessons Learned, and Monitoring and Evaluation Considerations

Lessons Learned

At future points in time for data collection utilizing the processor survey, to promote high survey uptake the following considerations should be followed: 1) do not send out any other surveys at the time when the processor survey will be sent out for either monitoring or evaluation purposes; 2) ensure that processors are provided a long enough period of time for survey completion, as it is sent out during the cashew procurement season (timelines will need to incorporate this factor); and 3) close collaboration and trust building (and perhaps signed agreements) is further necessary for processors to complete the survey.

High intensity follow-up needs to be done with processors to ensure that the survey is completed. This situation should improve at later stages of evaluation, as contact information will be up-to-date and processors will have already been engaged in the project and be more willing to participate in the survey.

All data submitted by processors must be examined very closely to follow up on inconsistencies and errors in the data submitted.

Monitoring and Evaluation Considerations

To accurately track the financial indicators, it will be important for the fund manager or more generally the project to put in place a tracking system so that all investments, grants, and loans (i.e., through banks or other entities) resulting from Prosper Cashew directly or indirectly can be counted. Some processors have and will likely continue to refuse to provide this information as they consider this confidential. Finance institutions will likely also consider this information confidential, but perhaps the monetary values of loans can be provided without identifying information (although this would limit some disaggregations). Advisem suggests that the fund manager set up linkages with a finance focal point at each processor level, to monitor investments that might be attributable to Prosper Cashew. The fund manager would also work closely with ISF advisors and the Match-Making Facility to determine if any investment, loan, or grant is directly or indirectly attributable to the Prosper Cashew.

For Indicator #6: "Number of organizations with increased performance with USDA assistance," at mid-term it can be re-assessed at if some questions can be removed, based on the support that TNS has provided or will provide.

For Indicator #11: "Number of distinct markets to which selected agricultural products are exported," Prosper Cashew should assess whether only adding new unique export countries or whether adding the

[74] Source: <https://olamnuts.com/types-of-nuts-blog/post/addressing-sustainability-challenges-in-cashews?utm_source=LinkedIn&utm_medium=Social&utm_cam%E2%80%A6>.

same export country but through different processors is more important. Advisem would suggest the second option. Currently both values are provided.

For Indicator #24: "Number of individuals benefiting indirectly as a result of USDA assistance" the number of individuals benefiting indirectly will be calculated by multiplying the number of new jobs as a result of USDA assistance by the average household size. Currently, the Prosper Cashew estimate of five indirect jobs for each direct job created appears to be an overestimate. The household sizes per focus country, according to United Nations Department of Economic and Social Affairs Population Division Database on Household Size and Composition,[75] also coincide with the average household size calculated from the PRO-Cashew baseline study of producer households (see Table 26, earlier in this report). The multiplier should not include the individual directly benefiting. The target for Indicator #24 likely needs to be revised based upon these values and the number of direct jobs estimated to be developed per country.

Two potential indicators that have a high likelihood of being answered correctly, and could provide interesting insights, are:

- Percentage RCN processed compared to installed capacity.
- Percentage of processors that have formal direct linkages with farmers (this indicator would address part of the theory of change, which currently has no indicators).

Additional methods to measure some indicators have been provided throughout the baseline report. These tended to be percentages, which are more easily assessed using a survey methodology than numbers.

It would be beneficial to have any processors that did not complete the OCA do this before they can receive any project assistance. Subsequently, individual processors' OCA scores at original baseline (or their own baseline) can be compared with their score at other evaluation points to assess if their organizational capacity has improved.

If Prosper Cashew and PRO-Cashew want to track overlap in RCN sales or volumes, it will be necessary to implement some sort of tracking system to see if PRO-Cashew producers are selling to Prosper Cashew processors. However, this could become complicated by intermediaries playing a role in value chain sales between producers and processors.

It could also be important to consider adding some indicators to measure other important aspects of the project, such as improved training facilities (output level) and better access to equipment and technical support (outcome level).

Advisem suggests signing a Memorandum of Understanding with processors who will receive support from Prosper Cashew, to clearly define the partnership with processors and responsibilities of each party, and address the possible benefits that the company would draw from this partnership, in return for the sharing of key information for design, planning, analysis, and monitoring and evaluation purposes.

[75] Source: <https://population.un.org/Household/index.html#/countries/566>. Côte d'Ivoire DHS 2012; Nigeria DHS 2015; Ghana DHS 2014. Estimates are conservative as Department of Health statistics from the previous decade.

6. Conclusions (Challenges and Opportunities)

Sharing of Documentation

During this study it was clear that stakeholders, in particular processors, had "consultation and survey fatigue." There have been considerable efforts by the development sector to engage with the cashew value chain in West Africa in recent years, but a sense of limited returns for processors on their time (and often financial) investments. The Prosper Cashew project is the first of its kind to directly address the needs of processors.

Institutional Architecture and Regulatory Framework

While Côte d'Ivoire has a comprehensive regulatory framework for the cashew value chain, including fiscal incentives for processors and protectionist measures on exports of RCN, Ghana and Nigeria are still in their early stages of elaborating a regulatory framework that formally recognizes the added value of processors, protects their access to RCN to capture the added value from domestic processing, and incentivizes investment for business development. The institutional architecture is still nascent too. While Côte d'Ivoire has the Cashew and Cotton Council (CCA), a strong active and well-resourced public body with various representations of members of the cashew value chain, Ghana has just recently created the Ghana Tree Crop Development Authority, and Nigeria is in the planning stages, with the creation of the national inter-ministerial and interagency committee to develop a 10-year development plan for the value chain. The lack of a regulatory framework for processors in Ghana and Nigeria is an important challenge that will ultimately influence the project outcome and which Prosper Cashew is not directly addressing.

Regional Integration

Most policy measures currently implemented in the sector favor production, and, at a limited level, domestic processing. With regards to the international market, processors in West Africa face a range of challenges that put them at a combined disadvantage and limit the capacity of the region to capture a greater share of the kernel market. Working towards harmonized regional policies would influence access to all-year supply, cost of doing business, access to financing and technical services, appropriate infrastructure to support growth, and capacity to meet quality standards. These are all areas that directly impact competitiveness and sustainability.

Multiple Capacity Building Modalities

There are increasing numbers of modes for the delivery of capacity-building activities. The pandemic has shown the promise of technology and virtual communication to support training and development. These should be leveraged and encouraged. For equipment/maintenance providers, TNS has developed an innovation hub in Cotonou, Benin, a facility where participants can use the physical space and technological resources to design, test and build required tools and parts. This could lead to the development of quality regional part suppliers for processors.

Local Consumption/National market – Food Production

The India and Vietnam experience has shown that the expansion of the cashew sector includes not only continuous improvements in production and an increase in regional or domestic processing, but also the

promotion of domestic consumption (kernels and by-products) as well as the expansion of secondary processing (roasting, seasoning, niche markets).

In Nigeria, the national market has proven to be an interesting opportunity for processors who invest in secondary processing (roasting), branding and packaging. In Ghana, there also seems to be a growing national demand that could prove to be an interesting opportunity particularly, due to the relatively small size of many national processors. Roasted and branded cashew nuts for final consumers tend to generate higher profit margins, albeit from a smaller amount of sales in domestic markets. In Nigeria, the premium received for roasting and packaging for the final consumer varied between 45% and 60%, although quantities of product sold were significantly lower, as were the variable costs (lower requirement of RCN). In Côte d'Ivoire, the national market and informal market also provide interesting opportunities, especially because they do not require premium kernel.

Gender

As the employment data show, there is an important gender dimension to cashew processing around the world. In most factories, the vast majority of workers are women, and they are therefore the ones who are overwhelmingly exposed to health risks (hands burned by cashew oil, respiratory problems due to cashew shell particles, unpaid leave, etc.). The data also show that management and decision-making tasks are almost exclusively performed by men. These inequalities highlight an opportunity for Prosper Cashew to promote gender transformation policies within processing itself, but also by supporting advocacy efforts to strengthen the role of women throughout the value chain.

Processor Eligibility for Participation

It was suggested that processor eligibility for funding/support would be based on processor size (>5,000 MT), which would essentially exclude small processors that make up a large percentage of the processing units in the Prosper Cashew countries. These small processors may have a higher employee to unit RCN processed ratio, and it was also revealed that these small units could potentially access the international markets. In addition, qualitative work found that processors below 500 MT per year seem to thrive in Ghana. Additionally, it is these larger processors that are much less likely to provide processing and financial information upon which Prosper Cashew's tracking of project results depends.

Certification

The global demand for cashew kernels is on a sustained growth path, which creates new opportunities for numerous actors to enter the market. Adherence to traceability, sanitary, security, sustainability, and transparency standards are also increasingly important for consumers and retailers worldwide. This trend greatly benefits West African processors, who can source and trace RCN locally. Of notable importance is the growth of the organic, vegan and sustainability markets. Cashew kernels and by-products can be marketed as such and there is an opportunity for processors in West Africa to respond to the worldwide demand for these, and also an opportunity to capture the premium pricing for these products.

Ultimate Outcome

Prosper Cashew is targeting a significant increase in domestic processing with a goal of 50% of 2020 production. Barring some of the additional opportunities highlighted in this report, the project is well

designed to support processors towards this ambitious goal, but the feasibility of reaching 50% in five years is unlikely, given the wide range of challenges faced by West African processors. This includes not only the financial and technical challenges addressed by the project, but all the other challenges presented in this report that are tied to both the long-term profitability of existing processors, and the sustainability of interventions launched by Prosper Cashew.

In 2019, India celebrated the 100th year of its cashew processing industry.[76] This puts into perspective the cashew processing industry in Côte d'Ivoire where first processors started appearing barely 15 years ago. In Nigeria and Ghana, the industry is even younger. In 2013, according to the Côte d'Ivoire's Chamber of Commerce, there was a total processing of 3,000 MT. Today, total processing in that country is 70,000 MT,[77] which demonstrates a clear development in absolute terms. In 2013, Côte d'Ivoire processed 5% of the total production, in 2019, this had grown to 9.1%, and was reported at 7.9% in 2021. In relative terms, as production is also increasing, the percentage of processing in relation to production does not reflect the scale of growth. In Côte d'Ivoire in particular, we can see the emergence of higher capacity processors, with greater access to financing and with a clear goal of obtaining leading certification standards such as the BRC. Ghana and Nigeria are increasing their processing capacity rapidly. It is quite possible that the region becomes a leading cashew processing pole globally. Prosper Cashew will certainly contribute towards this.

7. Suggestions for Consideration to Improve Program Design and Implementation

Based on the findings of the baseline report, Advisem provides somesuggestions that are left to TNS for consideration, if they are deemed useful to improve the design and implementation of the program. It is suggested that:

1. A version of the information contained in this baseline report is directly shared with all participating stakeholders, as the majority of stakeholders consulted demonstrated interest in receiving feedback/insights on this study.
2. Prosper Cashew consider the feasibility of engaging with authorities and processors in supporting countries to mobilize processors and help strengthen their institutional presence to advocate for their interests. There is also an opportunity to operationalize this approach by closely working on strategies with PRO-Cashew, but as discussed, the interests of producers, represented by PRO-Cashew, and processors, represented by Prosper Cashew, are not necessarily aligned. This involves looking beyond short-term incentives, where exporters generally pay higher price for RCN than processors, providing immediate incentives to reject any fiscal measures to promote privileged access to RCN by processors.
3. A harmonized regulatory and institutional framework for the cashew value chain that incentivizes cashew processing in their respective countries be supported by TNS for all countries in the region, and notably the three project countries.
4. Trainings remain flexible, aligning theory and practice and provided on a continuous basis to ensure maximum relevance. In line with this, there are important technological resources available to develop good quality training materials for all processors, and even delivering some

[76] Source: KII with a Government Stakeholder. Also <https://english.mathrubhumi.com/features/specials/national-cashew-day-export-celebrates-100-years-first-export-done-from-kollam-1.4301487>.
[77] N'Kalo. January 8, 2021. *Cashew Market Bulletin.*

trainings virtually, such as the TNS high-quality blended learning online platform featuring some cashew processing materials already developed. This could be a good basis to consider for future delivery.

5. Prosper Cashew considers the support of cashew by-products sale for food production. Confectionary, biscuits, paste, other processed foods, can all integrate the small but equally nutritious cashew pieces as ingredients in their recipes. Some processors are exploring cashew oil, cashew butter, and even cashew brandy (derived from the cashew apple) and secondary revenue generating product lines.
6. Specific, targeted actions should be designed to ensure gender inequalities are addressed. Such activities could include requests that women be represented in capacity-building initiatives developed, and that specific targets be set for access to finance for women-owned processors. Additionally, the project should avoid making any negative "unintended" impact by increasing the gap between men and women or reinforcing gender discriminatory practices.
7. Further investigation is undertaken to assess the possibility of working with not only medium- to large-sized processors, but also small-sized processors, as they often have a higher employee to unit RCN processed ratio, can potentially access the international markets, and are doing well in Ghana and Nigeria. Notably, approximately 40% to 45% of the cashew kernel produced in Brazil is processed by small and medium-sized entrepreneurs.
8. Prosper Cashew consider supporting the supply of cashew nuts for organic, vegan and other sustainability markets (through certification), which are largely untapped and currently not part of the business strategy and product portfolio of most processors in Côte d'Ivoire, Ghana, and Nigeria.
9. Prosper Cashew reassesses the target of 50% in country processing for the ultimate outcome indicator.
10. Prosper Cashew take into consideration all points mentioned in Section 5 - Monitoring and Evaluation Considerations.
11. Prosper Cashew consider undertaking a study of the cashew sector in Brazil.
12. Prosper Cashew consider undertaking a study of child labor in the cashew sector. This should not only be of processors, but of other relevant segments of the value chain (e.g., exporters, intermediaries, and producers, etc.). Prosper Cashew could do this in collaboration with PRO-cashew, as well other NGOs such as UNICEF, the International Labor Organization, or the Sustainable Trade Initiative, and relevant Government agencies. Subsequently, letters of commitment or codes of conduct could be developed and signed by relevant parties.

TechnoServe Prosper Cashew Project

Baseline Report Appendices

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TechnoServe Prosper Cashew Food for Progress (FFPr) Project
Baseline Report Appendices

Program: Food for Progress

Agreement Number: FCC-624-2020.005-00-A
Funding Year: Fiscal Year 2020-2021
Project Duration: 2020 to 2025 (5 years)
Implemented by: TechnoServe Inc.

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Abbreviations, Acronyms and Symbols

ACA	African Cashew Alliance
AFI	Association of Food Industries
BRC	British Retail Consortium
CCA	Conseil du coton et de l'anacarde
CFAF	African Financial Community Franc
CICC	Consultative International Cashew Council
CITA	Centre d'innovations et de technologies de l'anacarde
CNFA	Cultivating New Frontiers in Agriculture
CNSL	Cashew nutshell liquid
FDA	United States Food and Drug Administration
FGD	Focus group discussion
GIZ	German Corporation for International Cooperation
HACCP	Hazard analysis and critical control points
INPHB-ESA	Higher School of Agronomy of the Polytechnic Institute Felix Houphouët-Boigny
ISO	International Organization for Standardization
KII	Key informant interview
KOR	Kernel out-turn ratio
KPI	Key performance indicator
L	Litres

Abbreviations, Acronyms and Symbols (continued)

M&E	Monitoring and evaluation
MFI	Microfinance institution
MT	Tons
NAFDAC	National Agency for Food and Drug Administration and Control
NGO	Non-governmental organization
OCA	Organizational capacity assessment
PMP	Performance monitoring plan
Prosper Cashew	Promoting Opportunities for Cashew Processing in West Africa
RCN	Raw cashew nut
SME	Small and medium-sized enterprise
TAF	Technical Assistance Facility
TNS	TechnoServe Inc.
UK	United Kingdom
USD	United States Dollar
USDA	United States Department of Agriculture
USG	United States Government

Appendix 1 – Indicators and Disaggregations

Indicator #1: Percent of domestic RCN production processed into kernel prior to export (based on 2020 production figures)		
Total		8.20%
Country	Côte d'Ivoire	7.90%
	Nigeria	8.80%
	Ghana	9.50%

Indicator #2: Value of annual sales of farms and firms receiving USDA assistance			
Product		In USD	Sample size
Type of product	Kernel – survey data (MT)	27,172,533.71	18
	Kernel – extrapolation	105,319,898.10	18
	RCN (MT) [note 1]	12,818,992.97	5
	Cashew juice (L) [note 2]	275.40	2
	CNSL (L) [note 2]	Values had to be deleted because they were unreasonably high	n/a
	Charcoal (MT) [note 2]	19,014.25	4
	Waste (MT) [note 2]	28,635.00	4
	Other	1,870.00	2

All products		Actual (USD)	Extrapolation (USD) [note 3]	Sample size
Total		39,992,571.32	155,224,638.14	19
Country	Côte d'Ivoire	15,326,793.13	56,844,098.71	10
	Nigeria	24,527,168.50	70,463,495.81	5
	Ghana	138,609.70	8,211,474.88	4
Processor size	Small	2,055,819.01	7,979,325.96	12
	Medium	10,840,861.72	42,077,035.37	4
	Large	27,095,890.59	105,168,276.82	3
Sex of proprietor	Male	31,675,199.41	122,942,116.60	10
	Female	no value	no value	0
	Mixed	8,317,371.913	32,282,521.55	9

Kernel only		Actual (USD)	Extrapolation (USD)	Sample size
Total		27,172,533.71	105,319,898.09	18
Country	Côte d'Ivoire	14,803,245.11	55,514,151.81	10
	Nigeria	12,235,968.50	35,790,767.09	5
	Ghana	133,320.10	2,750,001.98	3
Processor size	Small	1,528,256.40	5,923,474.40	11
	Medium	10,579,586.72	41,006,150.09	4
	Large	15,064,690.59	58,390,273.60	3
Sex of proprietor	Male	19,628,509.81	76,079,495.39	9
	Female	no value	no value	0
	Mixed	7,544,023.90	29,240,402.70	9

Indicator #3: Volume of commodities sold by farms and firms receiving USDA assistance			
Product		Volume	Sample size

Appendix 1 – Indicators and Disaggregations (continued)

Type of product	Kernel – survey data (MT)	5,906	17	
	Kernel – extrapolation (MT)	22,893	17	
	Kernel – N'Kalo (MT)	21,300	n/a	
	RCN (MT) [note 1]	7,798	5	
	Cashew juice (L) [note 2]	1,161	2	
	CNSL (L) [note 2]	480	1	
	Charcoal (MT) [note 2]	185.22	3	
	Waste (MT) [note 2]	16	1	
Kernel (MT)		Actual	Extrapolated	Sample size
Total		5,906.3	22,892.6	19
Country	Côte d'Ivoire	3,442.0	12,908.0	9
	Nigeria	2,370.0	6,932.4	4
	Ghana	94.3	1,945.1	4
Processor size	Small	420.3	1,629.1	10
	Medium	2,279.0	8,833.3	4
	Large	3,207.0	12,430.2	3
Sex of proprietor	Male	4,196.0	16,263.6	9
	Female	0.0	0.0	0
	Mixed	1,710.3	6,629.1	8
RCN (MT)		Actual	Sample size	
Total		7,798	5	
Country	Côte d'Ivoire	668	2	
	Nigeria	7,130	3	
	Ghana	0	0	
Cashew Juice (L)		Actual	Sample size	
Total		1,161	2	
Country	Côte d'Ivoire	1,161	2	
	Nigeria	0	0	
	Ghana	0	0	
CNSL (L)		Actual	Sample size	
Total		480	1	
Country	Côte d'Ivoire	0	0	
	Nigeria	480	1	
	Ghana	0	0	
Charcoal (MT)		Actual	Sample size	
Total		185.22	3	
Country	Côte d'Ivoire	5.22	2	
	Nigeria	0	0	
	Ghana	180	1	
Waste (MT)		Actual	Sample size	
Total		16	1	

Appendix 1 – Indicators and Disaggregations (continued)

Country	Côte d'Ivoire	16	1
	Nigeria	0	0
	Ghana	0	0
Other (MT)		Actual	Sample size
Total		100	1
Country	Côte d'Ivoire	100	1
	Nigeria	0	0
	Ghana	0	0

Indicator #4: Number of jobs attributed to USDA assistance

Category		Actual (#)	Extrapolated (#)	Sample size
Total (21+ days)		2,260	9,356	18
Employment type	Part-time (21-259 days)	924	3,825	18
	Full-time (260+ days)	1,336	5,531	18
Sex of job holder	Males (21+ days)	672	2,782	18
	Females (21+ days)	1,588	6,574	18
Employment type and Sex of job holder	Males Part-time (21-259 days)	206	853	18
	Males Full-time (260+ days)	466	1929	18
	Females Part-time (21-259 days)	718	2972	18
	Females Full-time (260+ days)	870	3602	18

Indicator #5: Number of individuals in the agriculture system who have applied improved management practices or technologies with USDA assistance

No baseline

Indicator #6: Number of organizations with increased performance with USDA assistance

Category		OCA average	Sample size
Total		58.4	22
Country	Côte d'Ivoire	63.1	11
	Nigeria	73.7	7
	Ghana	18.6	4
Processor size	Small	44.0	14
	Medium	85.1	4
	Large	81.9	4
Processor type	Large multinational	52.0	3
	Large national	67.7	4
	SME	77.5	15

Indicator #7: Average processing cost per unit of output for selected agricultural commodities as a result of USDA assistance

Category		USD kg/kernel	USD MT/RCN	Sample size
Total		3.84	768.10	13
Country	Côte d'Ivoire	3.17	634.44	9
	Nigeria	3.90	780.00	2

Appendix 1 – Indicators and Disaggregations (continued)

	Ghana	6.79	1,357.66	2
Processor size	Small	3.55	709.66	8
	Medium	4.75	949.50	4
	Large	removed	removed	removed
Processor type	Large multinational	No value	No value	0
	Large national	3.94	787.33	3
	SME	3.81	762.33	10

Indicator #8: Total volume of additional kernel output processed by USDA-supported firms

Category		Actual (MT)	Extrapolated (MT)	Sample size
Total		6,478.3	25,109.7	18
Country	Côte d'Ivoire	3,857	14,464.3	9
	Nigeria	2,512	7,347.7	5
	Ghana	109.3	2,254.5	4
Processor size	Small	478.3	1,853.9	11
	Medium	2,415	9,360.5	4
	Large	3,585	13,895.3	3
Sex of proprietor	Male	4,701	18,220.9	10
	Female	No value	No value	0
	Mixed	1,777.3	6,888.8	8

Indicator #9: Value of new USG commitments and new public and private sector investment leveraged by USDA to support food security and nutrition

Baseline is 0 USD

Indicator #10: Percentage increase in actual income of participating firms receiving USDA support

Baseline is 0%

2020 profit data will be used as the basis for future calculation for this indicator

Category		Profit (USD)	Extrapolated (USD)	Sample size
Total		-8,843,551.79	-34,324,802.84	20
Country	Côte d'Ivoire	-4,726,577.07	-17,529,956.27	10
	Nigeria	-4,128,700.00	-11,861,240.12	6
	Ghana	11,725.28	694,625.59	5
Processor size	Small	-6,061,362.41	-23,526,188.87	12
	Medium	-2,824,489.38	-10,962,794.51	4
	Large	42,300.00	164,180.55	4
Sex of proprietor	Male	-8,432,608.72	-32,729,794.41	10
	Female	0.00	0.00	0
	Mixed	-410,943.07	-1,595,008.43	9

Indicator #11: Number of distinct markets to which selected agricultural products are exported

Kernel categories		# of countries	Sample size
Total unique		25	22
Total		34	22
Country	Côte d'Ivoire	24	11

Appendix 1 – Indicators and Disaggregations (continued)

	Nigeria	8	4
	Ghana	2	7
Processor size	Small	11	14
	Medium	13	4
	Large	10	4
Market	Australia	1	22
	Belgium	1	22
	Canada	2	22
	Netherlands	4	22
	France	1	22
	Germany	4	22
	India	1	22
	Japan	1	22
	Portugal	2	22
	Saudi Arabia	1	22
	United Arab Emirates	1	22
	United Kingdom	2	22
	United States	3	22
	Vietnam	2	22
	Italy	2	22
	Turkey	1	22
	Jordan	1	22
	Kuwait	1	22
	Morocco	1	22
	China	1	22
	Lebanon	1	22
CNSL categories		# of countries	Sample size
Country	Nigeria	1	22
Indicator #12: Number of purchase contracts resulting from processor attendance at international trade fairs/conference and trade missions			
Baseline is 0 (“project-sponsored”)			
Categories		Purchase contracts (#)	Sample size – Processor (#)
Total		3	22
Country	Côte d’Ivoire	3	11
	Nigeria	0	4
	Ghana	0	7
Processor size	Small	0	14
	Medium	3	4
	Large	0	4
% of processors attending fairs/missions that receive purchase contracts		20.00%	5

Appendix 1 – Indicators and Disaggregations (continued)

Indicator #13: Value of cashew products sold into domestic, regional and international markets					
Categories		Domestic sales (USD)	Regional sales (USD)	International sales (USD)	Sample size
Commodity	Kernel – survey data	3,129,104.70	194,900.00	23,847,560.51	18
	Kernel – extrapolation	12,145,109.16	756,472.54	92,560,413.81	18
	Cashew juice [note 1]	275.4	0	0	2
	CNSL [note 2]	Values had to be deleted because they were unreasonably high; the one processor stated they sold internationally			
	Charcoal [note 2]	18,989.60	0	0	4
	Other [note 2]	1,870	0	0	2
Kernel		Actual domestic sales (USD)	Actual regional sales (USD)	Actual international sales (USD)	Sample size
Country	Côte d'Ivoire	1,325,547.80	45,900.00	13,431,797.31	10
	Ghana	131,556.90	0.00	1,763.20	3
	Nigeria	1,672,000.00	149,000.00	10,414,000.00	5
Processor size	Small	1,197,524.70	84,900.00	244,863.20	11
	Medium	326,000.00	0.00	10,253,586.72	4
	Large	1,605,580.00	110,000.00	13,349,110.59	3

Indicator #14: Number of new certifications of industry and/or sustainability standards (e.g., HACCP, BRC, Sedex) received with USDA assistance			
Baseline is 0 ("new")			
Categories		Certifications (#)	Sample size – Processor (#)
Total active		19	22
Total active + inactive		20	22
Country	Côte d'Ivoire	12	11
	Ghana	1	4
	Nigeria	6	7
Processor size	Small	7	14
	Medium	8	4
	Large	4	4
Additional inactive		1	4
Percentage of active processors certified		30.80%	22

Indicator #15: Number of individuals accessing agriculture-related financing as a result of USDA assistance				
Baseline is 0				
Categories		Number	Percentage	Sample size
Total		7	25.0	28
Processor size	Small	2	11.8	17
	Medium	1	25.0	4
	Large	4	57.1	7
Type of financing	Debt	3	10.7	28
	Grants	1	3.6	28

Appendix 1 – Indicators and Disaggregations (continued)

	Credit	2	7.1	28	
	Debt grants	1	3.6	28	

Indicator #16: Number of loans disbursed as a result of USDA assistance				
Baseline is 0				
Categories		# of loans	Sample size – Processor (#)	
Total		5	28	
Country	Côte d'Ivoire	5	14	
	Ghana	0	4	
	Nigeria	0	10	
Processor size	Small	0	17	
	Medium	1	4	
	Large	4	7	

Indicator #17: Value of agriculture-related financing accessed as a result of USDA assistance				
Baseline is 0 USD				
Categories		Financing (USD)	Sample size – Processor (#)	
Total		21,162,824.00	28	
Processor size	Small	12,824.00	17	
	Medium	5,000,000.00	4	
	Large	16,150,000.00	7	
Type of financing	Bank	20,284,700.00	28	
	Grants	878,124.00	28	

Indicator #18: Number of public-private partnerships formed as a result of USDA assistance
Baseline is 0

Indicator #19: Number of cashew sector entities that receive technical assistance as a result of USDA support
Baseline is 0

Indicator #20: Number of new clients/trade partners obtained as a result of USDA assistance				
Categories		# of clients	Sample size – Processor (#)	
Total		65	22	
Country	Côte d'Ivoire	26	11	
	Ghana	2	4	
	Nigeria	37	7	
Processor size	Small	14	14	
	Medium	13	4	
	Large	38	4	
Local clients:		30	4 processors (only non-int'l responded)	

Indicator #21: Number of firms attending or represented at international/regional trade shows				
Categories		# of firms	Sample size – Processor (#)	
Total		5	22	

Appendix 1 – Indicators and Disaggregations (continued)

Country	Côte d'Ivoire	4	11	
	Ghana	0	4	
	Nigeria	1	7	
Processor size	Small	1	14	
	Medium	3	4	
	Large	1	4	
Sex of proprietor	Male	1	10	
	Female	0	0	
	Mixed	4	11	
Active processors attending fairs/shows		22.7%	22	
Indicator #22: Number of individuals who have received short-term agricultural sector productivity or food security training as a result of USDA assistance				
Baseline is 0				
Indicator #23: Number of individuals participating in USDA food security programs				
Baseline is 0				
Indicator #24: Number of individuals benefiting indirectly as a result of USDA assistance				
Baseline is 0				

Notes:
[1] No extrapolation because we do not have an overall value for RCN MT exported by processors.
[2] No extrapolation because we do not have overall value produced.
[3] This should be regarded with caution, as it includes all commodities, but extrapolation is based on kernel sales.

Appendix 2 – Baseline Evaluation Matrix

	Questions and sub-questions	Indicators	Data sources	Data collection methods
1.	Relevance, adequacy of design, and coherence			
1.1	Are proposed activities appropriately designed to meet the priority needs of processors within the cashew sectors? If relevant, how can their design be optimized?	Evidence that Prosper Cashew's implementation approach is adequate to address capacity and market gaps observed in Côte d'Ivoire, Ghana and Nigeria	• Needs assessments and market analyses performed by TNS • TNS staff • Processors • Government stakeholders (research institutions, policy-makers, investment promotion bodies) • Market/industry associations (Conseil du coton et de l'anacarde, African Cashew Alliance, Nitidæ, National Cashew Association of Nigeria, etc.) • Finance institutions (national/international banks, investors, impact investors and intermediaries) • International buyers • Intermediaries • USDA	• Desk review • Key informant interviews • Survey
1.2	To what extent does the project design integrate country and regional agricultural development plans and sectoral strategies?	Number and type of national development strategies and plans aligned with Prosper Cashew	• Government stakeholders • Market/industry associations (CCA and others) • TNS staff	• Desk review • Key informant interviews
1.3	How do the four sets of activities complement each other in order to achieve the expected results? Are there any gaps that need to be considered?	Extent to which the four broad sets of Prosper Cashew activities feed into one another in order to create value addition in the cashew sector	• Needs assessments and market analyses performed by TNS • TNS staff	• Desk review • Key informant interviews
1.4	Are the proposed activities appropriately designed so that women and other vulnerable groups will benefit equally compared to men?	Extent to which gender gaps and other gaps faced by other vulnerable groups (ethnic minorities, isolated communities, etc.) have been addressed by specific activities to increase their participation in Prosper Cashew	• Needs assessments and market analyses performed by TNS • TNS staff • USDA • Processors	• Desk review • Key informant interviews • Survey
1.5	How can Prosper Cashew adapt its design and implementation model for each particular target country?	Extent to which country-specific differences have been recognized to improve the project design and implementation strategy in each country	• Needs assessments and market analyses performed by TNS • TNS staff • Government stakeholders • USDA	• Desk review • Key informant interviews

Appendix 2 – Baseline Evaluation Matrix (continued)

Questions and sub-questions		Indicators	Data sources	Data collection methods
1.6	What lessons from other cashew promotion projects have been used to improve the design of Prosper Cashew? How is Prosper Cashew aligned with and benefiting from the experience and current work of other cashew promotion projects elsewhere (regionally and globally)?	• Number and type of lessons learned utilized • Current collaborations with other projects	• TNS staff (to comment on lessons learned from BeninCajù, ComCashew, World Bank cashew project, and LIFFT-Cashew) • Other cashew projects (e.g., PRO-Cashew, World Bank, ACA) • ISF Advisors staff • USDA	• Desk review • Key informant interviews
1.7	If relevant, how can activities and relationships between various value chain stakeholders be optimized?	Number and type of gaps observed that can be addressed to optimize project implementation	• Needs assessments and market analyses performed by TNS • TNS staff • Processors • Producer associations • Government stakeholders • Market/industry associations • Finance institutions • International buyers • Intermediaries • USDA	• Key informant interviews
1.8	To what extent have the initial proposed activities been adapted to take into consideration the potential economic and health effects of COVID-19?	Number and types of proposed mitigation measures envisaged	• TNS staff • ISF Advisors staff • Processors	• Desk review • Key informant interviews • Survey
1.9	Is Prosper Cashew planning to provide the right combination of training, tools and resources to achieve its planned outcomes? If anything, what aspects might need further attention in the early stages to ensure the success of the project?	Evidence supporting the adequacy and complementarity of activities to be undertaken	• Needs assessments and market analyses performed by TNS • TNS staff • Processors • Government stakeholders • Market/industry associations • Finance institutions	• Desk review • Key informant interviews

Appendix 2 – Baseline Evaluation Matrix (continued)

	Questions and sub-questions	Indicators	Data sources	Data collection methods
2.	Effectiveness			
2.1	What are the baseline values for all relevant indicators (refer to the Performance Measurement Framework of Prosper Cashew)? What are the data gaps that remain after the baseline has been conducted?	Performance Measurement Framework of Prosper Cashew	Sources of information will depend on each indicator assessed	• Survey • Key informant interviews • Desk review
2.2	Have a proper risk analysis and proper mitigation strategies been devised for Prosper Cashew? If relevant, which strategic options can viably be incorporated in the implementation plan to foster the likeliness of achieving expected results?	• Existence of a risk analysis and mitigation strategy • Level of adequacy of proposed measures	• Risk matrix • TNS staff • USDA	• Desk review • Key informant interviews
3.	Efficiency and value for money			
3.1	To what extent have project activities been designed in such a way that implementation is done in the most cost-effective manner? Does the input-to-output/outcome ratio appear to be reasonable from a project design perspective?	Comparison between budget, activities and expected results	• Project documents • Project budget (output-based budget) • TNS staff • USDA	• Desk review • Key informant interviews
3.2	How adequate is the monitoring and evaluation (M&E) system developed to meet the needs for accountability, results demonstration and learning? What current indicators could be used to monitor the program and track longer-term change?	• Level of adequacy of the M&E system • Level of usefulness of data collected for decision-making and accountability purposes after baseline has been conducted	• M&E Plan, including Performance Measurement Framework • TNS staff • USDA	• Key informant interviews • Desk review

Appendix 2 – Baseline Evaluation Matrix (continued)

	Questions and sub-questions	Indicators	Data sources	Data collection methods
4.	Sustainability			
4.1	To what extent does the Prosper Cashew implementation model bring about sustainable changes for processors, farmers and rural communities, and other stakeholders?	Type of lasting economic changes envisaged by the project for each category of stakeholders	• Project documents • TNS staff • Processors • Producer associations • Government stakeholders market/industry associations • Finance institutions • International buyers • Intermediaries	• Key informant interviews • Desk review
4.2	How conducive are the political, economic, and social environments in each country and globally to achieving project results, with a view to having them last over time?	• Evidence that the political, economic, and social environments in each country and globally have the potential to support continuity of project results • Number and type of bottlenecks foreseen that could impact the project results' sustainability	• Needs assessments and market analyses performed by TNS • TNS staff • Processors • Producer associations • Government stakeholders • Market/industry associations • Finance institutions • International buyers	• Key informant interviews • Desk review
4.3	How adequate is the exit and sustainability strategy for all the project components?	• Existence of an exit/sustainability strategy • Level of adequacy of proposed measures	• TNS staff • USDA	• Key informant interviews • Desk review
5.	Learning questions			
5.1	What value do intermediaries bring in expanding markets? What methods of engaging intermediaries to expand markets through the services and trade they provide are effective?	• Evidence indicating the value of intermediaries • Different methods of engaging intermediaries and effectiveness of these methods	• TNS staff • Processors • Producer associations • Government stakeholders • International buyers • Intermediaries	• Key informant interviews • Desk review

Appendix 2 – Baseline Evaluation Matrix (continued)

Questions and sub-questions		Indicators	Data sources	Data collection methods
5.2	To what extent does increasing horizontal and vertical market linkages among agricultural actors at various levels, such as companies, small and medium-sized enterprises (SMEs), smallholders and intermediaries, promote economic benefits for actors and market expansion overall?	Evidence that horizontal and vertical market linkages promote benefits for various actors and enhance market expansion	• Needs assessments and market analyses performed by TNS • TNS staff • Processors • Producer associations • Market/industry associations • Finance institutions • International buyers • Intermediaries • Other projects	• Key informant interviews • Desk review • Survey
5.3	What are the best linkage models to help small- and medium-sized producers, traders, and postharvest market actors, who frequently lack collateral, registration, and credit history to access loans or other financial instruments to effectively expand their businesses?	Different types of linkage models for small-medium market actors	• Needs assessments and market analyses performed by TNS • TNS staff • Processors • Producer associations • Government stakeholders • Finance institutions • International buyers • Intermediaries • Other projects	• Key informant interviews • Desk review • Survey
5.4	What types of incentives are effective in encouraging the adoption of risk reduction and mitigation products and practices (i.e., insurance, loans, crop diversification, new technology) among agricultural actors?	• Risks identified by processors • Incentives and their effectiveness for reducing risks	• Needs assessments and market analyses performed by TNS • TNS staff • Processors • Producer associations • Government stakeholders • Finance institutions • International buyers • Other projects	• Key informant interviews • Desk review • Survey

Appendix 3 – Documents Reviewed

Aboa, A., and Prentice, A. June 12, 2020. *Coronavirus Slams West Africa's Cashew Market, Some Crops Left to Rot.* <https://www.reuters.com/article/us-health-coronavirus-africa-cashew-idUSKBN23J15R>.

Adegbite, T. December 27, 2020. *The Cashew Opportunity in Nigeria.*

African Cashew Alliance. November 2020. *Cashew Farmers Confident in Tree Crops Development Authority.* <https://www.africancashewalliance.com/en/news-and-info/blog/cashew-farmers-confident-tree-crops-development-authority>.

African Cashew Alliance. September 29, 2020. *An Insight into Why Local Cashew Processors Could not Take Advantage of Covid, Way Forward.* <https://www.africancashewalliance.com/en/news-and-info/blog/insight-why-local-cashew-processors-could-not-take-advantage-covid-way-forward>.

African Cashew Alliance. *AfriCashewSplits Market Report. Week 29: July 13-19, 2020*. N°14.

African Cashew Alliance. *AfriCashewSplits Market Report. Week 44: October 26-November 1 , 2020.* N°15.

African Cashew Alliance. *AfriCashewSplits Market Report. Week 4: January 25-31, 2021.* N°1.

African Cashew Alliance. *AfriCashewSplits Market Report. Week 6: February 8-14, 2021.* N°2.

African Cashew Alliance. 2019. *Invest in Africa: Cashew.*

African Cashew Alliance. *Africashew240 2018 In Focus. Annual Report.*

Agramondis. February 22, 2021 (Revised). *PRO-Cashew: West Africa Cashew Project Baseline Evaluation Report – Benin, Burkina Faso, Côte d'Ivoire, Ghana, and Nigeria.*

Boafo, J., and Lyons, K. August 14, 2019. *Ghana Wants to Grow More Cashews. But what about Unintended Consequences?* <https://theconversation.com/ghana-wants-to-grow-more-cashews-but-what-about-unintended-consequences-93162#:~:text=Of>.

Cashew Week. A Weekly Newsletter. Issue 22, Volume 4.

Cashew Week. A Weekly Newsletter. Issue 22, Volume 5.

Cashew Week. A Weekly Newsletter. Issue 22, Volume 6.

Cashew Week. A Weekly Newsletter. Issue 22, Volume 7.

Cashew Week. A Weekly Newsletter. Issue 22, Volume 8.

Cashew Week. A Weekly Newsletter. Issue 22, Volume 9.

Cashew Sector Gets $15 million Boost. November 3, 2020. <https://www.modernghana.com/news/1040051/cashew-sector-gets-15million-boost.html>.

Appendix 3 – Documents Reviewed (continued)

Cashew Processing Factories Take Delivery of COVID-19 Reliefs Items. September 25, 2020. <https://thebftonline.com/25/09/2020/cashew-processing-factories-take-delivery-of-covid-19-reliefs-items/>.

Cultivating New Frontiers in Agriculture. July 9, 2020. *PRO-Cashew Performance Monitoring Plan (PMP).*

Egbe, A. January 14, 2020. *Ghanaian Government Aims to Increase Cashew Production in 2020.* <https://www.tridge.com/stories/ghanaian-government-aims-to-increase-cashew-production-in-2020#:~:text=Increasing>.

En Côte d'Ivoire, le coronavirus plonge la filière de la noix de cajou dans la crise. <https://www.francetvinfo.fr/sante/maladie/coronavirus/en-cote-d-ivoire-le-coronavirus-plonge-la-filiere-de-la-noix-de-cajou-dans-la-crise_3972389.html>.

Fair and Sustainable Consulting. December 2018. *Cashew Nuts Processing in West Africa – Value Chain Analysis – Benin and Côte d'Ivoire.*

Fitzpatrick, J. February 2021. *AfricasheW450 – Cashew Market Outlook.*

ISF Advisors. *ISF Prosper Cashew Original LOP Work Plan.*

Julianna F. November 30, 2020. *Olam – Addressing Sustainability Challenges in Cashews.* <https://olamnuts.com/types-of-nuts-blog/post/addressing-sustainability-challenges-in-cashews?utm_source=LinkedIn&utm_medium=Social&utm_cam%E2%80%A6>.

Karthickumar, et al. 2014. "Indian Cashew Processing Industry – An Overview." *Journal of Food Research and Technology.*

Kehinde Ademola, A., et al. 2021. "Opportunities in Nigerian Cashew Nut Value Chain." *World Journal of Advanced Research and Reviews.*

N'Kalo Cashew Market Report. 2019

N'Kalo. January 8, 2021. *Cashew Market Bulletin.*

N'Kalo. January 15, 2021. *Cashew Market Bulletin.*

N'Kalo. January 22, 2021. *Cashew Market Bulletin.*

N'Kalo. January 29, 2021. *Cashew Market Bulletin.*

N'Kalo. February 12, 2021. *Cashew Market Bulletin.*

N'Kalo. February 17, 2021. *Cashew Market Bulletin.*

N'Kalo. March 3, 2021. *Cashew Market Bulletin.*

Nigerian Export Promotion Council. July 2018. *Promising Markets – Cashew Kernels.*

Appendix 3 – Documents Reviewed (continued)

Nigeria Loses Billions to Poor Government Attention on Cashew Production. October 2020. <https://www.vanguardngr.com/2020/10/nigeria-loses-billions-to-poor-govt-attention-on-cashew-production-%E2%80%95-uzoechi/>.

Nitidæ. June 2019. *The West African Cashew Sector in 2018 – General Trends and Country Profiles.*

Olubunmi, O. Alawode, and Adesoji V. Adeniranye. 2020. "Competitiveness of Nigerian Cashew Nuts in the Global Market (1961-2016): An Application of Vector Error Correction Model (VECM)." *International Journal of Innovative Development and Policy Studies.* 8(1):46-57, Jan-Mar 2020.

TechnoServe Inc. January 8, 2021. Prosper Cashew. Work Plan Narrative. FCC-624-2020-005-00.

TechnoServe Inc. Prosper Cashew. Work Plan Excel file. FCC-624-2020-005-00.

TechnoServe Inc. TNS_ProsperCashew_Indicators_AttachmentD_20201014.

TechnoServe Inc. 2020. *Food for Progress – West Africa Regional, Prosper Cashew USDA Proposal.*

TechnoServe Inc. *Cashew Shells: From Waste to Energy and Profit.*

The New Markets Lab. December 2020. *Framework and Enabling Environment in Benin for the Development of the Cashew Industry.* PowerPoint presentation.

The New Markets Lab. December 2020. *Framework and Enabling Environment in Benin for the Development of the Cashew Industry.* Final report.

Ton, et al. December 2018. *Cashew Nut Processing in West Africa. Value Chain Analysis. Benin and Côte d'Ivoire.*

United Nations. Department of Economic and Social Affairs, Population Division. 2019. Database on Household Size and Composition 2019.

Appendix 4 – Processor Survey

The survey has been removed, as it is not standard practice to publish customized tools.

Appendix 5 – Informing Stakeholders About the Baseline

Below are the talking points regarding the baseline study TNS used during their verbal conversations with processors and other stakeholders. Following these are the introduction letters in both French and English used during written communication.

After providing general information about the Prosper Cashew project to stakeholders, the following points regarding the baseline were provided by TNS.

What is the purpose of the baseline study?

- *Survey (processors only):* The purpose of the baseline study survey is to collect key procurement, processing, business, and management indicators at baseline to support performance monitoring of the Prosper Cashew project over time. Additionally, the survey will assess some of the key challenges you are facing as a processor, and what opportunities you see to move forward.

- *Interviews (processors and others):* The purpose of the baseline study interviews is to gather detailed information on key challenges and risks you are facing as a processor, and what opportunities you see to move forward.

Who will be undertaking the baseline study?

We have hired Advisem Services Inc., a Canadian consulting firm, to undertake this study.

What will I have to do and when?

- *Survey (processors only):* You will be sent a survey via email (Subject: "TechnoServe Prosper Cashew Baseline Survey") around mid-February. This will be an online survey accessed through a URL link. We ask that you make every effort to answer the questions asked, as this will greatly help us design the Prosper Cashew project and track results in the future to ensure we are achieving results and holding us accountable to both the donor (USDA) and yourself. The consultants will be available for calls to clarify any issues you encounter and may also visit you in person to either undertake an interview with you and/or help you complete the survey. Any other detailed-supporting information that you can provide to the consultants will be greatly appreciated.

- *Interviews (processors and others):* You will be sent an email (Subject: "TechnoServe Prosper Cashew Baseline Interview") or contacted over the phone by the consultants to arrange a day and time for a one-hour interview. Interviews will likely be programmed for the end of February or March.

Final point

We look forward to working closely with you and greatly appreciate your willingness and effort to partake in the baseline study prior to the Prosper Cashew project inception.

Appendix 5 – Informing Stakeholders About the Baseline (continued)

TNS Written Communication Letters

LETTRE D'INTRODUCTION

04 mars 2021

Dans le cadre du projet Prosper Cashew de TechnoServe, financé par l'USDA, lancé en octobre 2020 et mis en oeuvre en Côte d'Ivoire, au Nigeria et au Ghana, nous avons chargé Advisem, une société de conseil canadienne, de réaliser une étude de base. Il s'agit d'une étude, conçue comme outil de gestion interne qui vise à évaluer la situation actuelle dans la chaîne de valeur de la noix de cajou et aider à mesurer les progrès du projet à une date ultérieure. L'étude de base permettra également d'informer le programme des points d'apprentissage du projet, et aidera à identifier si des changements sont nécessaires à notre approche, aux indicateurs et aux objectifs de projet. Cette étude ayant un caractère impartial sera par conséquent conduite par une tierce organisation qui est Advisem.

Vous avez été identifié comme un acteur clé dont le point de vue est important dans la chaîne de valeur de la noix de cajou. À ce titre, nous vous invitons à participer à un entretien volontaire avec Advisem afin d'alimenter l'étude de base de notre projet. Nous savons que vous êtes assez occupés et nous apprécions votre temps. N'hésitez pas à nous contacter si vous avez des questions ou des préoccupations.

Nous vous prions d'agréer, Monsieur / Madame, l'expression de nos salutations distinguées

Cordialement,

Krishanu Chakravarty
Chief of Party, Prosper Cashew
KChakravarty@tns.org

LETTER OF INTRODUCTION

March 4, 2021

As part of TechnoServe's USDA-funded Prosper Cashew project launched in October 2020 and implemented in Côte d'Ivoire, Nigeria, and Ghana we have commissioned Advisem, a Canadian consultancy firm, to conduct the baseline study. The baseline evaluation is intended as an internal management tool to assess the current situation in the cashew value chain and assist in the measuring of project progress at a later date. The baseline study will also inform the project's learning agenda and will help us to identify if any changes are necessary to our project approach as well as our project

Appendix 4 – Informing Stakeholders About the Baseline (continued)

indicators and targets. The baseline study is designed to be impartial and, therefore, is being conducted by a third party organization, Advisem.

You have been identified as a key stakeholder in the cashew value chain whose point of view is important. As such, we invite you to participate in a voluntary interview with Advisem to inform our project's baseline study. We know you are very busy, and we appreciate your time. Please do not hesitate to reach out should you have any questions or concerns.

Sincerely,

Krishanu Chakravarty
Chief of Party, Prosper Cashew
KChakravarty@tns.org

Appendix 6 – Qualitative Data Collection Tools

The qualitative question guides have been removed, as it is not standard practice to publish customized tools.

The introduction section for one guide remains as an example.

Name of organization/company: _____

Type of organization/company: _____

Role/position in organization/company: _____

Length of time in position: _____

Male/female: _____

Village/town/city: _____

Time started: _____

Time ended: _____

Facilitator: Prior to beginning the interview, reconfirm the consent from the respondent. Read out the contents of the consent form and ask him/her whether or not they agree to be interviewed. Within the questions you will see probing elements. After you ask a question, allow your participant the opportunity to answer, and, if necessary, you can probe for further details to gather more information. Probing questions are in italics.

Introduction

Hello. Thank you for agreeing to take part in this interview. My name is _____ and I am here on behalf of Advisem, a consultancy firm contracted by Technoserve to conduct the baseline study of the Prosper Cashew project. The baseline evaluation is intended as an internal management tool to assess the current situation in the cashew value chain (with a particular focus on processors) and assist in the measuring of project progress at a later date. This interview with you has been requested because your point of view is important. I know you are very busy, and we appreciate your time. We understand that we will at times request from you particular information regarding your business operations, and we will protect this information. This information is very important for us to understand the progress of the project, and we appreciate your participation. Participation in this interview is voluntary, and your participation will in no way affect potential benefits to be received from the project. You can choose to end the interview at any point, and have your answers excluded from the study up to two weeks after this interview.

This interview will take about one hour.

Appendix 7 – Field Work Schedule

Please note that city/region column has been replaced with country and the organization name column has been deleted to ensure no personal identifying information is available.

Date	Day	Virtual/in person	City/region	Stakeholder type
2019-03-13	Saturday	Travel	Côte d'Ivoire	Travel
2019-03-14	Sunday	In person	Côte d'Ivoire	Coordination
2019-03-15	Monday	In person	Côte d'Ivoire	Processor
		Travel	Côte d'Ivoire	
2019-03-16	Tuesday	In person	Côte d'Ivoire	Processor
2019-03-17	Wednesday	In person	Côte d'Ivoire	Processor
		In person	Côte d'Ivoire	Processor
		In person	Côte d'Ivoire	Intermediary
		In person	Côte d'Ivoire	Producer's cooperative
		Phone	Côte d'Ivoire	Processor/roaster
2019-03-18	Thursday	In person	Côte d'Ivoire	Processor
		Travel	Côte d'Ivoire	
2019-03-19	Friday	Phone	Côte d'Ivoire	Processor
2019-03-20	Saturday	In person	Côte d'Ivoire	Equipment provider
2019-03-21	Sunday		Côte d'Ivoire	
2019-03-22	Monday	In person	Côte d'Ivoire	Processor
		In person	Côte d'Ivoire	Processor
		Phone	Côte d'Ivoire	Finance institution
2019-03-23	Tuesday	In person	Côte d'Ivoire	Finance institution
		In person	Côte d'Ivoire	Processor
		Phone	Côte d'Ivoire	Processor
2019-03-24	Wednesday	In person	Côte d'Ivoire	Processor
		In person	Côte d'Ivoire	Processor
		In person	Côte d'Ivoire	Processor
		In person	Côte d'Ivoire	Government/public organization
2019-03-25	Thursday	In person	Côte d'Ivoire	Association
		In person	Côte d'Ivoire	Export Cooperative
2019-03-26	Friday	Virtual	Côte d'Ivoire	Various
		Virtual	Côte d'Ivoire	Implementer
		In person	Côte d'Ivoire	Implementer
2019-03-27	Saturday	In person	Côte d'Ivoire	Coordination
2019-03-28	Sunday	Travel	Côte d'Ivoire	Travel

Appendix 8 – List of Key Informants Interviewed

Please note that city/region column has been replaced with country and the organization name, individual name, and email/telephone columns have been deleted to ensure no personal identifying information is available.

City/region	In person/ Virtual	Stakeholder type
Nigeria	Virtual	Association
Nigeria	In person	Intermediary/market association
Nigeria	In person	Intermediary
Nigeria	Virtual	Processor
Nigeria	Virtual	Processor
Nigeria	Virtual	Processor
Nigeria	Virtual	Processor
Nigeria	Virtual	Processor
Nigeria	Virtual	Finance institution
Nigeria	Virtual	Finance institution
Nigeria	In person	Cooperative
Nigeria	Virtual	Cooperative
Nigeria	Virtual	Government/public organization
Nigeria	Virtual	Government/public organization
Nigeria	Virtual	Public organization
Nigeria	Virtual	Public organization
Nigeria	Virtual	Government/public organization
Ghana	Virtual	Association
Ghana	Virtual (2 interviews)	Association
Ghana	Virtual	Government/public organization
Ghana	Virtual	Buyer
Ghana	Virtual	Processor
Ghana	Virtual	Processor
Holland	Virtual	Capacity building provider
Ghana	Virtual	Processor
Ghana	Virtual	Capacity building provider
Ghana	Virtual	Processor
Ghana	Virtual	Cooperative/processor
Ghana	Virtual	TNS staff – M&E
Ghana	Virtual	Apex body
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	In person	Intermediary
Côte d'Ivoire	In person	Producer's cooperative

Appendix 8 – List of Key Informants Interviewed (continued)

City/region	In person/ Virtual	Stakeholder type
Côte d'Ivoire	Virtual	Processor/roaster (national market)
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	Virtual	Processor
Côte d'Ivoire	In person	Equipment provider
Côte d'Ivoire	Virtual	Association
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	Virtual	Finance institution
Côte d'Ivoire	Virtual	Capacity building provider
Côte d'Ivoire	Virtual	Government/public organization; association
Côte d'Ivoire	In person	Finance institution
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	In person	Processor
Côte d'Ivoire	In person	Government/public organization
Côte d'Ivoire	Virtual	Association
Multiple countries	Virtual	Implementer – financial services and investment specialists
Côte d'Ivoire	Virtual and in person	Partner
Côte d'Ivoire	In person	Government/public organization
USA	Virtual	Finance institution
Côte d'Ivoire	Virtual	Finance institution
USA	Virtual	Donor
Côte d'Ivoire	Virtual	Buyer
Abidjan/Mumbai	Virtual	Implementer
Uganda	Virtual	Implementer
Benin	Virtual	Implementer – Processing specialist
USA	Virtual	Implementer – Technology specialist
Côte d'Ivoire	In person	Export cooperative
USA	Virtual	Implementer – Gender specialist
USA	Virtual	Implementer – Proposal development lead

Appendix 9 – Data Analysis Plan

Linked indicators	Definition and/or criteria	Calculation	Changes suggested/ implemented
Indicator #1: Percent of domestic RCN production processed into kernel prior to export (based on 2020 production figures)	• This indicator measures the share of focus countries' total cashew production processed into kernel locally (in Côte d'Ivoire, Ghana, and Nigeria) as opposed to exported internationally as RCN. • Annual Period: Feb 1st to Jan 31. • Assumption: the average kernel to RCN ratio (or "RCN Equivalent") is 20%.	• Unit: %. • This indicator will also be calculated using government statistics. • Disaggregated by country (A2) [note 1].	Disaggregation is only possible at the country level; all other disaggregations removed.
Indicator #2: Value of annual sales of farms and firms receiving USDA assistance	• This indicator measures the value of the total amount of sales of products and services by USDA-assisted firms. • Annual Period: Feb 1st to Jan 31. • To address currency issues, we will use an average yearly exchange rate for each currency to USD according to Oanda.	• Unit: USD. • USD = Combined total of sales (D7: "Total Sales (annual 2020 – *Feb 1st 2020 to Jan 31st 2021*) for each cashew product") for all processors. • Disaggregated by type of product (C8), type of firm (C9), sex of proprietor (A11), age of proprietor (A12) [note 2].	The custom disaggregation was removed: "Custom: currency (local currency, USD, and Euro), destination market." Currency depended on what was easiest for the processor to report and destination market is discussed below.
Indicator #3: Volume of commodities sold by farms and firms receiving USDA assistance	• This indicator collects the volume of sales of targeted commodities by firms receiving USDA assistance. This includes the volume of all sales of targeted commodity(ies). • Annual Period: Feb 1st to Jan 31.	• Unit: MT. • MT = Combined total of volume of sales quantities (D26: What were your total annual production amounts (quantities/volumes) and sales quantities/volumes for 2020? Only – specifically amount sold) (e.g., MT, L, etc.?) for all processors. • Products (e.g., nuts versus juice) will be reported separately. • Disaggregated by type of product (C8), type of firm (C9), sex of proprietor (A11) and age of proprietor (A12).	Each product is reported separately.
Indicator #4: Number of jobs attributed to USDA assistance	• This indicator collects the total number of jobs that have been created, owing to USDA assistance. • Jobs include all types of employment opportunities created during the reporting year. Jobs lasting less than one month, or less than 20 days excluding weekends, are not counted in order to emphasize those jobs that provide more stability through duration. This indicator counts both full-time employment and part-time employment, including temporary and seasonal employment. Full-time jobs last at least 260 days (excluding weekends) or 12 months. Part-time jobs last between 21 days and 259 days, excluding weekends.	• Unit: number. • # = Combined total number of jobs (F1: "What was your total number of your employees from Feb 1, 2020 to January 31, 2021 by the following categories?") for the categories and had to answer "Individuals who worked between 21 and 259 days (part time)" or "Individuals who worked 260 or more days (full time)" for all processors. • Disaggregation: employment type (full-time/part-time) (F1) and sex of job holder (F1) [note 3].	

Appendix 9 – Data Analysis Plan (continued)

Linked indicators	Definition and/or criteria	Calculation	Changes suggested/ implemented
Indicator #5: Number of individuals in the agriculture system who have applied improved management practices or technologies with USDA assistance	This indicator measures the total number of processors participating in USDA-funded activities who have applied improved management practices and/or technologies promoted by USDA anywhere within the food and agriculture system during the reporting year. The indicator tracks those individuals who are changing their behavior while participating in USDA-funded activities (not solely those that attended training).	• Unit: number. • This indicator will not be directly assessed as this will be done through pre-test and post-test assessment. Assessments will depend on who and what is being taught. • The baseline will assess what areas processors feel they need the most assistance.	
Indicator #6: Number of organizations with increased performance with USDA assistance	This indicator measures whether USDA-funded capacity development efforts have led to improved organizational performance in organizations receiving organizational performance improvement support. This indicator should only be used when a project intentionally allocates resources (human, financial, and/or other) towards strengthening organizational capacity and undergoes a deliberate performance improvement process that is documented.	• Unit: number. • This indicator will be measured through the Organization Capacity section of the processors survey (Section G – 47 questions). Questions are graded on a scale of 0 to 2, 0 to 3 and 0 to 4. Responses will be added together to get the score for each processor. The highest possible score for a processor is 144 and the lowest possible score is 0. Subsequently, scores will be averaged for all processors and then disaggregated. • Advisem will disaggregated by processor size and country.	Removed disaggregation "Type of organization" as all are processors.
Indicator #7: Average processing cost per unit of output for selected agricultural commodities as a result of USDA assistance	• This indicator measures the average production cost of participating processors. Average production cost includes the cost of raw materials, labor costs, transportation costs, electricity and operational costs, and any other costs required to produce the final product sold to end buyers. • Annual period: Feb 1st to Jan 31.	• Unit: USD/kg per USD 1.00 of cashew product sales. • USD/kg = Total of average cost of processing per kernel kg in USD (D28: What was your average cost of processing in for 2020 per kilogram (kg) of kernels? Added for each processors surveyed/number of processors surveyed and completing this question [note 4]. • 2020 production data will be used as the basis for calculation for this indicator. • Disaggregated by country (A2), firm size (C7), firm type (C9).	
Indicator #8: Total volume of additional kernel output processed by USDA-supported firms	• This indicator measures the incremental change in volume of cashews processed, based on project-supported processor annual output. • Feb 1st 2020 to Jan 31st 2021 – annual period.	• Unit: MT. • MT = Combined total of kernel processed (D26: "What were your total annual production amounts (quantities/volumes) and sales quantities/volumes for 2020? Only – specifically amount produced/ processed (kernels only)") for all processors, for all countries. • Disaggregated by country (A2), firm size (C7), firm type (C9), sex of proprietor (A11), age of proprietor (A12). • 2020 production data will be used as the basis for calculation for this indicator.	

Appendix 9 – Data Analysis Plan (continued)

Linked indicators	Definition and/or criteria	Calculation	Changes suggested/ implemented
Indicator #9: Value of new USG commitments and new public and private sector investment leveraged by USDA to support food security and nutrition.	Investment is defined as any use of public or private sector resources intended to increase future production output or income, to improve the sustainable use of agricultural-related natural resources (soil, water, etc.), or to improve water or land management anywhere along the food, feed, and fiber system, and natural resources management.	• Unit: USD. • Baseline is 0 USD. • Note that this indicator will be answered through data provided by the fund manager at future periods. • Disaggregated by type of investment (H6) [note 1].	
Indicator #10: Percentage increase in actual income of participating firms receiving USDA support	• Measures the total actual income of a firm is the total in a given period of one year. • Participating firms (project supported firms) include existing and new firms receiving technical assistance or other support (such as access to finance) from the project.	• Unit: %. • Baseline is 0%. • 2020 profit data will be used as the basis for calculation for this indicator: (QD17: Total net profit for 2020 *(Feb 1st 2020 to Jan 31st 2021)* for all processors. • Later periods: Increase = YR2 combined profit less baseline combined profit; % increase = "Increase" ÷ baseline combined profit * 100. • Disaggregated by country (A2), processor size (C7), sex of proprietor (A11), age of proprietor (A12).	
Indicator #11: Number of distinct markets to which selected agricultural products are exported	• This indicator measures the number of distinct export markets reached by participating processors during the reporting period. • The key focus will be regional markets but distinct markets within a single country will be counted where possible. Data is to be based upon actual purchase agreements/bills of sale. • This is focused on cashew kernels. • Feb 1st 2020 to Jan 31st 2021.	• Unit: number. • Number = Unique markets/countries where processors are exporting. This will be assessed through E3: "Please select the countries that you exported kernels to in 2020 and state the associated client/trade partner and if relevant the export region (e.g., state, province) within the country?" Each country/region will be counted once. • E1: "What was the number of countries your company exported kernel to in 2020?" will provide supporting data to see the average number of export markets by processor. • Disaggregated by type of market (QE3), firm size (C7), firm type (C9), processing country (A2).	Suggest each country mention used; not unique countries. Otherwise "Type of market" also is irrelevant.

Appendix 9 – Data Analysis Plan (continued)

Linked indicators	Definition and/or criteria	Calculation	Changes suggested/ implemented
Indicator #12: Number of purchase contracts resulting from processor attendance at international trade fairs/conference and trade missions	• This indicator measures the number of purchase contracts signed as a result of processor participation in project-sponsored international trade fairs. • Purchase contracts have to either be signed at trade fairs or within six months of attendance to a conference, and must be as a result of a relationship or contact established at sponsored trade fairs/conferences and trade missions.	• Unit: number. • Baseline is 0 ("project-sponsored"). • To provide a baseline for assessment, a series of questions are asked in the survey to assess attendance of processors in fairs/conferences –Must answer "Yes" to I12: "To the best of your knowledge, did your company receive any new purchase contract(s) as a direct result of your attendance at the fairs, conferences, or trade missions (this means that the purchase contract was received within 6 months after attending the event)?", and subsequently be asked I13: "How many purchase contracts were a direct result (within 6 months) of your company's participation or representation in these fairs, conferences or trade missions?" For both 2019 and 2020. • Disaggregated by country (A2), firm size (C7), firm type (C9).	• Disaggregation "contract type" removed as likely all contracts will be purchase contracts. • Include: % of processors attending fairs/missions that receive purchase contracts.
Indicator #13: Value of cashew products sold into domestic, regional and international markets	• This indicator measures the value of processed or roasted cashews, cashew apple concentrate and juice, and cashew byproducts sold by participating processors through formal domestic, regional, and international market channels. • Annual period: Feb 1st to Jan 31. • To address currency issues, we will use an average yearly exchange rate for each currency to USD according to Oanda.	• Unit: USD. • USD = Combined total of sales (D7: "Total sales (annual 2020 – *Feb 1st 2020 to Jan 31st 2021*) for all cashew products except RCN and other non-processed products") for all processors. Calculation for distinct markets will be based on "Please also state the approximate percentage of total sales by market, specifically domestic, regional (export) and international (export) markets" [note 5]. • Disaggregated by firm type (C9), processing country (A2), market (D17).	
Indicator #14: Number of new certifications of industry and/or sustainability standards (e.g., HACCP, BRC, Sedex) received with USDA assistance	This indicator measures the number of additional certifications that firms are able to obtain by adopting international quality and food safety standards with project support.	• Unit: number. • Baseline is 0 ("new"). • To provide a basis for future comparisons, a series of questions (J1: "Does your company currently have any certifications of industry and/or sustainability standards (e.g., HACCP, BRC, Sedex)?"; if yes, J2: "Please select all of the certifications your company holds") are asked in the survey to assess the current number of certifications. • Disaggregated by type of certification (J2), firm size (C7), firm type (C9).	Include: % of active processors certified.

Appendix 9 – Data Analysis Plan (continued)

Linked indicators	Definition and/or criteria	Calculation	Changes suggested/ implemented
Indicator #15: Number of individuals accessing agriculture-related financing as a result of USDA assistance	• This indicator measures the total number of processors participating in a USDA-funded activity that access agriculture-related financing with USDA assistance. • This indicator counts individuals accessing debt (both cash and in-kind loans) and non-debt financing. • USDA assistance may consist of technical assistance, full or partial guarantee provision, insurance coverage, or other capacity-building and market-strengthening activities.	• Unit: number. • Baseline is 0. • To provide an idea of the baseline situation, the respondent must answer "Yes" to H1: "Have you received any external financial support in the past year (Feb 1st 2020 to Jan 31st 2021)?" • Note that this indicator will subsequently be answered through data provided by the fund manager. • Disaggregated by type of financing (H2), processor size (C7), sex of proprietor (A11), age of proprietor (A12).	Include: % of active project processors financed (by disaggregations).
Indicator #16: Number of loans disbursed as a result of USDA assistance	• This indicator captures the number of loans made/disbursed during the reporting year as a result of USDA. • The indicator counts loans (cash; in-kind) disbursed to the recipient not loans merely in process (e.g., loan applications, loan applications approved but not yet available to the recipient). For cash loans, it counts only loans made by finance institutions and not by informal groups such as village savings and loan groups that are not formally registered as a finance institution. • The loans counted can be made by any size finance institution, from microfinance institutions to national commercial banks, as well as non-deposit taking finance institutions and other types of financial NGOs.	• Unit: number. • Baseline is 0. • To provide an idea of the baseline situation, the respondent must answer "Debt" to H2: "Was this financial support in the form of debt (loans; cash or in-kind), equity or grants?" We will then count the number of loans specified in H6: "Please specify the number of loans and amounts received (please include the currency)" and disaggregated by "host government," "other public funders (non-profit)" and "formally registered finance institutions – banks and MFIs" in H5. • Note that this indicator will subsequently be answered through data provided by the fund manager. • Disaggregated by sex of proprietor (A11). Advisem will also disaggregate by size of processor.	
Indicator #17: Value of agriculture-related financing accessed as a result of USDA assistance	This indicator sums the total USD value of debt (both cash and in-kind loans) and non-debt financing, such as equity financing, disbursed during the reporting year as a result of USDA-assistance to producers (individual farmers, fishers, cooperatives, etc.), input suppliers, transporters, processors, other SMEs, and larger enterprises that are in a targeted agricultural value chain. The indicator counts the value of non-debt financing and both cash and non-cash lending [note 6] disbursed to the participant, not financing merely committed (e.g., loans in process, but not yet available to the participant).	• Unit: USD. • Baseline is 0 USD. • To provide an idea of the baseline situation (for processors), add together values for equity (H3) and debt financing in the form of loans (H6 – all four categories). • Note that this indicator will subsequently be answered through data provided by the fund manager. • Disaggregated by type of financing, processor size (C7), recipient category, sex of proprietor (A11), age of proprietor (A12).	

Appendix 9 – Data Analysis Plan (continued)

Linked indicators	Definition and/or criteria	Calculation	Changes suggested/ implemented
Indicator #20: Number of new clients/trade partners obtained as a result of USDA assistance	This indicator measures the number of additional clients that firms are able to obtain by improving their marketing and access to new markets, for example by adopting international quality and food safety standards.	• Unit: number. • Baseline is 0 ("new"). • To establish the number of clients, E1: "What was your company's number of clients/trade partners for kernel exports in 2020?" will be used as the basis for future calculation. • Supporting evidence will be gathered through E3: "Please select the countries that you exported kernels to in 2020 and state the associated client/trade partner and if relevant the export region within the country." • Later periods: Increase = YR2 combined total of clients less baseline number of clients (by processors). • Disaggregated by firm size (C7), firm type (C9), country (A2). • These questions will also be asked for CNSL.	• Very few processors were willing to provide client data. Not possible, so disaggregation "Type of client based on market" has been removed. • Should local clients be included?
Indicator #21: Number of firms attending or represented at international/regional trade shows	This indicator measures the number of project-supported cashew processors and other cashew businesses that gain visibility at international and regional trade shows by physical attendance/participation at the trade shows or representation through collateral marketing material (e.g., brochures, samples). Virtual attendance will also be measured at baseline due to pandemic restrictions in 2020 [note 7].	• Unit: number. • Baseline is 0. • To assess the current situation, the number of processors attending or represented at trade shows (I10: "Yes" to "To the best of your knowledge, has your company attended or been represented (e.g., collateral marketing material – brochures, samples) at any international or regional trade fairs or conferences and trade missions in 2019 or 2020?" will be used as the basis for future comparison. • Disaggregated by country (A2), firm size (C7), sex of proprietor (A11), age of proprietor (A12).	• Removed market from disaggregations. • Include: % of active processors attending fairs/shows

Notes:
1. Available from processor survey only.
2. Available from processor survey general information.
3. Disaggregation by gender of job holders is requested in the survey table for this question.
4. For processors who do not track their processing cost, a follow-up question asks to provide an estimation of your average cost per kg.
5. "Regional" refers to West Africa.
6. In-kind lending in agriculture is the provision of services, inputs, or other goods up front, with payment usually in the form of product (value of service, input, or other good provided plus interest) provided at the end of the season. For in-kind lending, USDA may facilitate in-kind loans of inputs (e.g., fertilizer, seeds) or equipment usage (e.g., tractor, plow) via implementing partners or partnerships. Note that formal leasing arrangements should be captured in non-debt financing section below, or transport with repayment in kind. For Prosper Cashew, this could be buyers lending and being paid back in cashew kernel.
7. Virtual conferences will likely not have the same impact as in person, but perhaps if COVID-19 continues and conferences continue to be virtual, TNS could sponsor presentations of processors that may lead to sales contracts.

Appendix 10 – Pre-/Post-Test Example Template

Instructions for development of tool: As the title states this tool should be applied before individuals start training and then at a time after the training to see if the improved practice is being utilized (e.g., three to six months).

The questions developed for the tool need to be focused on the training that will be provided and should be less on the knowledge side (although you may want to include one or two questions) and more on actual practices that are being utilized and that the training seeks to improve. It is likely that the questionnaire itself after the introduction section will need no more than between 5 to 10 questions.

- Knowledge questions – should be varied in type, e.g., multiple choice, true and false, etc.
- Practice questions – can be more direct.

The questionnaire can be implemented on paper; however, you may want to have an electronic version to input data afterwards.

Part A: Training Identification – to be filled by trainer at pretest or participant at post-test

No.	Question *Hints*	Responses	Type
A15.	Name of training:	_____	text
A16.	Number of days of training:	_____	text

Part B: Participant Identification

The first section of the tool gathers basic identifying information about who is undertaking the survey.

No.	Question *Hints*	Responses	Type
A17.	Date:	_____	day/month/year (drop down menu)
A18.	Name of country:	Côte d'Ivoire Ghana Nigeria	single response
A19.	Name of region/province/state:	_____	text
A20.	Sector of work	Cashew processing Equipment production and sales Other, please specify: _____	single response
A21.	Name of the processing unit or company with which associated:	_____	text

Appendix 10 – Pre-/Post-Test Example Template (continued)

No.	Question *Hints*	Responses	Type
A22.	Position (title):	_____	text
A23.	Gender:	Male Female Prefer not to respond	single response
A24.	Age:	Number of 18-29 years Number of 30+ years Prefer not to respond	single response
A25.	Do we have your consent to undertake the questionnaire?	Yes No	single response

Part C: Knowledge and Practices

Please answer these questions to the best of your knowledge.

No.	Question *Hints*	Responses	Type
B1.			
B2.			
B3.			
B4.			
B5.			
B6.			
B7.			