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## Rice Value Chain Program



**Official launch of SRI  
And  
Mid-term farming season field days in Chinsali district  
Progress report  
17-19<sup>th</sup> February, 2011**



*The District Commissioner Mr Maximo Chitambi representing the Government of Zambia cuts the ribbon to signify the official launch of SRI in Chinsali district, Northern Province.*

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## Acknowledgement

I wish to show gratitude to all the Chinsali stakeholders and group of farmers, especially Mr. Maximo Chitambi, District Commissioner, for participating in the official launch of SRI and the mid-term farming season field days that took place from 17-19<sup>th</sup> February, 2011.

Special credit goes to Mr & Mrs Mumbi, Mr & Mrs Ng'oma, Mr. & Mrs. Kashimu, Mr & Mrs Chisanga, Mr & Mrs Chilufya and Ilondola Rice Growers Club for providing splendid demonstration sites that exhibited excellent lesson-sharing for all the people who participated in the events.

I wish to express my gratefulness to Pamela of SNV-Kasama who travelled 199 kilometers from Kasama to come and participate and witness the events.

I would like also to give great thanks to all the WCS/COMACO staff for their devotion in seeing that the SRI launch and Field Days were rendered full support for successful results.

Following the remarkable SRI results emanating from across Chinsali district, Northern Province, and considering the chain of benefits that are being observed, I am grateful to the Wildlife Conservation Society (WCS) and COMACO for not only providing necessary resources to these events, but also for envisioning and accepting SRI in the program mainstream.

In conclusion, the entire arrangement was motivating and inspiring because the main purpose was to see farmers benefiting from ***better productivity and gains from their rice yields.***

Wishing everyone good luck.

Henry Ndonji Ngimbu

**COORDINATOR- RICE VALUE CHAIN PROGRAM**

## **1. BACKGROUND**

SRI is a simple but effective rice-growing technique for rice farmers. The beginning point to understand is that the principles of System of Rice Intensification (SRI) can be explained and communicated without much formal educational requirements. Once knowing the principles, farmers can make appropriate adaptations.

The largest and most pervasive requirement for SRI adoption is change in farmers' thinking and willingness to change. Farmers need a certain amount of skill and motivation to use SRI techniques successfully.

Overcoming skepticism and mental resistance usually requires some physical demonstration, or visits to see SRI fields that are growing as explained. Visits to demonstration plots and farmer-to-farmer communication are usually the most effective way to overcome resistance, supplemented by illustrated materials and visual displays.

The confidence of those communicating about SRI is also a key element in gaining acceptance. Therefore, small-scale farmers need to observe important factors that impact traditional and modern rice farming.

COMACO has started demonstrating the way, and it is interesting to observe that farmers and stakeholders are embracing the innovation and taking the lead. Expectations are high but results also have already started becoming excellent.

## 2. OFFICIAL LAUNCH OF SRI IN CHINSALI DISTRICT, NORTHERN PROVINCE

Following successful results from this year's 2010-2011 SRI paddy rice farms' vegetative growth in Chinsali district, The Rice Value Chain Program, a sub-sector of COMACO programmes based in Chinsali district, organised an official launch of the System of Rice Intensification (SRI) farming. This ceremonial event was graced by the Guest of Honour, Mr. Miximo Chitambi, the Chinsali District Commissioner in the Office of the President on 17<sup>th</sup> February, 2011 at Mr and Mrs Mumbi's farm. The occasion symbolised the Zambian Government's support for SRI farming practices in Zambia. Among the activities that took place include the following:

- The gathering attracted about 90 people including the District Commissioner, SNV Coordinator, representatives from Ministry of Agriculture, Ministry of Community Development, Zambia Wildlife Authority, Zambia Information Service, traditional chiefs and village headmen, and women. Others were the Chairperson of the District Farmers Association, paddy rice farming groups, the Kawama Youth group, and paddy rice farmers
- Apart from cutting the ribbon to mark the launch of SRI in Chinsali district, Northern province, by Mr. Miximo Chitambi District Commissioner, on behalf of the Government of Zambia, there was also the audience that inspected Mr. & Mrs. Mumbi's farm to witness the prolific growth of paddy rice in their field.
- The most amazing aspect that the participants learned was the number of tillers per hill, which was ***averaging seventy (70)***.





- The SRI launch ceremony ended in style where all participants including the District Commissioner and other participants feasted on rice meal that was harvested from the last season's harvest.
- There were a lot of dances and drama performances at this event that kept the participants entertained.

### 3. MID-TERM FARMING SEASON FIELD DAYS

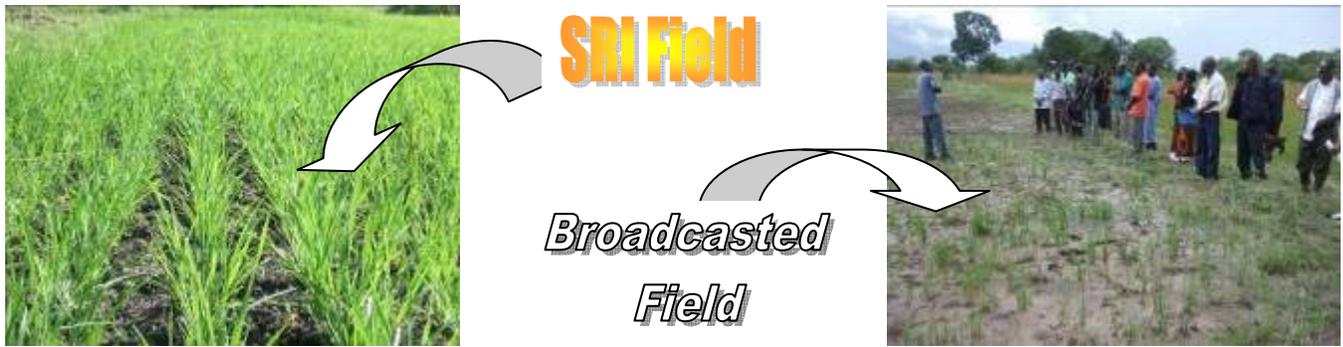
SRI Field Days were conducted on 17-19<sup>th</sup> February 2011 in several parts of Chinsali district. This involved travelling long distances of which the furthest was about 100 km away. These fields were conducted in the following areas; Rubeen, Choshi, Chembe Malata and Mbezuma areas.

The focus was on four thematic areas, as follow:

- Farmer-to-farmer knowledge sharing: comparison between broadcasting and SRI farming practices
- Farmer-to-farmer knowledge sharing: examining importance of the rice value chain in piggery, poultry and vegetable gardening
- Farmer-to-farmer knowledge sharing: examining importance of group dynamics under SRI farming
- Farmer-to-farmer knowledge sharing: examining importance of innovations, creativity and dedication under SRI farming
- Farmer-to-farmer knowledge sharing: examining importance of soil fertility under SRI farming

Details to these activities are as follows:

*A. Farmer-to-farmer knowledge sharing: Comparison between broadcasting and SRI farming practices*



Several people from Government, NGOs, traditional leaders, and farmer groups visited Mr and Mrs Ng'oma's field in Rubeen area on 17/02/11 to observe SRI farming progress. The comparison between SRI and broadcasting had a lot of disparities at this farm. The significance was seen in tillers where SRI had average of 30 tillers at 42 days from transplanting, while only an average of 3 tillers in 62 days from broadcasting.

*B. Farmer-to-farmer knowledge sharing: Examining importance of rice value chain in piggery, poultry and vegetable gardening*



The team of participants during these field days visited two farms of Mr. and Mrs. Kashimu in Shoshi area on 17/02/11 and Mr. and Mrs Chisanga in Chembe Malata area on 19/02/11, respectively. The purpose was to learn lessons on rice value chain in relation to SRI and the multiplier effect. This activity was centered on the circle of paddy rice where apart from production of polished rice, significant benefit was seen to come from the rice bran and husks that the farmers were turning into stock feed to feed their chickens and pigs. The same farmers were using the chicken and pig droppings as manure for applying in their vegetable gardens. This was quite encouraging because it was one way of optimizing the resource base and income.



*C. Farmer-to-farmer knowledge sharing: Examining importance of group dynamics under SRI farming*



The team of participants for these Field Days visited the Ilondola Rice Grower Club on 18/02/11, 30 km west of Chinsali town. The most important aspect in this Field Day was learning how farmers who have expressed initial interest in SRI brought themselves together, and how group self-selection took place. The participants learned the formalization of group formation process, membership agreement and group norms development. Currently, the club members have developed 10 fields where they are learning SRI farming practices.



Group dynamics in sharing of knowledge can not only be at farmer level, but also at the institutional level. This was expressed in the picture on the left side below where Pamela from SNV-Kasama stood in front of an SRI farm with Henry, the COMACO Rice Value Chain Coordinator, sharing important ideas from the field lessons learned.

*D. Farmer-to-farmer knowledge sharing: Examining importance of innovations, creativity and dedication under SRI farming*



A major thrust of the SRI strategy had been to develop and make available more location-specific technologies. The Field Days provided an opportunity to participants to observe simple but effective farm tools, especially farm markers developed for providing precision spacing between hills for planting seedlings. Farmers have developed these tools in almost all the SRI farms.

*E. Farmer-to-farmer knowledge sharing; Examining importance of soil fertility under SRI farming*



Farmers practicing SRI in Chinsali district have come to accept that contribution of soil microbial activity to soil fertility needs to be taken more seriously in SRI farming practice. This was observed by the Field Day team at Mr. Chilufya's farm in Mbesuma area. Mr. Chilufya's SRI farm produced an average of 70 tillers in about 60 days from transplanting. This was amazing. SRI farmers need to switch to use of compost, as there are better results being observed. The 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 phosphorus. Compost adds nutrients to the soil slowly and can also contribute to a better soil structure.

With huge yields of rice being expected to be harvested, something needs to be returned to the soil! Micro organisms and other soil biota as creators and maintainers of soil fertility.

## 4. BRIEF SYNOPSIS ON SRI

The following details explain corrective measures that come with SRI farming practice:

#	Parameters	Effects	Action Required
1	Life in the soil (conservation of micro-organisms)	Soils in rice farms are compromised by burning, chemical fertilization and lack of enough biomass	Support farmers in organic fertilizer/ manure mobilization
2	No seed sorting and priming done at farmer level	Reduced germination and unpredictable yields	Train and support in required sorting standards and priming of rice seed
3	Lack of governance, record-keeping and work plans at farmer level	Critical farming stages (time) are lost out, resulting in poor harvests	Support farmers with basic governance measures, farm record-keeping and work plan
4	Lack of spacing for transplanted seedlings, water control and weeding	Proliferation of weeds, root growth retardation?	Focus on plants/hill rather than broadcasting or drilling in straight lines. Including formation of embankments
5	Poor harvesting and threshing methods	Huge loses leading to reduced harvested quantities and high level of broken rice	Provide best harvesting and threshing methodologies
6	Poor post-harvest methods	Huge loses leading to reduced harvested quantities and high level of broken rice	Provide best post-harvest practices
7	No proper marketing and savings arrangements	interruption of value for the commodity and misapplication of resources	Improved marketing strategies and savings for sustainable livelihoods

### 4.1 The significant points for considering adopting SRI

-  NO NEED to change varieties -- *HYVs and hybrids* can give the highest yields with SRI methods, but *local varieties* can produce 6-12 t/ha with SRI methods
-  LESS SEED is used, because plant populations (plant density) will be greatly reduced; fewer plants well-managed will give more yield than several times more plants casually managed
-  NO NEED for use of chemical fertilizers -- while these can raise rice yield with SRI, the best results are achieved with *compost* or other organic fertilization of the soil
-  NO NEED to apply agrochemicals -- pesticides, fungicides, etc., are usually not necessary -- farmers find that these are not economical as SRI plants are usually resistant to pests/diseases
-  SIGNIFICANT WATER SAVINGS – usual irrigation water can be reduced by 50% -- but *need good water control* to apply smaller amounts of water reliably, regularly
-  MORE LABOR – is needed at first, but as the SRI methods are mastered, SRI management can even become *labor-saving over time*



MORE SKILL AND MANAGEMENT EFFORT are needed -- SRI is intended to *improve farmers' capabilities* – SRI is knowledge-intensive and management-intensive

## 4.2 Simple growing instructions: Six key elements

- ☞ Transplant young seedlings (<15 days, with just 2-3 leaves)
- ☞ Set out plants singly with wider spacing
- ☞ In a square pattern (25x25cm or more) and
- ☞ Planted shallow, gently, and quickly --
- ☞ No continuous flooding during the period of vegetative growth, with either (a) minimum daily applications, or (b) alternate wetting and drying – keeping soil mostly moist but not inundated
- ☞ After panicle initiation, maintain a *thin layer of water* (1-2 cm) on field until 10 days before harvest

## 4.3 Remarkable results: Unlocking the potential

- ☞ Increased TILLERING -- 30-50 tillers/plant, or more, if the soil and water are well-managed
- ☞ 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)
- ☞ Bigger PANICLES -- 200-300 grains/panicle, or more
- ☞ Positive correlation between the number of panicles and panicle size -- contrary to the negative relationship which is commonly reported – SRI can give more and bigger panicles
- ☞ 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
- ☞ RESISTANCE to pests, diseases, storms and drought as plants remain healthier with their deeper root systems and stronger tillers; LODGING is rare; also RATOON crop is possible
- ☞ HIGHER YIELDS – average of 6-8 t/ha, even up to 15 t/ha or more
- ☞ PRODUCTIVITY gains – from all inputs (land, labor, water, capital); more important than yield

## 5. OVERVIEW OF 2010/211 RICE VALUE CHAIN TARGET ACHIEVEMENT

### i) Trade finance

#### • Paddy rice purchases from local farmers

During 2010-2011 farming season, the Rice Value Chain Program successfully purchased 246,766 kg of paddy rice from Chinsali district. This brought total figures to K400,000,000 money spent to purchase the local paddy rice for the benefit of local farmers in Chinsali.

#### • Processing and marketing

During this reporting period, the program sent 69,230 kg of polished rice to COMACO head office in Lusaka for marketing. At the moment, 63,949 kg paddy rice is still being stored in the warehouse.

In order to improve on quality assurance and health, the polished rice is packaged in well labelled and stitched in 25 kg bags.

#### • Farm input – Rice seed distribution

In order for farmers to improve the quality of paddy seed and expand their fields, the Rice Value Chain Program mobilized and distributed 19,060 kg metric tons of the renowned CHAMA rice shipped from Eastern province. Additionally, a total of 30,460 kg metric tons of the local Chinsali rice were also distributed to farmers. Adding together, a total of 49,520 kg metric tons of seed were supplied.

The response has been overwhelming, especially as the local farmers have expanded their fields. On average, each farmer has managed to cultivate 2 Lima (half hectare). The majority have planted over 1 hectare.





The Rice Value Chain program managed to erect a 'cocoon' storage facility with a capacity of 150 metric tons which was fully occupied by paddy rice purchased from farmers in Chinsali. This was in addition to the large consignment already kept on the storage shed.

## 6. RECOMMENDATION AND CONCLUSION

The anticipation for this technology transfer both at farmer and institutional level in SRI rice-growing improvement is based on the premise that this is an on-going activity. The whole exercise could take the period of 2010-2012 farming seasons for better impact. Therefore, the activity that has been covered already is the first in a series. There is need to carry out monitoring, backstopping, and validating other aspects that include among other things, number of panicles per hill, number of grains per hill, grain weight, yields per hectare, etc.

Therefore, the Rice Value Chain Program should be mandated to roll out and spread the adoptability and adaptation of SRI to all the COMACO rice-growing CTCs for uniformity of grain quality and improved rice-growing system and markets.