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Modified sections	Pages in the original document	Modifications made
Appendix 5: Persons conducted during field visits	78-79	Removed
Appendix 6: Names and Contacts of Private Irrigation Schemes	79-80	Removed
Appendix 7: Milling Capacity of 44 Rice Mills surveyed	80-82	GPS Coordinates removed



**BASELINE REPORT FOR GHANA NATIONAL RICE DEVELOPMENT STRATEGY
(GHA-NRDS-II)**

M&E MANUAL

PART- 2

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Abbreviations and Acronyms

AESD:	Agricultural Engineering Services Directorate
AGRA:	Alliance for a Green Revolution in Africa
ASWG	Agriculture Sector Working Group
DCS:	Directorate of Crop Services
FP:	Focal Person
GIDA:	Ghana Irrigation Development Authority
GoG	Government of Ghana
GSID	Ghana Seed Inspection Division
JICA:	Japan International Cooperation Agency
MRACLS:	Multi-Round Annual Crop and Livestock Survey
JSR	Joint Sector Review
MoFA:	Ministry of Food and Agriculture
NGO	Non-Governmental Organizations
NRCC	National Rice Coordinating Committee
NRDS:	National Rice Development Strategy
NRDS-TF	National Rice Development Strategy-Taskforce
NRLD	National Rice Liaison Desk (NRLD)
PFJ II	Planting for Food and Jobs II
PPMED:	Policy, Planning, Monitoring and Evaluation Directorate
PPRSD:	Plant Protection and Regulatory Services Directorate
SARI:	Savannah Agricultural Research Institute
SRID:	Statistics, Research, and Information Directorate
TASAI:	African Seed Access Index
ToR:	Terms of Reference
TICAD	Tokyo International Conference on African Development
UDS	University for Development Studies

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1.0 INTRODUCTION AND CONTEXT

1.1 Background

The Coalition for African Rice Development (CARD) is a consultative group of 32 African countries and development partners that aims at doubling rice production in Sub-Saharan Africa by 2030. The CARD initiative was first launched at the Fourth Tokyo International Conference on African Development (TICAD IV) in 2008, to improve African rice production, which should help to improve food security and income on the continent. After ten years (2008-2018) of implementation, the initiative achieved its initial aim of doubling sub-Saharan African rice production from 14 million tons to 28 million tons. That achievement notwithstanding, African rice production has not kept pace with the rising demand. Therefore, CARD rolled out a second phase in 2019, with a new target of further doubling rice production to 56 million tons by 2030. In the second phase, CARD is expected to focus more of its assistance on implementation, monitoring and evaluation of each country's National Rice Development Strategy (NRDS).

In Ghana, rice has become the second most consumed cereal after maize, and net imports continue to be the main solution to narrowing the gap between low domestic production and increasing consumption in 2021, domestic rice production provided only 45.80% of consumption needs, which was estimated at 1,297,309 MT (MoFA, 2022). The rice sector is largely characterized by traditional farming practices such as dependency on rainfall and the use of basic farming tools such as cutlass, hoe, and sickle. Infrastructure deficit and poor access to appropriate agricultural machinery and equipment are key constraints in the rice value chain. In the past decade, interventions in the sector have been mainly guided by the National Rice Development Strategy (NRDS), which was formulated in 2009 and revised in 2021 in collaboration with the Coalition for African Rice Development (CARD). The vision of the NRDS II is to increase rice production by about 20% annually and attain self-sufficiency by 2027.

A Monitoring and Evaluation (M&E) plan is therefore very critical for the delivery of the planned outputs, outcomes, and impacts of NRDS-II. Hence, the purpose of this manual is to provide guidance in detail on how to deliver the necessary and sufficient M&E of the NRDS-II.

The key principles that underpin the NRDS-II approach to M&E include the following:

- i 12 CARD M&E indicators were carefully and purposefully selected to be as simple as possible and uniform across all 32 CARD countries so that the M&E could be carried out in a sustainable manner using each country's own resources.
- ii Secondary data and primary data collection should not proceed concurrently. In this regard, the NRDS Task Force (TF) & Focal Person (FP) would first conduct extensive secondary data collection on each indicator and identify indicators that may require primary data collection.
- iii After completion of secondary data collection, the NRDS Task Force would collect primary data for those indicators for which good secondary data could not be found.
- iv The NRDS TF & FP would use the M&E manual, which contains a detailed methodology to guide the M&E data collection. The procedural manual provides detailed information

on the data sources and how data would be collected for each indicator.

- v The NRDS TF & FP should seek technical clearance from the CARD secretariat / JICA Ghana Office before undertaking the annual surveys.

In addition, the M&E would be;

- vi Evidence-based and data-driven
- vii Carried out in a well-coordinated, collaborative and participatory manner
- viii Conducted in the most cost-effective manner; and
- ix The M&E processes would be done in ways that allow continual improvement throughout the project phase.

1.2 Proposed Users of the Manual

This manual is intended for, but not limited to:

- a. NRDS Focal Persons for Ghana
- b. NRDS Task Force Members in Ghana
- c. CARD Secretariat, particularly the M&E Consultant working for CARD Secretariat and overseeing the implementation of M&E activities in Ghana
- d. JICA Ghana Office
- e. NRDS Stakeholders listed in Annex 1 of the Draft NRDS-11 for Ghana

1.3 Purpose, Context and Structure of the Manual

The purpose of the manual is to provide a technical guide on the data collection methods that were used for collecting the data on the output, outcome, and impact indicators that would be used internally by the NRDS team to track progress and inform implementation, as well as externally to communicate the progress the NRDS II is making to stakeholders, including the CARD Secretariat, JICA Ghana, non-governmental organizations (NGO) and the Government of Ghana (GoG).

Contextually, this manual focuses on the fifteen (16) indicators of NRDS-II for Ghana (that is 13 CARD indicators and three (3) Ghana-specific indicators). The baseline figures were established using secondary data from credible sources. To ensure that the best secondary source of data was used to establish the baseline status and replicate it in subsequent years, an inclusion criterion was set.

According to Kusek, J. Z., & Rist, R. C. (2004), a number of issues need to be considered when identifying data sources: (i) Can the data source be accessed in a practical fashion? (ii) Can the data source provide quality data? (iii) Can the data source be accessed on a regular and timely basis? and (iv) Is primary data collection from the information source feasible and cost effective? Mindful of the above criteria, the consultant started with a thorough desk study and research, compiling and analyzing all relevant secondary data sources, documents and reports on NRDS and previous interventions in the rice sector in Ghana and other CARD member countries. The literature from both published and unpublished sources were examined. Various documents related to the indicators were reviewed, including Agriculture Sector Working Group (ASWG) and Joint Sector Review (JSR) reports, sector policy documents, research reports, and other technical reports. The review involved checking related documents and information sources, analysis of

information collected, and synthesis of information to respond to the ToR (especially the data needs of the indicators). Key informant interviews with key persons who have knowledge of and access to the relevant data were undertaken through face-to-face (SRID-MoFA, DCS, GIDA) and virtual interactions (TASAI, CSIR-SARI)).

The consultant then used available, reliable, and appropriate sources of information to establish the M&E baseline figures for the indicators. Judgment of the adequacy and/or appropriateness of the secondary data for inclusion as a baseline figure for the indicators was undertaken according to the following criteria:

(i) Highly satisfactory-*The Secondary data can be accessed in a practical fashion; the data source provides quality data; and the data source can be accessed on a regular and timely basis to support M&E during implementation.*

(ii) Moderately satisfactory-*The Secondary data can be accessed in a practical fashion; the data source provides quality data, but the data source cannot be accessed on a regular and timely basis to support M&E during implementation.*

(iii) Moderately unsatisfactory-*The Secondary data can be accessed in a practical fashion. However, the quality and regularity of the data, as well as the timeliness of the data to support M&E during implementation cannot be guaranteed.*

(iv) Unsatisfactory-*No secondary data is readily available or can be accessed in a practical fashion to support M&E during implementation. Consider primary data collection from information sources that are feasible and cost effective.*

The following data sources were adjudged either **Highly** or **Moderately Satisfactory** for purposes of CARD /NRDS II M&E.

1. The Agriculture in Ghana: Facts and Figures annual series, available at the Statistics, Research, and Information Directorate (SRID) of MoFA
2. Database of Ghana Irrigation Development Authority (GIDA) and Private Irrigation Farms
3. Ghana Seed Inspection Division (GSID) of the Plant Protection and Regulatory Services Directorate (PPRSD)
4. Data System of Agricultural Engineering Services Directorate (AESD) of Ghana's Ministry of Food and Agriculture (MoFA).
5. Data Systems of the Research & Nutrition Unit of the Food and Drugs Authority (FDA)

Twelve (12) indicators, including three (3) additional Ghana-specific indicators prioritized by the NRDS Task Force, were covered under secondary data collection, while three (3) other indicators were established using field data collection processes. These three indicators are:

- i. Indicator 9. Share of local rice in the market
- ii. Indicator 11. Smallholder rice farmers' accessibility to financial services
- iii. Indicator 12-a. Smallholder farmers' accessibility to technical training or services
- iv. Indicator 12-b: Retail prices per Kg for representative rice

The methodologies for collecting primary data for each of these indicators are provided under Section 2.3.

The manual has two main parts:

- a. Section 2: Monitoring and Evaluation (M&E) Plan and Implementation.** This presents;
 - i. Performance Management Task and Responsibilities, which spells out the role of the relevant stakeholders, including the NRDS II TF; and the
 - ii. Performance Indicator Reference Sheets for monitoring each of the 16 Indicators. This provides detailed data collection methods, data source, data collection frequency, institutions responsible for collecting and providing data, and data analysis or formula for the computation of the figures.
- b. Section 3: Communication, Sharing, and Utilization of M&E Results.** This provides a guide for communicating and sharing the findings and recommendations with the relevant stakeholders to act on the findings and support the achievement of the NRDS II goal and objectives.

2.0 MONITORING AND EVALUATION WORK PLAN AND IMPLEMENTATION

2.1 Overview and Hierarchy of Ghana’s NRDS II Indicators

In CARD phase 2, a new approach called R.I.C.E. (Resilience, Industrialization, Competitiveness and Empowerment) has been adopted by all 32 countries with a focus on twelve M&E indicators. The indicators include quantity of paddy production, total area harvested, yield per unit area, self-sufficiency rate, area under irrigation, quantity of resilient variety seeds, level of milling sector upgrading, level of mechanization in production, share of local rice in the market, quantity of high-yielding variety seeds, smallholder farmers’ accessibility to financial services, and smallholder farmers’ accessibility to technical training or services. The M&E plan seeks to provide guidance for the collection of the necessary figures for each of the fifteen indicators identified in the Ghana NRDS II M&E framework and a few Ghana-specific indicators identified by Ghana’s national taskforce to help measure progress over the life of the NRDS II implementation. Table 1 provides the indicators for the various levels of results.

Table 1: Indicators for the Various Levels of Results

Indicator Category	Thematic Area	Result Level	Related Indicators
CARD Common Indicators	Overall	Impact	<i>Indicator 4.</i> Self-sufficiency rate (SSR)
	Competitiveness		<i>Indicator 9.</i> Share of local rice in the market
	Overall	Outcome	<i>Indicator 1.</i> Quantity of paddy produced (MT)
			<i>Indicator 3.</i> Yield per unit area planted or harvested with paddy (MT per ha)
	Overall	Output	<i>Indicator 2.</i> Total Area harvested (Ha)
	Resilience		<i>Indicator 5.</i> Area under irrigation (Ha)
Resilience	<i>Indicator 6.</i> Quantity of resilient variety seeds		

Indicator Category	Thematic Area	Result Level	Related Indicators
	Industrialization		Indicator 7. Level of industrial Milling capacity (%)
	Industrialization		Indicator 8. Level of mechanization in production
	Competitiveness		Indicator 10. Quantity of high-yielding variety seeds
	Empowerment		Indicator 11. Smallholder rice farmers' accessibility to financial services
	Empowerment		Indicator 12. Smallholder farmers' accessibility to technical training or services
	Competitiveness		Indicator 13. Retail prices per Kg for representative rice brands/varieties for local and imported rice
Ghana-specific Indicators	Seed system		Indicator 14. Area under Certified Seed production
	Seed system		Indicator 15. Percentage area of land at irrigation site allocated for rice seed production
	Post Harvest and Marketing		Indicator 16. Number of locally produced rice brands introduced by the regulatory authorities

2.2 Performance Management Task and Responsibilities

2.2.1 The governance of the NRDS II

The governance of the NRDS-II described in Section 5.3 of the strategy document, calls for collaborative and concerted efforts to achieve the strategic goal (Box 1).

Box 1: NRSD II Section 5.3: Governance of NRDS

The implementation of the strategy will be led by the National Rice Coordinating Committee (NRCC) to oversee and guide the formulation and implementation of rice related policies, programmes and projects in line with the NRDS. The NRCC will be responsible for giving policy direction with respect to emerging technical issues that require executive intervention. A Technical Working Group of the NRCC will be responsible for all rice development initiatives in-country. The National Rice Liaison Desk (NRLD) is expected to function as the Secretariat for the NRCC to coordinate its daily activities.

Among the objectives of the NRCC is to;

1. *Provide guidance for the implementation of the National Rice Development Strategy (NRDS) other rice related programmes/projects; and*
2. *Establish an up-to-date rice database.*

The National Rice Liaison Desk (NRLD) serves as the Secretariat for NRCC with the following Terms of Reference (ToR):

- 1) *To function as the Focal Point for entities who are interested in investing in the rice sector in Ghana and provide necessary information and assistance to promote investments; and*
- 2) *To closely communicate with Agricultural Sector Working Group and conduct fund matching activities with potential Development Partners as necessary.*

Composition of NRLD

- *Head, Food Crops Unit Directorate of Crop Services, MoFA as Chairman.*
- *National Rice Desk Officer, DCS as Secretary.*
- *Head, Seed Unit, DCS - Member.*
- *Head, M & E, PPMED MoFA - Member.*
- *Statistical Officer, SRID, MoFA - Member.*

Incidentally, the data sources for establishing the baseline that were adjudged either **Highly** or **Moderately Satisfactory** for purposes of CARD /NRDS II M&E included members of the NRLD. They are also clearly stated as key data sources in **Table 1: Monitoring & Evaluation framework** of the strategy document. Hence, it should be easy to access relevant data and information for assessing the performance of the indicators in subsequent years.

2.2.2 Role of NRDS-II TF

As indicated earlier, the purpose of this manual is to establish a simple methodology of data collection that makes it possible for the NRDS Taskforce (TF) team to conduct M&E of their NRDS throughout the second phase of CARD up to 2030, using their own human and financial resources. The NRDS II TF is therefore required to:

- i. Review and update the indicator targets to reflect recent changes in national policies and strategies, i.e Planting for Food and Jobs II (PFJ II) among others.

- ii. Review and/or update the data collection tools and methodologies provided in this manual for each indicator annually. Use the M&E manual, which contains a detailed methodology to guide the M&E data collection. The procedural manual provides detailed information on the data sources and how data would be collected for each indicator.
- iii. Ensure that secondary data and primary data collection do not proceed concurrently. In this regard, the NRDS TF & FP would first conduct extensive secondary data collection on each indicator before proceeding to collect data for indicators that require primary data collection.
- iv. Seek technical clearance from the CARD secretariat / JICA Ghana Office before undertaking the annual surveys.
- v. Facilitate the collection of data required for each indicator in collaboration with the NRLD team members and other relevant stakeholders.
- vi. Update the indicator performance matrix and share it with relevant stakeholders, including the CARD secretariat / JICA Ghana Office.

2.3 Performance Indicator Reference Sheets for Monitoring Each of the 16 Indicators

The foundation of NRDS-II's data collection approach is the detailed Performance Indicator Reference Sheet (PIRS). For each indicator, the PIRS provides a precise definition, data collection methods, data source, data collection frequency, institutions responsible for collecting and providing data, and data analysis or formula for the computation of the figures.

Indicator 1. Quantity of paddy produced (MT)

Thematic Area	Overall
<i>Level of Result</i>	<i>Outcome</i>
Responsible institutions	Statistics, Research, and Information Directorate (SRID) of Ghana's Ministry of Food and Agriculture (MoFA).
Indicator Definition	Quantity (Tons) of paddy produced locally from all the different rice ecologies
Data collection methodology	<p>The data is retrieved through document review from the publication titled: "Agriculture in Ghana: Facts and Figures". The annual series, which was commenced in 1991, is prepared and issued by SRID. SRID takes inputs for the preparation of the document from two sources:</p> <p>document from two sources;</p> <ol style="list-style-type: none"> (i) primary data-through the Ghana Agricultural Production Survey (GAPS) (ii) and (ii) secondary data- obtained largely from public and private institutions and published documents/reports). <p>The GAPS questionnaire, which is administered by trained Agricultural Extension Agents (AEAs), consists of forms such as: (1)</p>

	<p>household and holder listing, (2) field area measurement, and (3) crop yield measurement.</p> <p>The SRID has collaborated with the International Food Policy Research Institute (IFPRI) to strengthen the agricultural statistics system through the implementation of the Ghana Agricultural Production Survey (GAPS) – 2011 to 2016. The GAPS brought about significant improvements in the quality and quantity of statistics generated by SRID.</p> <p>SRID adopted for the Ghana Agricultural Production Survey (GAPS) a stratified multi-stage sampling design in response to the Government of Ghana’s requirement for reliable agricultural statistics at the national, regional and district levels:</p> <ul style="list-style-type: none"> • First Stage Sampling – Selection of 40 Enumeration Areas (EAs) from each of the 260 Districts using the systematic sampling technique to select EAs from rural, peri-urban/urban EAs. • Second Stage Sampling – Selection of 5 farmers from each of the 40 EAs per district using the simple random sampling technique giving a a sample size of 200 holders (farmers) per district. • Third stage – selection of 5 fields per crop grown in the district for the establishment of yield plot to determine yield for each study crop.
Data analysis/ Formula	<p>The quantity of paddy produced is determined as a product of the crop harvested area and the yield. That is, Crop production (MT.) = Crop harvested Area (Ha) × Yield (MT/Ha). Total production of paddy is determined taking into account only districts producing rice paddy.</p> <p>Figure provided in the Agriculture in Ghana: Facts and Figures annual series, and no further analysis required.</p>
Disaggregation needed	None
Source of Data	The Agriculture in Ghana: Facts and Figures annual series is available at SRID-MoFA, Head Office, Accra.
Frequency	Annually – Published between October and December every year
Recommendation to the NRDS Taskforce	It is therefore recommended to adopt the annual figures for this indicator from the “Agriculture in Ghana: Facts and Figures” annual series for subsequent surveys. (The figure is produced annually so no further computation would be required during M&E).

Indicator 2. Total Area harvested (Ha)

Thematic area	Overall
Level of result	Output
Responsible institutions	Statistics, Research, and Information Directorate (SRID) of Ghana's Ministry of Food and Agriculture (MoFA).
Indicator Definition	Sum of area (Ha) harvested from all rice-growing ecologies
Data collection methodology	This data is retrieved through document review from the publication produced by SRID titled: "Agriculture in Ghana: Facts and Figures". Detailed description of how the figure is derived is the same as in (1) above.
Data analysis/Formula	Sum of area (Ha) harvested from all rice-growing ecologies. Figure provided in the Agriculture in Ghana: Facts and Figures annual series, and no further analysis required.
Disaggregation needed	None
Source of Data	The Agriculture in Ghana: Facts and Figures annual series is available at SRID-MoFA, Head Office, Accra.
Frequency	Annually – Published between October and December every year
Recommendation to the NRDS Taskforce	Given the pedigree of SRID as the main custodian of agriculture statistics in Ghana, it is recommended that annual figures for this indicator should be adopted from the "Agriculture in Ghana: Facts and Figures" annual series for subsequent surveys. (The figure is produced annually so no further computation would be required during M&E)

Indicator 3. Yield per unit area planted or harvested with paddy (MT per ha)

Thematic area	Overall
Level of result	Outcome
Responsible institutions	Statistics, Research, and Information Directorate (SRID) of Ghana's Ministry of Food and Agriculture (MoFA).
Indicator Definition	Average quantity of paddy grains harvested per hectare of land (Tons/Ha)
Data collection methodology	This data is retrieved through document review from the publication produced by SRID titled: "Agriculture in Ghana: Facts and Figures". Detailed description of how the figure is derived is the same as in (1&2) above.
Data analysis/Formula	Since Indicator-2 is measured by total Area (Ha) harvested. Therefore, the figure for this indicator, is simply obtained by a division of the figure for indicator-1 {Quantity of paddy produced in (MT)} by the figure for indicator-2 {Total Area harvested (Ha)}, which gives the yield per unit area in MT/Ha.
Disaggregation needed	None

Source of Data	The Agriculture in Ghana: Facts and Figures annual series is available at SRID-MoFA, Head Office, Accra.
Frequency	Annually – Published between October and December every year
Recommendation to the NRDS Taskforce	It is therefore recommended to adopt the annual figures for this indicator from the “Agriculture in Ghana: Facts and Figures” annual series for subsequent surveys. (The figure is produced annually so no further computation would be required during M&E).

Indicator 4. Self-sufficiency rate (SSR)

Thematic area	Overall
<i>Level of result</i>	<i>Impact</i>
Responsible institutions	Statistics, Research, and Information Directorate (SRID) of Ghana's Ministry of Food and Agriculture (MoFA).
Indicator Definition	Coverage rate (%) of rice needs by local production in 2019
Data collection methodology	This data is retrieved through document review from the publication produced by SRID titled: “Agriculture in Ghana: Facts and Figures”. Detailed description of how the figure is derived is the same as in (1, 2 &3) above.
Data analysis/Formula	The Self-Sufficiency Rate (SSR) which is expressed as a percentage, is calculated by dividing the domestic production of milled rice over the total consumption or demand for rice within the country in a given year. In other words, $SSR = \text{domestic production of milled rice available for human consumption} \div \text{Estimated Net Consumption} \times 100$. These figures can be obtained from the Food Balance Tables, contained in SRID’s annual series: “Agriculture in Ghana -Facts & Figures”. Analysis of the Food Balance Sheet as contained in the SRID’s publication titled: “Agriculture in Ghana: Facts and Figures,” shows that the reported data/ computation of the SSR is consistent with the standard procedure for computing SSR.
Disaggregation needed	None
Source of Data	The Agriculture in Ghana: Facts and Figures annual series is available at SRID-MoFA, Head Office, Accra.
Frequency	Annually – Published between October and December every year
Recommendation to the NRDS Taskforce	Based on the track record of SRID in the production of agriculture statistics, it is recommended to adopt and compute SSR from the figures for domestic production of milled rice available for human consumption and estimated net consumption which is produced annually by SRID and reported in the “Agriculture in Ghana -Facts & Figures” series.

Indicator 5. Area under irrigation (Ha)

Thematic area	Resilience
Level of result	Output
Responsible institutions	Ghana Irrigation Development Authority (GIDA) and Private Irrigators
Indicator Definition	Area under rice cultivation with supplementary irrigation that could mitigate the negative impacts of weather fluctuations on rice production
Data collection methodology	This figure is obtained by contacting the officer in-charge of the database at the Ghana Irrigation Development Authority (GIDA), Head Office in Accra. GIDA is the custodian of data in relation to public irrigation schemes in Ghana. The data on area (Ha) under irrigation with respect to public irrigation is regularly collated from all public schemes and it is readily available at the GIDA Head Office in Accra. However, as at the time of data collection for the baseline survey, there were about 10 private companies cultivating rice under their irrigation own purposely constructed irrigation schemes. These companies keep their own records regarding the area (Ha) under irrigation for rice grain and seed production. The data for indicator is therefore available and can be obtained from the Head Office of GIDA in Accra and the designated officers at the various private schemes (see list and contact numbers attached in appendix 6).
Data analysis/Formula	Thus, the figure for this indicator is generated by adding the data obtained from GIDA to the data received from the Private Schemes for area planted with paddy under irrigation (ha) + area under paddy irrigated during minor rainy season (ha).
Disaggregation needed	Data can be disaggregated by type of scheme i.e public and private
Source of Data	Database at GIDA, Head Office in Accra, and private companies cultivating rice under irrigation.
Frequency	Available quarterly
Recommendation to the NRDS Taskforce	<p>With irrigation, there are three types- Public formal, public informal and private. It was however difficult to capture data on the informal. What has been captured is from the formal and private schemes. Hence going forward data from the informal schemes should be captured. This will help projects that are interested in developing such schemes.</p> <p>The figure is generated by a simple addition of data obtained from the government agency (GIDA) and the private irrigation companies.</p>

Indicator 6. Quantity of resilient variety seeds

Thematic area	Resilience
Level of result	Output
Responsible institutions	Ghana Seed Inspection Division
Indicator Definition	Quantity of seeds of locally preferred varieties with resilient characteristics , locally produced and/or imported annually
Data collection methodology	<p>The figure for this indicator is retrieved from the national database of the Ghana Seed Inspection Division (GSID) at PPRSD, Ministry of Food & Agriculture, Accra.</p> <p>First, review the Catalogue of Crop Varieties Released & Registered in Ghana (CSIR,2019), or updated versions (preferably). Then, use the catalogue to determine which of those varieties meet the resilient characteristics. Subsequently, receive information on the quantities of seed produced as certified from the selected varieties from GSID, Accra. The GSID regional offices have data on all certified seeds produced in the country. This is collated at the national level, and so available and can be accessed from the national database.</p> <p>The focus is on local varieties for this survey, however, foreign seeds could be included in subsequent surveys, if available. It is important to note that these resilient varieties are also high yielding.</p> <p>It is important to note that besides the Ghana Seed Inspection Division (GSID) of PPRSD, two other groups or organizations compile data on quantities of certified seeds available in Ghana: (i) the African Seed Access Index (TASAI) and (ii) National Seed Trade Association of Ghana (NASTAG). However, it was decided to use the seed data compiled by GSID because the staff of GSID collect data directly from the source and no seed can be considered to be certified in Ghana without production supervision and approval by GSID. Therefore, only the figures provided by GSID are official by Law.</p>
Data analysis/Formula	<ol style="list-style-type: none"> 1. Take the quantities of all the selected locally produced resilient variety seeds in the country. 2. Sum these quantities for each variety (eg. AGRA, Amankwatia, Gbewa, Exbaika etc) 3. The sum of all these varieties is then computed.
Disaggregation needed	Disaggregated by seed varieties meeting the resilient characteristics .
Source of Data	Ghana Seed Inspection Division (GSID) at PPRSD, Ministry of Food & Agriculture, Accra.
Frequency	Annually

Recommendation to the NRDS Taskforce	Use the seed data compiled by GSID
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Indicator 7. Level of industrial Milling capacity (%)

Thematic area	Industrialization
Level of result	Output
Responsible institutions	MoFA (DCS, SRID, PPMED & AESD)
Indicator Definition	Ratio (%) of installed capacity of medium and large mills among all functional mills
Data collection methodology	<p>The figure for this indicator was retrieved through document review of a nationally representative sample survey (unpublished) of 44 rice mills in Ghana, which was undertaken by MoFA (DCS, SRID, PPMED & AESD). See Appendix 7 for details on the Rice Mills Surveyed. It contains useful information on the ratio of medium-large scale mill (≥ 1.6 Tons/Hour)/ small scale mills (≤ 1.5 Tons/Hour). The survey methodology was well described such that the national TF could periodically replicate data collection for M&E purposes.</p> <p>The Team of Officers that undertook the survey were drawn from the following Directorates of the MoFA (DCS, SRID, PPMED & AESD).</p> <p>A multi-stage sampling technique was used to sample the mills. In the first stage of sampling, milling sites were purposively selected based on the list of milling sites established within the various regions and districts. In the second stage, functional mills were also randomly selected to determine whether they were undertaking any milling operation. This sampling was done using a list of milling sites across the country. In all, a total of forty-four (44) milling centres were visited and questionnaires administered and milling survey conducted. Paddy rice samples were collected from the rice mills visited.</p>
Data analysis/Formula	<p>The figure for this indicator is computed as follows:</p> <ul style="list-style-type: none"> ➤ Step1: Compute the total milling capacity (TMC) for all sampled mills (a total of 44 mills were surveyed) ➤ Step 2: Compute Milling Capacity Small-Scale Mills- SSM (≤ 1.5 Tons/Hour) and ➤ Step3: Compute Milling Capacity for Medium-Large Mills- MLM (≥ 1.6 Tons/Hour) ➤ Step 4: Level (%) of Milling Capacity (Small-Scale Mills ≤ 1.5 Tons/Hour) = $SSM/TMC * 100$ ➤ Step 5: Level (%) of Milling Capacity (Medium-Large Mills ≥ 1.6 Tons/Hour) = $MLM/TMC * 100$
Disaggregation needed	The result is disaggregated by milling capacity; Small-Scale Mills ≤ 1.5 Tons/Hour and Medium-Large Mills ≥ 1.6 Tons/Hour
Source of Data	MoFA (DCS, SRID, PPMED & AESD).

Frequency	Annually
Recommendation to the NRDS Taskforce	Given that some members of NRDS taskforce were involved in surveying the 44 rice mills and hence familiar with the survey methodology, which is well described, they could periodically replicate data collection for M&E purposes.

Indicator 8. Level of mechanization in production

Thematic area	Industrialization
Level of result	Output
Responsible institutions	Agricultural Engineering Services Directorate (AESD) of Ghana's Ministry of Food and Agriculture (MoFA).
Indicator Definition	Number (Count) of machines available for ploughing and harvesting (in rice producing areas)
Data collection methodology	<p>The figure is obtained from the Agricultural Engineering Services Directorate (AESD) of Ghana's Ministry of Food and Agriculture (MoFA). AESD receives and collates import data on all publicly procured agriculture equipment in the country. The Director of AESD at MoFA Head Office in Accra provided the data on agriculture equipment imported since 1990. After careful review of the literature on the operational life span of most agriculture equipment in Ghana, a cut of date of 2008 was set. Thus, equipment imported from 2008 to 2023 were counted.</p> <p>Information from private importers of equipment is very difficult to access.</p>
Data analysis/Formula	Sum of the different types of machinery/equipment imported from 2008 to 2023.
Disaggregation needed	Data disaggregated by machinery type i.e Tractors, Harvesters, Rice Threshers, and Power Tillers.
Source of Data	AESD of MoFA
Frequency	Annually – can be collected at the end of the major rice production season (January-February) in each calendar year
Recommendation to the NRDS Taskforce	It is recommended that data from AESD be obtained and used for this indicator. The Taskforce could also explore other ways of obtaining data from private importers of equipment. This could include signing an agreement with the Customs Excise and Preventive Service (CEPS) responsible for monitoring, regulation and inspection of imports into the country, to provide them annual data on private importations of rice production machinery.

Indicator 9. Share of local rice in the market (%)

Thematic area	Competitiveness
Level of result	Impact
Responsible institutions	NRDS Taskforce
Indicator Definition	Share (%) of locally produced rice in the total quantity of rice procured by major retail stores for a year
Data collection methodology	<p>The figure for this indicator is established through a survey of key rice retail shops located in markets across the rice producing regions (Volta, Eastern, Northern, and Upper East Regions), including Greater Accra and Ashanti regions.</p> <p>Random sampling to be used in targeting retail shops in markets in towns or cities with large populations and high purchasing power. These markets should include the ones covered under the baseline survey (i.e Navrongo, Bolgatanga, Aboabo-Tamale, Koforidua- Central market, Vakpo-Volta region, Nima-Accra, Agbogbloshi-Accra, and Adum/Kejetia-Kumasi), but others can be added if necessary.</p> <p>A Rice Retail Market Survey Questionnaire reviewed and approved by CARD/NRDS Taskforce (See appendix 4) to be administered to selected traders in the nominated markets. A total of 49 key rice retail shops were visited and owners interviewed during the baseline survey (see appendix 2 for list of the shops). This could be used for subsequent surveys. SRID undertakes market price information collections in designated nationally representative markets. So, through the Director of SRID at MoFA Head Office in Accra, a list of the representative markets in the key rice growing regions and Accra was received, including the contact details of the regional MIS officers and enumerators trained by SRID across the country. This was used to facilitate the field data collection. Thus, the rice market survey was assisted by SRID representatives, and this could be replicated by the NRDS TF with the support of SRID.</p>
Data analysis/Formula	<p>The baseline figure for indicator 9 was computed as follows:</p> <ul style="list-style-type: none"> ➤ Step1: Calculate the average number of bags of rice sold per annum by multiplying the average bags of rice sold per week by 52 for both local and imported rice for each enterprise ➤ Step2: Obtain the total quantity of rice sold per annum in kilograms by multiplying the values obtain in step1 with the average weight of a bag of rice (5kg, 50kg, etc) for both local and imported rice for each enterprise ➤ Step3: Convert the values obtained in step 2 (total quantity of rice sold per annum in Kg) to metric tons by dividing the values by 1000 to obtain the total quantity of rice sold for each enterprise. ➤ Step4: Calculate rice procured by adding the total quantity of local rice sold in Metric tons (obtained from step 3) + total quantity of

	<p>imported rice sold in metric tons (Obtained from step 4) for each enterprise</p> <p>➤ Step5: Obtain the percentage of local rice in the market for each enterprise using this formula:</p> $\frac{\text{Total Quantity of Local Rice in MT per annum}}{\text{Rice procured per annum in MT}} * 100\%$ <p>➤ Step6: Calculate the overall percentage for local rice in the market using the formula below:</p> $\frac{\text{sum of total Quantity of Local Rice in MT per annum for all enterprises}}{\text{sum of Rice procured for all enterprises per annum in MT}} * 100\%$
Disaggregation needed	None
Source of Data	Primary data collection by NRDS TF itself and/or SRID
Frequency	Annually, preferably between September and October each year to coincide with the baseline period, and also before harvest time to avoid the influences of fluctuation of production at the harvest and lean seasons
Recommendation to the NRDS Taskforce	Conduct a survey of key rice retail shops located in markets across the rice producing regions (Volta, Eastern, Northern, and Upper East Regions), including Greater Accra and Ashanti regions, by adopting the Rice Retail Market Survey Questionnaire and list of the shops, both included here as appendix.

Indicator 10. Quantity of high-yielding variety seeds

Thematic area	Competitiveness
Level of result	Output
Responsible institutions	Ghana Seed Inspection Division
Indicator Definition	Quantity (Tons) of seeds of locally preferred varieties with high-yielding attributes, locally produced and/or imported annually
Data collection methodology	<p>The figure for this indicator is retrieved from the national database of the Ghana Seed Inspection Division (GSID) at PPRSD, Ministry of Food & Agriculture, Accra.</p> <p>First, review the Catalogue of Crop Varieties Released & Registered in Ghana (CSIR,2019), or updated versions (preferably). Then, use the catalogue to determine which of those varieties meet the high yielding characteristics. Subsequently, receive information on the quantities of seed produced as certified from the selected varieties from GSID, Accra. The GSID regional offices have data on all certified seeds</p>

	<p>produced in the country. This is collated at the national level, and so available and can be accessed from the national database.</p> <p>The focus is on local varieties for this survey, however, foreign seeds could be included in subsequent surveys, if available.</p>
Data analysis/Formula	<ol style="list-style-type: none"> 1. Take the quantities of all the selected locally produced high-yielding variety seeds in the country. 2. Sum these quantities for each variety (eg. AGRA, Amankwatia, Gbewa, Exbaika etc) 3. The sum of all these varieties is then computed.
Disaggregation needed	Disaggregated by seed varieties meeting the high yielding characteristics.
Source of Data	Ghana Seed Inspection Division (GSID) at PPRSD, Ministry of Food & Agriculture, Accra.
Frequency	Annually
Recommendation to the NRDS Taskforce	It is recommended that the Taskforce reviews the Catalogue of Crop Varieties Released & Registered in Ghana, select the varieties that have proven to have high yield potentials and use the seed data compiled by GSID for these high yielding varieties to determine the figure for this indicator.

Indicator 11. Smallholder rice farmers' accessibility to financial services

Thematic area	Empowerment
Level of result	Output
Responsible institutions	Department of Agriculture of the Ministry of Food and Agriculture (MoFA)
Indicator Definition	Percentage (%) of smallholder farmers having access to financial services (in rice producing areas)
Data collection methodology	<p>The figure for this indicator is established through collection from the districts departments of agriculture. The 36 district departments of agriculture have records on the characteristics of rice producing groups (on whether they have access to financial services or technical services). The consultant collected primary data from the record books of 36 district departments of agriculture in the key rice producing regions.</p> <p>The structured questionnaire to be used is presented in Appendix 4. This was reviewed and approved by CARD/NRDS Taskforce, and could be used for subsequent data collections. Focus group interviews to be held with the Regional/District Directors of the Department of Agriculture and their M&E Officers, to have a better understanding of the rice production issues in their operational areas. The questionnaires are then distributed to regional/district directorates of agriculture to complete. It takes an average of one week for the</p>

	completed questionnaires to be returned. The data was therefore taken from the record books of districts departments of agriculture.
Data analysis/Formula	Total number of smallholder farmers who received credits divided by the total number of all the smallholder farmers in farmers' groups and or associations in rice producing areas times 100 percent
Disaggregation needed	None
Source of Data	Regional/District Directorates of Agriculture database
Frequency	Annually
Recommendation to the NRDS Taskforce	It is recommended that the Taskforce collects primary data to compute this indicator by contacting the Directors and or Management Information System (MIS) Officers of the Department of Agriculture of the Ministry of Food and Agriculture (MoFA) across all the rice producing districts in the country. The data is available in their record books and can easily be accessed.

Indicator 12. Smallholder farmers' accessibility to technical training or services

Thematic Area	Empowerment
Level of result	Output
Level of result	
Responsible institutions	Departments of Agriculture of the Ministry of Food and Agriculture (MoFA).
Indicator Definition	Percentage (%) of smallholder in pre-selected farmers' groups/associations regularly accessing necessary technical training and services (in rice producing areas)
Data collection methodology	<p>The figure for this indicator is established through collection from the districts departments of agriculture. The 36 district departments of agriculture have records on the characteristics of rice producing groups (on whether they have access to financial services or technical services). The consultant collected primary data from the record books of 36 district departments of agriculture in the key rice producing regions.</p> <p>The structured questionnaire to be used is presented in Appendix 4 This was reviewed and approved by CARD/NRDS Taskforce, and could be used for subsequent data collections. Focus group interviews to be held with the Regional/District Directors of the Department of Agriculture and their M&E Officers, to have a better understanding of the rice production issues in their operational areas. The questionnaires are then distributed to regional/district directorates of agriculture to complete. It takes an average of one week for the completed questionnaires to be returned. The data was therefore taken from the record books of districts departments of agriculture.</p>
Data analysis/Formula	Total number of smallholder farmers who are accessing technical training and extension services divided by the total number of all the

	smallholder farmers in farmers' groups and or associations in rice producing areas times 100 percent
Disaggregation needed	None
Source of Data	Regional/District Directorates of Agriculture database
Frequency	Annually
Recommendation to the NRDS Taskforce	It is recommended that the Taskforce collects primary data to compute this indicator by contacting the Directors and or Management Information System (MIS) Officers of the Department of Agriculture of the Ministry of Food and Agriculture (MoFA) across all the rice producing districts in the country. The data is available in their record books and can easily be accessed.

Indicator 13: Retail prices per Kg for representative rice brands/varieties for local and imported rice

Thematic area	Competitiveness
Level of result	Output
Responsible institutions	Statistics, Research, and Information Directorate (SRID) of Ghana's Ministry of Food and Agriculture (MoFA).
Indicator Definition	Average retail prices of both representative local (white rice) and imported rice brands
Data collection methodology	<p>Data for this indicator is obtained from the Statistics, Research, and Information Directorate (SRID) of Ghana's Ministry of Food and Agriculture (MoFA). SRID receives and collates market price information from well-trained enumerators stationed at key markets across the country on monthly basis. Through the Director of SRID at MoFA Head Office in Accra, data on monthly retail prices for both local (white rice) and imported rice can be received.</p> <p>It is important to note that ESOKO also does a countrywide analysis of food prices in Ghana. However, this analysis of food prices in Ghana is focused on wholesale prices, whilst SRID collects and reports on both whole sale and retail price data.</p>
Data analysis/Formula	Average retail price from January to December is computed by taking the sum of all the prices for either local or imported rice, and divide by the number of months (12). Computed in Ghana Cedis (GHS) per Kg and converted into dollars (\$) per Kg. Regarding the Forex conversion, it is recommended that the Bank of Ghana's (BoG) Historical Interbank Forex database should be adopted for the appropriate exchange rate to be used for the conversion of the Ghana cedis (GHS) denominated prices to their \$ USD equivalent. The BoG database is available at: https://www.bog.gov.gh/treasury-and-the-markets/historical-interbank-fx-rates/ .
Disaggregation needed	<p>Disaggregated by rice source (local and foreign/imported):</p> <ul style="list-style-type: none"> • Local rice (average retail price-Jan-Dec. in Ghana cedis and in dollars) • Imported rice (average retail price-Jan-Dec in Ghana cedis and in dollars)
Source of Data	SRID database
Frequency	Annually (data collected monthly but yearly data required)
Recommendation to the NRDS Taskforce	Based on the credibility of SRID and the nature of data they collect, it is recommended that the Taskforce use pricing figures from SRID to compute this indicator.

Ghana-specific Indicators

Indicator 14: Area under Certified Seed production

Thematic area	Seed System
Level of result	Output
Responsible institutions	Ghana Seed Inspection Division (GSID) of PPRSD, Ministry of Food & Agriculture, Accra.
Indicator Definition	Total area of certified seeds cultivated measured in hectares
Data collection methodology	<p>The figure for this indicator is collated annually by Ghana Seed Inspection Division (GSID) of PPRSD, Ministry of Food & Agriculture, Accra. This can be retrieved through the Head of GSID. The figure represents area in hectares under production for locally produced certified rice seed.</p> <p>GSID, through its district and regional offices collect and collate data on quantity of certified seeds produced, including the area under certified seed production, from accredited seed producers across all the rice producing ecologies annually. The GSID district level staff often measure and record area under seed production by the seed producers. In some cases, they rely on verified data submitted by the seed producers on area cultivated. GSID has a good reputation and resources to collect and collate good data on seed produced locally and the area from which it was produced.</p>
Data analysis/Formula	Sum of all the areas under certified seed production collated from all the regions/districts. Data collected and/or collated in acres is converted to hectares before summation.
Disaggregation needed	None
Source of Data	GSID National Database
Frequency	Annually
Recommendation to the NRDS Taskforce	Because the GSID staff collects data directly from the source and no seed can be considered to be certified in Ghana without production supervision and approval by GSID, it is recommended to adopt the GSID's figures for the computation of this indicator.

Indicator 15: Percentage area of land at irrigation site allocated for rice seed production

Thematic area	Seed System
Level of result	Output
Responsible institutions	Ghana Irrigation Development Authority (GIDA) and NRDS-Taskforce for Private Irrigators
Indicator Definition	Irrigated land area under seed production as a proportion of total irrigated land area
Data collection methodology	<p>The figure for this indicator is estimated from data on rice seed produced under irrigation received from GIDA and about 10 private companies cultivating rice under their own purposely constructed irrigation schemes. GIDA collect data on area under rice production, including the area allocated for rice seed production, from the rice producers/association across the various irrigation schemes. The companies also keep their own records regarding the area (Ha) under irrigation for rice grain and seed production. They often measure and record the land sizes allocated to each farmer or group of farmers for paddy rice and/or rice seed production. This is then collated and used for the computation of this indicator.</p> <p>This data is therefore available and can be obtained from the Head Office of GIDA in Accra and the designated officers at the various private schemes (see list and contact numbers attached in appendix).</p>
Data analysis/Formula	<p>The figure for this indicator is generated by adding the data obtained from GIDA to the data received from the Private Schemes.</p> <p>Since the value for Indicator 5 (Area under irrigation) is already known, the baseline figure for indicator 14 (Percentage area of land at irrigation site allocated for rice seed production) is computed as follows:</p> <p>Step 1: Compute total area (hectares) dedicated to seed production = Area (Ha) dedicated to seed production under public schemes + area (Ha) dedicated to seed production under private schemes.</p> <p>Step 2: Percentage area of land at irrigation site allocated for rice seed production =</p> $\frac{\text{Total Area for seed Under irrigation}}{\text{Value for Indicaor 5}} * 100\%$
Disaggregation needed	None
Source of Data	GIDA/Private Companies Database

Frequency	Annually
Recommendation to the NRDS Taskforce	<p>It is recommended that the Taskforce obtain data from both GIDA and the private companies with irrigation schemes under rice cultivation for the computation of this indicator.</p> <p>In case the Taskforce is able to obtain data from the informal schemes on area under rice and/or seed production, as recommended under indicator 5, then this should be included in the computation.</p>

Indicator 16: Number of locally produced rice brands introduced by the regulatory authorities

Thematic area	Post Harvest and Marketing
Level of result	Output
Responsible institutions	Research and Nutrition Unit of FDA/NRDS Taskforce
Indicator Definition	Count of locally produced rice brands introduced by the regulatory authorities
Data collection methodology	<p>The Ghana Food and Drugs Authority (FDA -Act, Act 851, 2012) is responsible for the inspection and certification of food products and prescription drugs. The FDA also collaborates with some of the country's institutions including: DCS-MoFA, the Food Research institute, Pharmacy Council of Ghana, Ghana Standards Authority, Environmental Protection Agency, Ghana Revenue Authority, Centre for Plant Medicine Research, amongst others. The Mandate of the Food Evaluation and Registration Department of the FDA is defined by the following Sections of part 7 of the Public Health Act, 2012, Act 851.</p> <p>The FDA has a register of all locally produced rice brands that it has licensed for the Ghanaian market. Data for this indicator was therefore obtained from this register through a national FDA Officer. This register is updated regularly and can be obtained from the Research & Nutrition Unit of FDA.</p>
Data analysis/Formula	Summation of all locally produced rice brands introduced by the regulatory authority.
Disaggregation needed	None
Source of Data	FDA, Ghana
Frequency	Annually
Recommendation to the NRDS Taskforce	It is recommended that the Taskforce to adopt the FDA's figure for this Indicator. The figure is compiled by the FDA and no further computation would be required.

2.4 Challenges, Lessons Learnt and Recommendations

2.4.1 Challenges Experienced

The Consultants experienced a number of challenges during the baseline collection. These included:

- During the survey of key rice retail shops located in markets across the rice producing regions, some shop managers were reluctant to give out information on quantities of rice sold out or bought. Some of retailers operate only on certain market days and so it was quite challenging meeting such retailers within the field data collection period.
- There were delays in giving out secondary data by some of the relevant agencies
- There is a lot of suspicion among some stakeholders that locally milled rice is being bagged in foreign labeled bags and sold as imported rice. This could lead to an underestimation of the quantity of local rice in the retail shops across the country.
- With regards to area under irrigation, the consultants could only capture data from the public formal and private schemes. It was difficult to capture data on the informal schemes, hence it could not be included in the computation of the indicator baseline figure.
- In the case of the Level of Mechanization in Production (number of machines), information from private importers of equipment was very difficult to access, and hence could not be included in the computation of the baseline for this indicator.

2.4.2. Lessons Learnt

The above challenges notwithstanding, the execution of the survey was successful with a number of lessons learnt.

- Having a wide social network and contacts across the various agencies and departments is very helpful and facilitates access to relevant data and information.
- Deploying enumerators who have good rapport and are familiar with the shop owners in the markets could be useful in accessing the needed information deemed confidential.

2.4.3 Recommendations

The following recommendations will be useful to the NRDS Taskforce in the subsequent surveys.

- It is recommended that SRID should lead the NRDS Taskforce in conducting regular market surveys through its well-established market price data collection systems. In addition, the survey team members should arrange with relevant persons ahead of time and arrange with a lead person on the appropriate time and day to go for a market survey.
- The Taskforce could also explore other ways of obtaining data from private importers of equipment. This could include signing an agreement with the Customs Excise and Preventive Service (CEPS) responsible for monitoring, regulation and inspection of imports into the country, to provide them annual data on private importations of rice production machinery.
- In order to incorporate the suggestion of members of Ghana of NRDS Task Force, it is recommended that for Indicator 5, both Area (Ha) under public irrigation schemes and Area (Ha) under private, schemes planted with paddy, shall be monitored and reported; and

double cropping (growing a second rice crop after harvesting a first crop in the same growing season), which has been consistently estimated at 10% of area under irrigation should be accounted for.

- With respect to Indicator 11: Smallholder farmers' accessibility to financial services (%) and Indicator 12: Smallholder farmers' accessibility to technical training and extension services (%), the district departments of agriculture in the key rice growing regions have records on the characteristics of the membership of rice producing groups (whether the members have access to financial services or technical services). There would be the need to regularly collect such data from the record books of 36 district departments of agriculture to aid M&E, during implementation.

2.5 Measuring Progress over the Life of the NRDS II

2.5.1 Baseline Survey

The baseline establishes a specific value or values to serve as comparison point for future data for performance monitoring and evaluation, and hence is the first piece of data collected in the targeted geographic regions for all indicators that require a baseline in year 1 (2019 in most of the cases of NRDS II), before any significant implementation occurs.

The baseline data collection therefore seeks to:

- Establish the starting point for indicators
- Reveal the nature, magnitude and severity of a situation
- Ascertain appropriate amounts of intervention that will be required
- determine targets

The baseline figures for all the 15 indicators (12 CARD and 3 Ghana-specific indicators) have therefore been set, and the data collection methods that were used for collecting the data on the output, outcome, and impact indicators have been provided in this manual. These baseline figures should be used as the basis for reviewing and setting realistic targets for each indicator.

2.5.2 Annual Performance Assessment

Using this manual as a technical guide, the NRSD II TF is expected to conduct data collection on each of the 15 indicators using the appropriate data collection methods, beginning from 2024. An Indicator Performance Tracking Table could be used to monitor or track the performance of each indicator over the life of the NRDS II.

Indicator Performance Tracking Table

Indicator Name	Baseline (Year)	Target	Achievement	% Achievement

2.5.3 Endline Assessment/Evaluation

Evaluation is the systematic collection and analysis of information about the characteristics and outcomes of programs and projects as a basis for judgments to improve effectiveness, and/or inform decisions about current and future programming. Evaluations ensure accountability to stakeholders by measuring project effectiveness, relevance and efficiency, disclosing those findings to stakeholders, and using evaluation findings to inform resource allocation and other decisions.

Two types of evaluations are required under NRDS II; impact and performance evaluations. Impact evaluation uses target and control groups to compare situations and changes between those groups receiving interventions and those that are not, while performance evaluation often incorporates before-after comparison. Given the nature and design of NRDS II, performance evaluations will be conducted at the end of 2030 through external evaluation contractors, using a mix of qualitative and quantitative methods applied in a systematic and structured way.

The final evaluation will therefore focus on assessing if the strategy met the stated goals and objectives; the effectiveness of implementation; lessons learned and propose focus area for the next strategy. The endline evaluation will also contribute to the baseline setting for the next rice development strategy.

2.6 Data Quality Control and Assessment

The NRDS-II recognizes the significance of accurate, adequate, reliable and timely data in decision making and planning. Hence, for both secondary and primary data collection, data quality assessment (DQA) should be adopted to evaluate the data to determine whether they meet the quality required for NRDS II M&E. The data sources should therefore be assessed on how best they meet the standard data quality criteria of validity, consistence, timeliness, completeness, accuracy and relevance for each indicator.

Figure 1: Data Quality

Criteria	Description
Validity	Data should clearly and adequately represent the intended result.
Reliability	The degree of reliability should reflect stable and consistent collection processes and analysis methods over time.
Timeliness	Data should be available at a useful frequency, be current and timely enough to influence management decision-making. Reporting is on time as per schedule.
Integrity	This dimension protects data from deliberate bias or manipulation for political or personal reasons; safeguards minimize the risk of transcription error.
Precision	Data have sufficient details (e.g., disaggregated by age, sex) to permit decision-making.
Completeness	This involves checking the extent to how required data are collected (whether there are gaps or missing data) across locations and over time.
Consistence	This involves checking whether similar methodology of data collection is used across different locations and over time.

As indicated under Section 1.3, the NRDS II TF need to *adopt a triangulation approach* by reviewing and assessing multiple data sources used for secondary data are either highly or moderately satisfactory.

3.0 COMMUNICATION, SHARING AND UTILIZATION OF M&E RESULTS.

This section outlines the deliberate communications approach that needs to be adopted for the NRDS II. Achieving NRDS II's goal and targets will require multiple-level commitments: Government of Ghana and its agencies, partners and stakeholders, opinion leaders and the general public. The strategy therefore requires a comprehensive communications strategy to stimulate stakeholder awareness and for putting the necessary findings, interpretations and recommendations of M&E, in the hands of the key actors in the rice sector of Ghana.

The communication objectives of the NRDS II are in two areas:

1. Internal communication
2. Strategic external communication

The internal communication objective is to facilitate NRDS II team members' access to sufficient, consistent and timely information regarding plans and activities so that they are well informed and able to work efficiently and effectively. While the strategic external communication objective is to promote understanding, buy-in and support for the NRDS II by sharing information with relevant audiences at various stages of implementation.

Key aspects of this communication and sharing plan, include the following:

- a) Setting up the core team that will be responsible for implementing the communication and sharing of M&E findings.

- b) Identification and description of the key stakeholders/ target audience who will be prioritized for the communication and sharing of M&E findings.
- c) Specification of findings of M&E that will be communicated/shared with each category of stakeholders.
- d) Selection of correct media channels and materials for communicating with different categories of stakeholders.
- e) Budget for communication and knowledge sharing.

3.1 Core Team for Communicating and Sharing M&E Findings

The NRDS II TF will need to set up a team dedicated for packaging M&E findings suitable for different stakeholders.

3.2 Key Stakeholders or target audience of NRDS-II to Receive Specific Findings and Recommendations of M&E.

Target audiences are the individuals and groups NRDS II must reach to inform and/or influence to achieve its goals. It includes all the people who use, or could use, participate, attend, and/or benefit from findings related to this strategic document. The audiences are at the center of this strategy. Each audience has different communication needs and therefore requires different strategies, communication approaches and channels.

This guide proposes tracking three key audiences, whose knowledge and awareness about the findings and recommendations are critical to the success of NRDS II. The following audience groups are central for the successful implementation of communication activities for the NRDS II:

Primary Audience

NRDS II's primary audience includes key stakeholders and decision makers who have the power to affect the outcome of the strategy's objectives directly. The following primary audiences are key to the effective implementation of NRDS II:

- a. JICA Ghana Office
- b. CARD Secretariat overseeing the implementation of M&E activities in Ghana
- c. NRDS Task Force Members in Ghana

Secondary Audience

NRDS II also engages multiple audiences that have a great deal of influence over the strategy's primary audiences. They include, but not limited to NRDS stakeholders listed in annex 9.1 in Ghana's NRDS II.

Table 2: NRDS Stakeholders and Responsibilities

Stakeholders/Institutions	Description	Responsibility
1. Government	MoFA, MESTI, MoTI, MRH/DFR, MLGDRD, MoF/GIRSAL, MLNR, MoJAG, etc.	Coordination, policy direction, financing and technology testing and dissemination, M&E
2. NGO's	Identifiable local and international (e.g., Amasachina, CRS, TechnoServe)	Extension, group formation and development, micro-financing, marketing, M&E
3. Public Institutions	CSIR /Universities	Technology development, testing and dissemination, M&E
4. Financial Institutions	Banks, Micro-finance Institutions.	Credit support (disbursement and recovery), M&E
5. Development Partners	Multilaterals/Bilateral	Technical assistance, funding, capacity building, M&E
6. Private Sector	<ul style="list-style-type: none"> •Investors, service providers, Input dealers, FBOs, etc. •Local and foreign investors, to attract investment for expansion of modern irrigated rice farming. • Private Seed companies to attract investment for expansion of production, distribution and marketing of Certified Seeds • Medium scale farmers, to produce and distribute quality seeds. 	Value chain development, investment/financing, consultant services
7. International Institutions	Research Sub-Regional Organization Networks/Agencies	Technical back stopping, research information dissemination and technology sharing
8. On-going Rice Development Programmes	MoFA projects, Research projects, etc.	Coherence and linkages for harmonization

Tertiary Audience

Participants whose actions directly or indirectly help or hinder the activities and behaviors of NRDS's primary and secondary audiences. The actions of tertiary audience reflect the broader

social, cultural and policy factors that create an enabling environment to sustain desired project's activities (IMPACS, 2005)¹.

They include:

- Metropolitan, Municipal and District Assemblies (MMDAs)
- Members of Parliament (MPs)
- High-level government officials

3.3 Selecting the Correct Media Channels for Communicating Findings of M&E

Two sets of channels that can be used for communicating and sharing key findings and recommendations from M&E have been proposed. These are:

- (i) **Media tools:** These are equipment, instruments or any piece of technology that can be used in communication. These include computers, telephones, projectors, television, radio, printed media (e.g., books, infographics, journal articles, policy briefs, leaflets, posters, reports, letters, newspapers, etc.).
- (ii) **Activities Tools:** Activities refer to any functions or actions that are performed by an individual or a group of people to communicate. These include demonstrations plots, field days and tours, workshops, conferences, meetings, training events, extension visits, and drama. Not all the available media of communication work for every stakeholder and/or message to be communicated.

The different stakeholders or target audience require different communication / media channel to communicate key M&E findings. It is therefore appropriate that the channel used is consistent with the communication message and the target audience. The communication team will be required to match each media chosen with the audience, the message, and the purpose of communication.

3.4 Budget for communication and sharing of M&E Findings

Conducting communication and sharing of findings require proper resources. Resources will need to be allocated for all communication activities including the following:

- i. Capacity building and training
- ii. Development and production of print communication materials
- iii. Development and production of electronic/broadcast materials for radio and television including documentaries
- iv. Media field visits to project sites
- v. Press coverage
- vi. Radio discussions.

It is therefore recommended that at least 10% of the budget should be allocated for communication and sharing of findings of M&E.

¹ Institute for Media, Policy and Civil Society (IMPACS, 2005). *Plan the Work: Strategic Communications Planning for Not-for-Profit Organizations*. Centre for Community Organizations. Accessed November 22, 2016, at <http://www.orgwise.ca/sites/osi.ocasi.org.stage/files/resources/Strategic%20Communications%20Planning%20-%20COC.pdf>

**APPENDICES- CARD- M&E BASELINE SURVEY- PRIMARY DATA COLLECTION
INSTRUMENTS**

Appendix1: Level of Access to Technical/ Financial Services by smallholder farmers in key rice growing districts

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
Volta Region					
Adaklu	Elete Rice Farmers Association	SOFA	17	17	0
Afadzato South	Setorsusu Women Rice Farmers	Ve-Golokuati	20	20	0
	GRIB	Ve-Golokuati	51	51	0
	Nenyo Rice Farmers	Ve-Wudome	18	18	0
	Young Milliennium	Ve-Koloenu	24	24	3
	Dzidefo Farming Group	Ando Kofe	26	26	0
	Peaceful Farmers Association	Tafi Atome	37	37	37
	Great Achievers	Ve-Gbodome	20	20	0
	Nuakpewornu Lorlornyo Women Group	Liati Soba	38	38	0
	Young farmers and Marketing league	Ve-Dafor	50	50	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Mawuko cooperative	Nyive	32	32	0
	Norvisi Farmers Group	Ve-Golokuati	31	31	0
	District Total		364	364	40
Ho Municipal	Elikem Rice Farmers Association	Akrofu Xewiwofe	17	15	0
	Agbeyeye Rice Farmers Association	Akrofu Xewiwofe	24	24	0
	Sokode United Farmers Association	Sokode Bagble	20	20	0
	Norvisi Rice farmers Association	Akrofu Agorve	23	23	0
	Miawoe Rice Farmers Association	Akrofu Xewiwofe	22	22	0
	Agortome Rice Farmers Group	Agortome	15	15	0
	Unity Rice Farmers Group	Atiyinu	18	18	0
	Achiase Tice Farmers Group	Hodzo Achiase	21	21	0
	Shia Norvisi Rice Farmers	Shia	20	20	0
	Novinyo Farmers	Matse	20	20	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Morkpokpor Farmers Group	Adukorpe	30	30	0
	Akoefe Akpenamawu Farmers Group	Akoefe	22	22	0
	District Total		252	250	0
Akatsi North	Lorlorlonyo Rice Farmers	Ave Afiadenyigba	38	38	0
	Lorlorlonyo Rice Farmers Ass.	Agormor	63	63	0
	Enyonyoge Rice Farmers	Ave Dakpa	38	38	0
	Agblenyo Processing Group	Ave Afiadenyigba	27	27	0
	Dornenyo Farmers Group	Zemu	52	52	0
	Katamanikofe Farmers Group	Agormor	36	36	0
	Mawuta Farmers Group	Kpohe-Kpete	42	42	0
	District Total		296	296	0
South Dayi	Hope For The Future	Wegbe	32	32	0
	Adom Rice Farmers	Todome	36	36	0
	Norvisi Rice Farmers	Todome	27	27	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Jemeric Farmers Association	Peki Awudome	45	45	0
	District Total		140	140	0
Ketu North Municipal	Kekeli Farmers Association	Dekpor Yia	38	38	38
	Awalavi Women Rice Processing Assoc.	Avalavi	40	40	40
	Adzortsi / Dekpor Rice Growers Assoc.	Adzortsi	67	41	41
	Dekaworwor Rice Farmers Assoc.	Gadorkope-Tadzewu	42	42	42
	Klenormadi Agbeyeye Rice Farmers Association	Klenormadi	41	41	41
	Capital Exortic Rice Farmers	Tsiyinu	456	456	456
	Nunenyo Rice Farmers And Inter Professional Bodies	Weta	180	180	180
	Amenuveve Farmers Group	Dekpor/Klenormadi	40	40	40
	Volta Cereals Limited	Penyi	19	19	19

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Klenormadi Agbeyeye Rice Farmers Association	Klenormadi	41	41	41
	Wealth In Soil Farmers And Traders Association	Tsiyinu	32	32	32
	District Total		996	970	970
Central Tongu	Mawoefa Farmers Association	Wenu	46	46	6
	Ajasika Rice Farmers Association	Ajasika	37	37	0
	Kpokope Rice Farmers Group	Kpokope	53	53	0
	Adakpo Rice Farmers	Adakpo	18	13	0
	Dzabukpo Rice Farmers Group	Dzabukpo	13	9	0
	Ahlihakpodzi Rice Farmers Group	Ahlihakpodzi	21	18	0
	District Total		188	176	6
Kpando Municipal	Akpini Farmers Association	Tsakpe	25	25	0
	Wotsorme Rice Farmers	Gabi	30	30	0
	Agblenyo Rice Farmers	Konda	27	27	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Winners Rice Farmers	Gbefi Hoeme	20	20	0
	Unity Farmers	Tornu	35	35	0
	Amenuveve Dekaworwor	Gadza	15	15	0
	Mawuli Coop	Gbefi Hoeme	15	15	0
	District Total			167	167
Ketu South	Aka Rice Farmers Association	Segbe	26	26	12
North Dayi	Vakpo Dunyo Farmers Group (Vadufa)	Vakpo Dunyo	60	60	0
	Anyigbamebleame Farmers Group	Aveme	20	20	0
	Wusuta Farmers Group	Wusuta	36	36	0
	Aveti Farmers Group	Anfoega Aveti	20	20	0
	Denui Farmers Group	Anfoega Denui	16	16	0
	Awate Farmers Group	Awate	32	32	0
	District Total			184	184
South Tongu	Integrated Rice Farmers Association	Lakpo	30	30	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Aluco Rice Farmers Association	Agbagorme	50	50	0
	Woenenyo Rice Farmers Association	Agbakope	47	47	0
	Lorlorlonyo Rice Farmers Association	Tordzinu	40	40	0
	Evergreen Rice Farmers Association	Hikpo/Tsavanya	35	35	0
	Fysso Ghana	Besakope	15	15	2
	Dorkplame Rice Farmers Association	Dorkplame	45	45	0
	District Total		262	262	2
Upper East Region					
Builsa South	Builsa South Commercial Farmers Association (BUSCOFA)	Wiesi, Gbedembilisi, Tuedema, Kartegre and Kunkuak valleys	96	96	96
	Builsa South Farmers Association (BSFA)	Wiesi, Gbedembilisi, Tuedema, Yerinsa, Doninga, Kartegre and Kunkuak valleys	147	147	147
	Akalichaab	Wiesi Valleys	30	30	30

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Agositey	Gbedembilisi Valleys	27	27	27
	Nunuing	Gbedembilisi Valleys	30	30	30
	Ayikchaab	Gbedembilisi Valleys	30	30	30
	Ayaachaab	Gbedembilisi Valleys	30	30	30
	Asulichaab	Wiesi Valleys	30	30	30
	Awunitom Farmers	Doninga Valleys	30	30	30
	Amaachaab	Wiesi Valleys	30	30	30
	Achanga	Kanjarga Valleys	30	30	30
	Nayenjaparum	Fumbisi valleys	30	30	30
	Maaka	Fumbisi valleys	30	30	30
	Asiatechaab	Kanjarga valleys	30	30	30
	Anoayeng ale Ayiakjangsa	Wiesi Valleys	30	30	30
	Awonlemaami	Kangarga valleys	30	30	30
	Asagchaab	Kasiesa Valleys	30	30	30
	Wenkari Kpaariba	Kasiesa Valleys	30	30	30
	Yimona Ayigchaab group	Kasiesa Valleys	37	37	37
	Anyenboka	Kasiesa Valleys	30	30	30

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Agisikanalim	Fumbisi valleys	30	30	30
	Akanlugchaab	Gbedema Valleys	30	30	30
	Chompo Naakdeediha	Fumbisi valleys	40	40	40
	Ayikchaab	Doninga Valleys	28	28	28
	Akalichaab	Wiesi Valleys	30	30	30
	Asiakatichaab	Fumbisi valleys	30	30	30
	Batuisa Ayaachaaba Co- op. Farmers Society	Fumbisi valleys	63	63	63
	AyieKchaab	Bachonsa Valleys	36	36	36
	Awontigsitety	Pintengsa Valleys	40	40	40
	Ayikchaab	Naadema Valleys	42	42	42
	Alumsikawen	Chansa Valleys	25	25	25
	Ayiakjangsa	Buterisa Valleys	54	54	54
	Fumbisi Luisa FBO	Fumbisi valleys	42	42	42
	Ayaakamaaka	Fumbisi valleys	32	32	32
	Awenzantega	Fumbisi valleys	30	30	30
	Ayaanalim	Zamsa Valleys	26	26	26
	Nig Yeg	Gbedema Valleys	33	33	33

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Ayaakanalim	Gbedema Valleys	33	33	33
	Asuiyong	Kasiesa Valleys	28	28	28
	Amaachaab	Kanjarga Valleys	30	30	30
	Atagerim	Chansa Valleys	30	30	30
	Ayaachaab	Uwasi Valleys	38	38	38
	Awenatong	Doninga Valleys	27	27	27
	Anoayeng	Zogsa Valleys	27	27	27
	Ayineika	Naadema Valleys	35	35	35
	Amaachab	Fumbisi Valleys	30	30	30
	Awunimari	Gbedema Valleys	28	28	28
	Ayaachaab	Kanjarga Valleys	30	30	30
	Nawen-namare	Fumbisi valleys	30	30	30
	Ababobere	Fumbisi valleys	23	23	23
	Tinyetinkamagsa	Kanjarga Valleys	30	30	30
	Dabomsa Farmers	Gbedema Valleys	43	43	43
	Amaachaab	Fumbisi valleys	30	30	30
	Awunitom Farmers	Doninga Valleys	26	26	26
	Anuoyeng	Kanjarga Valleys	30	30	30

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Ayaachaab	Kanjarga Valleys	34	34	34
	Ayikchaab	Kanjarga Valleys	28	28	28
	Ayaanalim	Kanjarga Valleys	25	25	25
	Ayaachab	Uwasi Valleys	31	31	31
	Noayenaleyiakjangsa	Uwasi Valleys	28	28	28
	Anuoyeng	Uwasi Valleys	30	30	30
	Singsangsa Co-operative	Fumbisi valleys	43	43	43
	Vigsangsa Farmers	Gbedema Valleys	24	24	24
	Amaachaab	Kanjarga Valleys	30	30	30
	Chosichaab	Kanjarga Valleys	30	30	30
	Zula gan nalim	Kanjarga Valleys	25	25	25
	Anueyeng	Kanjarga Valleys	30	30	30
	Angendogsa yeri	Kanjarga Valleys	18	18	18
	Samsa biisa	Kanjarga Valleys	46	46	46
	Achanga	Kanjarga Valleys	34	34	34
	Ayiichsab	Kanjarga Valleys	30	30	30
	Amaachaab	Kanjarga Valleys	30	30	30
	Awolemai	Kanjarga Valleys	32	32	32

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Anyewiamena	Kanjarga Valleys	35	35	35
	Azulichaab	Kanjarga Valleys	25	25	25
	Amaabore	Kanjarga Valleys	23	23	23
	Anueyeng	Kanjarga Valleys	30	30	30
	Avunchaab	Kanjarga Valleys	43	43	43
	Anoayeng Group	Kanjarga Valleys	30	30	30
	Zula Gaam Nalim	Naadema Valleys	26	26	26
	Anoayeng Group	Kanjarga Valleys	30	30	30
	Nayenjaparum	Fumbisi valleys	34	34	34
	Ayaakanalum	Uwasi Valleys	28	28	28
	Ayichaab	Kanjarga Valleys	25	25	25
	Achumlila	Fumbisi valleys	31	31	31
	Ayichaab	Kanjarga Valleys	28	28	28
	Anoayeng	Zamsa Valleys	30	30	30
	Anuoayeng Farmers' Cooperative	Kanjarga Valleys	43	43	43
	Ayaachaab Farmers	Kanjarga Valleys	24	24	24
	Ayikachaab Farmers	Kanjarga Valleys	30	30	30

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Ayaanalim Farmers	Kanjarga Valleys	30	30	30
	Yadema Ayaachaab Farmers	Uwasi Valleys	25	25	25
	Noayenaleyiakjangsa Farmers	Uwasi Valleys	30	30	30
	Anuoyeng Farmers	Uwasi Valleys	30	30	30
	Abiisawomchaaba Co- op. Farmers Society	Uwasi Valleys	54	54	54
	Ayaachaab Co-op. Farmers	Uwasi Valleys	75	75	75
	Wiesi Co-op. Farmers	Wiesi Valleys	38	38	38
	Atieyeri Co-op. Farmers Society	Wiesi Valleys	35	35	35
	Amaakachaab	Uwasi Valleys	10	10	10
	Amabiri Group	Naadema Valleys	38	38	38
	Amaboka	Kanjarga Valleys	31	31	31
	Anamfede group	Doninga Valleys	27	27	27
	District Total			3,432	3,432
1A (Zone A)	ICOUR	393	393	200	
1B (Zone C)	ICOUR	83	83	43	

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
Kassena-Nankana	1C (D and E)	ICOUR	86	86	40
	2 (Zone F)	ICOUR	131	131	70
	3 (H and I)	ICOUR	235	235	100
	4 (Zone J)	ICOUR	262	262	150
	5 (Zone K)	ICOUR	191	191	91
	6 (L, M, N)	ICOUR	239	239	139
	7 (Zone Q)	ICOUR	263	263	260
	8 (S and U)	ICOUR	128	128	150
	9 (Zone V)	ICOUR	187	187	160
	12 (GR1 -GR7)	ICOUR	122	122	66
	13 (GR8-GR11)	ICOUR	59	59	40
	14 (Zone P)	ICOUR	291	291	101
	15 (R, T, W)	ICOUR	163	163	115
	District Total			2,833	2,833
Northern Region					
Nanton	Suglonboribuni	Dingoni	28	28	6
	Maltiti	Jana	26	26	8
	Wumpini	Batanyili	30	30	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Bobgu Nye yaa	Fazihini	26	26	21
	Sugulomalinyori	Guntingli	25	25	0
	Tiyumtaba	Guntingli	24	24	0
	Salpawuni	Jegun	28	28	6
	Suglo mboribuni	Kpachilo	30	30	0
	Kpanmanga	Kpano	24	24	0
	Nyebi Yoo Na	Kpano	31	31	0
	Suhulo Nbori Buni	Looni	21	21	0
	Gubkatimali	Moya	31	31	0
	Bobgu Nyayaa women	Nanton-Kurugu	25	25	0
	Kpanman-kawunsonda	Nyamandu	16	16	0
	Tiyumyataba	Nyeko	23	23	0
	Suglo Nboribuni	Sanvili	30	30	0
	Wunizooya	Sindigu	26	26	0
	Behisun	Tampion	26	26	0
	Zaapayim	Tampion	32	32	0
	Langubivela	Tigu	32	32	0
	Tunteeya	Tigu	30	30	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	<i>Mangsongsim</i>	Yapalsi	30	30	0
	<i>Albarkasaakuya</i>	Zali	31	31	0
	Kpanmankawunsonda	Zieng	30	30	0
	Tiyumtaba	Zoggu	31	31	0
	Levantis marketing and food cooperative	Sanvili	76	76	0
	Suhuyini	Zoonaayili	36	36	0
	District Total			798	798
Savelugu	Tiyumtaba Farmers	Duko	20	20	0
	Maltiti Farmers Association	Kanshegu	26	26	0
	Zisung Nitee Nabli Farmers	Kanshegu	24	24	0
	Kambeng Farmers Association	Diare	22	22	0
	Bobgun Nyeyee Farmers Association	Nakpanzoo	37	37	0
	Zaapayim Rice Farmers Association	Chai Yapalsi	49	49	0
	Bomma Viella Farmers Association	Chai Yapalsi	13	13	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Nyabu Yona Rice Farmers Association	Kpalung	30	30	0
	Wonzoya Rice Farmers Association	Koduzegu	80	80	0
	Pigu Rice Farmers Association	Pigu	25	25	0
	Disiga Rice Farmers Association	Disiga	22	22	0
	Saakpuli Rice Farmers Association	Saakpuli	21	21	0
	Kukobila Rice Farmers	Kukobila	85	85	0
	Tamalgu Rice Farmers Association	Tamalgu	106	106	0
	Tiyumtaba Ataayabase Farmers	Duko	25	25	0
	Laamgba gbubi laamgbi	Duko	54	54	0
	Suglo mal'nyori	Kanshegu	34	34	0
	Maltiti women group	Diare	50	50	0
	District Total		723	723	0
Kumbungu	Kpangmang Kawunisong	Jakpahi-Kukuo	20	20	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Timtooni Farmers Association	Tonjing	25	25	0
	Zaabuni Farmers Association	Dalun	121	121	0
	Din-nani Rice Farmers	Jaajirigu	32	32	0
	Anamzooya Rice Farmers	Gung	30	30	0
	Binsung Yolidaa	Zangballung-Kukuo	20	20	15
	Tizaabuni Farmers Association	Bontanga	116	116	20
	Wuni Ntira Farmers Association	Bontanga	45	45	0
	Yambitigra Farmers Association	Bontanga	60	60	0
	Yumzaa Farmers Association	Gbugli	30	30	0
	Songtaba Farmers Association	Bontanga	60	60	0
	Suglo Kongbo	Bontanga	50	50	0
	Berisung Farmers Association	Kpaliga	50	50	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Ziekunya Farmers Association	Nwagu	36	36	0
	Mandeeya Farmers Association	Bontanga	35	35	0
	Tim-tooni Rice Farmers Group	Kpegu	15	15	0
	District Total		745	745	35
Gushegu	Kpagmag Nookumya	Sampebga	40	40	0
	Suglo Nbori Boni	Kpatili	45	45	0
	Sugbei Rice farmer Ass.	Sugbei	30	30	0
	Damdabol Rice Farmers group	Damdaboli	40	40	0
	Jibga Farmers Group	Gushegu	37	37	0
	Banama Farmers Group	Bulugu	45	45	0
	Tung Farmers Group	Nawuni	40	40	0
	Jagbo Farmers Group	Nakunga	43	43	0
	Nyabiyoona Group	Gbambu	42	42	0
	Tiri yipolo Group	Nayilifong	41	41	0
	Nangbanyini Rice Group	Jung	42	42	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Limo rice farmers association	Limo	43	43	0
	Behasung rice farmers	Bilsinga	42	42	0
	Tiyumtaba Rice farmers	Kpala	40	40	0
	Solombombine rice farmers	Zinindo	41	41	0
	Bialannabra rice farmers	Zinindo	42	42	0
	Zaabuni rice farmers	Digbila	40	40	0
	Bobgu n-nye yaa association	Kutung	42	42	0
	Nayugu rice farmers Association	Nayugu	41	41	0
	Tiyumtaba	Kpatinga	47	47	0
	Di Gang Ataaya	Kpatinga	50	50	0
	Waayili Farmers Group	Waawu	31	31	0
	Yinyamba Farmers Group	Yinyamba	85	85	0
	Nawuhugu Farmers Group	Nawuhugu	60	60	0
	Kpakara farmers Group	Kpakaraga	60	60	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	District Total		1,109	1,109	0
Yendi	Kpamanga ka wuni songda	Zakoli	20	20	0
	Kitingnan Farmers Group	Yinsala	38	38	0
	Asim Ntira 1	Zang	26	26	0
	Asim Ntira 2	Zang	25	25	0
	Wuni Zooya 1	Gukpegu	20	20	0
	Maligulana Bi Vihira	Wakpang	26	26	0
	Wuni Zooya 2	Gukpegu	19	19	0
	Kpanmang Kawuni Songda	Zagbang	15	15	0
	Bela Nnabra	Kunkon No:1	38	38	0
	Puanibi	Kunkon No: 2	28	28	0
	Bobgu nye yaa	Sakpaba	26	26	0
	Wumpini	Zakoli	18	18	0
	Yendi Rice farmers Association	Yendi	41	41	0
		District Total		340	340

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
Tolon	Golinga rice seed producers' association	Golinga	20	20	0
	Gbulahagu rice seed producers' association	Gbulahagu	26	26	0
	Suglo Nboribini rice farmers	Nafarung	31	31	0
	Gubkatimali farmers ass.	Gbulahagu	13	13	0
	Wunitera farmers ass	Kpalsugu	28	28	0
	Tungteeya women group	Tali Botingli	30	30	0
	Soyulo m-bori bini	Aseyili	20	20	0
	Bobgu vella	Tamaligu	20	20	0
	Gubkatimali rice faemer`s group	Dimabi	30	0	0
	Tibomyem rice farmers association	Tingoli	50	0	0
	Bonzali (Rice)	Kpalsugu	25	0	0
	Kpanmang ka wuni song	Kpanyili	44	0	0
	Wuni ntira association	Kpaachiyili	33	0	0
	Suglo N Bori Buni	Jagroyili	20	0	0
	Walma so ziya	Nyankpala	43	0	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Wumpini	Nyankpala	30	0	0
	Suglo konbo	Nyankpala	25	0	0
	Kuli noli dinvela	Naha	35	0	0
	Suglo mbori buni	Nyankpala	25	0	0
	Tungteeya	Galinkpegu	40	0	0
	Walima so zia	kasuliyili	18	0	0
	District Total			606	188
Mion	Kpang Mang Kawun Song	Jaashei	27	27	0
	Kpang Maga Kawuni Songda	Tuya	20	20	0
	Gubkatimali Rice Farmers Group	Kpachaa	27	27	0
	Nlandaknyan	Buli	23	23	0
	Kimoban	Kayan	35	35	0
	Sulognan	Buli	25	25	0
	Kpangmangna	Buli	35	35	0
	Naadonboni	Buli	29	29	0
	Nilimochar	Buli	63	63	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Tiiperkabi	Jakoya no 1	15	15	0
	Kimoban	Kayan	33	33	0
	Kinyouba	Tanado	8	8	0
	Kpangmangna	Kayan	30	30	0
	Tungteiya Rice Farmers' Group	Sanzie	25	25	0
	Tisongtaba Rice Farmers Group	Kpligine	30	30	0
	Bienieti Rice Farmers Group	Sang	25	25	0
	Zosimdi Rice Farmers	Sakpe	25	25	0
	Gubkatimali Rice Farmers Group	Kpachaa	27	27	0
	Wabankai rice farmers group	Kpukpalgu	25	25	0
	Daboagni rice farmers cooperative	Daboagni	109	109	0
	Tikpangan rice farmers group	Warivi	23	23	0
	District Total		659	659	0
Eastern Region					

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
Achiase	Maranatha Rice Farmers Association	Nyankomase	40	0	0
	Emmanuel Rice Farmers Association	Achiase	60	0	0
	District Total		100	0	0
Akyemansa	Vision Rice Farmers Association	Otwereso	25	25	25
	Gye Nyame Rice Farmers Ass.	Besease	25	25	-
	Akyekrom Rice Farmers Ass	Akyekrom	25	25	20
	Kwaboadi Rice Farmers Ass	Kwaboadi	30	30	10
	Gyewani Rice Farmers Association	Gyewani	25	25	-
	Anidaso Rice Farmers Association	Otwereso	25	20	25
	Agriterra Farmers Association	Borteykrom	30	30	-
	Kyirimenken Rice Farmers Association	Kyirimenken	25	25	-

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Adwuma Nkoso Rice Farmers Association	Abenase	25	25	-
	Anidaso Rice Farmers Association	Abenase	27	10	-
	Adom wo wim Rice Farmers Association	Ofoase	19	5	-
	Kofinimo Rice Farmers Association	Kofinimo	25	8	5
	Omanba pa Rice Farmers Association	Nkansah	25	-	5
	Adepa Rice Farmers Association	Ofoase	15	3	-
	Sunkwa Rice Farmers Association	Ayirebi	17	5	7
	Success Rice Farmers Association	Ayirebi	26	10	-
	Joy Rice Farmers Association	Gyewani	15	15	-
	Nyame ye Rice Farmers Association	Adubiase	25	-	-
	Adujan Rice Farmers Association	Adujan	25	5	-

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Yonko do Rice Farmers Association	Mukyia	25	2	-
	Odumase Rice Farmers Association	Odumase	30	5	10
	Mmofranfadwen Rice Farmers Association	Mmofranfadwen	35	10	-
	Atanurum Rice Farmers Association	Atanurum	30	5	-
	Wawase Rice Farmers Association	Wawase	25	-	-
	Twumkrom Rice Farmers Association	Twumkrom	40	5	-
	Ankani Krobo Rice Farmers Association	Ankani Krobo	25	-	-
	Anyinase Rice Farmers Association	Anyinase	25	5	-
	Praho Rice Farmers Association	Praho	25	10	-
	Asabedie Rice Farmers Association	Asabedie	25	5	-
	Chia Rice Farmers Association	Chia	25	5	-

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Ofoasekuma Rice Farmers Association	Ofoasekuma	25	-	-
	District Total		789	343	107
Asene Manso Akroso	Akroso Rice Farmers’ Association	Akroso	10	14	0
	Anto Stephen – Chairman	Appiadem	4	0	0
	Adombinti Maize Farmers’ Association	Asuboa,Nsuofua,Kwablawa	20	20	0
	Akim Manso Rice Farmers’ Group	Akim Manso	38	38	0
	Asene Ghana Rice Farmers Association	Akim Asene	25	25	0
	Odumase Rice Farmers Association	Odumase	30	30	0
	Nyamebekyere Rice Farmers’ Group	Nyamebekyere	20	20	0
	Nyamenti Rice Producers Association	Nyamenti	21	21	0
	Onomabo Rice Farmers’ Cooperative	Onomabo	35	35	0
		District Total		203	203

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
Atiwa East	Frimponso Rice Group	Frimponso	20	10	0
	Tiawia Rice Farmers Association	Tiawia	47	47	0
	Nkabom Rice Farmers Association	Akutoase	46	46	0
	Bowohomodien Rice Farmers Association	Awuronsua	51	51	0
	Enyiresi Rice Farmers Association	Enyiresi and Accra Village	26	24	0
	Adom Rice Farmers Association	Osoroase Krobon	12	8	0
	Osoroase Rice Farmers Association	Osoroase Krobon	36	36	0
	Subriso Rice Farmers Association	Subriso, Yosem,	12	8	0
	Bebume Rice Farmers Association	Bebume	25	15	0
	District Total			275	245
Atiwa West	Kae me Brae	Awenare	35	35	0
	Bomdwen	Akropong	25	25	0
	District Total			60	60

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
Birim Central	Believers Rice Farmers Association	Essam	28	28	0
	Enso Nyame Ye Rice Farmers Association	Essam	24	24	0
	Adom Wo Wum Rice Farmers Association	Essam	35	35	20
	Biako Ye Rice Farmers Association	Essam	31	31	31
	Osoro Boa Rice Farmers Association	Oda Nkwanta	26	26	26
	Nyame Ne Boafo Rice Farmers Association	Oda Nkwanta	25	25	25
	Anidaso Rice Farmers Association	Oda Nkwanta	25	25	15
	Nyame Bekyere Rice Farmers Association	Oda Nkwanta	25	25	10
	Community 6 Rice Farmers Association	Oda	31	31	15
	Nyame Bekyere Rice Production Group	Gyadam	26	26	0
District Total			276	276	142

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
Birim North	Nyamebikyere Rice Farmers Association	Praso Kuma	24	13	0
	Nkosuo Rice Farmers Association	Pankese	35	28	0
	Afam Rice Farmers Association	Nkwrteng	28	16	0
	Amenam Rice Farmers Association	Amenam	32	26	0
	Yesu Mo Rice Farmers Association	Tweapease	15	11	0
	Adom Rice Farmers Association	Oturoku	14	8	0
	Anikorkor Rice Farmers Association	Anikorkor	26	22	0
	Subriso Rice Farmers Association	Old Abirem	14	9	0
	Bebume Rice Farmers Association	Bebume	25	15	0
	District Total			213	148
Birim South	Beposo Rice Growers Association	Apoli Beposo	30	26	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Babianeha Rice Farmers Association	Babianeha	20	20	0
	Abidjan Rice Farmers Association	Abidjan	37	37	0
	Kroboase Rice Production Association	Kroboase	18	9	0
	District Total		105	92	0
Lower Manya Krobo	AK C1 Water Users Association	Akuse	88	88	13
	C3 Water Users Association	Akuse	233	209	19
	Seed Grace Association	Akuse	48	31	14
	District Total		369	328	46
Denkyembour	Mmoframfadwen Rice Farmers Association	Mmoramadwen	25	25	0
	Akenkanor Rice Farmers Association	Akenkanor	25	25	0
	Kwabena Nduro Rice Farmers Association	Kwabena Nduro	24	24	0
	Kura Fitaa Rice Farmers Association	Kura Fitaa	23	23	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Anwiaso Rice Farmers Association	Anwiaso	21	21	0
	Towoboase Rice Farmers Association	Towoboase	24	24	0
	Aboabo Rice Farmers Association	Aboabo	23	23	0
	Apraku Rice Farmers Association	Apraku	22	22	0
	Larbikrom Rice Farmers Association	Larbikrom	25	25	0
	Kusi Rice Farmers Association	Kusi	7	7	0
	M)Denbo Rice Farmers Association	Soabe	30	30	0
	Nkwa Na Ehia Rice Farmers Association	Takorasi	25	25	0
	Boafo Ye Na Rice	Number 4	30	30	0
	District Total		304	304	0
Fanteakwa South	Bosuso Zongo Rice Farmers Association	Bosuso Zongo	15	9	0
	Manee Rice Farmers Association	Manee	21	7	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Osino Rice Farmers Association	Osino	12	4	0
	Heman Rice farmers Association	Heman	9	2	0
	Bosuso rice farmers Association	Bosuso	15	7	0
	Akron rice farmers Association	Bosudumasi	13	4	0
	District Total		85	33	0
Kwahu Afram Plains North	Tornu Rice Farmers Association	Amankwa Tornu	36	36	5
	The Millennium Rice Farmers Association	Amankwa	20	20	0
	Grace Rice Farmers Association	Awonakofe	15	15	0
	District Total		71	71	5
Kwahu Afram Plains South	Gyidiman Farms	Odumasua/NoahKrom	200	200	190
	Bondaso Rice Farmers	Bondaso	12	12	0
	Koranteng Krachie Rice Farmers	Korateng Krachie	12	12	0
	Atonsu rice farmers ass	Atonsu	10	10	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Asanyanso rice farmers ass	Asanyanso	15	15	0
	Hwanyanso rice farmers ass	Hwanyanso	10	10	0
	Maame Krobo rice farmers ass	Maame Krobo	15	15	0
	Tailorkope rice farmers ass	Tailorkope	10	10	0
	District Total		284	284	190
Kwaebibirem	Abompe Rice Farmers Association	Abompe	18	18	0
	Pramkese Rice Farmers Association	Pramkese	17	17	0
	Kwamang Rice Farmers Association	Kwamang	15	15	0
	Okyinso Rice Farmers Association	Okyinso	21	21	0
	District Total		71	71	0
Kwahu West	Adom Rice Farmers Association	Kwahu Fodoa	32	32	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
	Women Rice Producers and Processors Association	Kwahu Fodoa	33	33	0
	Biakoye Rice Farmers Association	Ekawso	26	26	0
	Nkabom Rice Farmers Association	Ohene Akuraa	23	23	0
	District Total		114	114	0
Upper Manya Krobo	Akokoma Sisi Rice Farmers Association	Akokoma Sisi	45	45	0
	Dzobger Rice Farmers Association	Dzogber	57	57	0
	Akotoe Tsrebuanya Rice Farmers Association	Akotoe Tsrebuanya	29	29	0
	Battor Kope Rice Farmers Association	Battor Kope	58	58	0
	District Total		189	189	0
Upper West Akim	Upper West Akim Rice Farmers Association (UWARFA)	Adeiso	65	20	15
West Akim	Women Rice Farmers Association	Asamankese	28	25	0

Districts	Name of Association/ Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services
Grand Total			17,721	16,468	6,768
Percentage of farmers accessing Technical and Financial Services				92.9%	38.2%

Appendix 2-Rice Retail Market Survey

District	Serial number	Name of Retailer/Store	City/Town	Rice Procured		Percentage
				Total Quantity of rice (Imported+local) in Tonnes per annum	Total Quantity of Local Rice in tonnes per annum	
Volta Region						
North Dayi	1.	The Young Shall Grow Retail Shop	Vakpo Afey	9.10	2.60	28.57
	2.	Sister Vi Retail Shop	Vakpo Fodome	9.10	1.30	14.29
	3.	Awate Store Retail Shop	Anfoega Akukome	10.66	3.12	29.27
	4.	Rock of Ages Retail Shop	Vakpo Post Office	11.70	3.90	33.33
Greater Accra Region						
Ayawaso East	5.	Hajia Azara	Nima	150.02	0.00	0.00
	6.	Bontulgou cereals and legumes	Nima	26.8	0.90	3.36
	7.	Sadiq Enterprise	Nima	347.1	0.00	0.00
	8.	Aisha Ventures	Nima	980.2	0.00	0.00
	9.	Nyame na nye	Nima	83.2	0.00	0.00
	10.	Maame Ajoa Enterprise	Nima	7.80	2.60	33.33
	11.	Aunty Ama Enterprise	Nima	7.80	2.60	33.33

District	Serial number	Name of Retailer/Store	City/Town	Rice Procured		Percentage
				Total Quantity of rice (Imported+local) in Tonnes per annum	Total Quantity of Local Rice in tonnes per annum	
Ashiedu Keteke	12.	Eva 1 Enterprise	Agbogbloshie	41.86	0.00	0.00
	13.	Genadzie Enterprise	Agbogbloshie	114.14	0.52	0.50
	14.	Yesumo Enterprise	Agbogbloshie	28.24	0.52	1.8
	15.	kate Enterprise	Agbogbloshie	57.72	0.00	0.00
	16.	Maa Aunty Enterprise	Agbogbloshie	89.96	0.78	0.9%
	17.	Akosua Seiduaa Enterprise	Agbogbloshie	9.1	0.00	0.00
	18.	Ibrahim Enterprise	Agbogbloshie	72.8	0.00	0.00
	19.	Jane One Ventures	Agbogbloshie	29.12	0.00	0.00
	20.	Christy's Enterprise	Agbogbloshie	3.64	0.00	0.00
	21.	Adihud Enterprise	Agbogbloshie	27.3	0.00	0.00
	22.	Adisatu Enterprise	Agbogbloshie		5.20	0.00
	23.	Amoro Imoro	Agbogbloshie	57.2	57.2	100.00
	24.	Janet Enterprise	Agbogbloshie	5.20	5.20	100.00
	25.	Abena		3.90	3.90	100.00
Northern Region						
Tamale Metropolis	26.	Mma Maata	Aboabo, Tamale	18.10	13.57	75.00
	27.	Tampuli Enterprise	Aboabo, Tamale	1560.00	0.00	0.00
	28.	Moopaya Fatima	Aboabo, Tamale	13.57	0.00	0.00
	29.	Nash Enterprise	Aboabo, Tamale	65.00	0.00	0.00

District	Serial number	Name of Retailer/Store	City/Town	Rice Procured		Percentage
				Total Quantity of rice (Imported+local) in Tonnes per annum	Total Quantity of Local Rice in tonnes per annum	
	30.	MH Plus (Mohammed Nuhu)	Aboabo, Tamale	390.00	0.00	0.00
	31.	Rasham Enterprise	Aboabo, Tamale	312.00	0.00	0.00
Eastern Region						
New Juaben South	32.	Diana Ofori	Koforidua central Market	5.20	5.20	100.00
	33.	Vincencia Monbenou	Koforidua central Market	2.60	0.00	0.00
	34.	Kwatema Ama	Koforidua central Market	20.80	0.00	0.00
	35.	Moree 313 Enterprise	Koforidua central Market	78.00	0.00	0.00
	36.	Amina Mohammed	Koforidua central Market	10.40	0.00	0.00
Upper East Region						
Bolga Central	37.	Mmaapika	Bolga Main Lorry Station	780.00	0.00	0.00
	38.	Madam Zulfa Rice shop	Bolga new market	1300.00	0.00	0.00
	39.	DADIN KOWA (Cynthia Aburika)	Bolga Main Lorry Station	780.00	0.00	0.00
Kassena-Nankani	40.	Madam Jane Kanoseh rice shop	Navrongo Market	3.90	3.90	100.00

District	Serial number	Name of Retailer/Store	City/Town	Rice Procured		Percentage
				Total Quantity of rice (Imported+local) in Tonnes per annum	Total Quantity of Local Rice in tonnes per annum	
Ashanti Region						
Kumasi Metropolis	41.	Daniel Owusu	Kumasi Adum market/Kejetia	55.90	23.40	41.86
Kumasi Metropolis	42.	Adom Kuraba Enterprise	Kumasi Adum market/Kejetia	52.78	4.68	8.87
Kumasi Metropolis	43.	Amanda Gyasi	Kumasi Adum market/Kejetia	39.91	3.51	8.79
Kumasi Metropolis	44.	Rindolf Lartey	Kumasi Adum market/Kejetia	54.60	2.60	4.76
Kumasi Metropolis	45.	Hajia Rashida	Kumasi Adum market/Kejetia	54.99	3.51	6.38
Kumasi Metropolis	46.	Maswudu Haruna	Kumasi Adum market/Kejetia	41.34	2.34	5.66
Kumasi Metropolis	47.	Akua Tewiah	Kumasi Adum market/Kejetia	37.44	2.34	6.25
Kumasi Metropolis	48.	Debora Achiaa Mante	Kumasi Adum market/Kejetia	30.94	2.34	7.56
Kumasi Metropolis	49.	Rose Fordjor	Kumasi Adum market/Kejetia	29.51	3.51	11.89
TOTAL				7,920.64	161.24	2.04%

Appendix3: Level of Access to Technical/ Financial Services by smallholder farmers in key rice growing districts

Name of Region/District _____

Name of Association/Famer Group	Name of Rice producing Area/District	Total Membership	Number Accessing Technical Services	Number Accessing Financial Services

Appendix 4-Rice Retail Market Survey Questionnaire

A1. Name of Retailer/Store:

A2. City/Name of market

A3. Date of Interview /...../...../...../

(dd/mm/yy)

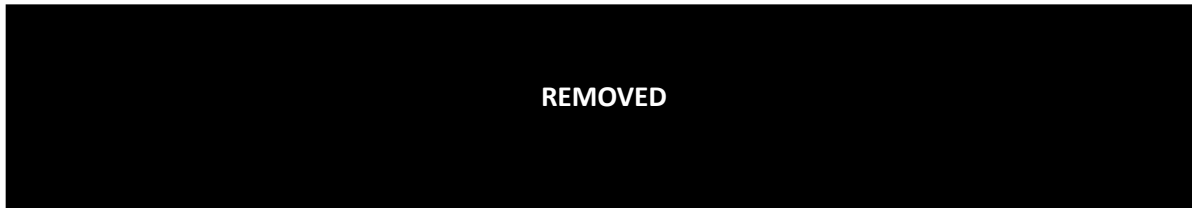
Rice retail volumes

Category	Average number of bags sold per week	Indicate average weight of a bag in Kilograms	List names of imported/ local brands of rice sold in the appropriate row
Average Quantity (bags) of imported rice sold per week			
Average Quantity (bags) of local rice sold per week			

Appendix 5: Persons Contacted During Field Visits



Appendix 6- Names and Contacts of Private Irrigation Schemes



Appendix:7 Milling Capacity of 44 Rice Mills Surveyed

S/N	District	GPS COORDINATES	CAPACITY (MT/HR)
Medium-Large Mills \geq1.6 Tons/Hour:			
1.	Ningo Prampram	REMOVED	2.5
2.	Lower Manya		1.7
3.	Ketu North		1.7
4.	South Tongu		1.7
5.	Sagnarigu		1.8
6.	Yendi		
7.	Tolon		1.7
8.	West Mamprusi		1.7

S/N	District	GPS COORDINATES	CAPACITY (MT/HR)
9.	Central Gonja		1.7
10.	Abuakwa Catwi		1.7
Small-Scale Mills ≤ 1.5Tons/Hour			
11.	Kumbungu		1.5
12.	East Gonja	REMOVED	0.5
13.	Builsa South		0.5
14.	Kassena-Nankana		0.5
15.	Bolgatanga East		0.8
16.	Wa		0.5
17.	Wa		0.5
18.	Wa		1.2
19.	Atwima		1.5
20.	Atima West		1.3
21.	Ejura-SekyedumaseAshanti		1.5
22.	Asonafo North		1.2
23.	Asunafo North		1.1
24.	Tano South		1.5
25.	Atebubu- Amantin		1.5
26.	Atebubu- Amantin		1.2
27.	Atebubu- Amantin		1.5
28.	Sefwi Wiaso		3.5
29.	Shama		1.8
30.	Bibiani		3.3
31.	Sefwi Wiaso		1.5
32.	Sefwi Wiaso		1.5
33.	Bibiani		1.5
34.	Akyemanse		1
35.	Kwabibirem		1
36.	Ho municipal		1.5
37.	Ho municipal		1.5
38.	Hohoe		1.5
39.	Hohoe		1.2
40.	Shama		1.5
41.	Assin North		1
42.	Assin North		1
43.	Assin Central		1
44.	Gomoa East	1.5	

