

CAMEROON JOINS THE GLOBAL SRI GROUP



Bringing SRI to Cameroon

SRI benefits have been seen in over 50 countries of Asia, Africa, and Latin America. Now by the end of 2013, Cameroon has become the first SRI country in Central Africa. This is due to an initiative by the British NGO **Skills for Development** which brought Henry Ngimbu from Zambia as an SRI trainer/monitor/evaluator for three short-term assignments during the year. Henry was the catalyst for getting SRI demonstrated and started in his home country as reported on the **SRI-Rice** website: <http://sri.ciifad.cornell.edu/countries/zambia/index.html>

This report describes the introduction of SRI in Cameroon and the results from the first-year's demo trials managed by three women's clubs whose members were keen to learn the new methods. Their reward for their eagerness to learn were average yields of **8.2 tons/ha** where before their paddy yields were 3-4 tons/ha, and only 6% of the members had had yields more than 5 tons/ha. In 2013, the club members' SRI yields ranged from 4.0 tons/ha to 12.8 tons/ha.

Joining the SRI 'club' will avail Cameroonian farmers of the opportunity to benefit from the substantial information and experience coming from SRI's international networks. There is now growing excitement about SRI opportunities in Cameroon, and government personnel and leaders there are taking an interest in SRI. This report describes also the plans made by the farmers themselves to spread and use SRI knowledge on a larger scale.

Henry Ngimbu
SRI Specialist – Cameroon 2013
Centre for SRI Initiative (CSRII), Zambia

1.1. Scope of work:

- (i) Objective of work: Carry out participatory capacity-building training in System of Rice Intensification in Ndop, Cameroon. The programme was managed and sponsored by **Skills for Development**, an NGO based in the UK, with technical support from **SRI-Rice** of Cornell University in the USA.
- (ii) Duration of work: 3 trips during 2013 from Zambia to Cameroon and return.
- (iii) First stage -- May 2013: A participatory SWOT analysis conducted during the familiarization period identifying the challenges faced with traditional methods of rice growing to introduce SRI opportunities to three farming groups in Cameroon.
- (iv) Second stage -- June 2013: Implementation of SRI farming practices by three rice farmer groups in Cameroon through Farmer-field School (FFS) approach.
- (v) Third stage -- October 2013: Evaluation of progress for SRI farming practice in Cameroon.
- (vi) Assignment: SRI specialist Henry Ngimbu from Zambia was recommended to take up this task by the SRI International Network and Resources Center (SRI-Rice) at Cornell University, USA.
- (vii) Reporting to: Director of Skills for Development, Ms. Tamara Palamakumbura, UK

2. STRUCTURE OF THE REPORT

This document is organized into two parts as follows;

- A. Results from the 2013 SRI training program
- B. Processes involved in the SRI training program

Part A gives details on the performance resulting from the training: yields, number of farms, and people involved. Part B focuses on the processes involved in achieving the 2013 results.

PART A: RESULTS FROM THE 2013 SRI TRAINING PROGRAM

1. Results of on-farm evaluations of paddy yields from SRI methods in three breeding and 38 multiplication plots:

During the beginning of the SRI training in 2013, farmers who participated in the SRI training programmed reported that there were some objections being raised against SRI from some quarters in Cameroon, including from their neighbors who had traditional fields next to the SRI plots. The objections were as follows:

(a) 'Super-yields' with SRI methods that were reported from other countries were objected to as being 'beyond the biological maximum' for rice plants; so some critics considered the whole SRI program in Cameroon as a waste of time.

(b) Four-fold increases in yield reportedly achieved by small farmers in some other countries -- without adopting new seeds and not requiring use of chemical fertilizer -- were doubted and were not considered possible.

The exceptional grain yield results obtained from the end-of-farming-season harvests from SRI farmers' fields in Ndop, Cameroon should undercut previous misconception and objections. Details are given in the table below:



Description	Church Street women's group	Makew women's group	Tianghou Common Initiative group
Results of paddy yields from 3 breeding farms starting with highest to lowest:			
Number of breeding farms	1	1	1
Size of each breeding farm per unit of land area;			
<ul style="list-style-type: none"> Church Street women's group having dimensions of plants on 10 hills x 70 hills of 25cm x 25cm between hills 	2.5m x 17.5m = 43.75m ²		
<ul style="list-style-type: none"> Makew women's group having dimensions of plants on 10 hills x 35 hills of 25cm x 25cm between hills 		2.5m x 8.75 m = 21.88m ²	
<ul style="list-style-type: none"> Tianghou Common Initiative group having dimensions of plants on 10 hills x 35 hills of 25cm x 25cm between hills 			2.5m x 8.75 m = 21.88m ²
Highest paddy yield was from the Tianghou group breeding plot			25kg/21.88m ² (11.4 tons/ha)
2 nd highest paddy yield was from the Makew women's group breeding plot		19kg/21.88m ² (8.7 tons/ha)	
3 rd paddy yield from the Church Street group breeding plot	31kg/43.75m ² (7 tons/ha)		
Results of paddy yields from 38 multiplication farms in categories starting with highest to lowest			
Number of multiplication farms according to farmer groups	12	10	14
Size of each multiplication farm per unit of land area:	2.5m x 3.75 m = 9.38m ²		
<ul style="list-style-type: none"> Church Street women's group having spacing of plants on 10 hills x 15 hills of 25cm x 25cm between hills 			
<ul style="list-style-type: none"> Makew women's group having spacing of plants on 10 hills x 15 hills of 25cm x 25cm between hills 		2.5m x 3.75 m = 9.38m ²	
<ul style="list-style-type: none"> Tianghou Common Initiative group having spacing of plants on 10 hills x 35 hills of 25cm x 25cm between hills 			2.5m x 3.75 m = 9.38m ²
Grain yields			
Highest yield was from a peer group in Tianghou group of demo farm promoted by SRI-trained farmer Clement Longla Mokom. Size of plot was 2.5m x 3.75m with total unit land area 9.375m ² . Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Type of variety was local, namely TOX.			12kg/9.375m ² (12.8 t/ha)
2 nd highest yields were from peer groups in Tianghou group of demo farms promoted by SRI-trained farmers Ester Chui Kibong, Susana Mengla and Florence Asoh.			11kg/9.38m ² each

Size of each plot was 2.5m x 3.75m with total unit land area 9.375m ² . Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Type of variety was local, namely TOX.		(11.7 t/ha)
3 rd highest yield was from a peer group in Tianghou group of demo farm promoted by SRI-trained farmer George Mbah Munjana. Size of plot was 2.5m x 3.75m with total unit land area 9.375m ² . Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Type of variety was local, namely TOX.		10.5kg/9.38m ² (11.2tons./ha)
Yields from peer groups in Tianghou group of demo farms promoted by SRI-trained farmers Fredrick Ndakwe and Regina Namendi. Size of each plot was 2.5m x 3.75m with total unit land area 9.375m ² . Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Type of variety was local, namely TOX.		10kg/9.375m ² e ach (10.7tons/ha)
Yields from peer groups in Tianghou and Makew groups of demo farms promoted by SRI-trained farmers Rose Akum Kimbeng, Joseph Konji, Evelyne Wirkom(from Tianghou group), Frida Wirba and Margaret Mbeyu (from Makew group). Size of each plot was 2.5m x 3.75m with total unit land area 9.375m ² . Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Type of variety was local, namely TOX.	9kg/9.375m ² each (9.6tons/ha)	9kg/9.375m ² each (9.6tons/ha)
Yields from peer groups in Tianghou and Makew groups of demo farms promoted by SRI-trained farmers Glory Kewouh, Margaret Gunyi, MemunaNgweboh, Martha NohfekaMakew, Christina Nkidah (from Makew group), Juliana RiyuLayinga, Emmaculate Luki and Henry Chiatoh (from Tianghou group). Size of each plot was 2.5m x 3.75m with total unit land area 9.375m ² . Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Type of variety was local, namely TOX.	8kg/9.375m ² each (8.5tons/ha)	8kg/9.375m ² each (8.5tons/ha)
Yield from a peer group in Makew group of demo farm promoted by SRI-trained farmer Emmerencia Buchi. Size of plot was 2.5m x 3.75m with total unit land area 9.375m ² . Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Type of varieties were local, namely TOX and Chuchuikwu.		7.5kg/9.375m ² (8tons/ha)
Yields from peer groups in Church Street group and Makew group of demo farms promoted by SRI-trained farmers Elizabeth VafekweBibo (from Church street group), JenesiaNtowuteh, Grace VadiTonjeuh(from Makew group). Size of each plot was 2.5m x 3.75m with total unit land area 9.375m ² . Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Types of variety were local, namely TOX and NERICA.	7kg/9.38m ² each (7.6tons/ha)	7kg/9.38m ² each (7.6tons/ha)

Successive yields

Yields from peer groups in Tianghou and Church street groups of demo farms promoted by SRI-trained farmers Justine Chi(from Tianghou group), Julita KiyvenTume, Veronica Nain and Rebecca VucheNangeh (from Church Street group). Size of each plot was 2.5m x 3.75m with total unit land area 9.375m². Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Types of variety were local, namely TOX and 14.

6kg/9.375m²
each
(6.4tons/ha)

6kg/9.375m²
each
(6.4tons/ha)

Yields from peer groups in Church street group of demo Farms promoted by SRI-trained farmers Caroline KivenAsongwe and Regina Mbenge. Size of each plot was 2.5m x 3.75m with total unit land area 9.375m². Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Types of variety were local, namely TOX and 14.

5.5kg/9.375m²
(5.9tons/ha)each

Yields from peer groups in Church Street group of demo farms promoted by SRI-trained farmers; Rose Ngenchep, Elise Nguajua, Patricia NengNgobe, Monique Eyenga and Gladys Wii. Size of each plot was 2.5m x 3.75m with total unit land area 9.375m². Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Types of variety were local, namely TOX Manga and 14.

5kg/9.375m²
(5.3tons/ha)each

Yield from a peer group in Church Street group of demo farms promoted by SRI-trained farmer Ester Mabah. Size of plot was 2.5m x 3.75m with total unit land area 9.375m². Dimensions of 10 hills x 15 hills having 25cm x 25cm between hills. Types of variety were local, namely TOX Manga, CLEAN, NERICA and 14.

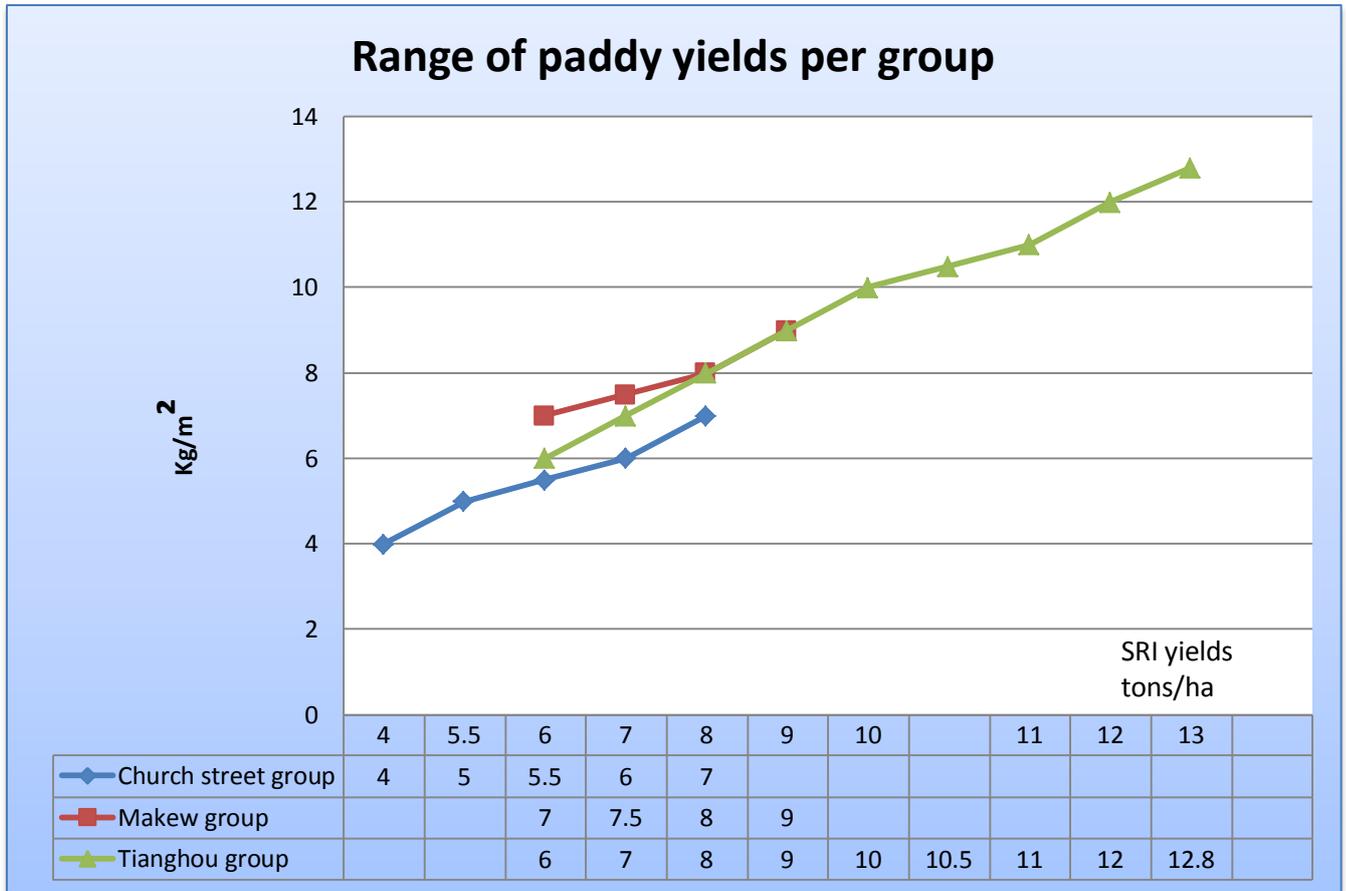
4kg/9.375m²
(4.3tons/ha)

Individual yields

There was no record from harvests of individual farms due to the fact that these farmers were not yet through with their harvests.



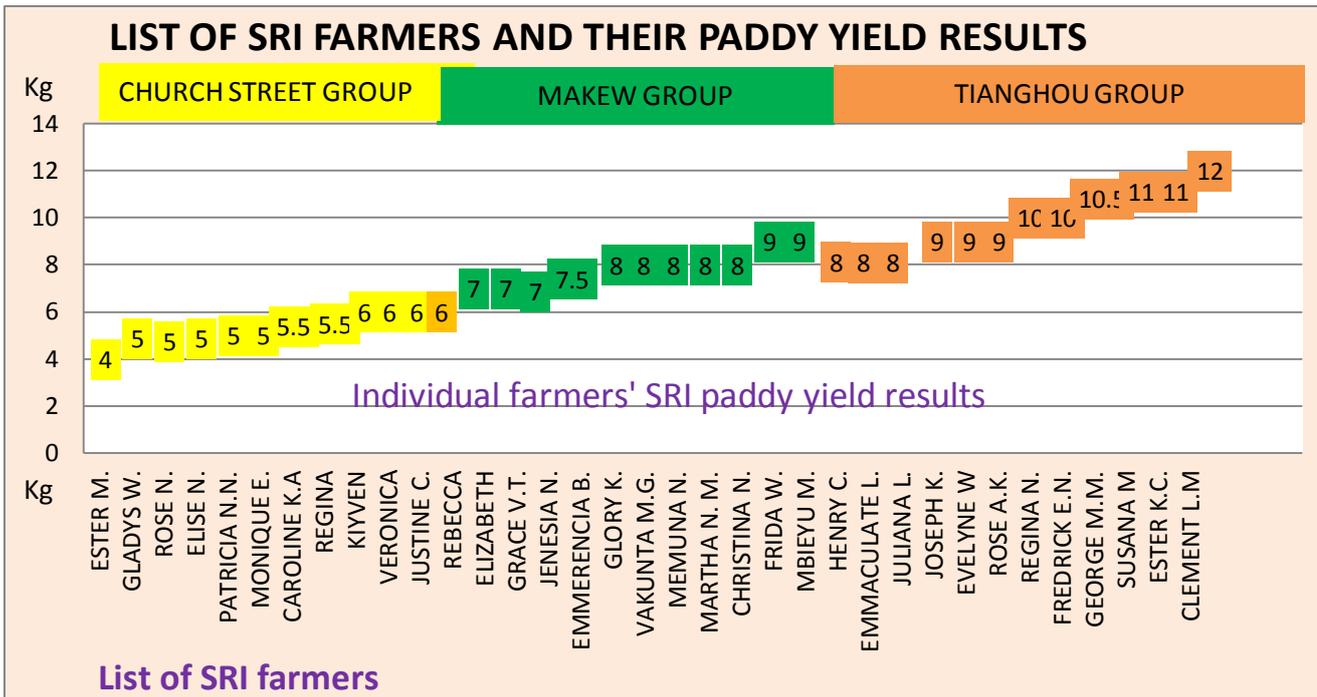
2. Indicators on group performance in SRI yield production



The table above shows that Tianghou Common Initiative group managed to produce the highest paddy rice per unit area. Their highest yield was 12.8 tons/hectare and lowest was 6tons/ha. This was followed by Makew women's group which got a highest yield of 9tons/ha and lowest at 7tons/ha. The least was from Church Street women's group having its highest yield at 7tons/ha and lowest at 4tons/ha. The graph shows that the yields overall averaged 8.2 tons/ha, a remarkable improvement upon previous production. A survey before the SRI intervention was made showed most yields in the range of 3-4 tons/ha, and only 6% of farmers in the area producing above 5 tons/ha.

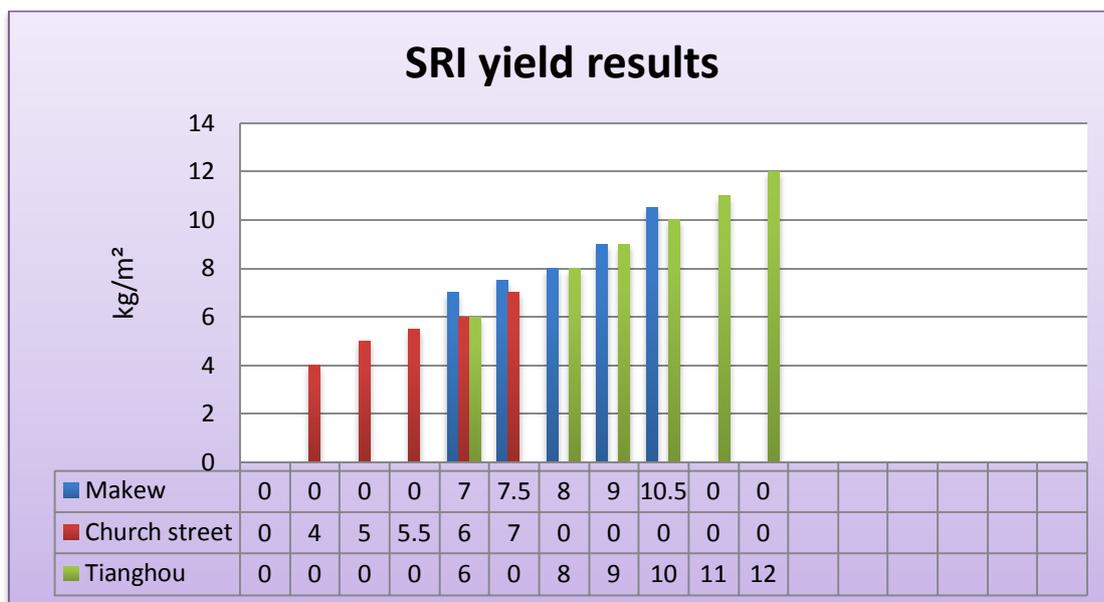


3. Indicators on individual performance in SRI yield production



The illustrations above shows that the highest paddy rice yield per unit area was produced by a farmer from Tianghou Common Initiative group, **Clement L. Mokom**, a yield of 12.8 tons/hectare. The lowest yield came from Ester Mabah from Church Street, who got 6tons/ha. The highest yield for the Church Street group was lower than the lowest from the other2 groups.

4. SRI vs. traditional farming in yield performance



The chart shows that farmers in all three farming groups (Makew, Church Street and Tianghou) managed to get yields above 3.5 tons/ha. The average yield in Africa is currently 2.2 tons/ha, less than 2/3 of the world average of 3.4 tons/ha (<http://aatf-africa.org/rice-improvement>).

5. List of participants who participated as SRI promoters in Cameroon

#	List of participants	Actual yield results		Yield/ha	Round-off	Name of group
		Yield/kg	Unit area/m ²			
1	CLEMENT L.M	12	9.38	12,800	12.8 tons	Tianghou
2	FLORENCE A.	11	9.38	11,733	11.7 tons	Tianghou
3	ESTER K.C.	11	9.38	11,733	11.7 tons	Tianghou
4	SUSANA M	11	9.38	11,733	11.7 tons	Tianghou
5	GEORGE M.M	10.5	9.38	11,200	11.2 tons	Makew
6	FREDRICK E.N.	10	9.38	10,667	10.7 tons	Tianghou
7	REGINA N.	10	9.38	10,667	10.7 tons	Tianghou
8	ROSE A.K.	9	9.38	9,600	9.6 tons	Tianghou
9	EVELYNE W	9	9.38	9,600	9.6 tons	Tianghou
10	JOSEPH K.	9	9.38	9,600	9.6 tons	Tianghou
11	MBIEYU M.	9	9.38	9,600	9.6 tons	Makew
12	FRIDA W.	9	9.38	9,600	9.6 tons	Makew
13	JULIANA L.	8	9.38	8,533	8.5 tons	Tianghou
14	EMMACULATE L.	8	9.38	8,533	8.5 tons	Tianghou
15	HENRY C.	8	9.38	8,533	8.5 tons	Tianghou
16	CHRISTINA N.	8	9.38	8,533	8.5 tons	Makew
17	MARTHA N. M.	8	9.38	8,533	8.5 tons	Makew
18	MEMUNA N.	8	9.38	8,533	8.5 tons	Makew
19	VAKUNTA M.G.	8	9.38	8,533	8.5 tons	Makew
20	GLORY K.	8	9.38	8,533	8.5 tons	Makew
21	EMMERENCIA B.	7.5	9.38	8,000	8.0 tons	Makew
22	JENESIA N.	7	9.38	7,467	7.5 tons	Makew
23	GRACE V.T.	7	9.38	7,467	7.5 tons	Makew
24	ELIZABETH	7	9.38	7,467	7.5 tons	Church Street
25	JUSTINE C.	6	9.38	6,400	6.4 tons	Tianghou
26	REBECCA	6	9.38	6,400	6.4 tons	Church Street
27	VERONICA	6	9.38	6,400	6.4 tons	Church Street
28	KIYVEN	6	9.38	6,400	6.4 tons	Church Street
29	REGINA	5.5	9.38	5,867	5.9 tons	Church Street
30	CAROLINE K.A	5.5	9.38	5,867	5.9 tons	Church Street
31	MONIQUE E.	5	9.38	5,333	5.3 tons	Church Street
32	PATRICIA N.N.	5	9.38	5,333	5.3 tons	Church Street
33	ELISE N.	5	9.38	5,333	5.3 tons	Church Street
34	ROSE N.	5	9.38	5,333	5.3 tons	Church Street
35	GLADYS W.	5	9.38	5,333	5.3 tons	Church Street
36	ESTER M.	4	9.38	4,267	4.3 tons	Church Street

6. 1. Summary on lessons learned from SRI yields in Cameroon

Reasons for the higher yields	Reasons for low yields
<ul style="list-style-type: none"> • Following and respecting the SRI farming seasonal calendar • Application of organic manure • Adherence to SRI farming methods instructions • Improved and strengthened group dynamics • Favourable agro-ecological conditions in Ndop Plain (soils, rains, humidity, etc.) • Specifically, the Tianghou group got the highest yields because in addition to their dedication and other factors stated above, they had separated their SRI farms away from traditional rice fields locating them on new land that had never been cultivated before and had no history of any agrochemical applications. This could have been favourable for the life in the soil. 	<p>SRI farmers in Cameroon are just new entrants who have spent their first year mostly for training and first-step adaptation to this innovation. They require a few more years (3-4 years) with steady progress and improvements to achieve the highest increase in yields and sustainable productivity</p> <p>Church Street women's group experienced the lowest harvest of 4-7 tons/ha. This was because they had to spend 3 hours on the same day for new plot transporting and transplanting seedlings from a nursery planted in an earlier plot that got submerged by floods in another location about 2km away. This caused serious stress and affected the seedlings that were transplanted, resulting in reduced yield.</p> <p>The Ndop Plain in Cameroon where SRI was adopted has a history of this land being previously heavily reliant on chemical fertilizers, pesticides and herbicides. This has contributed to the exhaustion of this land. This seems to have depleted soil biological richness to support rice crop growth. Organic manure was applied to improve the soils, but this needs continuity in the next season to build back the fertility of soils. The application of manure or compost also needs to be reasonably enough to support unit mass of the soils in the farms.</p> <p>A few of the farmers absconded or did not follow the SRI farming seasonal calendar (weeding, water control, organic fertilizer application)</p> <p>The impact of lack of appropriate and reasonable farm tools and inputs contributed to some extent to the losses.</p>



6.2 Simple but effective innovations development

#	Description	Church Street women's group	Makew women's group	Tianghou Common Initiative group
A	SRI farmers in Cameroon have managed at their own costs to construct low-cost technology Rake markers for SRI growers, which mark at 25 cm x 25 cm spacing.			
B	SRI farmers in Cameroon have made a discovery of using shiny cassette tape to surround their rice fields. This tape when it vibrates in the wind makes a shrill sound that scares birds from attacking paddy rice in the field.			



6.3 Lessons learned from disparities between SRI and traditional farming:

a) Key fundamentals of SRI practised in Cameroon that were not being practised under traditional farming:

SRI key fundamentals	Practices under traditional farming
Transplanting young seedlings, when <15 days, with just 2leaves Plants are set out singly with wider spacing and into moist soil, not with standing water	Transplanting overage seedlings(<30 days) with 5 or more leaves 3-5 plants are hit harshly to remove mud from the roots for easy transplanting on one hill submerged in water
Transplanting is done a square pattern (25cm x25cm)	Random planting without any proper measurement
Plants are planted shallow, gently, with roots in an ‘L’ shape, and quickly onto a flat-levelled moist field	Planted deep with roots pushed hard into submerged soil.

b) Eight important features observed under SRI in Cameroon not commonly practised under conventional farming :

SRI key fundamentals	Practices under traditional farming
<p>NO NEED to change varieties: Local varieties from their own homes were used as seed and produced excellent results of 4-12 t/ha.</p> <p>LESS SEED was used: Plant populations (plant density) were greatly reduced at 25cm x 25cm; fewer plants well-managed gave more yield.</p> <p>NO NEED for use of chemical fertilizers and herbicides; best results were achieved with organic fertilization of the soil. Farmers found that chemical protection not economical as SRI plants exhibited resistance to pests/diseases.</p> <p>SIGNIFICANT WATER SAVINGS – water was reduced by about 50% through construction of field SRI beds and embankments. This required good water control to maintain amount of water reliably, regularly.</p> <p>MORE LABOR – was needed at first in learning and practising on how to grow rice with SRI methods, but as the SRI methods were getting mastered, SRI management started proving to be even labor-saving over time.</p> <p>MORE SKILL AND MANAGEMENT EFFOR Tare needed: SRI is knowledge-intensive and management intensive innovation that farmers need to acquire the skill and knowledge.SRI is intended to improve farmers’ capabilities.</p>	<p>Farmers in Cameroon had reported that they have been struggling to get high-yielding varieties and hybrids with hopes of high yields.</p> <p>Huge nurseries involving several times more seeds are required to fill small farm plots known as ‘rooms’ and nurseries are casually managed.</p> <p>Chemical fertilizers and herbicides have become dominant in rice farming in Ndop, Cameroon. This not only compromises soil fertility by affecting the microbial conditions and ecosystem but also comes at high economic cost.</p> <p>Rice plants are left unattended to effects of floods which cause damage to the survival of the crop.</p> <p>Rice farmers keep their old traditional methods of flooding their fields with no serious controls on seed purity testing and selection, nursery management, transplanting requirements, farm management and post-harvest and storage management. The outcome of this practice is reduced yields which underscores the less labor in the beginning.</p> <p>Lack of skills in rice farming cause adverse effect on performance and productivity for the small scale farmers.</p>

c) Remarkable results achieved by practising SRI in Cameroon that were unattainable under conventional farming;

SRI key fundamentals achieved	Facts	Practices under traditional farming	Facts
<p>Increased TILLERING -- 25-85 tillers per plant, and up to 113 tillers</p>	 <p>08/11/2013</p>	<p>Reduced number of tillers in traditional farming</p>	 <p>08/11/2013</p>
<p>Larger ROOT SYSTEMS – it can require 5-6x more force to uproot SRI plants (one evaluation found 28 kg of force was needed to pull up 3 regular plants vs. 53 kg to uproot single SRI plants)</p>	 <p>08/11/2013</p>	<p>Less root system in traditional farming</p>	 <p>08/11/2013</p>

Bigger PANICLES -- 200-300 grains per panicle, up to 500 grains



Fewer panicles resulting in reduced grain and uncontrolled of weeds in traditional farming



Positive correlation between the number of panicles and panicle size - -- SRI can give more and bigger panicles



Negative relationship in number of panicles and panicles size, which has been commonly observed in traditional flooded rice cultivation



GRAIN QUALITY -- fewer unfilled grains and fewer broken grains when milling the paddy, so one can get a higher milled outturn of polished rice from one's paddy(unhusked) production



Poor grain quality and plenty of unfilled grain in traditional farming



RESISTANCE to pests, diseases, storms and drought as plants remain healthier with their deeper root systems and stronger tillers



Plants are easily attacked by storms, drought, pests and diseases



LODGING-free crop



Rice plants highly affected by lodging



HIGHER YIELDS – average of 4-8 t/ha, even up to almost 13 t/ha



Poor grain quality and low yields, average 0.7-3.0 tons/ha



PRODUCTIVITY gains – from all the inputs (land, labor, water, capital). This is more important than yield as this is what most enhances farmers' incomes



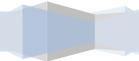
No proper planning and no good production



The reward of promoting group dynamics brings happiness and togetherness in quest to forging ahead of SRI farming



Working in isolation makes work seem very hard and does not mostly pay off, resulting in frustration which is mostly the case in traditional farming



PART B: PROCESSES INVOLVED IN THE SRI TRAINING PROGRAM

1. Farmer-to-farmer knowledge exchange and lesson-sharing farm visits

Considering that SRI is an innovation which is knowledge-centered and knowledge-intensive which rice farmers ought to improve their competence. On the other hand this had to deal with disadvantages of illiteracy levels. Farmer-to-farmer knowledge exchange and lessons-sharing farm visits were accordingly necessary to improve farmers' understanding and broaden their experience. Such farm visits werethus carried out for two days, on Monday, 2nd December, and Tuesday, 3rd December 2013, in the three new SRI demonstration farms. This approach involved visitation by the new SRI farmers to all the SRI demonstration farms. Details are as follows:

a) Visitation to Church Street women's group SRI demonstration farm

The first visit was to SRI demo plots at Church Street women's group (CSWG). It was great to find out how the SRI Fields had performed. CSWG had developed 1 group demonstration plot known as the 'breeding farm' and 12 other individual demonstration plots known as 'multiplication plots'. First, it has to be realised that no enormous equipment or tools were used to develop these farms. The tools used were simple hoes, sickles and cutlasses, including manual markers. Farmers were gathered to take up this task of learning and sharing knowledge.

Each of the trained SRI farmers now known as Group Promoters (GPs) stood by their fields. They all narrated individually on how they got themselves to this level. The explanation involved starting from classroom lessons way through to practical lessons that involved having the demonstration farms.

The farmer-to-farmer knowledge exchange and lessons-sharing were focused mainly on SRI calendar of farming events (SCFE). SCFE had eight thematic areas of concentration as follows:

- Seed testing and preparation, nurseries and fields preparation
- Organic fertilizer preparation and application
- Water control measures
- Weeding and aeration
- Pest or disease control
- Routine field maintenance and monitoring at flowing stage
- Harvest and post-harvest management,
- Group dynamics, and
- Simple technology development



b) Visitation to Makew women's group SRI demonstration farm

Makew women's farmer group (MWFG) had 1 group demonstration plot known as 'breeding farm' and 10 demonstration plots known as 'multiplication farms'. The explanation and purpose for the demonstration plots which the SRI farmers developed into breeding and multiplication farms were as follows;

- The breeding farms (BFs) were meant to roll out and spread with uniformity of grain quality, record high productivity and yields, improved SRI rice-growing system and markets to support the growth and capacity of the three farmer groups
- The multiplication farms (MFs) were meant to support the Group promoters (GPs) and their other 5 members each that joined to learn from the same farms to roll out and spread with uniformity of grain quality, record high productivity and yields, improved SRI rice-growing system and markets.
- The three farmer groups had two of their breeding farms having the size in width and length of 10 x 35 hills with spacing of 25 x 25cm in rows and between hills. The other third breeding farm had 10 x 70 hills with 25 x 25cm in rows and between hills.
- 36 multiplication farms were developed by the three farmer groups having the size of 10 x 15 hills in width and length with dimension of 25cm x 25cm in rows and between hills.



The last picture above shows a woman SRI farmer in her demofarm lifting Henry's arm in appreciation of her farm that had performed beyond expectations with good yield.

c) Visitation to Tianghou Common Initiative group SRI demonstration farm

Tianghou Common Initiative group (TCIG) was the leading group, having best crop yield and performance. Explanations by each individual farmers showed that they managed to follow key fundamentals of SRI methods and practices that they were trained. TCIG had 14 participants leading the other farmers in developing their demo. farms. Critical aspects in the lesson-sharing were on how they managed to get increased tillering which in one farm reached 109. With a lot of excitement, most women showed off their bigger panicles which in one farm reached 658grains/panicle. Other aspects included grain quality which was better, and having almost zero unfilled grains.

They explained that they observed their SRI fields to have stronger resistance to pests, diseases, and storms as plants remained healthier with their deeper root systems and stronger tillers.

The TCIG attributed their higher performance in SRI crop production to selection of land that had never been applied with any type of chemical fertilizers and fungicides, in addition to their use of other SRI practices. This was new land that had never been cultivated with any crop. This was the first time and dedicated only to growing SRI rice. They also observed that all the SRI farms were lodging-free despite experiencing aberrant weather conditions.



2. Practical lessons on pests & diseases andweeds

Prior to the evaluation assessment that was conducted at the end of the training program, during farmer-field school training and narrative documentation provided, SRI farmers were put on alert of expected attacks from pests and diseases in their SRI farms. Important among these were the following:

A. Insect pests

1. Stalked-eyed flies (Diopsisthoracica)

The larvae bore and feed on plant tissues inside the rice stem causing dead heart.



Adult insect



Larvae



Dead heart

2. Stem borers (Pyralidae)

The larvae bore through the stem and eat up the plant tissue, resulting in a condition called dead heart and / or white head.



Adult insect



Larvae



White head

3. Termites

Termites eat and cut the stems of rice plants. Severe damage is experienced in dry soils.



Termites

4. Other bugs

These bugs stay on the panicle and suck the milky juice in young panicles, causing staining of the grains, hence lowering grain quality.



Stink bug

Rice bug

Mealy bug

Rice weevil

B. Diseases

1. Rice blast (*Magnaporthe grisea*)

Blast is the most serious fungal disease for rice. This fungus attacks all parts of the rice above the ground. Depending on the site of the attack, the disease is referred to as leaf, collar, node, or neck blast.

Symptoms:

- Spots or lesions on leaves, nodes, panicles, and grains.
- Characterized by "burning" of leaves, stunted growth, empty heads, and sometimes neck-rot.
- Spots are elongated and pointed at each end.
- Damage is often characterized by 50% reduction in yield.

2. Rice Yellow Mottle Virus (RYMV)

RYMV is one of the most damaging diseases of rice in Africa.

Symptoms:

- Stunted rice plant if affected at early stage.
- Reduced tiller number.
- Yellowing and mottling of leaves.
- Infected plants are easily attacked by other diseases such as brown spot.



Rice plants infected with Leaf Blast

Typical spots or lesions

Neck Blast

C. Lessons learned on pests and diseases

With the use of organic manures for SRI, it was observed that the incidences of pests and diseases were very low compared to traditional fields. Other features were as follows:

- The pests were managed by using natural approaches; especially birds were scared by mounting pieces of rags of cloth and shiny cassette tapes surrounding the fields.

➤ *To the right we see Julius seated near a red-coloured body-shaped 'bird scarer' mounted in the field.*

➤ *To the right side we see a field surrounded by a shiny cassette tape. This tape when it vibrates with wind makes a shrill sound that scares birds from attacking paddy rice in the field.*



Farmers in Cameroon who are practicing SRI have come to accept that the contribution of soil microbial activity to soil fertility needs to be taken more seriously in SRI farming practice. Application of farmyard manure was recommended because when soil was rich with microorganisms, then the plant grows healthily, develops resistance to pests and diseases, and yields more.

Farmers practicing SRI need to switch to the use of compost, as there are better results being observed. Compost can be made from any biomass (e.g. rice straw, plant trimmings and other plant material), with some animal manure added if available. Banana leaves can add more potassium, cuttings from leguminous shrubs add more nitrogen, and other plants such as *Tithonia* and *Afromomum angustifolium* may be high in phosphorous. Compost adds nutrients to the soil slowly and can also contribute to a better soil structure.

➤ *The picture above shows a group of SRI women's farmers in Cameroon applying manure to their SRI demo. field to enrich the soils for better health of the rice crop.*

- Wider spacing in transplanting reduces crowding, resulting in healthier growth of the plants, thus providing necessary resistance to rice plant diseases and pests.

➤ *The picture to the right side shows wide-spaced hills at 25cm x 25cm spacing in SRI demo farm in Ndop*



- Application of some organic concoctions (MOL: local microorganisms) either as a preventive measure or on as-and-when-needed basis. Each country has some ideas to prepare MOL. The vernacular name used for MOL in Ndop, Cameroon is *Juju*. Juju was highly mentioned by most of the rice farmers as a replacement of chemical pesticides. In this report, Juju has not been explored to a great extent because the trainer could not see any type of this herbal pesticide during his short visits and how it is applied.

D. Reported incidences of weeds, pests and diseases in SRI farms

Despite having experienced low attacks which could not seriously influence yields on SRI farms, the following weeds, pests and diseases were reported by the SRI-trained farmers.

Pest or disease	Church Street	Makew	Tianghou
Weeds	Water grass (cripling stems)	Water grass (cripling stems)	Water grass (cripling stems)
	Onion grass	Onion grass	Onion grass
		Man power	Man power
	Bitcy	Big-big	
		Water grass	
		Coco leaf grass	
		Sasoh	
Pests	Neck blast	Neck blast	Neck blast
	Black spots	Caterpillars	Black spots
	Blight	Blight	
		Black spots	
Diseases	Neck blast	Neck blast	Neck blast
	Black spots	Caterpillars	Black spots
	Blight	Blight	
		Black spots	
		Panama	

3. Practical lessons on harvesting, post-harvest management and storage

a) Harvesting

Lessons learned by the rice farmers drew attention that harvesting SRI rice should just be like any other rice, except there should be much more rice to harvest. This makes the farmers' task more difficult, but this is the kind of difficulty everyone should wish for: a bountiful harvest.



Rice farmers in Cameroon undergoing SRI practical lessons on harvesting techniques

Harvesting is the process of collecting the mature rice crop from the field. Paddy harvesting activity includes cutting, stacking, handling, threshing, cleaning, and hauling.

As harvest from the three groups' breeding and multiplication demonstration plots was not meant for commercial use or marketing to raise immediate income, but to develop parent SRI seed in Cameroon that possibly will increase the hectares of land and spread the number of farmers. In due course, with proper marketing arrangements, the incomes for the farmer should be increased. To achieve this goal, it was important that SRI farmers were trained to apply good harvesting methods to be able to (1) maximize grain yield, and (2) minimize grain damage and quality deterioration.

Harvesting was done manually using hands, sickles and knives. The process involved cutting only the panicles, not the tillers as per usual practice. This process was done to maximize the reduction in grain damage and increase in yield. Regardless of the method, SRI farmers were made to learn that good grain quality should be preserved during harvest operations, and harvest losses should be kept to a minimum.

Key actions for proper harvesting were:

- To harvest at the right time with the right moisture content;
- To avoid delays in threshing after harvesting;
- To use proper tools, materials and good surrounding when threshing;
- To clean the grains properly after threshing; and
- To dry the grains immediately after threshing.

b) Post-harvest and storage management

Overall, rice farmers learned during the training that grain quality is a product of variety characteristics, environmental conditions during growth, and the quality of post-harvest handling. With the stated grain-quality attributes in mind, rice farmers who participated in the training were made to practice drying and storage methods of their harvested SRI paddy as illustrated in the pictures below.



Farmers learned that delays in post-harvest operations create breeding grounds for fungal infestation of rice grains which can lead to discoloration, which results in price reductions in most markets. This can also result in rice being contaminated with mycotoxins, which are less visible to consumers, but rice can be tested positive for aflatoxins. The other important attribute was moisture content (MC), which is described as the weight of water contained in paddy or rice expressed in percent. MC is usually referred to the wet basis meaning the total weight of the grain including the water (MC). Negligence in MC handling can lead to:

- Extra drying cost and harvesting losses if paddy is harvested wetter than necessary
- Spoilage if the grain is too wet in storage
- Extra drying cost and loss of quality if the paddy is then dried too much
- Lower head rice when milled at wrong MC
- Weight loss (loss in profit) if grain is sold too dry

At some stage when the SRI farmers in Cameroon have started raising greater amounts for higher incomes, accurate moisture content testing will be important in managing and marketing paddy and rice, hence the need to acquire inexpensive moisture meters that give quick results and only use small samples. The other aspect to be explored will be the use of cocoon tents that are ideal for storage purposes since they avoid the use of fungicides in storing of rice grain at farmers' level. Further indications of farmer involvement in the SRI post-harvest management is shown in the pictures below.



Sun-drying SRI paddy as best alternative

Dried SRI paddy ready for storage

Dried and stored SRI paddy in grain bags

3. Practical lessons on group dynamics

Considering that SRI is an innovation which is knowledge-centered and knowledge-intensive, the need to enhance group-dynamics approaches in SRI farming cannot be over-emphasized. The other aspect to realize is that the three groups have different organizational constitutions, beliefs, and work cultures. The influence of low education levels on the different groups, of which majorities are illiterate and coming from humble backgrounds with limited resources, can affect their interest and efforts.

In view of the above-mentioned facts and also that SRI is new to the farmers, for the SRI innovation to be appreciated and for the participating farmers to take ownership, strong capacity-building training in group dynamics is a prerequisite. Consequently, this training in group dynamics hinged mainly on three pillars as follows;

- i) Institutional capacity-building development;
- ii) Developing legal frameworks and management information systems; and
- iii) Strengthening sustainable interventions.

(i) Institutional capacity-building development

The principal objective of this training activity was to provide the three farming groups with knowledge and tools that can assist them build the capacity of their new SRI initiatives to develop and operate mutually-beneficial outgrowing operations with all farmers. Having this idea in mind, the three presidents of the organizations practicing SRI methods together with their members were mentored on the importance and tenets of team-work for the benefit of themselves and their new SRI initiative.

- This first picture to the right shows the three presidents of the farmer groups committed to expanding SRI farming practices. These are: Caroline Kiven Asongwe (left) Clement Longlo Mokom (middle) and Memuna Ngweboh (right).
- The second picture shows the new top leadership team from the three farmer groups that form the SRI network organization. It consists of three women and three men that were democratically elected. These are Henry Chartoh, board chairperson (far left); Patricia Neng Ngobe, vice board chairperson (second left), Caroline Kiven Asongwe (second from left), Julius Fieshi, Coordinator (third from left); Clement Longlo Mokom (fourth from left), and Memuna Ngweboh (fifth from left side)
- The third picture shows Julius Fieshi who is responsible of coordinating the day-to-day functioning of the new SRI initiatives involving the three groups in Cameroon.



(ii) Developing legal frameworks and management information systems;

A. Developing legal frameworks

In order to have a meaningful impact that enhances the lives and livelihoods of people in Cameroon, the SRI initiatives in Ndot require being in harmony with the laws of the Government of Cameroon. To this effect, a new organisation that encompasses the three farmer organisation and other interested farmer groups to be engaged in SRI farming methods has been established and was registered with the Government of Cameroon on 20th December, 2013. Its name is **Ngoketunjia System of Rice Intensification Producers and Marketing**. The acronym is **COOPBOD**. A copy of the confirmed declaration certificate is shown below;

DECLARATION de : CREATION NOUVELLE CREATION PAR TRANSFORMATION
 CREATION PAR SCISSION CREATION PAR FUSION MISE EN HARMONIE STATUTS

RENSEIGNEMENTS SUR L'ENTREPRISE COOPERATIVE

1. DENOMINATION SOCIALE (Raison sociale): **NGOKETUNJIA SYSTEM OF RICE INTENSIFICATION PRODUCERS AND MARKETING COOPBOD LTD** (en abrégé) **COOPBOD LTD**

2. NOM COMMERCIAL: **COOPBOD**

3. SIEGE SOCIAL: **BAMOUNA - NGOKETUNJIA** ADRESSE (rue et numéro): **V. B. BOX 3 BAMOUNA - 1163425**

4. FORME JURIDIQUE: **COOPBOD** N°RSC: **1163425/001/11/12**

5. CAPITAL SOCIAL INITIAL: **100000000** Montant (en lettres): **100 000 000** Montant en chiffre: **100000000** Montant en indigène: **100000000** Montant libre: **100000000**

6. DUREE DE VIE: **10** Nbre de Coopérateurs: **20**

RENSEIGNEMENTS RELATIFS A L'ACTIVITE DE LA COOPERATIVE

7. ACTIVITE PRINCIPALE (Préciser): **CULTIVATION DE RIZ**

8. Date de début: **15/12/2013** Nbre de salariés prévus: **01**

PRINCIPAL ETABLISSEMENT, SECTIONS COOPERATIVES OU AFFILIEES

9. Adresse (liste en annexe): **BAMOUNA - NGOK**

10. Origine: Création Transformation Fusion Scission Autre (préciser)

11. Identité précédente état: **NGOK** Adresse: **BAMOUNA - NGOK** N° et date d'inscription: **1163425/001/11/12**

12. Coopérative affiliée: **NGOK** Date de création: **15/12/2013** Adresse: **BAMOUNA - NGOK**

13. Sections ou coopératives affiliées (liste en annexe): **NGOK** Date de création: **15/12/2013** Adresse: **BAMOUNA - NGOK** Activité: **CULTIVATION DE RIZ**

PERSONNES POUVANT ENGAGER LA SOCIETE COOPERATIVE

14	NOM ET PRENOM	DATE ET LIEU DE NAISSANCE	ADRESSE	NATIONALITE	FONCTION
14	CHARLES HENRI	10/11/1952 - NGOK	BAMOUNA	Cameroon	Président
15	YVONNE NGORE	1972 - NGOK	"	"	V. Président
16	CAROLINE KINEN	1972 - NGOK	"	"	Comptable
17	NGOKETUNJIA	1972 - NGOK	"	"	Comptable
18	NGOKETUNJIA	1972 - NGOK	"	"	Comptable
19					
20					
21					
22					
23					
24					
25					

RENSEIGNEMENTS RELATIFS A LA GESTION ET LES ELUS

26	NOM ET PRENOM	DATE ET LIEU DE NAISSANCE	ADRESSE	NATIONALITE	FONCTION
26	MESAY JAMES	1975 - NGOK	BAMOUNA	Cameroon	Administrateur
27	BEONAH HENRI	1972 - NGOK	"	"	Administrateur
28	FRANCIS FERDINAND	1972 - NGOK	"	"	Administrateur
29	GRACE OLIVIER	1966 - NGOK	"	"	Administrateur
30					

AUDITEURS EXTERNES

31	NOM ET PRENOM	DATE ET LIEU DE NAISSANCE	ADRESSE	FONCTION
31				
32				

Le soussigné (préciser si mandataire): **MRS CAROLINE KINEN ASOUSTINE**
 Demande à ce que la présente constitue **DEMANDE D'IMMATRICULATION AU REGISTRE DES COOPERATIVES**
 de **NGOKETUNJIA SYSTEM OF RICE INTENSIFICATION PRODUCERS AND MARKETING COOPBOD LTD**
 La conformité de la déclaration avec les pièces justificatives produites en application de l'acte uniforme relatif au droit des sociétés coopératives a été vérifiée par le Responsable du RSC Soussigné qui a procédé à l'immatriculation de **NGOKETUNJIA SYSTEM OF RICE INTENSIFICATION PRODUCERS AND MARKETING COOPBOD LTD** soussigné le **20/12/2013** à **BAMOUNA**

Fait à **BAMOUNA** le **20/12/2013**

AKOLUYU BRUNO NGWALI
 AGRICULTURAL ENGINEER

B. Management information systems

As a new organization, Ngoketunjia System of Rice Intensification Producers and Marketing (COOPBOD) require adequate management information systems (MIS) for their outgrowing operations, including tools and processes for record keeping, monitoring, and communication. COOPBOD requires developing an MIS that provides the essential information that it needs. They should not make the system very complicated. The purpose of MIS should guide to address the following critical issues:

- Identify general types of data and information needed to manage the outgrowing operations
- Identify the users of data and information collected
- Develop information and reporting systems needed for:
 - Individual outgrowers
 - Lead farmers, if using an intermediary model
 - Input distribution
 - Monitoring field agent activities
 - Procurement operations
 - Measuring outgrower productivity
 - Other
 - Develop systems to collect, manage and process information—computer applications, software, spreadsheets, manual registers, etc.

In order to provide direction and proper planning for SRI activities, the SRI teams in Cameroon had an opportunity to develop a farming seasonal calendar to suit socio-economic conditions and the agro-ecological setting in Ndop, Cameroon. A generic SRI calendar that was developed was as follows.

Activity	2013	January				February				March				April				May				June			
		Week				Week				Week				Week				Week				Week			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Preparing of SRI farm record-keeping																									
Local farmer-based method of seed germination potency testing																									
Nursery management and priming																									
Transplanting																									
Field preparation and management																									
Water management																									
Organic fertilizer preparation and application																									
Weed control and soil aeration measures																									
Pest and disease management																									
Field routine maintenance and monitoring during flowering stage																									
Harvest management																									
Post-harvest and storage management																									
Farmers' field-days and end-of-season planning																									
Savings and sustainable income activities																									
Other/s																									

(iv) Strengthening sustainable interventions

Lessons-learned from this approach was that the new COOPBOD should establish building-blocks for strengthening sustainable interventions. There are three main drivers responsible for achieving this action, and these are: 1) establishing its own operations, 2) strategies, and 3) policies. The components involved in making the operations, strategies and policies become functional are mainly:

1. Deciding to establish an outgrowing operation
2. Hiring staff for outgrowing operations
3. Selecting and engaging lead farmers
4. Selecting outgrowers
5. Communicating with outgrowers
6. Providing technical assistance to outgrowers
7. Providing credit to outgrowers, wherever possible
8. Ensuring outgrowers' access to appropriate inputs, including seed
9. Determining price for outgrower produce
10. Procuring from outgrowers
11. Developing a seed program
12. Developing breeding and multiplication plots
13. Establishment of market-led SRI value chains

The beauty of group dynamics as shown in the illustrative actions from the SRI farmer groups in Cameroon below.



2 INAUGURAL CEREMONY OF SRI LAUNCH IN CAMEROON



THURSDAY, 5TH DECEMBER 2013 WAS THE OFFICIAL INAUGURATION OF SRI LAUNCH IN CAMEROON



a) Cutting of ribbon

The official occasion of inaugural ceremony of SRI launch in Cameroon was held on 5th December 2013 at Njama-Njama Park in Ndop farms, Cameroon. The occasion was graced by Mr Wilson Ebi, Deputy Divisional Officer of Ngoketunjia division of the Cameroon Government, as the Guest-of-Honour.

The ceremony attracted hundreds of people involving Government representatives of Cameroon, civil society, media personnel, and farmers in Ndop. The main reason for holding this event was to celebrate the achievements of beginning SRI farming in Cameroon which has come with great success in yield harvested so far from the first demonstration fields.

The program had four main activities:

- 1) Cutting of ribbon by the Guest-of-Honour to mark the official launch of SRI farming in Cameroon.
- 2) Guest-of-Honour to lead farmers in carrying out the first SRI harvest in Cameroon.
- 3) Decorating of Henry Ngimbu, SRI specialist, in honour of his dedication and effort of bring SRI to Cameroon
- 4) Speeches from dignitaries
- 5) Entertainment, having refreshments and dances by the farmer groups

The presence of several Government officials was a testimony of Government goodwill towards SRI in Cameroon. The Guest-of-Honor pledged to involve Government structures to support in any way possible the SRI innovations and farmers that will be interested to expand their farms with SRI.

By and large, the ceremony was a success because of the active participation by many stakeholders from various disciplines in Cameroon and its colourfulness.



The Guest-of-Honour takes position in readiness to cut the ribbon



The final moment; the Guest-of-Honor Mr. Ebi cuts ribbon with thunderous cheering and clapping in happiness. This also marked beginning of the celebrations.



b) Celebrations

On behalf of the farmers, a vote of thanks was presented by Ngobe Patricia, the vice board chairperson, on the occasion of the inauguration of SRI launch in Cameroon. Patricia thanked all the invited guests. She thanked Henry for taking up the challenge by accepting to come to Cameroon to take up the giant project by training 34 pioneers of SRI promoters. "He has done a marvellous job, let's clap for him." Patricia thanked fellow farmers for accepting to be part of the trainees. She stressed that it was not an easy task which they cannot hide their feelings.

Patricia mentioned that at first they were all "doubting Thomases" especially when they went into the farms to do the practical part of the lesson. She could not imagine how one tiny seedling of rice from 8-15 days old could be transplanted. "We concluded that the farms have been wasted, not to be talked of when our neighbours of the local method laughed and even provoked us. These tiny seedlings have showed us a wonderful miracle. Some of them in the final analysis had between 25-85 tillers, a big difference from the 5-15 tillers that they have been having."

"The farmers were more than happy to see the miracle with their own eyes; from one tiny tiller they were able to harvest a glass of paddy rice."

She said they were proud of Mr. Henry and their coordinator Julius for they are now very sure of their future, hence the slogan that the farmers have created, "SRI = Money in the Pocket". Patricia thanked everybody for listening and wished them a safe journey back to their various homes.

PATRICIA NENG NGOBE



Henry in his speech thanked Government and farmers for the good hospitality and accepting SRI in Cameroon.

c) Henry gets decorated in Cameroon

As sign of appreciation and acceptance of SRI to Cameroon, Henry was decorated by having him dressed up in distinguished Cameroonian regalia (ceremonial dress).

This special gift was from the 3 farmer groups, and the Guest-of-Honour was privileged to present Henry to the audience in his new full gear. The front side of the top dress had a drawing of Cameroon map and writings saying, "SRI Ngoketunjia, Cameroon". The purpose for this gesture was to recognize Henry's work and to honour his "leadership in the promotion and understanding of SRI in Cameroon."

There was another present from the Church Street women's group that was presented on the same day to Henry at a separate function organised only for their members at their meeting house.

Henry accepted these gifts and appreciated for the honour.

The two pictures on the right show Henry standing with Government officials dressed in the regalia with a headdress in full colours.



Standing to the right is Henry receiving a present from the President Caroline in the middle

d) First harvest of SRI paddy in Cameroon

The Guest-of-Honour Mr. Ebi, representing Cameroonian government and the local farmers was privileged to attest the first harvest of SRI paddy in Cameroon. This was an occasion which took place as part of the inauguration ceremony on the same day.

Mr. Ebi got a sickle and cut tillers on a hill from a breeding plot of SRI farms at Makew women's group. He harvested the tillers and then gave them to the President of the Makew women's group to count the tillers in the presence of the audience attending the ceremony. There were 70 tillers that came out from the first harvested single hill, from a single plant.

The picture in the middle on right show Memuna, president of Makew women's group, lifting up the 70 tillers from the first SRI harvest in Cameroon.

During the same occasion, the next event that followed was for all the farmers themselves who participated in having their first experience of harvesting SRI paddy rice.



3 PLANNING FOR 2014 AND BEYOND

Planning for 2014 and beyond was the last session that was conducted on 6th December 2013 at Women Empowerment Centre.

The planning for 2014 was facilitated by the same trainer, Henry Ngimbu, SRI specialist. The task and approach to this session was made easier with Henry's skills in agri-business planning and management with training from USAID and other institutions and with the experience that he has gained from working with the Community Market for Conservation (COMACO) program managed by the Wildlife Conservation Society (WCS) in northeastern Zambia.

The 2014 planning generated two resolutions that were unanimously agreed by the farmer groups. These were:

- (i) To achieve effective implementation of SRI in 2014 and beyond, drawing on the experiences in SRI of the three farmer groups (Church Street, Makew and Tianghou) and taking advantage of the prevailing favourable assistance from partners (SfD, SRI-Rice, and Government) would call for embarking on implementing a visionary strategic concept referred to as "SRI business model" (SBM) starting in Ndop, Cameroon
- (ii) The framework that drives the three farmer groups in instituting SRI in Cameroon (Ngokotunji SRI Seed Program) should not be left fragile to avoid being easily broken. It should draw on the program that is now set up. Establishing a legally-recognized coordinating body to govern and expand the SRI structures becomes quite critical. In this respect, an innovative organization has been formed by the three farmer groups and registered by the Government of Cameroon under the name of NGOKETUNJIA SYSTEM OF RICE INTENSIFICATION PRODUCERS AND MARKETING (COOPBOD). It is a great pleasure and honor to learn that COOPBOD was registered with Government of Cameroon on 20th December, 2013, and is now a legally-recognised organisation to spearhead SRI in Ndop, Cameroon.

(a) Roadmap for SRI business model (SBM) concept

As stated earlier, to achieve effective implementation of SRI in 2014 and beyond, the farmer groups would require vision, strategies, clear objectives, and implementing activities.

A. Vision:

To spread and share the SRI achievements made and lessons learned for the benefit of rice farmers in 2014 and beyond

B. Strategies:

The whole idea of "SRI business model" (SBM) concept is to practice organic SRI farming beginning with modest farm space, so farmers could grow enough food to feed themselves, families and have some extra to supply to the market. This would be done without the use of synthetic fertilizers, pesticides and herbicides that have adverse environmental effects and are expensive these days. The SRI business model would focus on two major activities involving: 1) increasing building capacity of rice farmers with knowledge, skills, and necessary farm inputs to implement SRI at all levels in the farming communities of Ndop and other surrounding areas; and 2) strengthening market linkages

C. Objectives:

1. COOPBOD to arrange coordinated system responsible for: a) producing, b) multiplying, and c) distributing rice seed to SRI farmers in Ndop and surrounding areas.
2. COOPBOD to support bringing expanded volume of SRI produce to the market through establishing collective marketing systems, value-addition marketing, and linking producers to more profitable end-markets. This would necessitate providing farmer entrepreneurship training, strengthening producer groups, associations and co-operatives as appropriate that are likely to be more efficient than individual informal small-scale farming and marketing.

D. Activities:

Objective 1: (a) As a start, to utilize the bulk of the 1.5 tons total harvested SRI seed from the 36 multiplication plots as 'foundation seed'. This is the first generation of organic SRI seed in Cameroon and the second generation will be planted in 2014 involving expanded action through "SRI Peer groups (SPGs)" whose structures were already formed during the 2013 training having total membership of 216, with 6 members each. Much effort would be required to enhance SRI principles, mainly: seed testing and selection, nursery management and priming, transplanting, field preparation and management, water control and embankments management, mobilising application of organic fertilizer, weed control and soil aeration measures, pest and disease management, harvest management, and post-harvest and storage management. The structures of the 36 SPGs are as follows:

Makew women's group: 60 members

Peer group 1 members	Peer group 2 members	Peer group 3 members	Peer group 4 members	Peer group 5 members
1. M. Makew (SGP) 2. C. Vafonso 3. S.I. Ngambon 4. E. Bundah 5. M.N Kesinte 6. C. Nyibandah	1. E. Buchu (SGP) 2. Q. Mboh 3. E. Y. Makew 4. E. Leghu 5. S. Wiehy 6. I. Ntohkumbu	1. G.V. Tonjeuh (SGP) 2. M. Forkeryiker 3. C. Quefonsoh 4. A. Keyenyen 5. R. Benbong 6. M. Makew	1. M. Ngweboh (SGP) 2. M. Fonjiakwe 3. R. Mbebuifa 4. M.E. Fongeh 5. C. Ntomacho 6. C. Bainteh	1. G. Enjih (SGP) 2. J. Ntowuteh 3. T. Gesu 4. H. Nkwentoh 5. C. N. Nditopah 6. H. Bobovah
Peer group 6 members	Peer group 7 members	Peer group 8 members	Peer group 9 members	Peer group 10 members
1. C. Nkidah (SGP) 2. G. Guinyi 3. E. Kibong 4. C. Wobeneki 5. G. Wosoh 6. A. Tayipuku	1. M. G. Vakunta (SGP) 2. J. Anaka 3. J. D. Konteh 4. N. Honoryl 5. A. N. Vakunta 6. F. Menteh	1. G. Kewoh (SGP) 2. A. J. Mponya 3. N. Akum 4. R.M. Mbongcoh 5. E. Nawa 6. A. Dichama	1. M. Mbieyu (SGP) 2. C. Nkweyika 3. S. n. Lengouh 4. C. Makew 5. T. Neng 6. C. Ndingwia	1. F. Wibah (SGP) 2. C. Leboh 3. T. whendoline 4. N. Shiwoh 5. C. Menkebok 6. J. Mbogho

Church Street women's group: 72 members

Peer group (PG) 1 Members	Peer group (PG) 2 members	Peer group (PG) 3 members	Peer group (PG) 4 members	Peer group (PG) 5 members
1. C.K. Asongwe(SGP) 2. T. Bitie 3. J. Abimnui 4. M. Zuh 5. R. Ngaineck 6. G. Mabiang	1. E. V. Biboh (SGP) 2. R. N. Yenshie 3. T. B. Anno 4. M. P. Bertena 5. T. L. Ndokonyi 6. A. Chukie	1. M. Eyenga (SGP) 2. M. N. Njoya 3. E. Nzoya 4. G. Akanga 5. B. Njoya 6. E. Foba	1. E. Mbanye (SGP) 2. H. Tonjeh 3. L. Jumkonda 4. C. Kangnyuy 5. R. Biacteh 6. C. Weguran	1. G. Njah (SGP) 2. V. Vibon 3. L. Maneleb 4. F. P. Mbofit 5. E. Kuete 6. J. Njah

Peer group (PG) 6 Members	Peer group (PG) 7 members	Peer group (PG) 8 members	Peer group (PG) 9 members	Peer group (PG) 10 members
1. R. Binyui (SGP) 2. P. Njoambuh 3. W. Nfeh 4. B. Ngongsi 5. C. Tinguefon 6. E. Kenji	1. R. N. Vuche (SGP) 2. A. Bakam 3. C. Akuchu 4. A. Ngondi 5. M. Tukou 6. V. Awubom	1. R. Ngwenhep (SGP) 2. J. Keja 3. E. Che 4. P. Binda 5. J. Nke 6. M. Jamkum	1. V. Naina (SGP) 2. P. Gemoh 3. P. Ngobe 4. C. Mbogning 5. E. Nyonga 6. P. Fuebu	1. E. Nguaka (SGP) 2. E. Piperkerh 3. A. Longchi 4. R. Tita 5. J. Forbasaw 6. E. Mbiameka
Peer group (PG) 11 Members	Peer group (PG) 12 Members			
1. J. K. Tume (SGP) 2. R. K. Lukong 3. M. Suihla 4. C. Gondi 5. J. Longshi 6. A. Tume	1. P. M. Ngobe (SGP) 2. V. Ntoji 3. F. Tata 4. E. Njoya 5. W. Vachinde 6. A. Vachinde			

Tianghou Common Initiatives group: 84 members

Peer group (PG) 1 members	Peer group (PG) 2 members	Peer group (PG) 3 members	Peer group (PG) 4 members	Peer group (PG) 5 members
1. G. Mbah(SGP) 2. G. Bunjianda 3. C. Tohnjehnjrmugwe 4. J. Luki 5. J. Wowohmbong 6. B. tata	1. E. Luki (SGP) 2. C. Benla 3. V. Babese 4. G. Kifevong 5.V. Ngotunyi 6. D. Luki	1. J. Konti (SGP) 2. I. Bayika 3. C. Losoh 4. D. Tangwa 5. G. Ngam 6. H. Chitor	1. H. Chatoh (SGP) 2. H. Nchang 3. C. Chengwe 4. M. Mbuh 5. M. Fonkeng 6. P. Bodi	1. F. Asoh (SGP) 2. N. Kwebong 3. C. Tongcho 4. Victorine 5. N. Chui 6. A. Mekow
Peer group (PG) 6 members	Peer group (PG) 7 member	Peer group (PG) 8 members	Peer group (PG) 9 members	Peer group (PG) 10members
1. E. Kibongo (SGP) 2. G. Titing 3. P. Chari 4. H. Bakanda 5. G. Meyeh 6. T. Fekie	1. E. Shey (SGP) 2. I. Fonyuy 3. Fonyi 4. M. Shinta 5. R. Kongburi 6. C. Senjo	1. R. Namendi (SGP) 2. B. Kwechui 3. V. Benyi 4. B. Vimbond 5. V. Mavanyi 6. L. yibong	1. J. R. Layinga(SGP) 2. A. Ndalaha 3. P. Samahwuh 4. A.Y. Ndzefwe-shipu 5. J.S. Layinga 6. C. Pangmimih	1. F. Esene (SGP) 2. C.S. Ndenka 3. H. S. Adaah 4. F.F. Ndakwe 5. E. Anih 6. O.N. Tafuh
Peer group (PG) 11 members	Peer group (PG) 12 members	Peer group (PG) 13 members	Peer group (PG) 14 members	
1. S. Menlah (SGP) 2. Lambia 3. Delfine 4. R. Isiack 5. P. Kum 6. M. Ndsei	1. J. Njotunyi (SGP) 2. V. Njotunyi 3. M. K. Tatanholu 4. C. Mandobu 5. N. Kinyi 6. M. B. Bindu	1. R. Kimbeng (SGP) 2. A. Bungeu 3. V. Tonjo 4. M. Membo 5. J. Bungeu 6. G. Fonkonyi	1. C.L. Mokom (SGP) 2. R. Mokom 3. J Kasah 4. M. Kasar 5. M. Khan 6. D. N. Mokom	

(b) Strengthen and expand the bulk of over 60kg total harvested SRI seed from 3 separate breeding farmplots of the farmer groups as "Multiplication SRI seed". Most farmers recycle inferior seed that is a mixture of various rice varieties, sourced from different areas and farming conditions other than SRI. This affects the final quality in that the mixed grain does not mill well. Currently, there is no coordinated system for producing good seed. In the local understanding of the 3 farmer groups in Ndop, they are calling this action as 'Growing Seed-for-Seed'. Meaning growing or breeding of rice to

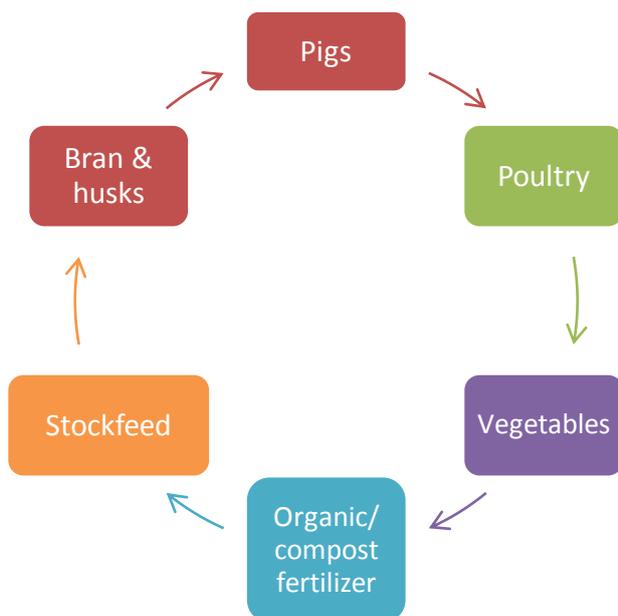
produce and maintain levels of SRI seed that can be replicated or distributed to expand other farms in different farming communities and not for the sole purpose of marketing for consumption.

Objective 2:(a) Establishing collective marketing systems through structures that were already established during 2013 training to strengthening market linkages and harmonizing fragmented and uncoordinated markets. The platform would support market linkages to be known as "SRI seed bulking centers." This arrangement would begin with 36 SRI bulking centers which can accommodate each of the SRI peer groups. This implies that each center would be responsible of linking 6 peer members. The purpose for this action has been nurtured realizing the low levels of production by the numerous and isolated small-scale producers in the rural areas. This results in traders and processors incurring high transaction costs to establish their own purchasing, bulking and storage arrangements. This coupled with the high transport costs due to the poor road infrastructure only encourages opportunistic and exploitative informal trade.

(b) Setting up of rice value addition and value-chain and initiatives

- SRI farmers should be supported to set up their own milling units with facilities for grading and packaging of rice in high rice production areas on a commercial scale. Such units would also serve as collection centers and increase rice production beyond the present household and subsistence levels. Trade in local rice at the moment is not very well organized in Cameroon which acts as perhaps the single major disincentive for farmers to increased production. Currently, there is monopoly in price dictated by the powers-that-be in rice industry in Cameroon. Farmers are left with no choice to where and how to market their rice produce. There would be need to link producers to more profitable end-markets that they have hands-on in order to improve the competitiveness of local rice against imports and improve access to cross-border markets.
- *Low level of mechanization:* The reliance by smallholders on traditional hand tools for cultivation and harvesting methods limits rice hectarage, and this coupled with the poor agronomic practices largely explains the low yields and production levels. Farmers often fail to harvest in a timely manner, due to insufficient manual labour, and therefore end up with over-dry rice, which compromises milling quality.
- *Farmer-to-farmer rice value chain promotion:* In order to produce organic SRI, farmer groups will be required to grow rice without the use of synthetic fertilizers, pesticides and herbicides that have environmental effects and are expensive these days. To sustain this approach effectively it would be very important for the farmers to promote rice-value chain. This will require encouraging and supporting not only compost manure but livestock manure from piggery, poultry and cattle. Capacity-building of SRI farmers in livestock rearing would be promoted to provide as source of organic fertilizer and providing the multiplier effect. There are other great opportunities that would be centered on the SRI paddy rice where apart from production of polished rice, significant benefit would be seen to come from using the rice bran and husks that the farmers could turn into stock feed to feed their chickens and pigs. The same farmers would use the chicken and pig droppings as manure for applying to their SRI farms and other grain crops as well as to their vegetable gardens.

The pictures below illustrate how the rice value chain circle:



E. Workplan and timeframe

Activity	2014	2015	2016
Promoting expanded action of "SRI Peer groups" (SPGs)	✓	✓	✓
Strengthening "Multiplication SRI seed"	✓	✓	✓
Establishing collective marketing systems		✓	✓
Setting up of rice value addition and value-chain and initiatives		✓	✓