



The International Treaty

ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Full Project Proposal Format

Third Call for Proposals under the Benefit-sharing Fund

*Deadline for submitting full project proposal: 5th of December 2014
at Treaty-Fund@fao.org and PGRFA-Treaty@fao.org*

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PROJECT PROPOSAL COVER SHEET

Project No. _____ (For Treaty use. Do not write anything here)

Project Title: Community based conservation, utilization and management of climate adapted Sorghum, Pearl-Millet, Cowpea and Bambaranuts in Matebeleland South Province of Zimbabwe

Project duration: 36months

Target crops: Sorghum, Pearl-Millet, Cowpeas and Bambaranuts

Targeted developing country/ies: Zimbabwe (L) Zimbabwe (P)

Other Contracting Party/ies involved: None

Project geographic extension (km²): 54,172 km² (total area for Matebeleland South Province)

Total requested funding: US\$298 162

Total co-funding: Nil

Please select the type of project you are applying for:

- ☒ Single-country Immediate Action Project (Window 2)
- ☐ Multi-country Immediate Action Programme (Window 2)
- ☐ Single-country Co-development and Transfer of Technology project (Window 3)
- ☐ Multi-country Co-development and Transfer of Technology project (Window 3)

Applicant

Name of Organization: Practical Action

Type of organization: Non-Governmental Organisation

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GENERAL REQUIREMENTS

These guidelines have been prepared to support applicants in the development of full project proposals. They describe the requirements that all applicants should adhere to when developing their full project proposal.

Please make sure you read these guidelines carefully before proceeding to fill in the Project Proposal Form. The full proposal should be prepared taking into account the thematic focus of the Third Call for Proposals, including in particular, the rationale, scope and expected outputs for each Window and sub-Window.

Project proposals must be clear and realistic on the problem to be addressed and objectives to be achieved. Project objectives have to fit in the thematic focus of the call and ultimately contribute to food security and poverty alleviation. Project objectives have to be logically interlinked with the planned activities, outputs and expected outcomes. The objectives and outputs have to be feasible in terms of duration and resources requested. The information to be provided in each section has to be focused and straightforward, qualitatively and quantitatively measurable in terms of what will be done, with what purpose, who will be involved in the activities to be implemented, who and how many will directly and indirectly benefit from the implementation of the project. A good full proposal will have a sound, clear and logically linked methodology of implementation and management.

The full project proposal should contain no more than fifteen (15) pages of text (Appendixes, table of contents and cover sheets excluded). The number of pages allocated to each section is a guide. The information required can be less but not more than the number of pages stipulated. All Appendixes should be duly filled in according to the provided guidelines as they form an integral part of the full project proposal. Project proposals lacking even one Appendix, will be excluded from the selection process. The Appendixes will be provided to you in separate files together with the present document.

When submitting the full project proposal, additional attachments (endorsement letters, funding commitments, certification of the status of the organization) can also be submitted with the main proposal.

Please ensure that the project proposal and all attachments are legible in Times New Roman 12 and provided in two formats (pdf and word). Make sure the signature of the project coordinator is put on the signature page.

The project proposal, if approved for funding by the Bureau of the Sixth Session of the Governing Body, will form an integral part of the contractual agreement (Letter of Agreement) that will be signed with each applicant organization of the approved projects

SECTION A: EXECUTIVE SUMMARY

1. Executive summary

Declining soil fertility, impacts of climate change such as increase in the frequency of droughts and long mid-season droughts is causing food insecurity among smallholder farmers. Small grains have the potential to improve food security among smallholder farmers due to their high drought tolerance. However the yields have remained low averaging 300kg/ha against a potential of 2.5-4t/ha due to little recognition and investment in research and breeding of new varieties by governments and researchers.

Access to improved good quality seed coupled with good crop management can improve yields and reduce crop failure. In the focus area, Matebeleland South Province of Zimbabwe, traditionally receives very low rains but in the past 10 seasons the area has received very rainfall and temperatures have been very high. This means the little rains received are quickly lost through evapotranspiration. These changes have been attributed to climate change and have resulted in significant reduction in yields especially for major cereals such as the staple maize, but for small grains the yields have been more or less consistent though below potential.

The project will focus on strengthening and sustaining on-farm and community level conservation, utilisation and management of sorghum, pearl millet, cowpeas and bambaranuts genetic resources. The potential of these crops to contribute towards food and nutrition security has not been fully exploited in the past mainly because the crops have been regarded as minor crops and therefore not prioritized by researchers most work has been done on maize.

The project will support the conservation of locally adapted varieties by involving farmers in on farm evaluations and characterisation of genetic materials. These will be conserved in community seed banks managed by the smallholder farmers themselves with supervision of the Nation gene bank. Field days will be conducted bringing farmers, extension officers and the public together to learn, share knowledge and build community connections in support of conservation and use of improved varieties. At field days farmers will come together to share details of on-farm research and demonstration and learn from each other.

Seed fair will be conducted to provide a specialised market place that creates opportunities for seed exchanges or arrange future exchanges. The objectives of Seed Fairs includes creating awareness amongst farmers, researchers, extensionists and district planners of additional alternative seeds and planting material from research station and about seed from farmers' own sources. Seed fairs also enables local, extensionists and farmer seed experts who do not normally meet to do so and exchange knowledge and experiences on the old and new crops that they grow.

The information and knowledge generated during the implementation of the project will be shared through national learning workshops, published scientific papers, fact sheets and brochures. The project will work with smallholder farming households including women-headed farming households with limited access to seed resources in Gwanda, Matobo, Bulilima and Mangwe districts in Matebeleland Province of Zimbabwe. These farmers will benefit through accessing 3 new cowpeas, 2 new bambaranuts, 1 sorghum and 4 pearl millet improved varieties. This will in turn improve their yields and food security as well as provide more income though selling of seeds at seed fairs. In addition 120 extension officers, Zimbabwe Farmers Union members, 3 local NGOs and 20 000 additional farmers in surrounding areas will also benefit through accessing these improved varieties.

SECTION B: PROJECT DESCRIPTION AND CONTENTS

2.1. Problem definition

Smallholder farmers in marginal areas of Zimbabwe are trapped in a vicious cycle of poverty and land degradation coupled with increasing population and demand for food. Declining soil fertility, increased use of marginal and fragile lands, and high frequency of drought under climate change and variability, lack of adoption of well adapted agricultural technologies, escalating input costs and unstable market conditions affects profitability and sustainability of the smallholder sector. Agriculture in Zimbabwe provides a livelihood to approximately 70% of the population, making it important in poverty reduction and food security (CAADP-ZAIP 2013-2017). 60% of women in Matobo, Gwanda, Bulilima and Mangwe Districts are engaged in agriculture and the target PGRFA are regarded as women crops. 67% of female headed households in Matebeleland South province grew small grains in the 2012/14 season which shows the value placed on these crops by women. Most smallholder farmers are living below the poverty line, because of weak extension support and unreliable rainfall due to changing climate. Month on month rainfall for target districts has been on the decrease for the past 40 years resulting in low crop production (Meteorological Services Department-2014). Fewer households planted small grains in the 2012/13 season compared to the previous season (ZimVAC May 2013). In the proposed project, the incentive to grow these crops by farmers will be through the expected yield increase of the introduced crops under the changing climatic conditions. In 2012, Gwanda had the highest proportion (57.2%) of food insecure households, Mangwe-53.3%, Bulilima-25.6%, Matobo-22.8% (ZimVAC 2012). Prevalence of stunting is high ranging from 35-47% for Bulilima and Mangwe, Matobo- 30-34.7% and Gwanda -20-29.9%) (Zimbabwe National Nutrition Survey-2010). Sorghum (*Sorghum bicolor*), Pearl-Millet (*Pennisetum glaucum*), Cowpeas (*Vigna unguiculata* [L] Walp.) and Bambaranut (*Vigna subterranean*) have potential to stabilise household food and nutrition security in semi-arid regions because they are resilient to environmental shocks (Mukarumbwa and Mushunje 2010) and provide a good balanced diet in food systems. Despite the positive attributes, the crops have remained highly underutilized due to little recognition of their role by government and researchers (Taylor 2003).

The staple crop maize which is grown by most households is highly vulnerable to rainfall variability experienced in Matebeleland South. The alternative cereals, sorghum and millet are less preferred due to unfavourable tastes of introduced varieties, processing and utilization challenges, poor yields, lack of good quality seed and limited markets (Jayne et al 2006). The majority of households (63%) in Matebeleland South Province used retained small grain seed for the 2012/13 season (ZimVAC 2013) which partly explains continued poor yields. Total production and yield per hectare of sorghum and millets has remained stable over the years, however the large difference is between actual (<500kg/ha) and potential yield (2500-4000kg/ha) (CAADP-ZAIP 2013-17). In the target districts, the yield of the 4 PGRFA in the last 15 years have averaged as follows; Sorghum 0.36t/ha, Pearl Millet 0.26, Bambara nuts 0.19t/ha and Cowpeas 0.16t/ha. Area yield estimates for the four targeted regions for the period 1999 – 2014 showed that all the four regions are producing the targeted crops. However, there has been a lot of fluctuations on the yield levels over the period due to frequent dry spells and use of poor unimproved seed of these crops. Access to good quality seed will improve yields and reduce crop failure due to weather related shocks which are characteristic of these areas.

Bambaranut is not on the list of PGRFA but is strongly recommended in this proposal because of its importance for diversification in local food systems, providing a vital source of dietary protein and income to vulnerable rural families in semi-arid areas. Bambara nut has received little research attention contributing to limited availability of improved seed and is threatened with extinction from unsustainable utilization. Farmers sell 10 to 40% of their Bambara nut produce every season and they often select the early maturing light colored cultivars at harvest leaving behind the late maturing dark colored landraces. According to a case study by Mwenye in 2014 farmers prefer the light colored early maturing Bambara nuts landraces because of their good taste and that they can be consumed or sold as fresh nuts before they

reach physiological maturity. Bambara nut therefore provides farmers with both income and food before the main staple crop matures. The landraces currently grown by farmers are long season, maturing in about 160 days making it difficult to fit well in the current shortened rainy seasons and also yielding poorly averaging 500kg/ha against a potential of about 3000kg/ha. Furthermore the crop is affected by *Fusarium* wilt which has the potential to cause up to 50% loss in yields. Community based conservation systems; germplasm collections and pure line crop improvement are the best options for the sustainable management of the crop and also to increase its productivity. There is need for breeding to incorporate these traits and select for aphids and bruchid resistance for greater adoption by smallholder farmers.

The adaptive capacity of resource poor farmers to the effects of climate change can be enhanced by supporting local seed development, savings and introducing a diversity of locally adapted crops.

2.2. Project objectives: Overall and specific objectives

The Overall Objective of the project is:

To increase the adaptive capacity of vulnerable farming communities in Gwanda, Matobo, Bulilima and Mangwe Districts to the effects of climate change and variability.

This action responds to the call for proposals by addressing nutrition challenges, strengthening the adaptive capacity of community, enhancing productivity and diversifying sources of food through activities focused on developing community based conservation systems and community seed production and dissemination. Markets for the targeted PGRFA will be developed improving the incomes of targeted communities. The action will result in the recognition of the role played by minor crops in local food systems through policy development and support by government.

Specific Objective:

The Overall Objective is articulated at project level through the following specific objective which directly benefits the target groups:

To strengthen and sustain on-farm and community level conservation, utilisation and management of sorghum, pearl-millet, cowpeas and bambaranuts genetic resources.

The potential of the targeted PGRFA in contributing towards food and nutrition security has not been fully exploited in the past mainly because the crops have been regarded as minor crops and not prioritized by research. The action will support and develop innovative, community based conservation and seed multiplication systems to ensure adapted seed is locally available.

2.3 Targeted outputs, activities and related methodology of implementation

The following are the targeted outputs and related activities

Output 1: Locally adapted varieties successfully conserved and used

In order to strengthen the sustainable management of plant genetic resources in Gwanda, Matobo, Bulilima and Mangwe Districts, the project will establish sustainable community conservation systems. Activities related to this output are as follows:

2.3.1 Organize project inception and awareness raising workshops at ward and district level.

A total of 4 district level awareness raising meetings on the Action will be held for Rural District Councils (RDCs) and extension staff. The meetings will target at least 30 participants. Additionally at community level 12 meetings targeting at least 50 communities including lead farmers and leadership will be held at ward level across the 4 districts. The project will target 3 wards per district. The meetings will be used to popularize elements of community based seed conservation systems and get buy in of the action at all

levels. There is currently limited understanding among the communities, of the role the targeted PGRFA plays in improving food security and resilience to climatic shocks. These workshops are important in increasing the level of awareness so that communities can participate effectively in the project. The National Gene Bank assisted by Practical Action will lead the implementation of this activity based on their expertise on community based seed systems and participatory technology development respectively. This activity will be done in the first quarter of the projeCt.

2.3.2 Conduct one participatory baseline survey in 4 districts to establish the local status of crop genetic diversity with respect to the targeted plant genetic resources.

The survey will be conducted in each district targeting 300 households per district through a questionnaire. The study will be used to identify lost crop germplasm which may be reintroduced, areas for possible establishment of demonstration for on farm evaluation of crop genetic resources and also lead farmers to carry out the demos. The National Gene bank in collaboration with the Crop breeders will also carry out the collection of unique crop genetic resources of Bambara nut, pearl millet, cowpea and sorghum for use in breeding program and also for conservation in the National gene bank. This activity will be carried out throughout the first two quarters of the project.

2.3.3 Establish on farm evaluation and characterisation sites.

A total of twelve on farm evaluation and characterisation sites will be established in all the four districts. Three lead farmers will be identified in each district. The demonstration plots will be used to train farmers on farm crop evaluation and useful trait identification in addition to their cultural practices. This work will be done by the National gene bank in association with the Crop Breeding Institute- crop breeders. Practical Action in association with AGRITEX will lead in the identification of the sites and lead farmers. The farmers will establish the plots, carry out the evaluation and do the data collection with assistance from the local extension staff. These sites will be used as the centres for farmers training and awareness raising workshops which will be conducted in each district.

2.3.4 Conduct field days and seed fairs

Field days will be conducted to provide learning platforms for farmers where they exchange notes on the performance of the introduced new varieties. A total of 300 farmers per district will be targeted. Field days will be conducted once each year towards the end of the farming season

Locally organised seed fairs will be conducted to allow farmers to buy and sell seed from each other as well as from other commercial seed sources who will be invited to attend. The objectives of the Seed Fairs include:

- Creating awareness amongst farmers, researchers, extensionists and district planners of additional alternative seeds and planting material from research station and about seed from farmers' own sources.
- Enabling local, extensionists and farmer seed experts who do not normally meet to do so and exchange knowledge and experiences on the old and new crops that grows.
- To create working contacts between farmers, extensionists and researchers which will continue independent of the project.
- Create opportunities for seed exchanges and arrange future exchanges.
- Enable disaster affected farmers to access crops/varieties in quantities of their choice.
- Create social interaction

Seed fairs will be conducted in the second and third year towards the beginning of the rainy season to ensure timely access to seed by farmers. Seed fairs will promote seed adapted to local conditions as farmers exchange and sell seed grown and produced locally, will help insure farmers against climatic uncertainties by availing different crop types and varieties. They will also help build the local seed distribution system and access of the new varieties by other farmers outside the project. Farmers may find out innovations on the market whilst seed producers find out farmer needs, tastes and concerns. They also

create a discussion forum for farmers on the quality, usefulness and price of the seed. Even seed houses will also benefit by gathering valuable information to improve the quality of their seed.

Practical Action in association with AGRITEX will lead in this activity and will be done in the second and third years of the project.

2.3.5 Establish community seed banks

Four community seed banks will be established; one in each district and these will be the centres for keeping unique and locally adapted crop genetic resources that are of value to the community and their associated traditional knowledge. The farmers will organise a local committee with at least 50% women representation that ensures the day to day running of the Seed bank. Farmers within the community can freely deposit and also freely withdraw germplasm in time of need. The farmers outside the community may buy the germplasm or exchange germplasm from the community seed bank. The community seed banks will therefore act as centres for seed exchange ensuring the conservation and sustainable management of crop genetic resources. The farmers will be encouraged to document, share and protect their traditional knowledge through these community seed banks. The National Gene bank will lead in the implementation establishment of these community seed banks in collaboration with local Agricultural extension officers and local authorities. This activity will be done in the second year of the project.

Output 2. Information created, disseminated and accessed by smallholder farmers at ward level and institutions at district, and national levels

2.1 Document information and lessons learnt

Information and lessons learnt from the project will be documented and reporting will be conducted quarterly each year during quarterly review workshops. Review workshops and lesson learning workshops will be held at District and ward levels and at least 30 and 50 participants respectively are expected to attend among them farmers, breeders, researchers, NGOs, private and public extension worker. Radio talk shows on how farmers are involved in the conservation, utilisation and management of sorghum, pearl-millet, cowpeas and bambaranuts genetic resources will be conducted and where possible invite some of the farmer's representatives to talk about their experiences. The Crop Breeding Institute, National Gene Bank and Practical Action will lead in this process. The will happen throughout the project life.

2.2 Conduct national level lessons sharing workshops

A National workshop which will involve lead farmers, Extension staff, Breeders from both the private and public sector and policy makers will be held to communicate and share lessons learnt and also engage with policy makers for policy changes or implementation. National workshops will be conducted annually.

2.3 Publish and share scientific papers, fact sheets, brochures

At the end of the project at least two scientific papers will be written and will be published and shared through the Global information system. The information and knowledge generated from the project will be used to influence the development of National Agro biodiversity policy. In addition to scientific papers lessons learnt and knowledge will also be disseminated through factsheets, posters, newsletters and other publications.

Output 3. Increased capacity of resource poor farmers to conserve and manage PGRFA in Gwanda, Matobo, Bulilima and Mangwe Districts which are vulnerable to climate change.

3.1 Testing and evaluation of breeding lines

Advanced true breeding pure lines of cowpea, bambaranuts, sorghum and pearl millets will be tested and evaluated by breeders and farmers on farmer's fields in the targeted districts. The evaluation will be done

using the Farmer Participatory Variety Selection (FPVS) approach, in which farmers are allowed to select and chose varieties in the fields at vegetative and reproductive stages as well as after harvesting and threshing. 70 farmers will be selected in each district for the farmer participatory variety selections. Reasons for choosing such varieties will be noted. The varieties will also be evaluated on their cooking time, palatability and storability. Breeders and farmers will work together in selecting the most preferred and best performing varieties from the pool brought from the research stocks. The selected lines will be further multiplied on station with breeders and on farm with both breeders and farmers in their fields.

3.2 Multi-locational trials for variety release

Multi-locational trials testing the selected lines will done concurrently on farm across the target region and on station across the whole country. Data to support variety release will be generated and the varieties will be released, further multiplied and disseminated to more farmers. Seed houses will be contracted to further multiply and disseminate the released varieties across the whole country.

By the end of the project 3 cowpea varieties, 2 bambaranut, 1 sorghum and 4 pearl millet varieties will have been released and disseminated to farmers in the target region and across Zimbabwe.

3.3 Germplasm collections of varieties and adaptable landraces that farmers are using

Germplasm collection missions will be conducted by the crop breeders and the genetic resources conservation scientists in the four districts. This will be conducted twice per season at pre and post-harvest stages of the crops. This allows close interaction between breeders, gene bank officials and farmers, enabling the researchers to identify the landraces the farmers are using and also to understand why they prefer those particular types. The project will target 300 farmers in each district to interview and collect germplasm from. Observation of promising the landraces in the fields will enable breeders experts to phenotypically characterise the varieties at vegetative and reproductive stages as they will be growing in the fields. After harvesting, physical observation will reveal the grain characteristics preferred by the farmers. The collected germplasm will be conserved in the National Gene bank and also used in further national breeding programs. This activity will be conducted twice each project year.

3.4 Training on Participatory Plant Breeding (PPB), on-farm seed production, community agro biodiversity conservation and climate change adaptation strategies.

PPB will involve setting of breeding objectives and identification of selection traits together with the farmers. 120 AGRITEX Extension Workers, Farmers Unions, local NGOs staff trained in Climate Change Adaptation (CCA) strategies and community based seed systems. The workshops will train the participants on Livelihoods centred Disaster Risk reduction. Resource poor people are not passive victims waiting for disasters to strike. Through effective disaster risk reduction (DRR), they can take action to protect themselves from the adverse impacts of hazards and so prevent disasters. But DRR must take a holistic approach to strengthen and protect livelihoods, as well as to manage disaster preparedness and humanitarian response. This is kind of response is what Practical Action calls 'livelihoods centred disaster risk reduction' (LCDRR). LCDRR has a more holistic focus on development activities that build the livelihoods and resilience of communities. Training in LCDRR can prevent or decrease the frequency and/or intensity of a shock occurring, and increase the capital resource base of community members so that the impact of the shock is less and/or recovery is quicker.

Additional workshops will be conducted to enhance farmers' appreciation of the need to do PPB for climate change resilient crop varieties. Breeders and farmers will conduct participatory variety and landrace characterization and selection. Reasons for selecting the selected varieties and landraces will be used as the basis of targeting specific cross combinations in making crosses. PPB attempts to develop new varieties with traits that will have been cited by farmers during objective setting.

Varieties developed and selected will be mass produced on farm with farmers and disseminated to more farmers and different wards and districts in the target region. This component of the project will use the Trainer of Trainers (TOT) approach by initially training lead farmers at ward level. 30 lead farmers per ward will be selected for the training. These farmers will be trained in seed production techniques and

skills of proper on farm seed production and maintenance. The benefits of using improved, clean seed will be emphasised and made aware to the farmers.

Value addition through packaging into small seed packs afforded by different market segments will increase seed access to most farmers in the communities. Dissemination and promotion of cost effective post-harvest processing technologies/value addition to promote consumption of targeted PGRA and to provide income generation from surplus production.

2.4. Targeted PGRFA

- Targeted plant genetic resources includes 100 accessions sorghum, 50 of pearl millet, 40 of cowpea and 60 of Bambara nut from the National Gene bank germplasm collection, that have been collected and are adapted to the same or similar locality.
- Advanced pure breeding lines 1Sorghum, 4 Pearl millet, 3 Cowpeas and 2 Bambaranuts
- Germplasm collected in the four Districts during the baseline survey stage of the project

2.5. Target groups and beneficiaries

3,360 smallholder farming households (including women headed –households) with limited access to seed resources will benefit from planting 3 cowpea varieties, 2 bambaranut, 1 sorghum and 4 pearl millet. In addition farmers will benefit from the training on Participatory Plant Breeding (PPB), seed production farmers, seed conservation, management and climate change adaptation strategies. Farmers will also generate income from the sale of seed through seedfairs.

120 AGRITEX Extension Workers, Zimbabwe Farmers Unions members, 3 local NGOs will benefit CCA strategies and community based seed systems training. 20 000 farmers from neighbouring wards will benefit from accessing the improved varieties of cowpeas, bambaranuts, sorghum and pearl millet through purchasing at seedfairs.

2.6. Impact and impact pathways

2.6.1. Food security and poverty alleviation

The project will contribute towards the attainment of the millennium development goal 1; 1.To eradicate extreme poverty and hunger. It is expected that successful implementation of the project will lead to at least 3,360 farmers being food secure through increased yields. Average crop yields increase by 100% from 300kg/ha to 600kg/ha by the second year of support. At least 12 lead farmers engaged in seed multiplication for income generation in year 1, 60 farmers in year 2 and 300 farmers in year 3.

Farmers will have access to crop genetic resources from the National Genebank which will ensure enhancement of genetic diversity at community level providing farmers with many survival options. Seed fairs will ensure farmers can exchange and buy seed from each other and field days will enhance knowledge sharing and dissemination of agronomic information on the new improved varieties.

2.6.2. Adaptation to climate change and environmental sustainability

The project will also contribute to the attainment of the MDG 7: 7.To ensure environmental sustainability. Crop varieties being promoted are tolerant to drought; they produce reasonable yields under hot conditions with limited amount of rainfall. 3,360 farmers will access these adapted seed thereby enhancing their adaptive capacities to the impacts of climate change by being able to produce enough to feed their families and sell surplus under the dry hot conditions. Access to these adapted seed varieties coupled with training of farmers and public extension officers in interpreting and using local historical climate and current weather information for better decision making will further build their resilience and adaptive capacities to

climate change. The community seed banks provide back up of genetic resources to fall back on in the event of extreme drought or other catastrophe in the future.

2.6.3. Scientific impact

New scientific findings and lessons learnt in particular the contribution of crop genetic resources management on food security and poverty alleviation will be scientifically documented and shared publicly via the Global information system. Increased number of scientific publications on the neglected underutilised crops will increase the prominence and enhance the shifting of research focus towards these crops, at National and international level. Furthermore the release of these new superior varieties which have been shelved due to funding constraints of these marginalized crops will stimulate interest from other researchers to explore more on these crops. The project will enhance the understanding of the complex effects of climate change on crop genetic diversity.

2.6.4. Capacity development and empowerment

The project will adopt an iterative process comprising participatory approaches and partnerships to develop linkages between farmers, researchers, extension agents, agro-dealers and other stakeholders. The project will capacitate and empower farmers and agricultural extension officers on community conservation systems and the sustainable management of plant genetic resources. Farmers will be able to develop and share their plant genetic resources and its associated traditional knowledge through the established community seed bank systems.

Farmers will be trained in seed multiplication and Seed enterprises development to enhance their seed production and access by other farmers outside the project areas.

2.7. Relevance to national or regional priorities in its plans and programmes for PGRFA

The project contributes to fulfilling the strategic objectives and targets outlined in the National Biodiversity Strategy and Action Plan of Zimbabwe for 2013 to 2020. The project addresses the Strategic objective 2 of the NBSAP that aims at reducing the direct pressures on biodiversity and promoting sustainable use through the establishment of efficient community conservation systems and the enhanced adaptive capacity to climate change. The relevant specific target to be met by the 2020 as stated in the NBSAP are target 5 which states that 'areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity and sustainable land use. Additionally target 8 of the National Biodiversity Strategy states also that by year 2020, adaptation and mitigation strategies are implemented to reduce the impact of climate change on vulnerable ecosystems and communities.

SECTION C: OPERATIONS

3.1. Methodology of project implementation

The project will be managed by the project coordinator from Practical Action who will work closely with breeders from the Crop Breeding Institute and scientist from the Gene Bank. These will make up the core team, with level of effort from the finance officer from Practical Action and some administrative assistance from the Administration Officer.

The project implementation is grounded around participatory approaches that make sure farmers are involved in every step of the way. Awareness workshop will be conducted in the project areas to ensure all stakeholders and more importantly farmers understand the project and their roles and responsibilities. During these awareness workshops CBI and the National gene bank will explain the community based seed systems and how they will be promoted in the project.

Practical Action and AGRITEX will lead in the identification and registration of 4 lead farmers per district. Selection will be based on availability of land, capacities as shown by AGRITEX, yield records and ability to observe and keep records. The lead farmers will each host the evaluation sites which will also act as learning sites for the rest of the farmers.

The National Gene bank and the Crop breeding institute will collaborate in the collection of plant genetic resources for conservation and utilization in crop improvement following guidelines developed by the Bioversity International. Biodiversity International Crop descriptor lists for sorghum, pearl millet, cowpea and bambaranut will be used in the characterization and evaluation of germplasm on farm in close collaboration with the farmers.

The community seed bank concept has already been operational in Zimbabwe since 1994 and has been successful in helping farmers conserve and maintain unique locally adapted crop genetic resources. The project will establish four community seed bank structures, one in each of the four targeted districts. The project will provide the building materials including cement, timber, roofing material, door frames and window panes and on the other hand the farmers will provide the labor for the construction. The structures to be constructed are simple low cost designs developed by the Department of Agricultural Engineering and Mechanization, which have about 4 rooms specially designed to maintain cool interior temperatures that ensure seed longevity in storage.

Quarterly monitoring visits will be conducted by the M&E officer to track progress of the project. Monitoring and data collection tools will be designed and shared with farmers to allow them to collect data as well as be involved in the monitoring of the project. An end of project evaluation will be done by an independent consultant; the findings will be shared with all stakeholders including the farmers.

3.2. Partnerships and collaboration arrangements

The project team is drawn from the Department of Research and Specialist Services specifically the Crop Breeding Institute (CBI) and the National Gene Bank (NGB) with intimate knowledge on small grains and pulses and adaptive crop research. Practical Action is well-grounded with issues affecting the communities and participatory market systems development approaches.

Name	Capacity and experience	Project role
CBI	Crop Breeding	Variety development, seed production and dissemination
NGB	Plant Genetic Resources Conservation	Characterization, evaluation, community seed banking and links to regional gene banks
Practical Action	Climate change adaptation (CCA), market and business development in value chains	Build farmer capacities to manage seed enterprises and market engagement

3.3. Project management team

Team member	Role
Project coordinator	Day to day management of the project, budget management and reporting to the donor.
Mr. Onismus Chipfunde	Insitu/On farm Conservation Research Scientist- Will be responsible for leading on the characterisation, evaluation, community seed banking and linkages with the regional gene banks.
Mrs. Rudo Musango	Ex-situ Conservation Research Scientist Will be responsible for leading on the characterisation, evaluation, community seed banking and linkages with the regional gene banks
Hopewell Zheke	Markets development specialist Will be responsible for planning and monitoring the seed fairs and

	development of the local markets seed systems
Henry Muchedzi	Climate Change adaptation and project management Will be responsible for training farmers in Livelihood Centered Disaster Risk Reduction (LCDRR) and in climate change adaptation strategies.
Prince Matova	Bambara nut and Cowpea Breeder Variety development, seed production and dissemination for Bambara nuts and cow peas
Marco Mare -	Sorghum and Pearl millet Breeder Variety development, seed production and dissemination for sorghum and pearl millet
M&E Officer	Monitoring and evaluation of the project, facilitating the quarterly review meetings and help in the selection of the end of project evaluation consultant.
Finance Manager	Responsible for timely production of financial reports, monitoring expenditure and timely paying for services recieved
Program Administrator	Procuring any project materials, logistical support to the team such organizing travel and subsistence allowances, organizing transport etc.

3.4. Sustainability

The project will work through existing structures, government departments and local partners, building their capacity in the process to ensure continuity at the end of the project lifetime. Through Practical Action's community based approaches which facilitate communities to organize themselves to be able to set and prioritize their development agenda and negotiate for support from the various local government, non-government and private sector service supply chains. Practical Action's Livelihood Centred Disaster Risk Reduction (LCDRR) approach will empower the smallholder farmers to analyse their situation and find solutions to improve their resilience to shocks and this is key to ensure sustainability.

Construction of community seed banks will involve communities who will provide labour and locally available materials.

One of the critical factors for sustainability is to ensure seed enterprises are run on a commercial basis yielding the desired income. The project will use the Participatory Market System Development (PMSD) approach to map the seed market system and come up with intervention that involve the farmers and the private sector develop the markets system. PMSD will ensure sustainability by empowering the farmers to engage with other market actors such as the seed companies and develop robust seed systems.

The community seed bank systems established will be left in the hands of the community. The National

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Gene bank will provide initial guidance during establishment but after the end of the project the seed banking systems will be left in the care of Community committees constituted by the community themselves. The Community Seed bank committee will carry out the day to day running of the community seed banks including maintenance, seed banking and seed requests. Members of the community may be requested to pay nominal subscription fees for the management of the Community seed banks.

By signing this submission form for full proposal, the applicant confirms that all the above statements, including the attached Appendixes, are true to the best of his/her knowledge. Any deliberately untruthful response will lead to the automatic exclusion from the further screening and appraisal process, and may lead to the denial of awarded grants from the Benefit-sharing Fund.

5/12/14, Harare

Date and location