



CROP POST-HARVEST
PROGRAMME

The *Zunde* Scheme, Chikomba District, Zimbabwe

April 2000



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Abbreviations and Acronyms

AEW	Agricultural Extension Worker
AFCD	African Centre for Fertilizer Development
AGRITEX	Department of Agricultural Technical and Extension Services
AIDS	Acquired Immuno Deficiency Syndrome
CIMMYT	International Maize and Wheat Improvement Centre
CPHP	Crop Post Harvest Programme
DFID	Department for International Development, UK
DR&SS	Department for Research and Specialist Services, Zimbabwe
GMB	Grain Marketing Board
IAE	Institute of Agricultural Engineering, AGRITEX, Zimbabwe
ICRAF	International Centre for Research in Agroforestry
ICRISAT	International Centre for Research in the Semi Arid Tropics
MoLARR	Ministry of Lands, Agriculture and Rural Resettlement, Zimbabwe

Acknowledgements

The authors would like to thank the Chikomba district *Zunde* participants, particularly those of Masasa ward, for their hospitality and readiness to share their *Zunde* activities and experience. Particular thanks go to Chief Mutekedza and Headman Chandiwana for organising our visits.

The authors would also like to thank the Director of the Department of Research and Specialist Services, Dr Ntombie Gata, who introduced us to the *Zunde* concept and invited the support of the Crop Post Harvest Programme.

This publication is an output from a research project funded by the United Kingdom Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID. Crop Post Harvest Programme.

Executive summary

Zunde ramambo is a traditional social welfare system in Zimbabwe, currently being revived on a nationwide basis. Able-bodied members of the community work together to produce food for the aged, disabled and orphans. Traditionally, it was an important component of village food security in times of drought and hardship. Village headmen provide land and villagers provide free labour. A sense of ownership by the village helps to encourage participation. The initiators of the Zunde Programme in Zimbabwe are the tribal Chiefs, co-ordinated through the National Zunde Steering Committee and the parliamentary House of Chiefs. The Ministry of Lands, Agriculture and Rural Resettlement (MoLARR) is a partner, working through the Department of Research and Specialist Services (DR&SS) and AGRITEX, and strongly supported by ICRISAT, CIMMYT, AFCD and ICRAF. One *Zunde* project is being implemented in Chikomba District, Mashonaland East Province, led by Chief Mutekedza and the Director of Research and Specialist Services, Dr Gata.

The Crop Post Harvest Programme (CPHP) was invited to contribute to the project by Chief Mutekedza. *Zunde ramambo* could be an important instrument for promoting the uptake of research outputs. Production activities are strongly supported by the current project partners and there is a clear demand for quality maintenance and value adding advice (post-harvest). Chief Mutekedza is the traditional leader of 24,000 households in Chikomba District and has direct access, through traditional structures, to the majority of rural households in the district. This pilot project is investigating the potential for the CPHP to link into an existing indigenous organisation and to learn about traditional information uptake pathways and discover whether they are suitable for promoting the uptake of CPHP research outputs.

Discussions with villagers involved in *Zunde ramambo* revealed a number of strengths and no significant weaknesses in the system. The strengths mentioned included:

- reduced malnutrition and food theft due to the availability of additional food;
- increased community sociability, resulting in improved agricultural skills and increased access to new information as a result of joint activities;
- increased acceptance of the *Zunde* approach by able-bodied members of the community offering to be of service to the disadvantaged;
- this approach is also being adopted to solve domestic and family problems;
- seed production has contributed to the improved self-reliance of the community;
- the introduction of more intensive farming methods may lead to increased employment opportunities for school leavers, and assist with rehabilitation of the Sabi catchments.

Involvement of the CPHP in *Zunde ramambo* is recommended. Post-harvest constraints are similar to those identified in some of the focus Districts (Buhera, Chivi, Binga and Mutoko) of the Programme and existing research outputs could readily be fed into the system. For example:

- poor storage facilities and management significantly reduced the yield from the harvest, leading to a plea for assistance in building a granary to prevent future storage problems;
- grain drying platforms have to be replaced every two years as a result of termite damage;
- shortage (and high cost) of suitable timber increases costs of post-harvest facilities;
- mechanical shellers not available to the community, traditional methods result in breakages;
- heavy losses incurred due to insects and rodents.

As a result of discussions with the *Zunde* community in Chikomba district about post-harvest constraints and opportunities, the following four activities are planned.

- *Crib Construction*

Construction of a crib by the Masasa ward community under the supervision of a post-harvest specialist from the Institute of Agricultural Engineering (IAE) and an experienced builder.

- *Construction of two granaries*

Local builders from the three *Zunde* projects within Chief Mutekedza's area will participate in the construction of two granaries as a training exercise. One large (15 tonne capacity) improved granary will be constructed to help with the storage of the *Zunde* crop and one smaller (3 tonne capacity) improved granary more appropriate for household level storage will be constructed.

- *Field days* focusing on 'Good storage management' will be held in each of the three areas under Chief Mutekedza. A short (mainly diagrammatic) pamphlet (Shona) will be produced to accompany the field days.
- *Training of AGRITEX Agricultural Extension Workers (AEW's)* from Chikomba district on the detailed 'Food Grain Post Harvest Technology and Practices' training course will be run at IAE in March 2001.

Introduction to and reasons for interest in the *Zunde* scheme

Zunde ramambo is a traditional social welfare system in Zimbabwe, which is currently being revived on a nationwide basis. The objective is for the able-bodied members of the community to work together to produce food for the aged, disabled and orphans. Traditionally, it was an important component of village food security in times of drought and hardships. Village headmen provide land and villagers provide free labour. A sense of ownership by the village helps to encourage participation.

The implementers of the *Zunde* programme in Zimbabwe are the tribal Chiefs, co-ordinated through the National Zunde Steering Committee and the parliamentary House of Chiefs. Partners in the *Zunde ramambo* revival project are the Ministry of Lands, Agriculture and Rural Resettlement (MoLARR), working through the Department of Research and Specialist Services (DR&SS) and AGRITEX, strongly supported by ICRISAT, CIMMYT, AFCD and ICRAF.

Planned activities include grain, vegetable and fruit production, pig and poultry husbandry and bee keeping. *Zunde ramambo* complements the child supplementary feeding programme, and has the objective of reducing or even eliminating dependence on external assistance for disadvantaged people. One project is taking place in Chikomba District, Mashonaland East Province, led by Chief Mutekedza and the Director of Research and Specialist Services, Dr Ntombie Gata

Dr Gata was approached by Chief Mutekedza in 1997, with the request that the community and DR&SS work together to apply a development strategy that would reduce the social neglect and deprivation of the poorest people under his care. Chief Mutekedza and Dr Gata launched a pilot integrated research and development programme in Chikomba District in 1998 to address food insecurity and poverty among disadvantaged people, and reduce environmental degradation. Production activities are strongly supported by the current project partners and there is a clear demand for quality maintenance and value adding advice (post-harvest). The Crop Post Harvest Programme (CPHP) was invited to contribute to the project by both partners. Chief Mutekedza is the traditional leader of 24,000 households in Chikomba District. The formation of a *Zunde* steering committee provided direct access, through traditional structures, to the majority of rural households in the district.

Dr Gata supported the proposal that the CPHP should finance a pilot project to extend research outputs through the *Zunde ramambo* scheme. The pilot project aims to investigate the potential for the CPHP to link into the initiative by learning about traditional information uptake pathways and assessing whether they are suitable for promoting the uptake of CPHP research outputs.

The following activities were undertaken to assess the feasibility of incorporating CPHP research outputs into the *Zunde ramambo* system.

- Visit to Chikomba district to learn about and observe the *Zunde ramambo* system in operation.
- Evaluate traditional pathways for uptake of information.
- Prepare research outputs in a form that can be assimilated by villagers.
- Set up, monitor and evaluate demonstrations.

This report summarises:

- the current operation of the *Zunde ramambo* scheme in Chikomba district and its history, including information on recent activities, focusing on post-harvest activities with details of labour use, grain storage, grain distribution, post-harvest constraints, and suggested improvements;
- the relevance of CPHP research outputs to the *Zunde ramambo* scheme in Chikomba district;
- the identification of relevant research outputs and planned time frame for development of technology and practices into a form for assimilation by villagers, focusing on appropriate pathways for this information (and reasons supporting this);
- the plan of activities to be carried out for preparation of these research outputs.

Methodology

This study of the *Zunde ramambo* scheme in Chikomba district was carried out during February 2000 by a small research team composed of: the Crop Post Harvest Southern Africa Regional Coordinator (Tafadzwa Sibanda); a post harvest specialist (Jonas Chigariro of the Institute of Agricultural Engineering, Zimbabwe); and a storage pest ecologist (Tanya Stathers of the Natural Resources Institute, University of Greenwich, UK). Discussions were held in consultation with the Director of DR&SS on the background and development of the *Zunde ramambo* concept. The researchers visited Chief Mutekedza and the *Zunde* community and used semi-structured group discussions and field visits to learn about and observe the *Zunde ramambo* system from several groups and individuals within the community (including: separated and mixed female and male *Zunde* farmers; Masasa ward *Zunde* steering committee; Chief Mutekedza's *Zunde* steering committee; Headman Chandiwana; AGRITEX officers). There were almost no discrepancies amongst the information and views provided about the *Zunde ramambo* scheme. In order to avoid repetition of information in this report, views from the different groups are only presented when there was discrepancy on an issue.

Although, two *Zunde* areas within Chikomba district were visited, more detailed information was obtained from the *Zunde* community in Masasa ward and as a result this report focuses on Masasa ward.

History of *Zunde ramambo*

Zunde ramambo is described as a 'traditional social welfare system'. The Shona word *Zunde* is difficult to translate into English. *Zunde* does not mean a cooperative nor a club, but a traditional practice of bringing the community members together as one, for the good of the community as a whole. '*Ramambo*' means chief so *Zunde ramambo* refers to the Chiefs *Zunde*.

When the community was asked about the operational aspects of their ancestral *Zunde ramambo* scheme, the following information was offered.

Historically the *Zunde* concept had existed at three different hierarchical levels: the household; the village (kraal); and the chief.

Zunde at the household level-

Prior to the rise of Christianity in Chikomba district, polygamy was widely practiced. Polygamous men allocated a separate field to each wife. The husband also had his own field, which was cultivated jointly by all the wives on certain days. Each wife would have an individual granary. The husbands' granary was a separate larger one. The grain from the husbands store would be distributed among the wives as soon as one of the wives had depleted her grain store. The distribution usually began around December. As such the communal household labour was used to try and ensure food security at the household level.

Zunde at the village (Kraal) level-

The village also had a *Zunde* field and all the households in the village would provide labour to cultivate this field. The produce was used to feed the disadvantaged within the village when their own food supplies had been depleted.

Zunde ramambo at the Chief's level-

A field was also set-aside for the chief's *Zunde* where labour was provided by the whole community, and the produce was used to feed the disadvantaged within the whole community and also to feed guests who were usually hosted by the chief.

The ancestral *Zunde* scheme was abandoned during the 1950s, due to a combination of reasons including the:

- adoption of Western culture;
- introduction of marketing practices which undermined the incentive to work communally;
- resettlement of rural households during colonisation leading to separation of traditional grouping structures and cultures;
- introduction of farming education programmes (e.g. Master farmer) and high yielding hybrid maize varieties which enabled households to produce enough food to feed their extended families;
- growth of individualism due to settlers being moved into the community;
- introduction of the government supplementary feeding programmes after independence;
- Chiefs not being recognised after independence;
- reduction of polygamy and associated household level *Zunde* practices.

None of the members of any of the groups we met in Chikomba district knew who used to sit on the ancestral *Zunde* committee or how distribution of the produce was organised.

Revival of the *Zunde ramambo* scheme in Chikomba district

Due to the rapid increase in the number of AIDS-orphaned children in the past few years within Chikomba district and other areas of Zimbabwe, the Ministries of: Social Welfare; and Health and Child Welfare have not been able to cope with the increased demand placed on the Social Welfare and Supplementary Feeding Programmes.

In the past, the extended family system provided an effective safety net for the small number of orphans in society. AIDS deaths have been particularly high among the productive 25 - 45 year old age group, who in the past would have been most likely to adopt nieces and nephews into their own homes. Now elderly grandparents increasingly have to bear the burden of caring for large numbers of orphaned grandchildren. There are also growing numbers of households headed by children (in their early-late teens).

The Government of Zimbabwe recently launched an initiative to return the Social Welfare Feeding Programme to the chiefs and their co-workers. The National *Zunde* Steering Committee is comprised of 250 Chiefs from the different districts nationwide and holds meetings every two months. The function of the committee is to keep the government and general public informed of the progress in the *Zunde* program (Sibanda & Manda, 1999).

In Chikomba district, the community realised the acute need to provide food for these AIDS-orphaned and other disadvantaged members of the community. A meeting was held between the village heads, headmen and Chief Mutekedzwa of Chikomba district to talk about how to solve the problem. As a result of further meetings, the community decided to revive the *Zunde ramambo* scheme which had been practiced by their ancestors to try and become self sufficient in food production. The *Zunde ramambo* scheme will also lessen the Government burden to feed these disadvantaged people.

The objectives of the revived *Zunde ramambo* scheme in Chikomba district are to:

- encourage and develop self sustenance of the rural communities;
- help the government in feeding the disadvantaged in the district;
- reduce undernourishment of under 5 year old children and promote early childhood education and care, through the supplementary feeding of these children

Not all members of the community were optimistic about the revival of the scheme, and some members were suspicious that the Chief's high level of support for the *Zunde ramambo* scheme might be associated with his perceived ownership of the crop produced. However, the groups involved in the discussions agreed that after the first crop had been successfully produced and distributed in the 1998/99 season, the scepticism amongst the doubtful members of the community had diminished. This resulted in a higher level of participation in the *Zunde ramambo* scheme by the community in 1999/2000, and the allocation of a larger area to *Zunde* crops.

The Masasa ward residents have a history of involvement in successful community projects which includes the following.

- Construction of a dam with some help from the council in 1970, (the dam is used) to pipe water to some homesteads. The dam is well stocked with bream, which were brought from Lake Chivero near Harare. All the members of Masasa ward can fish in the dam and it is seen as an important source of protein for the community.
- Construction of a courtroom building.
- Burial group organisations

Operation of the revived *Zunde ramambo* scheme in Chikomba district

In Chikomba district, *Zunde* committees formed at both the district and ward levels, are headed by Chief Mutekedzwa and Headman Chandiwana of Masasa ward respectively. Key players within the community such as schools, clinics, AGRITEX, community health workers, councillors and kraal heads are represented on both these *Zunde* committees. The *Zunde* committees are noticeably dominated by male membership.

A well attended initiating meeting representing all 75 Kraal heads was held at the Masasa ward main shops at the start of the *Zunde* scheme's revival in 1998. The *Zunde* committee was selected at this meeting. Another general meeting was held to select a new committee in 1999. The community re-elected the same committee, because it was pleased with the management and coordination of the *Zunde* committee during the 1998/99 season (Table 1). It also nominated two additional new committee members. All the committee members work voluntarily.

Table 1. Members of the Masasa ward *Zunde* committee

Zunde Committee Position	Community Role	Name	Sex
Chairman	Headman	P.M. Chandiwana	Male
Vice chairman	Councillor	A. Murwira	Male
Secretary	Headmaster of local primary school	E.T. Muza	Male
Vice Secretary	Nurse in charge	M. Javangwe	Male
Treasurer	Ward co-ordinator	P.Z. Chikumbirika	Female
Committee members	ZFU	N. Muringai	Male
	Zanu P.F.	P. Mushonga	Male
	Kraal head	D. Rwodzi	Male
	Family planning worker	H. Chingono	Female
Additional members	All 75 Kraal heads (<i>Masabhuku</i>) are automatically committee members		Male

The AGRITEX officer R. Hama acts as the field technical adviser, but he is not a member of the committee. There are also four field managers: N. Gwidiri; S. Mayepi; M. Ngundu; and P. Mushonga.

The Masasa ward *Zunde* committee exclusive of Kraal heads meets monthly and bi-monthly with the Kraal heads to discuss progress. The Masasa ward *Zunde* committee is responsible for planning the *Zunde* activities and making decisions. However, any decisions made or ideas proposed have to be discussed at a consultative participatory meeting with the community and can only be carried out with the approval of the community.

Under the guidance of DR&SS, 13 ha were planted within the *Zunde* scheme in the first season (1998/99). This year, a larger area (38 ha) has been planted and each village head has been allocated some land for use in the *Zunde* scheme by the headman. Each village head received 10kg of maize seed for planting in the *Zunde* fields in 1999. Each village head signs in the *Zunde* book on receipt of this seed.

A number of crops including maize, finger millet, sorghum, soybean, sunflower and sweet potato were grown during the first year (1998/99). Maize, soybean, cassava and sweet potato were grown during the following year. Planting material was assembled and provided by DR&SS. Bird damage to sorghum and sunflower was so serious during the first year that the community decided not to plant it again.

Zunde work is carried out on Tuesdays and Fridays. Friday is traditionally a taboo day when farmers are not supposed to work in their fields. However, an exemption of this rule has been made for the *Zunde* fields. The work period is usually 2.5 - 3 hours per individual due to the large number of households in Masasa ward. Each individual household only has to contribute labour approximately once a month. So it does not interfere with other activities, both men and women can provide labour, although it is usually predominantly female, but varies depending on the seasonal *Zunde* activities (Plate 1). Three or four Kraal heads are present at the *Zunde* fields on both Tuesday and Friday, and they keep a register of the people who work in the *Zunde* field that particular day. Community members are exempt from working in the *Zunde* fields if they have a death in the family or are looking after ill people or herding cattle. The community members cannot contribute cash instead of labour to the *Zunde* scheme. The youth (>16 years old) often participate, representing their parents during the school holidays.

The community has not found it necessary to develop a punishment system for non-participants in the *Zunde* scheme, since nearly everyone wants to be involved. Reasons given for this high level of voluntary participation included: the fact that you may be the next person with orphans to look after; or you may need help for a funeral which would be difficult if you had become unpopular within the community due to your unwillingness to participate. Security in terms of crop theft was not a problem in the *Zunde* fields as the whole community was involved. The security guard who works at the shops also keeps an eye on the courtroom where the *Zunde* harvest was stored.

The figures tabulated below give an indication of the scale and organisation of the *Zunde* scheme in Masasa ward during the 1998/99 season (Table 2).

Table 2. Masasa ward *Zunde* crop 1998/99 season production figures

Commodity	Purpose/ Use of Crop	Quantity	Comments
Maize	Stored	180	
	Sold	75	Money used for 1999/2000 season tillage
	Distribution to the disadvantaged	103	94 to orphans & the elderly 9 to priests
	Amount remaining in store February 2000	2	Yet to be distributed
Finger millet	Stored	20	
	Distribution to the disadvantaged	3	Needy orphans & elderly people
	Amount remaining in store February 2000	17	Yet to be distributed

Source: Adapted from Masasa ward, *Zunde* record book 8/2/2000.

The headmaster of Masasa primary school is both a member of the *Zunde* committee, and a village head. He organised a *Zunde* field, which is used to help feed the pre-school children. Grades 1-2 (usually 5.5 – 7 years old) receive extra food. Pre-school teachers or volunteers in the community cook the food.



Plate 1. One of Masasa ward's *Zunde* maize fields during the 1999/2000 crop.



Plate 2. Drying platform constructed by Masasa ward *Zunde* community

The first season *Zunde* crop in Masasa ward (1998/99) was harvested in April/May. A drying platform was constructed using materials supplied by the whole community, next to the courtroom by men (Plate 2). Shelling was carried out in August using the *Zunde* labour system and the grain was then stored in bags in the courtroom (Plate 3). The Masasa ward committee wanted to build a granary to store the *Zunde* crop, and following discussions with a post harvest technologist at IAE, sourced the necessary building materials. Each household in the ward contributed \$2 to purchase poles, cement and sand. All Kraal heads agreed to supply 1000 bricks, which were to be locally moulded by the villagers. Unfortunately funding to support the builder and supervisor was not located, and the cement purchased by the community expired and was wasted. No *Zunde* granary exists as a result, despite extensive efforts by the community.

Part of the *Zunde* crop may be sold and the proceeds used for purchasing inputs such as seed and fertilizer, hiring a tractor or funding orphans through primary school. Orphans can receive government funding for secondary school but not for primary school. It is also possible that through the *Zunde* scheme some disadvantaged youngsters may be exempted from pre school fees (~\$80). The community felt that in the past it would not have been necessary to sell part of the *Zunde* crop in order to purchase inputs. As the maize varieties grown were open pollinated varieties, seed would have been stored from one season to the next. The fertility of the land was thought to have been higher, which meant that fertilizers were not required.

Sweet potato planting material was distributed to village heads by DR&SS in 1999. Enough has been produced to distribute to the household level in 2000. Sweet potato planting material multiplication is being carried out at Headman Chandiwana's homestead because of the access to water (Plate 4).

Throughout Zimbabwe, each household pays an annual council levy of ZWD\$30/household. A proportion of the collected council levy (65%) can be used towards community development projects. In 1999, Headman Chandiwana put together a request for some of these funds to be used to help support the *Zunde* scheme. The Masasa ward *Zunde* scheme was then allocated ZWD\$10,000.00 which was used to hire a tractor to plough 20 acres of the *Zunde* fields. The additional eight acres was ploughed using draught power. Weeding is carried out using both draught power and hand hoes.

Members of the Masasa ward community said that they felt DR&SS involvement had raised awareness of the *Zunde* scheme in Chikomba district and had been responsible for encouraging the interest of the various research institutions operating in Zimbabwe. Many of the inputs such as seed and fertilizers have been supplied by research organisations. Crops not traditionally grown in Chikomba district have been tried all over areas of the *Zunde* fields. The Masasa ward community was pleased that the researchers were collaborating with them on the *Zunde* fields and felt that they picked up information that was not only useful in terms of the *Zunde* scheme, but information that could help them in their own farming. The open pollinated maize varieties and new crops, such as soya bean, were given as very positive examples of the *Zunde* scheme's collaboration with research institutes. They discussed how researchers had to take samples from the *Zunde* research fields, but that the major part of the crop was left for the *Zunde* scheme. Members of Masasa ward discussed the need for the *Zunde* scheme to become self sustainable in terms of producing seed and generating cash for other necessary inputs, as they realised that research institutes would not be able to keep on supplying seed or other inputs.

The Masasa ward *Zunde* scheme intends to market more crop to raise the funds needed to acquire inputs, (fertilizers, seed and pest control chemicals were mentioned), and maybe to hire a tractor during the current year. The community is also planning gardening activities in the future.



Plate 3. Maize and finger millet *Zunde* crop stored in Masasa ward court room



Plate 4. Multiplication plot of *Zunde* sweet potato planting material

Distribution mechanisms and beneficiary selection

Maize and pearl millet produced under *Zunde* are distributed to the four main groups of beneficiaries: orphans with no parents; orphans with only one parent; the elderly; and the disabled.

In each village, the Kraal head and the community identified the needy beneficiaries and each Kraal head then produced a list. The 75 lists from villages within Masasa ward were then combined and recorded in the *Zunde* book. The community was pleased with this beneficiary selection system as it was both participative and transparent. The beneficiary list is continuously updated during the year whenever people die. The number of beneficiaries in each of the four groups in Masasa ward in 1998 and 1999 are shown in Table 3.

Table 3. Number of potential beneficiaries of the *Zunde* scheme in Masasa ward

Category of Disadvantaged Group	1998	1999
<i>Nherera</i> 1. (Orphans with no parents)	313	366
<i>Nherera</i> 2. (Orphans with one parent)	896	1060
Old Age	595	584
Disabled	197	194

Source: Adapted from Masasa ward, *Zunde* record book 8/2/2000

During the first year, grain was distributed three times: Oct/Nov; Dec/Jan; and Feb/Mar. Each beneficiary received 10 kgs at a particular time. If one household consists of six orphans, then each would receive 10 kgs. In Masasa ward the *Zunde* distribution system does not work on a first come/first served basis, so if someone is busy they can collect their portion later. The Kraal heads are directly involved in the distribution, and Headman Chandiwana is just an overseer. Records of the beneficiaries are kept for future reference.

In the 1998/99 season, nine priests from different denominations each received a 50kg bag of maize from the *Zunde* scheme. In 1999, a special *Zunde* field was selected for growing the priests' maize.

Strengths and weaknesses of the *Zunde* scheme

During group discussions in Masasa ward, the issue of strengths and weaknesses of the *Zunde* scheme was raised. A number of groups made points. The strengths are not listed in order of importance. It should be stressed that the community found it very difficult to think of any weaknesses of the *Zunde* scheme, and those mentioned below were only considered very minor.

Strengths of the Zunde scheme in Masasa ward

- Malnutrition has been reduced amongst the needy in the ward due to the additional food produced.
- Criminal activity has decreased, as orphans no longer hang around while looking for food.
- The community has become more sociable as a result of sharing more information and working together on the *Zunde* scheme.
- Agricultural skills throughout the community have improved due to access to new information from research and other sources. There was a lot of emphasis put on the feeling that this knowledge will be useful for the rest of their lives. The information was

considered not only appropriate for the *Zunde* scheme (in this way, the community feels that everyone is a beneficiary of the *Zunde* scheme, even if you don't receive food packages you receive access to knowledge).

- Surplus seed will be sold at staff price to *Zunde* scheme participants when the community starts producing open pollinated maize seed varieties.
- *Zunde* scheme participants have an improved chance of winning a prize in one of the area agricultural competitions (e.g. largest cob or pumpkin, processing knowledge) because they are now more knowledgeable and have more access to knowledge. The community donates the prizes in these competitions.
- Able-bodied members have accepted the idea of community self-reliance, and volunteer to be of service to the disadvantaged and terminally ill. It is generally felt that such an approach could be used also to solve domestic and family problems.
- Seed production will help reduce economic stress for many households and for the *Zunde* scheme.
- More intensive farming which is expected to arise as the *Zunde* scheme evolves, will lead to increased employment opportunities for school leavers and will play an important role in the rehabilitation of the Sabi catchment areas.

Weaknesses of the Zunde scheme in Masasa ward

The community generally felt there were no significant weaknesses, and it was only after much thought that it could come up with a few minor weaknesses, which included.

- Reduced time for other activities.
- No food provision during field work.

General constraints within the *Zunde* scheme in Chikomba district

The community highlighted the following general constraints, which they felt affected the *Zunde* scheme in Chikomba district.

- *Absence of storage facilities*

In 1999 there was no place to put the crop after harvest due to the absence of storage facilities. An open crib was hurriedly constructed, but late rains led to rotting of some of the drying cobs, reducing the overall food supply.

- *Shortage of draught power*

The community gave first priority to ploughing their own fields, which led to late planting. Individual oxen were provided by separate households for use in land preparation of the *Zunde* field. Traditionally oxen are trained to work as teams, so the use of four normally un-teamed oxen may hinder the speed of this operation.

- *Shortage of funds*

There was inadequate money to purchase inputs such as seed and fertilizer. The 2000 maize crop was yellowing as a result of the lack of fertilizer. The community hopes to reduce the burden of high seed expense by producing open pollinated varieties, which they are currently trying.

- *High transport costs* associated with carrying maize to the Grain Marketing Board (GMB)

- *Crop damage* due to pests including hoppers, maize stalkborers, and aphids in ground nuts.
- *Late/erratic/short rainfall* often leading to drought
- *Delayed grain storage* of the Zunde crop due to slow and laborious threshing and shelling practices
- *Lack of acceptance of the Zunde scheme*

The community is trying to encourage the few people who have not yet joined the Zunde scheme by putting in checkpoints.

Post-harvest constraints

When the community was asked in more detail about post-harvest constraints the following response was given.

Lack of appropriate storage facilities

- Drying platforms destroyed by termites within 1-2 years of construction.
- Low availability of timber - community have to purchase from nearby commercial farms, but as a community, have started talking about planting their own plantation as a source of future timber.
- Absence of Zunde storage and drying facilities (see general constraints for detail).

Marketing constraints

- High breakages during shelling and resulting Grade B lower price maize. Stones are used to shell maize in the absence of mechanical shellers.
- Lack of knowledge about moisture content assessment prior to sale to GMB. GMB will test maize moisture contents for farmers at a fee of ZWD\$25/sample.

Storage pests

- Rodent damage to stored crop (one woman said her store was rodent proof, the others arranged to go and see the store).
- The community lack adequate knowledge about grain protectants. The most commonly used grain protectant is Cooper Shumba (pirimphos methyl) = ZWD\$290/500g, but many members of the community felt that it wasn't working very well. One woman mentioned placing goat droppings at the base of the compartment to keep both weevils and snakes out of the store: she also uses them for repelling snakes away from chicken runs.
- Severe weevil damage to stored maize, forcing the committee to distribute the maize earlier than planned, fearing that high losses would otherwise be incurred.
- Rotting of maize, because of poor storage facilities significantly reduced the harvest. Pleas for assistance in building a granary to prevent storage problems in 1999/2000 season.

Future plans for the Zunde scheme activities in Chikomba district

During our discussions, the community described some of their future plans for the *Zunde* scheme beyond the current food security activities, which included:

- production of maize and groundnut seed for sale within a local market, with reduced prices for *Zunde* participants;
- processing of primary products into finished products to add value, such as the baking and sale of confectioneries;
- horticultural gardening, with plans to construct a wind powered water mill near the dam that the community have built to irrigate the gardens;
- development of a National Park - the area around the dam was considered ideal for game and the National Park, which would attract visitors to the area, possibly providing a new market for *Zunde* produced confectionery products.

Existing pathways in Chikomba district for uptake of information

Traditionally, farming practices and agricultural information are handed down from generation to generation within the household. External agricultural information can flow through AGRITEX field days, master farmer training courses and farming clubs (which AGRITEX are also very actively involved in).

Field days

To date, in Chikomba district, all the AGRITEX field days have focused on animal and crop production activities, and the community have received minimal information on post-harvest practices, except for the recent attendance of five female farmers at a processing course at Kushinga Phikelela (see overleaf). The groups involved in these discussions mentioned that they would be very keen to have a field day on post-harvest issues. The community also mentioned the basic requirements that ensure the success of a field day: it should be held near a homestead with a kraal; a good toilet; and a clean water source. The discussion also focused on whether one had to individually attend these field days, or whether second hand information which could be obtained through neighbours was equally beneficial. The group members considered it optional though they indicated that it was usually difficult to effectively understand and visualise something, which one had not seen or heard about in its entire context.

Master farmer training courses

The master farmer training courses run by AGRITEX can be used for multi-directional information flow, but the community members interviewed felt that the courses were a crop or animal production forum rather than a post-harvest information one. The community mentioned that AGRITEX officers sometimes talk about grain storage management, and indicated that it would prefer demonstrations.

Zunde scheme

Information also flows through the *Zunde* scheme. In particular, agricultural extension information, but the flow of information on topics such as relationships, cookery and savings etc., were also mentioned.

DR&SS staff recently arranged a 7- day training course on 'Processing Techniques' for five female farmers from Masasa ward. The course was held at Kushinga Phikelela training centre

and focused on products which could be processed from a number of the crops, including, soya bean, cassava, sweet potato, sorghum, millet (many of which are new crops to this area), which had been grown successfully in the *Zunde* fields. The trained women will then train two other women from each of the 75 kraals under Headman Chandiwana, who will then go on to train other women in their respective villages (chain style). The women we spoke to were very positive about this system, and said that they all contribute funds or materials in order to obtain the other ingredients, utensils or equipment needed for the training at village level.

Hierarchical structure

Important announcements and information can also be spread through the community using the hierarchical structure, which exists within the ward, e.g. community members to kraal heads to the headman to the district administrator. Information can flow in both directions through this channel, and an example of the type of information passed using this channel included the collection of a list of those members of the community without sufficient food supplies.

Schools

The school assembly forum is a common pathway used by the chief and headmen to let the community know about any important events. The children pass the information to their parents or Kraal heads; this pathway can also be used to transfer information in both directions.

Community groups

Group based activities exist within the community and specialist information passes between members of these groups, the following clubs operate in Masasa ward.

- Farming clubs (male & female members; in which AGRITEX are very active).
- Sewing clubs (female members).
- Cookery clubs (female members).
- Savings clubs (male & female members). There are two main types.
 - Joint savings club, which selects a treasurer and the members, then contribute money. They discuss the inputs (seed and fertilizer) that are needed each season and then use their funds to make bulk purchases in order to get both a cheaper price and free delivery.
 - Savings Society (or Rounds) common throughout Zimbabwe. Several people will form a group (or society or round) and each give a set amount per month, one month one member of the society receives everyone's contributions, the next month another member receives the contributions. Each member states beforehand what they wish to use the funds for i.e. to purchase kitchen utensils, rug etc. The members of the society discuss and approve the potential expenditure. The funds should not be used to pay bills, and it is considered important to purchase the agreed items, as the society members will come and admire them.

The *Zunde ramambo* scheme as an innovative uptake pathway for Crop Post Harvest Programme (CPHP) research outputs

The *Zunde* scheme in Chikomba district is a very positive example of a community developing a coping mechanism in response to growing difficulties. It is very important that any external assistance provides the kind of inputs which, support these community coping mechanisms rather than undermines them by making the community dependent on well-meaning hand outs.

It is for this reason that we are proposing focusing on knowledge and skill based post-harvest technologies which should strengthen the coping mechanisms, skills and knowledge within the community in order to reduce post-harvest losses both to the *Zunde* crop and the individual household's crop.

Proposed post-harvest outputs for feeding into the *Zunde ramambo* scheme in Chikomba district

As a result of discussions with the *Zunde* community in Chikomba district about post-harvest constraints and opportunities, the following activities are planned.

1. Construction of a drying crib by the Masasa ward community under the supervision of a post-harvest specialist from IAE. The improved crib will have a roof to reduce the effects of late rains during drying and will feature both traditional wooden post legs and cement filled PVC pipes, to enable discussion and comparison by the community.
2. Construction of two granaries under the supervision of a post-harvest specialist from IAE and an experienced builder. Local builders from the three *Zunde* areas within Chief Mutekedza's area will participate in the store construction as a training exercise. One large (15 tonne capacity) improved store will be constructed to help with storage of the *Zunde* crop. A second smaller (3 tonne capacity) improved store more appropriate for household level storage will be constructed. The *Zunde* community will provide the majority of the building materials including bricks, river sand and roof poles.
3. Field days focusing on 'Good Storage Management' will be held in each of the three areas under Chief Mutekedza. The main topics covered will be store hygiene, replastering, grain drying and grain treatment. A short (mainly diagrammatic) pamphlet (Shona) will be produced to accompany the field days.
4. Training of AGRITEX Agricultural Extension Workers (AEWs) from Chikomba district at the detailed 'Food Grain Post Harvest Technology and Practices' training courses to be run at the Institute of Agricultural Engineering (IAE) in March. The community identified the AEWs as important information channels particularly as they are always present during *Zunde* days. Increasing their understanding of post-harvest practices and problems is hoped to provide the whole *Zunde* community with access to this post-harvest information.

Currently, the main crop grown in the *Zunde* fields is maize, although soybean, cassava and sweet potato are also being grown quite successfully. Five women from Masasa ward attended a processing and product diversification training course. If, following their training of other women within the community, further needs are identified, or interest raised about the processing possibilities for other crops, it might provide an opportunity for further Crop Post-Harvest Programme collaboration.

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