REPUBLIC OF ZAMBIA

THE MINISTRY OF AGRICULTURE

MULUNGUSHI HOUSE, INDEPENDENCE AVENUE

P.O. BOX 50191

LUSAKA

SECOND NATIONAL RICE DEVELOPMENT STRATEGY 2016-2020

July, 2016

FOREWORD

It is my pleasure to present this Second National Rice Development Strategy (SNRDS, 2016-2020) on behalf of the Government of the Republic of Zambia. The SNRDS is derived from Zambia's National Agricultural Policy and the National Agriculture Investment Plan.

The NRDS provides the vision, goal and strategic objectives that the Ministry of Agriculture will pursue in the next five years with the aim of facilitating growth and development of the rice sub sector. The SNRDS will form the basis on which work plans will be formulated by both the government and the private sector. The SNRDS will also be an instrument of bidding for financial resources from both public and private national, regional and International Development Partners.

The Ministry recognises rice as one of priority crops to promote under the crop diversification strategy, aimed at contributing to the sustainable agricultural production especially among smallholder farmers. The development of the second NRDS is therefore welcome as it is one vehicle that can be used to promote the crop diversification drive and eventually agricultural diversification. It is anticipated that crop diversification through rice production will contribute tremendously in enhancing the living standards of farm households while offering various cropping alternatives to farmers as opposed to relying on a single crop, namely maize. In order to attain this, Zambia has put in place policies that provide public support and investment in agriculture with a view to creating an enabling environment to attract private sector and smallholder interest in rice production, processing and trade. In order to strengthen the development of the rice enterprise, the implementation of this NRDS cascades the entire value chain covering rice production, processing and marketing involving various players which include public and private sectors with support from Development Partners.

I commend all the rice stakeholders, who through the coordination and leadership of the Task Force on Rice worked tirelessly and accomplished this task of developing the NRDS. Special recognition is extended to the Japan International Cooperation Agency (JICA)-Zambia for the technical support towards the NRDS development process. I also wish to acknowledge the political leadership in the country which is providing the necessary support for the growth of the agricultural sector.

I wish to appeal to all rice stakeholders and players engaged in the rice value chain to maintain concerted effort towards achieving implementation of the NRDS, targeting food and income security in the rural and urban areas.

It is my sincere hope that this NRDS will meet the expectations of all stakeholders who include Government, Cooperating Partners, Private Sector as well as the Farming Community.

Hon. Given Lubinda, MP

Minister of Agriculture

June 2016

ACKNOWLEDGEMENT

The Ministry of Agriculture recognises the valuable contributions made by the Task Force on Rice that was constituted from the various Departments of the Ministry of Agriculture, the Zambia Rice Federation, the Zambia Bureau of Standards and the Agricultural Consultative Forum to spearhead the revision of the first National Rice Development Strategy.

The Ministry is also grateful to the various rice stakeholders for their invaluable support and contributions made during the consultative process.

Finally, we are grateful to the Embassy of Japan for the financial support that facilitated the revision of the first National Rice Development Strategy in order to come up with this second National Rice Development Strategy.

Julius J. Shawa

Permanent Secretary

Ministry of Agriculture

June 2016

LIST OF ACRONYMS

ACF	Agricultural Consultative Forum
AfDB	African Development Bank
AGRA	Alliance for a Green Revolution in Africa
AIDS	Acquired Immune Deficiency Syndrome
APPSA	Agriculture Productivity Programme for Southern Africa
CAADP	Comprehensive Africa Agriculture Development Programme
CARD	Coalition for African Rice Development
CEEC	Citizenship Economic Empowerment Commission
COMESA	Common Market for Eastern and Southern Africa
CSO	Central Statistical Office
DoA	Department of Agriculture
FAO	Food and Agriculture Organization
FISP	Farmer Input Support Programme
FoDiS-R	Food Crop Diversification Support Project focusing on Rice
FRA	Food Reserve Agency
GDP	Gross Domestic Product
GRZ	Government of the Republic of Zambia
Ha	Hectare
HIV	Human Immunodeficiency Virus
IFAD	International Fund for Agricultural Development
JICA	Japan International Cooperation Agency
Kg	Kilogramme
KPI	Key Performance Indicator
MA	Ministry of Agriculture
MAL	Ministry of Agriculture and Livestock
MT	Metric Tonne
NAIP	National Agricultural Investment Plan
NGO	Non Governmental Organisation
NRDS	National Rice Development Strategy
PLARD	Programme for Luapula Agriculture Rural Development
RESCAP	Rural Extension Capacity Advancement Project
R-NRDS	Revised National Rice Development Strategy
R-SNDP	Revised Sixth National Development Plan
S3P	Smallholder Productivity Promotion Programme
SADC	Southern Africa Development Community
SCCI	Seed Control and Certification Institute
S-NAP	Second National Agriculture Policy
SNRDS	Second National Rice Development Strategy
SNV	Netherlands Development Organisation
TF	Task Force
USD	United States Dollar
ZABS	Zambia Bureau of Standards
ZARI	Zambia Agriculture Research Institute
ZCARD	Zambia Consortium for Accelerated Rice Development
ZRF	Zambia Rice Federation

TABLE OF CONTENTS

LIST OF TABLE S

LIST OF FIGURE

1.0 INTRODUCTION

1.1 Background

This Second National Rice Development Strategy (SNRDS) 2016-2020 replaces the first NRDS, 2011-2015, that was developed as part of the Coalition for African Rice Development (CARD) initiative, with the aim of doubling rice production within a period of five (5) years.

The review of the first NRDS was prompted by a stakeholder meeting of October 2013 which raised concerns and highlighted emerging issues that the strategy should address. One of the major concerns of the stakeholders was the delay in the implementation of the strategy. The emerging issues include changes in the policy environment governing agriculture with more emphasis being put on rice sub sector within the crop diversification strategy.

This SNRDS has been aligned to Government Plans and Programmes, such as the Country's Vision 2030, the Revised Sixth National Development Plan (R-SNDP), the second National Agricultural Policy (S-NAP) and the National Agricultural Investment Plan (NAIP) under the Comprehensive Africa Agriculture Development Programme (CAADP). The SNRDS is thus a policy framework that is intended to address the challenges affecting the rice industry and guide its development process over the next five year period.

1.2 Methodology for reviewing the NRDS

Establishment of NRDS Task Force

Following recommendations made by a rice stakeholders meeting held in October 2013 to review NRDS, the Permanent Secretary in the Ministry of Agriculture (MA) constituted a Task Force (TF) to undertake this assignment. The TF comprised representatives of the MA, private sector and Non Governmental Organisations (Annex 5).

Review of available literature on rice

The TF carried out an extensive review of the existing literature, including relevant policy and strategy documents, and other documents on rice development in Zambia and within the

region. The key strategic and programmatic guidelines obtained from the above, together with documented experiences and lessons learnt, have been used to develop the SNRDS.

Consultations with key stakeholders within the rice sector

Representatives of major stakeholders within the rice value chain, including senior officials of the key ministries and public institutions, agricultural development projects and programs, international organisations, bilateral and multilateral agencies, the Zambia Rice Federation, farmers' associations and cooperatives, individual farmers, rice millers/processors, rice traders/importers and input suppliers etc., were consulted and their experiences and recommendations taken into account in the final SNRDS.

Collaboration with the Coalition of Africa Rice Development (CARD)

During the first meeting on the review of the first NRDS, the CARD Secretariat was in attendance and participated.

2.0 REVIEW OF THE NATIONAL RICE SUB -SECTOR

The agriculture sector generates between 16 to 20 percent of the Gross Domestic Product (GDP), provides livelihoods to more than 70 percent of the Zambian population, absorbs about 67 percent of the labour force and remains the main source of income and employment for both women and men (CSO, 2010). Further, the sector has contributed to an increase in rural incomes and marginally led to a reduction in rural poverty as well as an increase in food and nutrition security. (CSO, 2006; 2010).

2.1 Status of Rice in National Policies

Ministry of Agriculture has reviewed the first NRDS to align it to the National Agriculture Investment Plan (NAIP) where the main policy objective for the Crops development component is "to increase sustainable crop production, productivity and value addition for a diversified range of competitive crops apart from maize". MA's Crop Diversification Programme also recognizes rice as one of the strategic commodities that contributes to food security, and with potential to significantly increase incomes and employment among rural

producers. Hence government's decision to include rice as one of the nine crops supported by the Farmer Input Support Programme (FISP). The nine crops include maize, rice, sorghum, ground nuts, soya beans, beans, sun flower, cotton and orange maize. Rice is also one of the crops that is included in the Statutory Instrument of 2015 as a designated crop. Of all the staple food crops in Zambia, currently rice is the only one with a deficit and the amount of this deficit has been increasing every year.

2.2 Status and Trends of Rice Production

Rice is becoming an important staple food in Zambia. In the last 5 years, the crop has seen a steady increase in demand and its growing importance is evidenced by its current status as a strategic food crop. However, the demand for rice exceeds production and the deficit is met through imports mainly from Asia. According to MA/CSO Crop Forecasting data, Zambia over the last 5 years has been producing on average about 44,500 MT of paddy rice (approximately 29,000 MT in milled rice) annually. However, consumption stands at about 60,000 MT (approximately 39,000 MT in milled rice). In the recent years, the country has been importing between 5,000 and 20,000 MT of milled rice annually mostly from Asia to meet domestic demand. Zambia's inability to produce rice to self-sufficiency levels is due to a number of challenges facing the rice sub sector (Refer to Section 3.2).

The Table 1 below shows the rice production patterns over the last five years.

Table 1: Zambia Basic Rice Data by Region (Average 2010/11 to 2014/15)

Provinces	Number of households growing	Area Planted (Ha)	Area Harvested (Ha)	Production (MT)	Yield (MT/Ha)	Average rice plot size per household (Ha)
Central	177	72	66	129	1.38	0.41
Copperbelt	93	25	23	33	1.46	0.27
Eastern	5,385	1,581	1,472	2,437	1.55	0.29
Luapula	5,570	1,569	1,390	2,731	1.78	0.28
Lusaka	164	50	42	64	1.06	0.31
Muchinga	13,020	4,823	4,513	7,931	1.66	0.37
Northern	15,893	12,413	11,315	16,182	1.31	0.78
North Western	1,096	345	315	509	1.51	0.31
Southern	109	37	28	17	0.26	0.33
Western	26,542	17,622	9,038	14,479	0.90	0.66
National	**68,051**	**38,537**	**28,202**	**44,512**	**1.16**	**0.57**

Source: MA/CSO Crop Forecast Survey Data, 2010/11-2014/15

The key features of rice production in the country over the past five years are as follows:

i) Rice is grown in all the ten (10) provinces of the country. These are Western, Muchinga, Northern, Eastern and Luapula provinces being the major production areas while Southern, Lusaka, Copperbelt and Central provinces are the least producing areas. The major production ecologies are the flood plains of big rivers and dambos. Area under production over the last five years averaged at 38,537 hectares of land, out of which 46% is in Western, 32% in Northern, 13% in Muchinga, 4% in Luapula, 4% in Eastern and less than 1% in other Provinces.

ii) Most farmers still use the traditional methods of production with low mechanisation, characterized by broadcasting of seed, use of low-yielding traditional varieties, limited fertiliser application, limited weeding of fields, and poor water management.

iii) The production level of rice in the country has averaged 44,512 MT and this is grown by small-scale farmers under rain-fed conditions.

iv) Rice farm plot sizes currently average 0.57 hectares in the country.

v) The rice yields have averaged 1.16 tonnes per hectare, which is quite low when compared to other Eastern and Southern African countries (Table 2).

vi) According to available Crop Forecast Survey data, rice is grown by small scale farmers in the country. This could mainly be due to the limited availability of land in the valleys and dambos which are mainly suited for small scale agriculture.

However, large scale rice production in Zambia is possible especially in farm blocks such as Nansanga and Luena. The Government could go into some agreement with private companies by investing in dams while private companies could invest in rice growing as the case is in Tanzania, Nigeria and Ivory Coast.

Table 2: Rice Yields (Mt/Ha) in other African countries

Country	2007	2008	2009	2010	2011	2012	2013
Kenya	2.87	1.31	1.93	4.24	3.97	4.86	5.24
Malawi	1.95	1.82	2.13	1.86	1.91	1.85	1.92
Mozambique	0.98	0.47	0.98	1.14	1.14	1.18	1.17
South Africa	3.06	2.50	2.72	2.56	2.50	2.73	2.61
Uganda	1.36	1.39	2.39	2.51	2.59	2.30	2.30
Zambia	1.51	1.38	1.64	1.68	1.80	1.73	1.16
Zimbabwe	1.84	1.66	2.19	2.06	2.09	2.26	2.26

Source: FAOSTAT , 2006-2013

2.3 Consumer Preferences and Demand Trends

Consumer surveys (SNV 2009) have revealed that Zambians generally have a preference for the aromatic rice like Mongu, Nakonde and Chama rice hence the premium price paid for local rice varieties. In addition, Zambian consumers mostly buy rice on the basis of quality that encompasses size of the grains, colour and free from grit and other impurities.

The total consumption of rice in Zambia increased from 15,926MT in 2002 to 59,728MT in 2014, in paddy term. Similarly per capita consumption increased from 1.49Kg in 2002 to 4.11Kg in 2014 (Table 3). Over the same period the difference between production and consumption has become larger because of stagnated level of production. Due to the increasing population and per capita consumption, it is expected that rice consumption will increase in the years to come.

Table 3: Estimated Consumption Trends and Balance of Rice

Year	Population (1,000)	Total Consumption (MT)	Per capita Consumption (Kg)	Production (MT)	Balance (MT)
2002/3	10,693.	15,926	1.49	10,743	-5,183
2003/4	10,938	16,707	1.53	11,699	-5,008
2004/5	11,192	17,884	1.60	13,337	-4,547
2005/6	11,462	24,673	2.15	13,964	-10,709
2006/7	11,750	25,367	2.16	18,317	-7,050
2007/8	12,055	30,332	2.52	24,023	-6,309
2008/9	12,380	36,048	2.91	41,929	5,881
2009/10	12,724	52,011	4.09	51,656	-355
2010/11	13,089	60,682	4.64	49,410	-11,272
2011/12	13,475	64,164	4.76	45,321	-18,843
2012/13	13,884	58,476	4.21	44,747	-13,729
2013/14	14,315	55,769	3.90	49,640	-6,129
2014/15	14,540	59,728	4.11	25,514	-34,214

Source: MA/CSO Crop Forecast Survey 2002/03-20014/15, MA Food Balance Sheets 2002/03-2014/15

2.4 Typology of Rice Farmers, Processors and Traders

Farmers: In Zambia rice is mainly grown by small-scale farmers. Production, therefore, is largely concentrated in Northern, Muchinga, Western, Eastern and Luapula Provinces. In these areas, the abundance of water creates favourable conditions for rice cultivation especially in the dambos and wetlands. As shown in Table 1, there are about 68,000 small-scale rice farmers in the country cultivating on average 0.57 hectares of land per household. Female

headed households grow about 33 percent of all the rice grown by small-scale farmers (CSO, 2010).

Processors: Rice processing is done by small and medium scale processors. The millers directly buy paddy rice from the farmers, which they mill, polish and pack it into different sizes for sale to wholesalers and retailers. Traders also buy paddy rice from farmers and take it to millers for polishing where they pay for the services. The capacity of most of the mills range from 1.5 to 2.5 MT per hour (SNV, 2008). It is estimated that farmers consume 48% of the rice they produce while the balance is traded through different channels.

Traders: Most of the rice produced in Zambia is traded informally on open markets while the rest is properly packaged and sold through established supermarkets. Most of the trading activities are done by middlemen who buy paddy rice from the farmers.

2.5 Gender Dimensions of Rice Production, Processing and Trading

According to a baseline report by SNV (2008), about 31% of the farmers growing rice in Western, Northern, North-Western and Muchinga provinces are women. This trend may be similar to the other rice growing areas in the country. The same report indicates that 90% of the small-scale processors in these provinces are men while 10% are women. Trading of rice is also undertaken by both men and women although the proportions they handle are not known. Women, however, dominate the local retail rice businesses.

The adoption rate of improved agricultural technologies has been associated with gender related issues. Few women attend training sessions on rice production though they are key players in the production of the commodity. This is likely to have some adverse effects on the adoption and up-scaling of rice technologies. Therefore, deliberate targeting of women for capacity building and technology transfer could enhance production and productivity of rice in the country.

2.6 Competitiveness of Domestic Rice Production

Locally-produced rice is less competitive on the market largely due to low productivity, which results into higher producer and retail prices. The generally lower quality of

locally produced rice further contributes to its being less competitive compared to the price of imported rice. However, the locally-produced rice has characteristics such as aroma which makes it generally preferred by domestic consumers.

2.7 Characteristics of rice production ecologies

There are three ecologies in which rice is grown in Zambia. These are the rain-fed lowland flood plains, rain-fed up-land (including seasonal dambos) and irrigated. Most of the rice grown in Zambia is lowland rain-fed, with a small amount being up-land and only very limited amount is irrigated. Each of these ecologies has its own limitations to production and productivity of rice.

There is need to map the different rice ecologies in Zambia in order to have a picture of the total land that would potentially support rice production in each ecology. This mapping will also help government to put in place, more specific interventions for each of the three ecologies.

The following section describes the characteristics, opportunities and challenges for each of the ecologies.

i) Rain-fed Lowland Ecology

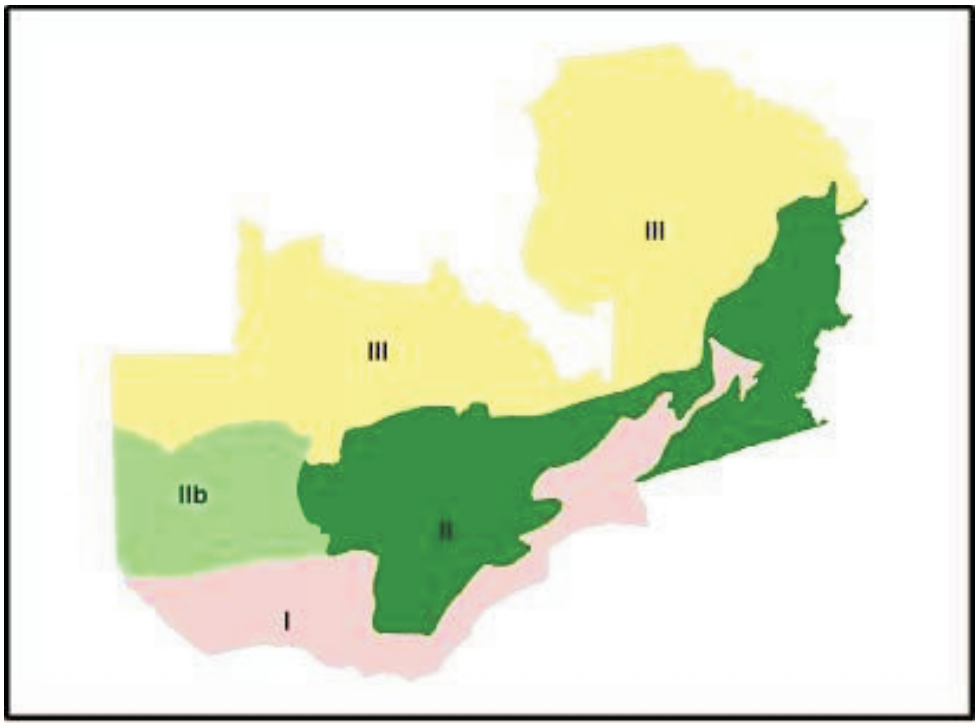
The predominant rice producing areas in Zambia are found in the rain-fed lowland ecologies which are characterized by flooding during growing period in the rainy season. The extent to which flooding occurs varies depending on the amount and distribution pattern of rainfall, and the characteristics of the lowland.

Areas Covered: Rain-fed lowland rice growing ecologies are found in agro-ecological regions III and II (Refer to Figure 1). In agro-ecological region III, the main rice growing areas are found in Northern, Muchinga and Luapula Provinces. In region II rain-fed lowland rice growing areas are mainly found in Western and Eastern Provinces.

Major rice growing areas in Northern Province are Kasama, Mungwi and Nsama Districts. In Muchinga Province, the major growing areas are Chinsali, Chama, and Nakonde. In Luapula Province, itis mainly grown in Chiengi, Mansa and Mwense Districts. In North Western Province it is mainly grown in Zambezi, Chavuma and Mufumbwe Districts.

Major rice production districts of Western Province are Kalabo, Lukulu, Mongu and Senanga while that of Eastern Province are Lundazi and Mambwe Districts.

Figure 1: Agro-ecological Zone of Zambia



Soils characteristics: The predominant soil type found in Northern and Muchinga Provinces is Acrisols, characterized by highly weathered, acidic (low pH) and low soil organic matter content.

Soils of the floodplains of Western Province are predominantly Arenasols, characterised by weakly developed coarse textured soils with high water infiltration and low fertility.

The soils of rice growing areas in Luangwa valley of Eastern and Muchinga Province are alluvial soils, which are relatively rich in nutrients, and reasonable rice yields may be achieved with limited use of fertiliser.

ii) Rain-fed Up-land

Rain-fed upland, which includes dambos, solely depends on rainfall to sustain plant growth. Rice growing in this ecology is relatively new in Zambia and production has been

comparatively lower. The promotion of rice growing in this ecology has been emphasized in recent years, mainly due to their ability to hold water and also the introduction of up-land rice varieties.

***Area Covered*:** Areas that could be considered suitable as rain-fed upland ecologies for rice growing are mainly found in most districts of agro-ecological regions II and III. These areas include plateau areas as well as seasonal dambos.

Up-land rice cultivation is best suited to areas receiving adequate rainfall throughout the growing period. Such conditions are more likely to be found in agro-ecological region III of Northern, Muchinga and Luapula Provinces. Such conditions may also be found in certain parts of Central, Copperbelt and NorthWestern Provinces. Up-land rice cultivation is also possible anywhere in the country as long as irrigation systems are in place. However, this requires a detailed feasibility study to ascertain the cost benefit of irrigated rice.

Challenges and potential for rice production: While management practices such as land preparation, planting, fertilizer application and weed control are easier to achieve in rain-fed up-land ecologies compared to rain-fed lowland ecologies, the critical factor here seems to be low moisture levels for sustained crop growth and development. The low moisture levels that characterize these ecologies often result in failure to realize reasonable yields.

iii) Irrigated Lowland

This ecology is ideal for rice production although it requires investment in irrigation infrastructure.

Production of rice in this ecology is, however, limited and underdeveloped in Zambia. It is only in Sefula in Mongu District and Chanyanya in Kafue District where irrigation schemes were developed for rice production.

However, lowland ecologies which are widely found in the country, could if put under irrigation, and given their high potential substantially contribute to increased production of rice in Zambia.

Table 4 below summarises the characteristics of the rice ecologies in the country.

Table 4: Rice Ecologies, Characteristics

	Rice Ecology	Main Areas (Provinces) Covered	Ecological Challenges	Ecological Opportunities
1	Rain-fed Lowland	Northern, Muchinga, Luapula, North-Western, Eastern, Lusaka, Central and Western	Unpredictable flooding patterns, difficulties in controlling water levels, difficult of accessibility, low soil fertility, high water infiltration	Availability of water in the rainy season, availability of suitable land, potential for integrating rice production system with aquaculture, long tradition of rice production by small-scale farmers
2	Rain-fed and Irrigated Upland	Northern, Muchinga, Luapula, North-Western, Lusaka, Central, Eastern and Copperbelt	Stress due to low moisture as a result of unreliable rainfall	Availability of large potential areas for expanding rice cultivation.
3	Irrigated Lowland	All the 10 provinces	Lack of irrigation infrastructure, lack of maintenance skills, high investment costs	Availability of large potential areas for expanding rice cultivation, high potential for increasing productivity

3.0 OPPORTUNITIES AND CHALLENGES FACING THE NATIONAL RICE SECTOR

The Rice Sub-Sector in Zambia is facing a number of challenges which has resulted into low productivity and production. There are also opportunities in the sub-sector which are discussed first.

3.1 Opportunities

The country is in a good position to develop the rice industry taking advantage of the prevailing favourable market conditions and abundant land and water resources. The major leverage point for rice development is optimising the use of large tracts of arable land, enormous surface and ground water resources and diverse agro-ecological potential that makes possible the production of rice in many regions of the country. Specific opportunities include:

i) The duo role of rice as a food and cash crop for smallholder farmers as well as numerous downstream processing and trading possibilities which makes it ideally suited to contribute to improved food security, poverty reduction and wealth creation. This high market value and the growing consumer demand, both in the country and the African continent can spar rice production in the country.

ii) Scope for sustainable intensification of rice production, within the different agro-ecological zones, given the abundant availability of water.

iii) Scope for expanding rice hectarage by bringing currently underutilised, but suitable upland under production, using new upland rice varieties.

iv) Existence of research facilities and extension network that supports generation and dissemination of technologies for increased rice production and productivity. There are research sites within the country that have a focus on rice research and development, key ones being Misamfu research station in Kasama, Northern province and Mongu research station in Western province. These research stations if strengthened in terms of facilities and human resource capacity could lead to the development of more appropriate technologies to enhance rice production and productivity.

v) There are a number of stakeholders who have shown willingness to support rice development in the country. These stakeholders can be categorised as: (i) producers mostly organised in cooperatives or grower associations, (ii) the processors, (iii) the importers and traders, and (iv) consumers.(Annex 3)

vi) Renewed goodwill of international development agencies and foundations to promote agriculture in general and rice in particular.

vii) Considering the fact that the Southern African region is a net importer of rice as shown in Table 5 below, Zambia has an opportunity of readily available market, if the quality and grading of the commodity is improved upon.

viii) SADC trade protocols which were developed in order to encourage competitive pricing of commodities within the region, hence promoting regional trade.

ix) Diversification Program by the Ministry of Agriculture will have a positive impact on rice growing in the country.

Table 5: Imports of Rice into Neighbouring Countries (Mt)

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011
Angola	70,002	267,129	205,185	252,847	281,539	400,645	230,284	213,267	218,009
Congo	141,718	185,257	208,952	306,088	110,206	98,237	72,978	47,480	59,759
Malawi	5,455	203	1,339	3,720	3,783	5,314	6,710	751	310
Mozambique	160,140	262,586	344,601	454,923	487,293	367,900	495,392	303,638	348,870
Namibia	4,431	14,328	12,845	4,780	6,911	6,247	6,638	5,418	10,232
South Africa	790,826	744,822	757,925	804,217	959,196	650,158	744,689	733,449	908,781
Tanzania	189,201	194,280	75,021	94,200	48,446	64,188	39,603	74,876	50,851
Zimbabwe	17,026	15,526	29,988	42,338	30,470	30,217	35,747	99,218	126,743

Source: FAOSTAT , 2003-2011

3.2 Challenges

Despite the above opportunities, the rice sub-sector faces a number of challenges which adversely affect productivity, production and quality among rice farmers. Specific challenges hindering the growth and competitiveness of the sub-sector in Zambia include the following:

Production challenges:

i) **Limited access to improved varieties and quality seed:** Farmers have been using recycled seed of local varieties which significantly contribute to low production, productivity and quality. This is largely due to inadequate availability of improved varieties and quality seed as seed companies are not attracted to the development and marketing of rice seed. In addition the country doesn't have an active system for producing, multiplying and distributing rice seed.

ii) **Poor Farming Practices:** The traditional cultivation practices (broadcasting seeds, no weeding) used by small-scale farmers fall short of recommended management practices and thus contributes to low production, productivity and quality.

iii) **Poor Water Management System:** With the advent of climate change which brings in the increasing variations in precipitations resulting in frequent occurrence of floods and droughts and other extreme weather conditions, farmers are generally finding it more difficult to manage the water and making it difficult to improve production and productivity.

iv) **Low level of mechanisation**: The reliance by smallholders on traditional hand tools for land preparation, cultivation, harvesting and processing methods, limits

hectarage under rice. This is largely due to none availability or the high cost of mechanized tools locally. This coupled with the poor agronomic practices, largely explains the low production, productivity and quality.

v) **Inadequate Human and Institutional Capacity**: Identified limitations in human resources and institutional capabilities with regards to research, extension and marketing, which are a consequence of low staffing, funding levels and poor coordination

vi) **Limited access to seasonal and long-term finance**: Rice farmers, traders, processors and other agribusiness operators in the country, generally decry the limited availability of affordable financial services that hinders them from investing in high output farming, processing and storage technologies or expansion of their enterprises. Most local banks have generally not been responsive in developing appropriate financial products to support agribusiness development, citing the culture of poor loan repayment.

Marketing Challenges:

vii) **Fragmented and Uncoordinated Markets**: The low levels of production by the numerous and isolated small-scale producers in the rural areas result in traders and processors incurring high transaction costs to establish their own purchasing, bulking and storage arrangements. This is exacerbated by the high transport costs due to the poor road infrastructure.

viii) **The lack of quality standards**: Lack of grades and unregulated branding for local rice undermines consumer confidence and contributes to its low market share relative to imports. This exposes the country to fraudulent importation and unfair competition to locally produced rice.

ix) **Fragmented Rice Value Chain**: The absence of a functional forum and strong producer and/business association has resulted into fragmented and uncoordinated value chain players leading to poor marketing.

Infrastructural Challenges:

x) **Inadequate Infrastructure:** Inadequate infrastructure support for research and extension, irrigation; storage facilities and processing have had negative effects on

the development of the rice sub sector in the country.

4.0 PRIORITY AREAS AND APPROACHES

In order for Zambia to increase rice production by at least 50% by 2020, the strategic choice of where production in the country would need to be scaled-up and promotion activities intensified among the three rice ecologies should be made. Taking into account agro-ecological conditions, environmental and socio-economic factors, the ecologies are prioritised in the following order: (i) rainfed lowland; (ii) rainfed upland, and; (iii) Irrigated lowland.

4.1 Rain-fed lowland

This ecology presents the least costly and quicker option for increasing production through increased yields and expanding area under cultivation. However, the occurrence of unpredictable floods and difficulties in water management pose challenges that may make it difficult to realise this.

4.2 Rain-fed Upland

The introduction of upland rice types such as NERICA varieties, has given the country the option of bringing additional arable land under cultivation. However, the variability in rainfall pattern and amount, and inherently low soil fertility would limit productivity.

4.3 Irrigated Lowland

There is potential to develop additional and rehabilitate existing small-scale mini-irrigation schemes in certain districts which have valley areas and the flood plains. These districts include Kalabo, Kaoma, Mongu, Senanga, Sesheke, Mungwi, Kaputa, Isoka, Chinsali, Chama, Mwense, Mansa, Chiengi, Lundazi and Mambwe.This could offer small and medium scale farmers the best option for achieving highest yields per hectare.

5.0 SCOPE AND STRATEGIES

5.1 Vision

A competitive rice sub-sector based on best practices and sustainable use of natural resources to deliver benefits to all actors in the value chain.

5.2 Goal

To contribute to improved food security, wealth and employment creation in Zambia.

5.3 Strategic Objective

The overall objective of the SNRDS is to increase local rice production by at least 50% and enhance its competitiveness on the market by 2020. This will be achieved through the following specific objectives:

i) To increase yields by at least 25% over a five year period;
ii) To expand the area under cultivation by at least 20% by 2020;
iii) To improve quality of local rice in terms of whole grain, aroma etc;
iv) To promote stakeholder innovation capacity and knowledge management across the value chain;
v) To increase the market share of locally produced rice; and
vi) To develop and improve mechanisms for linking value chain players and coordinating the rice sub-sector.

5.4 Strategic Interventions

Research and Development Interventions:

5.4.1 Enhancing farmers' access to improved varieties and quality seed

Improved seed is one of the most important components of the agricultural development process. Efforts for increasing agricultural productivity and production would be a futile attempt without the availability of improved seeds. It is estimated that a larger percentage of rice farmers in the country use recycled seeds and only a small percentage use certified seeds. The low rate of improved seed utilisation in the country is mainly associated with unavailability of reliable supply of breeder and foundation seeds. In addition, the bias of seed

companies to produce some crop varieties and neglect others is one of the limiting factors in seed availability and accessibility to farmers. At present most seed companies have a wide range of maize crop varieties as compared to crops such as rice, millet, cowpeas, and sorghum despite the existing high demand for these types of seeds. In view of this, the strategy would focus on:

i) Seed purification of existing varieties
ii) Identify and evaluate comprehensively high quality local varieties
iii) Development and improvement of new varieties;
iv) Production of basic and certified rice seeds;
v) Strengthening rice seed distribution network in the country;
vi) Supporting community on-farm seed multiplication;
vii) Strengthening the capacity of seed companies.

5.4.2 Strengthening Technology Generation

The current low rice production in the country is mainly due to low yields obtained by most rice growers and this is largely a consequence of inadequate availability and adoption of improved rice technologies.

The strategy will focus on the following:

i) Improving and purifying the existing popular local varieties;
ii) Developing new varieties;
iii) Improving and adapting agronomic management practices;
iv) Developing and adapting post-harvest technologies
v) Strengthening regional and international collaboration and partnerships with regional and international research organisations.
vi) Strengthening local capacity for rice research and development through making improvements to existing facilities at Misamfu and Mongu research stations as well as developing and establishing a new research station in Muchinga province with special focus on rice research.

National research organisations such as ZARI, UNZA etc. in collaboration with international organisations will be encouraged to implement these strategies.

5.4.3 Investment in irrigation and water control technologies

The Government, through various projects is increasing its support to the development of irrigation infrastructure to support crop production. However, there is limited support for specialised irrigation infrastructure for rice production in the country.

The strategy will be directed at:

i) Rehabilitation and construction of irrigation structures;
ii) Improving water management skills among farmers.
iii) Construction of rain-water harvesting and storage structures.
iv) Develop and adapt appropriate water management technologies

Extension Interventions:

5.4.4 Promoting improved and sustainable crop management practices

Much of the rice productivity can be improved through rice agronomy by changing extensive traditional crop management practices with improved ones. This would include:

i) Shifting from broadcasting of seed to nursery establishment and transplanting of seedlings;
ii) Application of agronomic practices such as young, single seedlings widely spaced,
iii) The use of mechanical weeder to control weeds;
iv) Improved organic soil fertility management; and
v) Controlled water application to the rice fields.

5.4.5 Strengthening Technology Dissemination

Improved productivity requires an efficient extension service to facilitate transfer of appropriate technologies as well as application of research results.

The strategy will focus on the following:

i) Developing and packaging extension materials for extension staff and farmers;
ii) Promoting extension approaches/methodologies such as the Farmer Field Schools (FFS);
iii) Strengthening farmer exchange visits;
iv) Conducting specialized training for extension staff in rice producing areas.

v) Strengthening rice extension capacity in rice growing areas, including through specialized training provision for extension staff and farmers

5.4.6 Promotion of Mechanisation

Mechanisation of rice farming can be adopted in land preparation, seedling nursery preparation, transplanting/sowing, field management, harvesting, drying, processing and transportation. In this respect, the strategy would focus on:

i) Promoting the use of appropriate equipment.
ii) Building the capacity of selected agro-entrepreneurs to provide technical services
iii) Establishing community based Agribusiness Service Centers

Finance and Marketing Interventions:

5.4.7 Enhancing availability of and accessibility to production inputs

Increased and efficient use of modern inputs (fertilizers, agrochemicals, seeds, farm implements, etc.) is a pre-requisite for achieving sustainable agricultural productivity and food security.

The current ongoing government efforts of providing subsidized inputs to small-scale farmers under Farmer Input Support Programme (FISP) would be leveraged in the implementation of the NRDS.

The strategy would focus on:

i) Strengthening the agribusiness management skills of agro-dealers to enable them to access finances;
ii) Increasing the proportion of FISP allocations to rice production.

5.4.8 Minimising Post-Harvest Losses

Post-harvest losses is any loss in quantity and quality that occurs from the time of harvest until the product reaches the final consumer. It happens during harvesting, drying, threshing transportation, storage and marketing.

In order to minimise these post-harvest loses, the strategy will focus on the following:

i) Training rice value chain actors on appropriate post-harvest technologies;
ii) Facilitating access to appropriate post-harvest equipment and machinery; and
iii) Facilitating private sector investment in storage and processing facilities through

providing incentives for the establishment of storage and processing plants via CEEC.

5.4.9 Strengthening Market Linkages

There is limited coordinated market system for local rice in the country and therefore the strategy will focus on the following:

i) Setting rice quality standard in collaboration with ZABS
ii) Establishing strong, self-supporting groups in which members support each other to produce, process, package and market their rice;
iii) Advocating and promoting the use of the warehouse receipt system in the marketing of rice; and
iv) Promoting collective marketing through establishment of community-level bulking centers

5.4.10 Improving access to Agricultural Finance

There is limited access to agricultural enterprise development finance both in terms of seasonal credit as well as long-term finance in Zambia due to a number of factors, including the culture of non repayment of loans, lack of collateral and the high interest rates.

The strategy will focus on the following:

i) Facilitating farmers to form groups and associations in order to strengthen their bargaining power and access to group-based savings and credit programmes.
ii) Facilitating public/private sector partnerships through the warehouse receipt system
iii) Lobbying for specially designed financial products with favourable lending terms conditions appropriate for the agricultural enterprises.

6.0 GOVERNANCE AND IMPLEMENTATION ARRANGEMENTS

6.1 Governance

The Government of the Republic of Zambia (GRZ) through MA will oversee the SNRDS implementation process. However, to achieve effective implementation of the SNRDS there is need to establish a public-private sector coordinating body and/or forum that will be referred to as the Zambia Consortium for Accelerated Rice Development (ZCARD). The ZCARD will

constitute a national steering/coordinating body whose membership will be drawn from a cross-section of stakeholder organisations.

The operations of ZCARD would need to be guided by terms of reference along the lines suggested below.

i) Functions

The ZCARD will be mainly responsible for:

a) Coordinating the implementation and review of strategies;
b) Lobbying for resources and policy support;
c) Monitoring and evaluating interventions;
d) Fostering local partnerships; and,
e) Promoting collaboration with other regional and international rice stakeholders and partners.

ii) Composition

The membership of ZCARD shall be drawn from the following institutions:

a)	Ministry of Agriculture	
	- Department of Policy and Planning	1
	- Department of Agriculture	1
	- Zambia Agriculture Research Institute	1
	- Department of Agribusiness and Marketing	1
b)	Ministry of Commerce, Trade and Industry	1
c)	Ministry of Finance	1
d)	Zambia Rice Federation,	1
e)	The University of Zambia Department of Agriculture	1
f)	Agro NGO's representative	1
g)	Financial Institutions (Bankers Association of Zambia)	1
h)	Zambia National Farmers Union	1
i)	National Union for Small Scale Farmers of Zambia	1
j)	Seed Control and Certification Institute (Regulatory body)	1
k)	International Development Organisations	1

Members of the ZCARD shall be appointed by the Permanent Secretary in the Ministry of Agriculture. The committee shall identify an individual/s as champion/s of the SNRDS who will promote the strategic interests of the rice sub-sector in order to enhance the implementation of the SNRDS. To ensure effective coordination in the implementation of the NRDS, the Department of Agriculture will lead the implementation of the strategy.

6.2 Institutional Arrangements

Effective implementation of SNRDS will depend on the active, integrated and holistic involvement of all the rice stakeholders.

MA through its various departments will play a major role in the implementation of the SNRDS by committing required human and financial resources. Current efforts by MA aimed at supporting the development of rice sub-sector include the following:

i) Zambia Agriculture Research Institute (ZARI) – is mandated to conduct research in rice, which includes variety development, agronomic practices, and soil and water management. Apart from the regular programmes and activities ZARI has been implementing projects to support rice research, which includes Food Crop Diversification Support Project focusing on Rice (FoDiS-R) supported by JICA, the World Bank supported Agriculture Productivity Programme for Southern Africa (APPSA) and Smallholder Productivity Promotion Programme (S3P) supported by IFAD.

ii) Department of Agriculture – with the mandate of promoting and disseminating agriculture technologies to farmers. Apart from the regular programmes and activities, the department has been implementing projects to support general extension activities which include rice. These include Rural Extension Capacity Advancement Project (RESCAP), APPSA, FoDiS-R, S3P, the Finnish supported Programme for Luapula Agriculture Rural Development (PLARD) and Rice Dissemination Project supported by JICA.

iii) Seed Control and Certification Institute (SCCI) – has the mandate to promote and regulate the seed industry. Apart from the regular programmes and activities, SCCI is implementing specific activities which include strengthening of the rice seed system under APPSA and S3P.

iv) Department of Agribusiness and Marketing – apart from the activities related to

agribusiness and marketing, the department has the mandate of implementing FISP, under which subsidized inputs are provided to small-scale farmers to promote production of major crops that include rice and the IFAD-funded Smallholder Agribusiness Promotion Programme (SAPP), which facilitates value chain development.

v) Department of Policy and Planning – is responsible for coordinating policy formulation, programme implementation, monitoring and evaluation.

vi) Food Reserve Agency (FRA) – has been expanding the coverage of rural districts from which to buy rice for the strategic food reserve.

vii) Department of Cooperatives – is involved in farmer mobilisation and registration

6.3 Implementation Planning

To kick start the implementation of the strategy, ZCARD upon becoming functional shall operationalise this strategy in accordance with the Strategic Framework, the Concept Notes and the already existing Stakeholders' Commitments (refer to Annex 1, 2 and 3) which form a part of this strategy.

6.4 Estimated Cost and Financing

6.4.1 Estimated Cost

Based on the Strategic Framework (Annex 1), the proposed interventions under the various sub components across the rice value chain and on the strategies outlined in this document, eight (8) proposed concept notes and associated budget estimates were developed.

Table 6: Estimated Budget (USD) of Concept Notes

SI. No.	Project Title	Estimated Budget (USD) Millions
CN 1	Enhancing access to domestic and regional rice markets	1.600
CN 2	Development of improved rice varieties	0.850
CN 3	Multiplication and distribution of seed of improved rice varieties	1.000
CN 4	Developing and adapting post-harvest technologies for improved quality of locally produced rice	3.000
CN 5	Strengthening extension services for increased rice production	2.150
CN 6	Strengthening the coordination among stakeholders in the rice industry	0.900
CN 7	Development and rehabilitation of irrigation infrastructure for increased rice production	10.000
CN 8	Development of cultivation and management practices for rice	1.500
	production	
	Total	**21.000**

The details of the concept notes and their budgets are shown in Annex 2. A summary of the estimated budget requirements to operationalise this strategy is shown in Table 6 above.

6.4.2 Financing

For effective and sustainable implementation of the SNRDS, there is need for continued mobilisation of investment by the private and public sectors together with the development partners. The already committed funding for some of the activities related to the various concept notes is estimated at about USD 10 million (Annex 3). In this regard relevant departments under MA should create budget lines dedicated to the financing of the SNRDS as a commitment to rice promotion. Additionally, government should provide tax incentives to promote investments in the rice sub-sector. This includes reduction of duty on farm implements that are used in the rice value chain.

7.0 SUSTAINABILITY

The involvement of value chain actors in the planning and implementation process of the strategy will create ownership and contribute to the sustainability of the strategy. This will require also the strengthening of ZRF and public institutions responsible for research, extension and marketing in order to make it functional at all levels.

8.0 CROSS CUTTING ISSUES

The strategy will take into account mitigation measures related to adverse effects of the environment, HIV/AIDS and gender issues. All these issues will be mainstreamed in all major activities related to the implementation of the SNRDS.

9.0 CONCLUSION

The SNRDS gives the Government and its development partners an opportunity to sustainably improve livelihoods through diversified agricultural production. The implementation of the strategy should take into consideration the existing potential and opportunities to enhance rice sub-sector.

ANNEXES

Annex 1: Strategic Framework

Objectives	Strategies	Major Activities
1. Increase yields by at least 25% over a five year period	KPI: 25% increase in yield	
	1.1 Enhancing farmers access to improved varieties and quality seed	i) Seed purification of existing varieties ii) Identify and evaluate comprehensively high quality local varieties iii) Development and improvement of new varieties; iv) Production of pre-basic, basic and certified rice seeds; v) Strengthening rice seed distribution network in the country; vi) Supporting community on-farm seed multiplication; vii) Strengthening the capacity of seed companies.
	1.2 Introducing, developing and improving sustainable crop management practices	i) Shifting from broadcasting of seed to nursery establishment and transplanting of seedlings; ii) Application of agronomic practices such as young, single seedlings widely spaced, iii) The use of mechanical weeder to control weeds; iv) Improved organic soil fertility management; and v) Controlled water application to the rice fields.
	1.3 Enhancing availability of and accessibility to production inputs	i) Strengthening the agribusiness skills of agro-dealers to enable them to access finances; ii) Increasing the proportion of FISP allocations to rice production
	1.4 Strengthening Technology Generation	i) Improving and purifying the existing popular local varieties; ii) Developing new varieties; iii) Improving and adapting agronomic management practices; iv) Developing and adapting post-harvest technologies v) Strengtheningregional and international collaboration and partnerships with research organisations.
	1.5 Strengthening Technology Dissemination	i) Developing and packaging extension materials for extension staff and farmers; ii) Promoting extension approaches/methodologies which will encourage hands-on learning such as the farmer field schools; iii) Strengthening farmer exchange visits; iv) Conducting specialized training for extension staff in rice producing areas.
2. Expand Area under cultivation	KPI : % increase in area under cultivation	
	2.1 Enhancing farmers access to improved varieties and quality seed	i) Seed purification of existing varieties ii) Identify and evaluate comprehensively high quality local varieties iii) Development and improvement of new varieties; iv) Production of pre-basic, basic and certified rice seeds; v) Strengthening rice seed distribution network in the country; vi) Supporting community on-farm seed multiplication; vii) Strengthening the capacity of seed companies.
	2.2 Enhancing availability of and accessibility to production inputs	i) Strengthening the agribusiness skills of agro-dealers to enable them to access finances; ii) Increasing the proportion of FISP allocations to rice

Objectives	Strategies	Major Activities
		production
	2.3 Investment in irrigation and water control technologies	i) Rehabilitation and construction of irrigation structures ii) Improving water management skills among farmers iii) Construction of rain-water harvesting and storage structures iv) Developing and adapting appropriate water management technologies
3. Improve the quality of local rice in order to enhance its competitiveness against imports	KPI : 50% increase in production KPI : % farmers adopting technologies being promoted e.g. recommended seeding rates, planting methods, weeding frequencies, fertiliser application rates, crop rotation, IPDM practices etc. KPI : % farmers using improved seed	
	3.1 Enhancing farmers' access to improved varieties and quality seed	i) Seed purification of existing varieties ii) Identify and evaluate comprehensively high quality local varieties iii) Development and improvement of new varieties; iv) Production of basic and certified rice seeds; v) Strengthening rice seed distribution network in the country; vi) Supporting community on-farm seed multiplication; vii) Strengthening the capacity of seed companies.
	3.2 Enhancing availability of and accessibility to inputs	i) Strengthening the agribusiness skills of agro-dealers to enable them to access finances; ii) Increasing the proportion of FISP allocations to rice production
	3.3 Minimising post-harvest losses	i) Training rice value chain actors on appropriate post-harvest technologies ii) Facilitating access to appropriate post-harvest equipment and machinery iii) Facilitating private sector investment in storage facilities
4. To promote stakeholder innovation capacity for the utilisation of rice and its by-products	KPI : % stakeholders adopting recommended processing technologies	
	4.1 PromotingMechanisation	i) Promoting the use of appropriate equipment ii) Building the capacity of selected agro-entrepreneurs to provide technical services iii) Establishing community based agro-business service centres
5. Increase the market share of the locally produced rice	KPI: % farmers and/trader adopting recommended drying and storage methods. KPI: % processors adopting recommended processing technologies KPI: % increase in milling outturns (whole grain: broken grain ratio) KPI: % increase in capacity utilisation of huskers and mills	
	5.1 Minimising post-harvest losses	i) Train rice value chain actors on appropriate post-harvest technologies ii) Facilitate access to appropriate post-harvest equipment and machinery iii) Facilitate private sector investment in storage facilities iv) Establish strong self supporting groups in which members support each other to produce, process, package and market their rice v) v) Advocate and promote the use of the warehouse receipt

Objectives	Strategies	Major Activities
		system in rice marketing
	5.2 Strengthening market linkages	i) Establishing strong, self-supporting groups in which members support each other to produce, process, package and market their rice ii) Advocating and promoting the use of the warehouse receipt system in the marketing of rice iii) Promoting collective marketing through establishment of community level bulking centres
	5.3 Improving access to credit/finance	i) Facilitating farmers to form groups and associations in order to strengthen their bargaining power and accessibility ii) Facilitating public/private sector partnerships through the warehouse receipt system iii) Lobbying for favourable lending conditions for the agriculture sector
6. Strengthening the coordination among stakeholders in the Rice Industry	KPI:No. Of ZRF platform operational at district, province and national levels KPI: Number of key policy issues discussed at district, provincial and national levels	
	6.1 Operationalising the ZRF structures at district, province and national levels.	i) Establish the ZRF structures at District, Province and National levels.
	6.2 improving coordination between the public and private sector stakeholders	i) Organise multi stakeholder innovation platforms at district, province and national levels. ii) Participate in trade fairs, trade missions, exhibitions and exchange visits for best practices. iii) Set up a management information system for knowledge sharing and learning.
	6.3 Aadvocating for a stable, predictable and pro - business trade policy environment for rice industry development	i) Lobby and advocate for policy and regulatory reforms in the rice industry.

Annex 2: Concept Notes

CN-1		
1. Title (Full name)	**Enhancing access to domestic and regional Rice Markets**	
2. Project Location	Country wide	
3. Type of project	1 | 3 | 4 | 5	
	1. Grant; 2. Loan; 3. Technical Coop./Assistance; 4. National budget; 5. Private sector	
4. Field of support	3 | 5 | 6	
	1. Policy; 2. R & D; 3. Extension & Training; 4. Production; 5. Marketing; 6. Post-harvest; 7.Irrigation; 8. Credit; 9. Seed; 10. Other (specify below)	
5. Possible Sources of Support	GRZ, and Cooperating Partners	
6. Budget	1.6 million USD	
7. Duration of project	3 Years	
8. Goal and objectives	Goal:	To increase the market share for locally produced rice
	Obj.:	1. To facilitate rice trading by strengthening the linkages among market players in the rice value chain
		2. To enhance access to market information such as quantity, quality, timing and pricing
		3. To establish a functional Warehouse Receipt System that enhances rice producers' market access
		4. To develop national rice standards
9. Target beneficiaries	Direct:	Smallholder Farmers
	Sec.:	Extension Officers, Millers, Traders, Input suppliers, transporters and other service providers.
10. Project component (activities)	1	Identify the players in the rice value chain and the roles they play.
	2	Mobilize smallholder farmers, millers, traders, input suppliers, transporters and other service providers into organized groups and/or business associations
	3	Train mobilized producer and business organisation membersin good governance, financial management, conflict resolution, negotiation, business management and entrepreneurship.
	4	Package and disseminate market information including quantity, quality, demand and supply, prices and crop forecasts.
	5	Conduct exchange visits and study tours
	6	Create awareness on the operations of the WRS among stakeholders
	7	Conduct training in WRS operations for rice value chain key stakeholders
	8	Develop rice standards
	9	Sensitise stakeholders on rice standards
11. Expected results (outputs)	1	Organized and capacitated farmer associations, millers, traders and other service providers in input and output trading.
	2	Improved capacity of extension officers to facilitate the access of small holder farmers to input and output markets
	3	Established rice marketing information system
	4	Capacity for storage and marketing of locally produced rice increased
	5	A functional WRS for Rice in place
	6	National rice standards developed and implemented
	7	Stakeholder awareness on national and international rice standards created

CN-2

1. Title (Full name)	**Development of Improved Rice Varieties**	
2. Project Location	Countrywide	
3. Type of project	1 | 3 | 4 | 5	
	1. Grant; 2. Loan; 3. Technical Coop./Assistance; 4. National budget; 5. Private sector	
4. Field of support	2 | 3 | 9	
	1. Policy; 2. R & D; 3. Extension & Training; 4. Production; 5. Marketing; 6. Post-harvest; 7. Irrigation; 8. Credit, 9. Seed; 10. Other (specify below)	
5. Possible sources of Support)	GRZ and Cooperating Partners	
6. Budget	850,000 USD	
7. Duration of project	5 years	
8. Goal and objectives	Goal:	To increase the productivity and production of rice among smallholder producers
	Obj.:	1. To develop high yielding varieties with desirable consumer traits
		2. To increase availability and accessibility of seed of improved rice varieties
		3. To develop varieties that are adaptable to upland ecologies
9. Target beneficiaries	Direct:	Rice growers,
	Sec.:	Millers, Consumers, Traders
10. Project component (activities)	1	To enhance the skills of breeders and technicians
	2	Provision and/or rehabilitation of research facilities
	3	Assemble germplasm from different sources
	4	Produce basic- and foundation seeds of the purified lines and the developed cultivars
	5	Maintenance of released varieties.
11. Expected results (outputs)	1	Improved high yielding varieties are developed and made available
	2	Foundation seed made available
	3	Breeders and technicians skills enhanced
	4	Research facilities for rice are upgraded

CN-3		
1. Title (Full name)	**Multiplication and Distribution of Seed of improved Rice Varieties**	
2. Project Location	Eastern, Luapula, Muchinga, Northern, North Western and Western Provinces	
3. Type of project	1 | 3	
	1. Grant; 2. Loan; 3. Technical Coop./Assistance; 4. National budget; 5. Private sector	
4. Field of support	2 | 3 | 7 | 9	
	1. Policy; 2. R & D; 3. Extension & Training; 4. Production; 5. Marketing; 6. Post-harvest; 7. Irrigation;8. Credit; 9. Seed; 10. Other (specify below)	
5. Possible sources of Support	GRZ and Cooperating Partners	
6. Budget	USD 1Million	
7. Duration of project	3 years	
8. Goal and objectives	Goal:	To increase the productivity and production of rice among smallholder producers
	Obj.:	To improve the availability and accessibility of quality seed to farmers
9. Target beneficiaries	Direct:	Rice farmers and seed growers
	Sec.:	Entrepreneurs, Ministry of Agriculture and Livestock (SCCI, DoA, FISP, ZRF)
10. Project component (activities)	1	Mobilise farmers and farmer groups into seed growers clusters
	2	Train farmers in seed multiplication
	3	Train and licence seed inspectors
	4	Create partnerships with private seed companies for seed production, distribution and marketing
	5	Provide seed quality control services
11. Expected results (outputs)	1	Seed laboratories established and rehabilitated
	2	Seed certification capacity enhanced
	3	Certified seed made available
	4	Farmer capacity in seed multiplication developed and enhanced

CN-4		
1. Title (Full name)	**Developing and adapting Postharvest Technologies for improved quality of locally produced Rice**	
2. Project Location	Countrywide	
3. Type of project	1 3 4 5	
	1. Grant; 2. Loan; 3. Technical Coop./Assistance; 4. National budget; 5. Private sector	
4. Field of support	3 4 5 6	
	1. Policy; 2. R & D; 3. Extension & Training; 4. Production; 5. Marketing; 6. Post-harvest; 7. Irrigation; 8. Credit; 9. Seed; 10. Other (specify below)	
5. Possible sources of Support	GRZ and Cooperating Partners	
6. Budget	3 million USD	
7. Duration of project	3 Years	
8. Goal and objectives	Goal:	To increase profitability of rice growers and improve rice marketability
	Obj.:	To reduce post-harvest losses and enhance the quality of locally produced rice
9. Target beneficiaries	Direct:	Actors in the rice value chain (specify; input suppliers to retailers)
	Sec.:	Service providers
10. Project component (activities)	1	Develop and adapt appropriate post-harvest technologies
	2	Promote adoption of appropriate post-harvest technologies (e.g. threshing, drying)
	3	Promote appropriate storage facilities for rice at farm and community levels
11. Expected results (outputs/? outcomes)	1	Post-harvest management knowledge and skills of value chain players enhanced
	2	Increased access to appropriate postharvest technologies
	3	Postharvest losses reduced and quality enhanced

CN-5		
1. Title (Full name)	**Strengthening Extension Services for increased Rice Production**	
2. Project Location	Eastern, Luapula, Muchinga, Northern, North Western and Western Provinces	
3. Type of project	1 | 3 | 4 | 5	
	1. Grant; 2. Loan; 3. Technical Coop./Assistance; 4. National budget; 5. Private sector;	
4. Field of support	3	
	1. Policy; 2. R & D; 3. Extension & Training; 4. Production; 5. Marketing; 6. Post-harvest; 7. Irrigation; 8. Credit; 9. Seed; 10. Other (specify below)	
5. Possible sources of Support	GRZ and Cooperating Partners	
6. Budget	2.15 million USD	
7. Duration of project	3 years	
8. Goal and objectives	Goal:	To increase rice production by at least 50% and increase household income for farmers by 2019
	Obj.:	1. To increase the adoption of rice production technologies
		2. To build capacity of extension staff in rice production.
		3. To strengthen farmer, extension and research linkages
9. Target beneficiaries	Direct:	Extension service staff and farmers
	Sec.:	Millers, Input suppliers, traders, private sector
10. Project component (activities)	1	Establish rice Farmer Field Schools / Study Circles
	2	Conduct On-farm Demonstrations and Field Days
	3	Conduct Farmer exchange visits
	4	Disseminate appropriate technologies for rice production
	5	Prepare training manual (Rice production)
	6	Provide means of transport to extension staff and lead farmers
	7	Conduct training of extension staff and lead farmers
11. Expected results (outputs)	1	Appropriate rice production technologies adopted.
	2	Levels of knowledge and skills among extension staff enhanced

CN-6		
1. Title (Full name)	**Strengthening the coordination among stakeholders in the Rice Industry**	
2. Project Location	Countrywide	
3. Type of project	1 | 3 | 4 | 5	
	1. Grant; 2. Loan; 3. Technical Coop./Assistance; 4. National budget; 5. Private sector	
4. Field of support	1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9	
	1. Policy; 2. R & D; 3. Extension & Training; 4. Production; 5. Marketing; 6. Post-harvest; 7. Irrigation; 8. Credit; 9. Seed; 10. Other (specify below)	
5. Possible sources of Support	GRZ and Cooperating Partners	
6. Budget	900,000 USD	
7. Duration of project	3 years	
8. Goal and objectives	Goal:	To improve coordination in the rice sub sector
	obj.	1. To operationalise the ZRF structures at district, province and national levels. 2. To improve coordination between the public and private sector stakeholders 3. To advocate for a stable, predictable and pro-business trade policy environment for rice industry development
9. Target beneficiaries	Direct:	All stakeholders
	Sec.:	-
10. Project component (activities)	1.	Establish the ZRF structures at District, Province and National levels.
	2.	Organise multi stakeholder innovation platforms at district, province and national levels.
	3.	Participate in trade fairs, trade missions, exhibitions and exchange visits for best practices.
	4.	Set up a management information system for knowledge sharing and learning.
	5.	Lobby and advocate for policy and regulatory reforms in the rice industry.
11. Expected results (outputs)	1.	ZRF structures established and operational.
	2.	Multi stakeholder platforms established and are functional.
	3.	Value chain actors' knowledge enhanced
	4.	Coordination in the rice sub sector strengthened

CN-7		
1. Title (Full name)	**Development and rehabilitation of irrigation infrastructure for increased rice production**	
2. Project Location	Eastern, Luapula, Muchinga, Northern, North Western and Western Provinces	
3. Type of project	**1** **2** **3** **4** **5**	
	1. Grant, 2. Loan, 3. Technical Coop./Assistance, 4. National budget, 5. Private sector	
4. Field of support	3 4 5 7	
	1. Policy, 2. R & D, 3. Extension & Training, 4. Production, 5. Marketing. 6. Post-harvest, 7. Irrigation, 8. Credit, 9. Seed, 10. Other (specify below)	
5. Possible sources of Support	GRZ and Cooperating Partners	
6. Budget	10 million USD	
7. Duration of project	5 years	
8. Goal and objectives	Goal:	To increase the productivity and production of rice among smallholder producers
	Obj.:	1. To expand area for irrigated rice production
		2. To increase rice productivity among smallholder farmers
		3. To enhance the water management knowledge and skills of smallholder rice producers
9. Target beneficiaries	Direct:	Rice growers (Seed growers, small and medium scale rice farmers)
	Sec.:	Traders, millers, consumers
10. Project component (activities)	1.	Conduct feasibility study for the identification of potential sites for irrigation
	2	Assess the condition of existing rice irrigation infrastructure
	3.	Rehabilitate existing irrigation infrastructure
	4.	Construct new irrigation infrastructure in selected sites in the provinces with high potential for increase rice production
	5.	Conduct training for the rice growers and extension staff in water management skills and maintenance of the infrastructure
11. Expected Results	1.	The existing irrigation schemes (such as Sefula, Siatwinda and Maheba) rehabilitated
	2.	New irrigation infrastructure developed.
	3.	Skills and knowledge in water management and irrigation infrastructure maintenance enhanced

	CN 8	
1.Title (Full Name)	**Development of Cultivation and Management Practices for Rice Production**	
2. Project Location	Eastern, Luapula, Muchinga, Northern, North Western and Western Provinces	
3. Type	1 | 2 | 3 | 4 | 5	
	1. Grant 2.Loan. 3.Technical Coop/assistance.4 National budget 5.Private sector	
4. Field of Support	2 | 4	
	1. Policy, 2. R & D, 3. Extension & Training, 4. Production, 5. Marketing. 6. Post-harvest, 7. Irrigation, 8. Credit, 9. Seed, 10. Other (specify below)	
5.Possible Sources of Support	GRZ and Cooperating Partners	
6. Budget	USD 1.5 million	
7. Duration of project	3 Years	
8. Goal and Objectives	Goal	To increase the productivity and production of rice among smallholder producers
	Obj:	1. To develop and adapt improved management practices in rice production
		2. To develop sustainable dambo cultivation systems for rice production
		3. To identify upland rice varieties adapted to dambo cultivation
		4. To enhance the knowledge and skills of researchers, and extension staff in improved management practices for rice production
9.Target Beneficiaries	Direct:	Small Scale farmers
	Sec:	Processors, traders and consumers
10. Project component (Activities)	1.	Develop and adapt improved management practices
	2.	Identify and characterize rice growing ecologies including dambos
	3.	Evaluate upland rice varieties in dambo ecologies
	4.	Conduct training for researchers, technicians and extension staff
11. Expected results (out puts)	1	Improved management practices developed and adapted
	2.	Dambo cultivation systems for rice developed
	3.	Upland rice varieties adapted to dambo cultivation identified
	4.	Researchers and technicians knowledge and skills enhanced

Annex 3: Stakeholder Analysis and Commitment

Stakeholders	Projects/Activities	Coverage/Duration	Amount committed	Linkages to Concept Notes
FISP	Input supply (seed & fertilizer)		US$ 4million	CN 5: Strengthening Extension Services for increased Rice Production
S3P	i) Provision of extension services through the government extension system and non-government extension service providers ii) Seed multiplication, purification of local rice varieties iii) Provision of grants to finance storage and processing facilities iv) Small-scale water management structures	Northern, Luapula and Muchinga Provinces	Not available	CN 4: Developing and adapting Postharvest Technologies for improved quality of locally produced Rice CN 5: Strengthening Extension Services for increased Rice Production
SAPP	i) Post farm gate activities such as Processing, Marketing and Packaging	Northern, Eastern, Muchinga, Western and North-Western Provinces Duration : 2015-2018	US$ 500,000	CN1: Enhancing access to domestic and regional Rice Markets CN4: Developing and adapting Postharvest Technologies for improved quality of locally produced Rice CN6: Strengthening the coordination among stakeholders in the Rice Industry
APPSA Duration :	i) Rice Germplasm collection, characterisation and conservation	Muchinga, Eastern, Northern, Luapula, Western and North-	US$ 130,000	CN 2: Development of improved rice varieties (as this activities includes conducting morphological and molecular germplasm characterisation aimed at

Stakeholders	Projects/Activities	Coverage/Duration	Amount committed	Linkages to Concept Notes
2013-2019		western provinces		identifying useful traits for use in rice breeding
	ii) Promotion and Dissemination of Rice improved technologies for sustainable production	Muchinga province (Chama, Chinsali and Isoka districts) Northern province (Chilubi, Kaputa and Mungwi districts) Western province (Senanga, Kalabo, Limulunga and Mongu districts)	US$ 200,000	CN 3: Strengthening extension services for increased rice production (as this activity includes developing and implementing strategies for dissemination of technologies to promote rice production
	iii) Enhancing productivity of rice varieties through development of integrated crop management practices	Western and Luapula provinces	US$ 100,000	CN 8: Development of cultivation and management practices for rice production
	iv) Participatory evaluation of improved rice varieties to increase productivity	Western province (Kaoma and Mongu districts) Muchinga province (Chinsali district)	US$ 139,000	CN 2: Development of improved rice varieties

Stakeholders	Projects/Activities	Coverage/Duration	Amount committed	Linkages to Concept Notes
	v) Strengthening rice seed delivery system for improved rice production among smallholder farmers	Western province (Mongu and Senenga districts) Eastern province (Lundazi district) Muchinga province (Chama district)	US$ 280,000	CN 3: Multiplication and distribution of seed of improved rice varieties
	vi) Development of improved rice varieties	Western, Luapula, Eastern, Muchinga and Northern provinces	US$ 200,000	CN 2: Development of improved rice varieties
JICA	Rice Dissemination Project Establishing effective extension system for rice cultivation in target areas	Luapula, Northern, Muchinga, Western, Copperbelt, North-Western, Eastern and Lusaka Period:2016-18	US$ 3,053,000 (technical cooperation base) 70% for CN 5 & 30% for CN 8	CN 5:Strengthening Extension Services for increased Rice Production CN8: Development of cultivation and management practices
FRA	Marketing of paddy rice	Luapula, Muchinga, Northern, North Western & Western provinces	US$ 70,000	CN1: Enhancing access to domestic and regional Rice Markets

Stakeholders	Projects/Activities	Coverage/Duration	Amount committed	Linkages to Concept Notes
FAO	Strengthening Rice Seed Production and Enhancing Extension Services to Increase Rice Production	Kasama, Mungwi and Chinsali districts of Northern and Muchinga Provinces. 2 years from 2015	US$ 484,000	CN 3: Multiplication and Distribution of seed of improved Rice Varieties CN5: Strengthening Extension Services for increased Rice Production
COMACO (PVT)	Farmer support (farmer training and seed supply through Cooperatives) Value addition (processing and packaging) Marketing (Buying and selling)	Chinsali, Chama, Lundazi and Serenje	US$ 125,000 US$ 84,500 US$ 500,000	CN 4: Developing and adapting Postharvest Technologies for improved quality of locally produced Rice CN5: Strengthening Extension Services for increased Rice Production
KAMANO	Seed multiplication and distribution	Western and Northern	US$ 60, 000	CN 3: Multiplication and Distribution of seed of improved Rice Varieties
ZAMSEED	Seed multiplication and distribution	Lusaka and central	Not available	CN 3: Multiplication and Distribution of seed of improved Rice Varieties
FUTURE SEED	Seed multiplication and distribution	Western and Eastern	Not available	CN 3: Multiplication and Distribution of seed of improved Rice Varieties
SEDCO	Seed multiplication, variety purification and distribution	Lusaka	Not available	CN 3: Multiplication and Distribution of seed of improved Rice Varieties
Mongu Diocese	Farmer support (farmer training and	Western	Not available	CN1: Enhancing access to domestic and

Stakeholders	Projects/Activities	Coverage/Duration	Amount committed	Linkages to Concept Notes
Development Centre (DMDC)	seed supply through Cooperatives) Value addition (processing and packaging) Marketing (Buying and selling) Seed multiplication and distribution	Installed Capacity 7.5 mt/day Utilisation 4.5 mt/day		regional Rice Markets CN 3: Multiplication and Distribution of seed of improved Rice Varieties CN5: Strengthening Extension Services for increased Rice Production
APG Milling	Value addition (processing and packaging) Marketing (Buying and selling)		Not available	CN1: Enhancing access to domestic and regional Rice Markets
National Milling	Value addition (processing and packaging) Marketing (Buying and selling)		Not available	CN1: Enhancing access to domestic and regional Rice Markets
SefulaMulti Purpose cooperative	Value addition (processing and packaging) Marketing (Buying and selling) Seed multiplication and distribution		Not available	CN1: Enhancing access to domestic and regional Rice Markets
Zambezi Organic Rice	Value addition (processing and packaging)		Not available	CN1: Enhancing access to domestic and regional Rice Markets

Stakeholders	Projects/Activities	Coverage/Duration	Amount committed	Linkages to Concept Notes
Growers	Marketing (Buying and selling)			
Frontier Milling	Farmer support (farmer training and seed supply through Cooperatives) Value addition (processing and packaging) Marketing (Buying and selling)		K400,000	CN1: Enhancing access to domestic and regional Rice Markets CN 3: Multiplication and Distribution of seed of improved Rice Varieties CN5: Strengthening Extension Services for increased Rice Production
New Dawn Milling	Farmer support (farmer training and seed supply through Cooperatives) Value addition (processing and packaging) Marketing (Buying and selling)		Not available	CN1: Enhancing access to domestic and regional Rice Markets CN 3: Multiplication and Distribution of seed of improved Rice Varieties CN5: Strengthening Extension Services for increased Rice Production
Alibo	Value addition (processing and packaging) Marketing (Buying and selling)		Not available	CN1: Enhancing access to domestic and regional Rice Markets
Yambeeji	Farmer support (farmer training and seed supply through Cooperatives) Value addition (processing and packaging)		US$ 54,500 Investment	CN1: Enhancing access to domestic and regional Rice Markets CN 3: Multiplication and Distribution of seed of improved Rice Varieties CN5: Strengthening Extension Services

Stakeholders	Projects/Activities	Coverage/Duration	Amount committed	Linkages to Concept Notes
	Marketing (Buying and selling)			for increased Rice Production
Mansa Milling	Value addition (processing and packaging) Marketing (Buying and selling)		Not available	CN1: Enhancing access to domestic and regional Rice Markets
Total for all Concept Notes			**US$ 10 million**	

Annex 4: Rice cultivation area, yield, production, sales and deficit in Zambia

Year	Area Planted (Ha)	Area Harvested (Ha)	Production (MT)	Sales (MT)	Yield (MT/Ha)
2002	12,926	9,270	11,645	5,365	0.90
2003	10,305	7,452	10,743	5,716	1.04
2004	12,379	9,685	11,699	3,524	0.95
2005	18,243	10,368	13,337	6,626	0.73
2006	14,358	10,631	13,964	-	0.97
2007	20,067	12,110	18,317	11,318	0.91
2008	25,177	17,366	24,023	13,151	0.95
2009	31,032	25,582	41,929	21,343	1.35
2010	35,841	30,788	51,656	26,338	1.44
2011	33,995	27,496	49,410	26,797	1.45
2012	31,388	26,265	45,321	22,999	1.44
2013	38,520	31,621	44,747	21,432	1.16
2014	40,974	33,207	49,640	29,751	1.21

Source: MA/CSO Crop Forecast Survey Data, 2002-2014

Annex 5: Composition of Task Force

Name	Institution	Position in Task Force
Mr. AlickDaka	Department of Agriculture, MA	Co-Chairperson
Mr. Godfrey Mwila	ZARI, MA	Co-Chairperson
Mrs. Elly SiakasasaMwale	ZRF	Member
Mr. Morton Mwanza	Department of Agriculture, MA	Member
Mr. Nathan Phiri	SCCI, MA	Member
Mr. Mathias Ndhlovu	ZARI, MA	Member
Mr. ShadreckMwale	Department of Agriculture, MA	Member
Mr. MalumoNawa	Department of Agriculture, MA	Member
Mr. Phillip Siamuyoba	Department of Agriculture, MA	Member
Mr. Kaunda Kapepula	Department of Agribusiness, MA	Member
Dr. Jiro Nozaka	MA/JICA	Member
Mr. Tokutaro Iino	ZARI/JICA, MA	Member
Dr. Yusuke Haneishi	MA/JICA	Member
Mr. MasiyeNawiko	ACF	Member, Secretariat

Annex 6: References

Afro Development Services (2009), Survey on Rice Production and Marketing in Eastern Province of Zambia

Africa Rice (2010), e-Publications: A CD on Africa Rice Publications

Central Statistical Office (2010), Census of Population and Housing

Central Statistical Office (2006 & 2010), Living Conditions Monitoring Surveys

Central Statistical Office/Ministry of Agriculture (2000 – 2014), Crop Forecasting Survey Data

Coalition for African Rice Development, http://www.riceafrica.org. National Rice Development Strategies

CUTS (2009), A Study of the Rice Value Chain in Zambia

FAOSTAT

Ministry of Agriculture and Livestock (2013), Second National Agricultural Policy

Ministry of Agriculture and Livestock (2013), Revised Sixth National Development Plan

Ministry of Agriculture and Cooperatives (2011), Zambia Comprehensive Africa Agriculture Development Programme Compact

Ministry of Agriculture and Cooperatives (2011), Zambia National Rice Development Strategy 2011-2015

Strategic Visions Limited (2009), Survey on Rice Production and Marketing in Western and Northern Provinces of Zambia

SNV (2008), Zambia Rice Baseline Study Report

SNV (2009), Consumer Survey on Rice in Zambia

WARDA (2004), http//www.warda.org. "The Rice Challenge in Africa".

MINISTRY OF AGRICULTURE

SECOND NATIONAL RICE DEVELOPMENT STRATEGY 2016 - 2020