



The International Treaty

ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Full Project Proposal Guidelines

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: Policies and practices to facilitate the implementation of developed Strategic Action Plans for Plant Genetic Resources conservation and use for the improvement of food and nutrition security under changing climatic conditions.

Project duration: 48 months

Target crops: Sorghum, Pearl Millet, Cowpeas, Finger millet, and Pigeon peas

Targeted developing country/ies Zimbabwe (L)¹, Malawi (P)²; Zambia (P);

Other Contracting Party/ies involved: Centre for Genetic Resources and Centre for Development Innovation (CDI); Wageningen University, the Netherlands

Project geographic extension (km²): 45 605 km²

Total requested funding **USD 799,526**

Total co-funding **USD194 300.00**

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)

¹ Lead partner

² Partner

SECTION A: EXECUTIVE SUMMARY

1. Executive summary

This proposed project intends to contribute to the improvement of food and nutrition security of 30,000 rural households in Malawi, Zambia and Zimbabwe by improving the management of the diversity of sorghum, millet, cowpea, and pigeon peas and to further develop and promote the growing of these crop varieties which are suited to the changing climate in this region. Improvement in the management of PGR will entail involvement of the farmers, national gene banks, researchers and civil society to create a network of actors from collection to storage in the community seed banks and national gene banks, to research narrowing down to variety improvement through participatory plant breeding and to increased utilization of PGR ultimately leading to production of crops and varieties that are most suited to the vagaries of climate change. The project will also address the national policy and legislative issues that may impede sustainable improvement management and utilization of PGR.

Effectively the project will be developing national mechanisms and building capacity for implementation of the strategic action plans that the three countries formulated in 2013 in partnership with other regions of the world and coordinated by Li-BIRD of Nepal.

The project will result in stronger linkages established between community seed banks, national gene banks and the SADC regional genebank to share knowledge and climate resilient germplasm. Pro-smallholder farmer policies will be developed to provide institutional support for long-term management, sustainability and scaling of interventions regarding crop genetic diversity.

SECTION B: PROJECT DESCRIPTION AND CONTENTS

2.1. Problem definition

Man, despite his artistic pretensions, his sophistication and many accomplishments, owes the fact of his existence to a six-inch layer of topsoil and the fact that it rains and enables him to grow crops” (Anon.). This means that any changes in rainfall amounts received in any one season would significantly affect crop production hence food security.

There is now overwhelming evidence suggesting that the climate is changing and that it will become worse in the near future. Climate experts and other stakeholders are agreeing that the poor and marginalized households in Africa and especially those in Southern Africa with low capacity for adaptation are going to be affected most (IPCC, 2007)³. While several sectors such as public health, hydro-power energy provision and livestock rearing will be affected, crop production will be affected most by climate change. Changes in rainfall patterns (frequency, distribution and intensity) will become unpredictable, unreliable and will result in serious food insecurity situations especially in those areas that have been characterized by low and unpredictable rainfall. In Southern Africa, climate change is affecting and will continue to affect social and economic livelihoods of many small-scale farmers, particularly the poor and marginalised female and child headed households with low levels of income and capacity for adaptation to climate change. Areas along the major river basins of e.g. the Zambezi river along the Zimbabwe and Zambia borders; along the Limpopo river on both sides of Botswana, South Africa and Zimbabwe and Shire River in Malawi will be seriously affected. The amounts of rainfall received in these and similar low altitude areas have not been enough to support the majority of maize crop varieties that are traditionally grown in these countries; with smallholder farmers living in these marginal areas harvesting once in every four or five years. However increasing crop diversification by promoting drought tolerant crop varieties such as sorghum, pearl millet, cowpeas and pigeon peas could stabilize smallholder farm productivity by providing a wider option for adaptation to climate hence improving the food security of the farmers living in such environments.

Lack of supportive policies, practices and investment in technologies for improving and enhancing the use values of these climate change adapted crops has been limiting their cultivation especially in the low rainfall areas of the sub-region. The governments of Malawi, Zambia and Zimbabwe among others in the region have placed much attention and investment on the high-input high production systems, which are favourable climatic conditions. Loss of these crops and degradation of environmental conditions around and within farms compromises food production at local levels. The project will address some of these challenges by employing conservation agriculture (CA) techniques to increase crop production while contributing to environmental conservation.

2.2. Project objectives:

Overall objective of the project is to contribute to improved food and nutrition security in selected low rainfall districts of Malawi, Zambia and Zimbabwe which are most seriously affected by conditions of climate change.

Specific objectives of the project are to:

³*Inter-governmental Panel on Climate Change*

Third Call for Proposals of the Benefit-sharing Fund: Guidelines for the development of full project proposals

- (a) contribute to the development of effective practices and mechanisms for effective implementation of action plans for the conservation and sustainable use of climate resilient agro-biodiversity in the sub-region.
- (b) promote the growing of climate change resilient PGRFA under Annex 1 of the International Treaty on Plant Genetic Resources for Food and Agriculture to improve food and nutrition security in selected districts.
- (c) contribute to the development of capacity among key stakeholders for long-lasting and scalable practices that ensure project benefits smallholder farmers
- (d) contribute to re-consideration of national and regional policies and practices that enable institutions to provide sustainable actions that improve food security through promoting the growing of climate change resilient agricultural biodiversity in the sub-region.

2.2.1: Targeted outputs of the project are:

- (a) Effective national mechanisms and capacity built among smallholder farmers and other relevant stakeholders for the implementation of climate change resilient crop production systems especially for the marginal and low rainfall districts of Malawi, Zambia and Zimbabwe.
- (b) Participatory and community based on-farm management systems provide food security and other socio-economic benefits to 30 000 smallholder farmers (12 000 male and 18 000 female farmers) and other key stakeholders⁴
- (c) Stronger linkages established between community seed banks, national gene banks (NGBs), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the Southern Africa Development Community Plant Genetic Resources Centre (SPGRC) to facilitate the sharing of lessons learned, knowledge, practices and climate change resilient germplasm.
- (d) Pro-poor smallholder farmer policies developed to provide institutional support for long-term management, conservation and sustainable utilization of targeted PGRFA.
- (e) Publications of documented local knowledge on seed systems of smallholder farmers and management practices of PGR

2.2.2. Project activities and related methodology of implementation

A methodology is a set of practices about how to implement an activity within a project set-up. It identifies and details the techniques that will be used to carry out the planned activities, putting into perspective what will be done, how it will be done, who will carry out the activity and when it will be done.

The activities below will be carried out to achieve the project outputs listed in 2.2.1 above.

⁴Including 20 academics (16 males and 4 females) and 200 (166 male and female 34 females) under and post graduate students, 50 policy makers (38 male and 12 female), 200 agricultural extension and government research (122 male and 78 female) staff and other relevant stakeholders within ministries responsible for agriculture in the 3 countries.

2.2.2.1 Awareness raising and inception meetings

Awareness raising and project inception meetings will be held across the selected project sites and one involving all key project partners. These meetings will contribute to the fine tuning of the project methodologies and work plans. A **baseline** will also be carried out during the inception period followed by another meeting to review baseline results and identification of knowledge gaps. **Participatory assessments** of traditional adaptation strategies and knowledge on climate change including joint assessments involving farmers and scientists on climate change trends and its impacts on food security and income generation.

2.2.2.2. Demonstration plots to promote the use of the targeted PGRFA

This activity will be carried out in communities within project operational areas, with project and other collaborating partners setting up at least 5 demonstration plots per year per district with a wide crop/variety diversity including the targeted PGRFA. These trials will be used to evaluate adaptation of local/traditional and introduced sorghums, pearl and finger millets, cowpeas and pigeon peas as well as explore interest and preference of farmers for these crops. In this regard the farmer field school approach will be used and its curriculum further developed based on existing prototypes (Smolders, 2006)⁵ with the main emphasis being the assessment of the capacity of different crops and varieties to adapt to climate change for increased yields, food security and poverty alleviation. The following tools and methodologies will be used in carrying out these activities.

- a. Crop diversity measurements at selected household levels (using four square method [Subedi *et al.*, 2005])⁶, the diversity wheel and resource mapping in relation to social differentiation, trend analysis of the changes that occurred during the last consecutive cropping seasons.
- b. Seed source analysis regarding current levels of seed security, food security and the contribution of various crops including targeted PGRFA to food security and poverty alleviation
- c. Trend analyses and vulnerability assessments of communities to climate change.

2.2.2.3. On-farm conservation and enhancement of local varieties

Advanced breeding lines and new adaptive sorghum, pearl and finger millet crop varieties from research stations within the 3 countries and from ICRISAT offices in Zimbabwe and Malawi will be introduced in communities through seed fairs, field discussion days and direct distribution to FFS groups where their performance will be assessed within the farming systems. The aim of the introductions will be to increase crop diversity on-farm in addition to farmers' efforts of conserving available and targeted PGRFA. The project will also build on the knowledge and experience gained by the implementing partners from working on similar crops and crop varieties in other projects being implemented with funding support from other partners, e.g. Oxfam Novib, IFAD and SIDA to CTDT in Zimbabwe, HIVOS in Zambia and Development Fund in Malawi. Project staff will

⁵Smolders, 2006

⁶Subedi A., Shrestha, P. Sthapit, B. R., Rijal, D. K., Rana, R. B., Upadhyay, M. P. and Shrestha, P. K. 2005. Community Biodiversity Management (CBM): Lessons learned from the in-situ conservation project' in B. R. Sthapit, Upadhyay, P. K., Shrestha and D. J. Jarvis (eds). *On-farm Conservation of Agricultural Biodiversity in Nepal Vol II. Managing diversity and promoting its Benefits, proceedings of the Second National Workshop 25-27 August 2004, Nagarkot, Nepal IPGRI, Rome, Italy, pp 56 -70.*

consider the socio-economic needs of the communities, and strategies for distributing diverse crops over locations including the targeted PGRFA in order to satisfy farmers' needs.

2.2.2.4. Restoration of lost agro biodiversity and on-farm seed production and distribution

Recuperation (bringing back lost biodiversity into use) of the lost targeted crops and crop varieties using tools like the diversity wheels, community seed banking, seed and food fairs will be employed. This activity will involve repatriation of targeted climate change adaptive crop varieties from the national gene banks and international research institutions e.g. the International Crops Research Centre Institute for the Semi-Arid Tropics (ICRISAT) back to those project communities that would have asked for these varieties. While national and regional gene banks only have small quantities of seed that they can bring back to communities, the project will multiply and distribute the seed of the desired characteristics within the project sites through on-farm seed production initiatives. These will involve trained seed producers, project staff and seed inspectors from the relevant government departments to ensure quality seed is introduced to communities within the 3 countries. Community seed multiplication plots will be established in the project sites. The bulked seed will then be distributed to the rest of the communities through local seed supply systems (seed fairs, seed exchange, barter trade, seed caravan fairs).

2.2.2.5 Capacity building

a. with academic and research institutions

The project will collaborate with academic institutions so that curricula which was jointly developed with academic institutions during the implementation of an Oxfam Novib funded project is used. A draft copy of the curriculum developed by CTDT Zimbabwe and other project partners in Ethiopia and Nepal on teaching agricultural biodiversity within faculties of agriculture is attached as Annex 6. Collaborative work with research institutions for the management of targeted PGRFA at different scales (genetic and farm) will also be promoted. This will involve testing advanced and new crop varieties of the targeted crops with farmers using farmer field school approach to assist in varietal selection of the advanced lines before new varieties are released. Expertise of staff from e.g. the Centre for Genetic Resources of the Netherlands (CGN) and Wageningen Centre for Development Innovations (CDI) will be utilised to develop capacity among partners to carry out trials to test the performance of advanced lines of the different crops from the research institutions.

b. with Government departments and farmers' organizations

The project will collaborate with government extension departments and farmers' organizations in the 3 countries to train and provide agricultural extension services to smallholder farmers as they implement the project.

2.2.2.6 Policy workshops on legal instruments affecting seed saving, exchange and selling at the community levels.

a. Policy review

Review the body of knowledge present within the involved partners on two aspects:

- (i) Knowledge around national legislations, seed security, role of multinationals, intellectual property rights (IPR) and trade agreements and how they affect smallholder farmers' access to seed.
- (ii) Knowledge on national legislation and proposed regional seed harmonization protocols and their impacts on smallholders farmers' capacities to save, sell and exchange seed within key stakeholders (in government, private companies, NGOs and communities).

The reviews will consider:

- (i) Strategies for sourcing and introducing crop diversity to smallholder farmers as one of the ways of building local climate change adaptive capacities to improve food security.
- (ii) Strategies for strengthening local seed supply systems in order to ensure local seed security that provides communities with reliable access to planting materials of the targeted PGRFA.

c. Policy workshops

Workshops and trainings will be held in partner countries to raise awareness among key stakeholders of the national seed laws of the 3 countries. In each of the project countries will organize policy workshops regarding the impact of climate change on food security and coping strategies.

2.3.Targeted PGRFA

The target crops that are going to be used in the implementation of this project include different varieties and advanced breeding lines of sorghum, pearl millet, cowpeas, finger millet and pigeon peas which are either under the custody of government researchers, in national gene banks, within the ICRISAT gene banks or are being conserved and sustainably utilized by smallholder farmers. The Government of Zimbabwe's Matopo based in Bulawayo Research station has 8 advanced lines of sorghum and 6 advanced lines of pearl millet and finger millet which are being tested widely on smallholder farmers' fields for adaptability to low rainfall conditions. CTDT Zimbabwe is currently collaborating with Matopo Research Station in the testing of these varieties. CTDT Zimbabwe is currently promoting two pearl millet varieties, Okhashana and PMV3 which were released by ICRISAT among smallholder farmers in 3 of its project sites in Zimbabwe under an Oxfam Novib supported project. The project will also promote these pearl millet varieties in similar environments in Zambia and Malawi using the Standard Material Transfer Agreement. CTDT-Zimbabwe already has experiences with using these forms. For example, using the diversity wheel⁷, smallholder farmers in an International Fund for Agricultural Development (IFAD) and Oxfam Novib funded project identified two local sorghum varieties "Isifumbata and Mutode" that have been lost from their communities in southern and south eastern Zimbabwe and requested CTDT to repatriate them from the national gene bank. Likewise partners and the National Gene Bank focal persons will carry out joint collection missions to collect local crop varieties for banking. Details of these PGRFA that are unique to smallholder farmers in the targeted project districts within the 3 countries which are relevant to national and regional food security will be placed in the Multilateral System hence making publicly available to PGRFA-related information national or regional information systems supported by Treaty.

⁷Zimbabwean communities set the Diversity Wheel in motion

2.5. Target groups and beneficiaries

Beneficiaries and target groups will be 30,000 small-holder farmers (12 000 male and 18 000 female farmers) and their unions from the 8 low rainfall districts of Zimbabwe (Mudzi, Zaka, Mutoko districts), Zambia (Rufunsa, Chikankata and Shibuyunji districts) and Malawi (Rumphu, Mzimba and Chikhwawa), 20 academics (16 males and 4 females) and 200 (166 male and female 34 females) under and post graduate students from 6 universities within the 3 countries, 50 policy makers (38 male and 12 female), 200 agricultural extension and government research (122 male and 78 female) staff and other relevant stakeholders within ministries responsible for agriculture in the 3 countries.

Project sites in Zambia	Rufunsa	Shibuyunji	Chikankata	Total
Direct beneficiaries	1 557(879 males and 678 females)	2,991(1456 males; 1,535 females)	3,752 (2,701 males; 1,051 females)	8,300
Indirect beneficiaries	3,899(1,671) males; 2,228 females)	13,937(5,973 males; 7,964 females)	26,264 (11,256 males;15,008 females)	44,100
Target crops as in Annex 1	Sorghum, Pearl millets and cowpeas	Sorghum, Pearl and finger millets	Sorghum, Pearl millet and cowpea	
Project sites in Zimbabwe	Mudzi	Mutoko	Zaka	Total
Number of households	4,400 (1540males; 2860females)	4,400 (1540males; 2860females)	4,400 (1540males; 2860females)	13, 200
Total indirect beneficiaries	9, 000 (3800males; 5200females)	9000 (3800males; 5200females)	9,000 (3800males; 5200 females)	27, 000
Target crops as in Annex 1 of the Treaty	Sorghum, Pearl millet and cowpeas	Sorghum, pearl and finger millets and cowpeas	Sorghum, pearl and finger millets and cowpeas	
Project sites in Malawi	Rumphu	Mzimba	Chikhwawa	Total
Number of households	2800(1500 males; 1300 females)	2800 (1500 males; 1300 females)	2900 (1600 males; 1400 females)	8 500
Indirect beneficiaries	14000 (6860 males; 7140 females)	14000 (6860 males; 7140 females)	14500 (7105 males; 7395 females)	42 500
Target crops	Sorghum, pearl and finger millets pegon peas and cowpeas	Sorghum, pearl and finger millets pegon peas and cowpeas	Sorghum, pearl and finger millets pegon peas and cowpeas	

2.6. Impact and impact pathways

Impact is the measure of the tangible and intangible effects of project implementation, providing a measure of how well the project has been carried out and what changes have been achieved. Overall, the expected impact of this project is to contribute to the achievement of the two Millennium Development Goals (MDGs) 1 and 7 below in Malawi, Zambia and Zimbabwe:

- *To eradicate extreme poverty and hunger*
- *Ensure environmental sustainability*

The success of the project will be measured at the four levels (i.e. levels 2.6.1 to 2.6.4) below.

2.6.1. Food security and poverty alleviation

To contribute to improved food and nutrition security among smallholder farmers in the districts within the 3 countries, the project will introduce improved and climate resilient crop varieties of sorghum, pigeon peas and pearl millets and short season determinate varieties of cowpeas. As mentioned above, the corporate seed sectors within the 3 countries have been promoting maize at the expense of these open pollinated climate resilient crop varieties, arguing that their profit margins will be eroded as smallholder farmers often retain seed after harvesting for up to 3 to 5 years. However most of the maize varieties available on the market fail to reach physiological maturity in the low rainfall districts; situations that are now being compounded by climate change. For example, the Ministry of Agriculture in Zimbabwe reports that farmers in agro-ecological regions 4 and 5 (in which the target districts fall) harvest enough maize to feed themselves once in every 5 years due to the low rainfall amounts received in these areas. Similarly Rufunsa in Zambia has had to rely on food aid over the past three years due to poor harvest from low rains. Climate resilient crops will contribute to improved food security and reduce poverty in the proposed project districts.

To improve on the nutritional value of dishes that women prepare to feed their families, the project will also promote the growing of other crops which are not on Annex 1 of the Treaty such as groundnuts and bambara nuts alongside the listed PGRFA. This will also contribute to crop diversification, a situation that will contribute to improving the food security situation.

2.6.2. Adaptation to climate change and environmental sustainability

The project will contribute to developing smallholder farmers capacities to climate change and environmental sustainability through training and availing a wide range of climate resilient sorghum, pearl millet, cowpeas and pigeon pea crop varieties. These crops will be grown using conservation agriculture techniques such as use of mulch, different types of livestock manure, pot holing to improve on infiltration of rainfall and split application of nitrogenous fertilizers. Such practices will contribute to the protection and sustainable management of soil resources.

Farmers will be trained within the farmer field schools (FFS) on how to use both scientific and traditional rainfall forecasting methods, monitoring and information systems related to climate change and PGRFA. Climate change scenarios will be produced by experts from the local universities, down scaled to local levels and disseminated to extension staff at local levels for discussion with smallholder farmers. Vulnerability assessments will be carried out within the project communities with the assistance of government climate change experts in the ministries of agriculture and disseminated to field level staff

2.6.3. Scientific impact

The project will develop the scientific capacities of southern project partners to carry out action-oriented and policy-relevant research related to PGRFA management. This scientific research will enable developing country scientists in Malawi, Zambia and Zimbabwe develop strategies to adapt to climate change and improve the food security status of smallholder farmers. The PGRFA materials that will be placed on the Multi-lateral system as a result of project implementation will improve access to information and data systems at the national, regional and global levels.

2.6.4. Capacity development and empowerment

The project will contribute to the development of capacities within and among stakeholders to strengthen synergies and collaboration between and among stakeholders in the agricultural research, extension, policy and advocacy and international partners. A total of 400 farmer leaders (300 females and 100 males), 20 academics (16 males and 4 females) and 200 (166 male and female 34 females) under and post graduate students from 6 universities within the 3 countries, 50 policy makers, 200 agricultural extension and government research (120 men and 80 women) staff and other relevant stakeholders within ministries responsible for agriculture in the 3 countries will be empowered and equipped with skills, knowledge and capacity related to PGRFA management and use.

The training on the management and sustainable use of PGRFA, conservation agriculture, community seed banking, production of quality seed on-farm through the use of farmer field schools will enhance and improve the capacities of resource-poor farmers within the low rainfall districts to manage new varieties of sorghum, pearl and finger millets, cowpeas and pigeon peas for climate change adaptation and food security. Germ plasm collection missions, documentation and depositing the information in the national and global information systems by national gene bank, farmers and project staff will enhance the capacities of local and national institutions to conserve, manage, improve and disseminate plant genetic resources especially to those in environments similar to those of the proposed project areas.

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

The governments in the region while prioritizing maize production in terms of policy implementation have however recognized the importance of crop diversity and current national policies address the need to diversify not just to other cereal crops like sorghum and millets but also to legumes like groundnut and cowpeas. The national policies also recognize that most of the food production in the region is done by small scale farmers using their own seed from local crop varieties. The national climate strategies also address adaptation of farmers to climate change as a means to agriculture development. Part of this adaptation is based on the resilience that diversity on the farmers' field can create and so this project will contribute to achieving the national climate strategies. The agricultural policies also recognize the continued role that farmers play in developing the raw materials that plant breeding requires. This project will help in designing programmes which governments can use to achieve what is stated in their own policies but for which implementation is currently lacking.

SECTION C: OPERATIONS

3.1. Methodology of project implementation

The partners will employ a collaborative project implementation methodology. At consortium level, a project coordinating unit as constituted under project management team below will coordinate and manage the project activities across the 3 countries. The respective directors of CTDT Zimbabwe, CTDT- Zambia and CEPA, the project coordinator, finance manger, policy and advocacy leader will be the members of the coordinating unit. At country level, the program will be implemented through staff based at country offices of the 3 consortium partners and field staff based at district level. At district level, field officers will work directly with smallholder farmers and extension agents. The field officers will work closely with structures at community level. Steering committees at national and community levels with membership drawn from key government line ministries, national genebanks, the regional genebank, research and extension institutions and farmer organizations will be instituted. The committees will play an advisory role and guide implementation of the project.

The table below summarizes specific roles of partners:

Partners	Roles
ICRISAT	Provide foundation seed of the targeted PGR
Wageningen CDI and Centre for Genetic Resources of the Netherlands	Will contribute in capacity building of project partners and extend the global partnership to suport effective project implementation and assist in carrying out action oriented research to generate data which partners can use to wтите papers for publication in referred journals.
National Gene Banks and SPGRC	Will provide lost germplasm which will be multiplied and distributed to smallholder farmers.
National Gene Banks	Will provide lost germplasm which will be multiplied and distributed to smallholder farmers.. National gene bank staff will also be involved in joint germplasm collection missions
Academic institutions (Universities)	Jointly develop curriculum with project partners on targeted PGRFAand teach students at under and post gradute levels. Provide expertise in forecasting, development and down scaling of climate change scenarios and carrying out vulnerability assessemnts.
Farmer Unions	Farmer mobilization and mass dissemination of policy and advocacy information.
Extension staff from project partners and government (Ministries of Agriculture)	Farmer training, on-farm seed multiplication and distribution, organizing and facilitating the holding of seed fairs and field days, facilitate the formation of farmer field schools, participate in germplasm collection missions with national gene bank staff.

3.1.1. Capacity building: The project will provide tailor made options to build the capacity of farming communties, agricultural extension, research and academic institutions to effectively implement the project by short-term training, demonstrations, sub-regional

and inter-district level learning and exchange programmes. Communities' capacities to manage and sustainably use PGRFA will be enhanced through holding of training workshops, facilitating farmer exchange visits between communities in same country and between countries. CTDZ Zimbabwe developed a curriculum which faculties of agriculture at three Zimbabwean universities have agreed to start using to teach under graduate students. Three academic institutions in Zambia (2) and Malawi (1) will be encouraged to adopt or adapt the curriculum for use in their universities.

3.1.2. Farmer field schools (FFS), field days, seed fairs, on-farm seed multiplication and distribution and diversity plots: Local communities will be empowered through the use of the FFS approach in promoting the establishment of crop diversity plots to select climate resilient crops, repatriation of accessions from national and international gene banks, facilitating seed exchange through seed fairs and on-farm quality seed production. Other farmer empowering tools such as field days and seed fairs will also be used to facilitate knowledge and seed exchanges between and among project beneficiaries. Local climate resilient seed (farmer varieties) will be multiplied on-farm and distributed among beneficiary farmers at seed fairs and agricultural shows and in the process promote Farmers' Rights (to save, use, exchange and sell farm-saved seed/propagating material) as contained in Article 9.3 of the International Treaty on Plant Genetic Resources for Food and Agriculture⁸.

3.1.3 Policy and advocacy: The project will organize awareness raising workshops with key stakeholders both at the farmer and policy makers' levels to highlight the need to put in place enabling policy and advocacy work to address challenges presented by prohibitive legal frameworks (national seed laws and policies). Training workshops to raise awareness among policy makers, farmers' union leaders and government technocrats on Farmers' Rights, Right to Food, Union for the Protection of Plant Varieties (UPOV), the Convention on Biological Diversity (CBD), the Nagoya Protocol on Access and Benefit Sharing and the proposed Seed Harmonization Protocols being proposed for the Southern Africa Development Community (SADC). Such efforts will contribute to the development of plans at national and sub-regional levels that ensure (i) climate resilient crops such as sorghum and pearl millets are promoted, grown and utilized and (ii) that lost PGRFA is recuperated from national gene banks for improved food and nutrition security.

3.1.4. Monitoring and evaluation: The project will develop a detailed project monitoring framework with all the participating stakeholders. The Monitoring and Evaluation (M&E) framework will describe how data will be collected, analysed and the results disseminated. The consortium will engage the communities in development of simple user friendly tools for purposes of project monitoring. These tools will feed into the monitoring and evaluation system jointly developed by partners. The communities will through monitoring committees, monitor their own projects and collect data on these projects using tools designed in a participatory manner. Village committees/community-based monitoring teams will be trained in participatory monitoring and evaluation procedures and all beneficiary data will be disaggregated by gender.

The project monitoring system aims to enhance project transparency and accountability with regard to all stakeholders (including beneficiaries), and facilitates reporting, evaluation and capitalization of experience. The project monitoring system will focus on five fundamental data quality aspects: validity, reliability, timelines, precision, and integrity.

⁸<https://www.google.co.zw/search?output=search&client=psy-ab&q=Article+9+of+the+ITPGRFA&btnK=>

The Project Coordinating Unit will be in charge of overall monitoring of the project performance (quality control and meeting targets). The monitoring and evaluation team will conduct 3 major evaluations during the 4 years of the program namely: the baseline study, mid-term and the end of project evaluation. The end-of project evaluation will provide data to measure the impact of project activities on the population, the success of implementation strategies, and the extent to which planned targets were achieved.

The consortium will employ various monitoring and evaluation strategies which will involve periodic program coordinating meetings constituted by relevant stakeholders. All project sites will be mapped using GIS for easy location and tracking. The Coordinating Unit will ensure good quality reports are produced in line with the Benefit Sharing Fund's reporting requirements and also ensure that reports are submitted on time.

3.2. Partnerships and collaboration arrangements

The lead partner will be Community Technology Development Trust (CTDT) in Zimbabwe, with CTDT-Zambia and Centre for Environmental Policy and Advocacy (CEPA) in Malawi being the project implementation partners in close collaboration with the National Gene Banks (NGBs) and agricultural research and extension departments of Malawi, Zambia and Zimbabwe, the Southern Africa Development Community Gene Resources Centre (SPGRC) in Zambia and academic institutions in the 3 countries and ICRISAT in Bulawayo, Zimbabwe. CTDT-Zimbabwe signed Memoranda of Understanding (MoUs) with SPGRC and Faculties of Agriculture at Women's University in Africa and Chinhoyi University of Technology over 5 years ago. CTDT is currently developing an MoU with ICRISAT in Zimbabwe to enable it to continue accessing materials using the SMTAs. This project will extend the already existing collaboration with these institutions.

CTDT-Zimbabwe has also been jointly implementing projects with the Centre for Genetic Resources of the Netherlands for over 15 years; first under the Biodiversity Fund, SwedBio and Development Fund supported Community Biodiversity Development and Conservation (CBDC) project and lately within the Community Climate Change Response project which is currently being implemented in Zimbabwe, Ethiopia, Nepal and Indonesia with funding support from Oxfam Novib. The 3 partners also jointly implemented the Community-led Biodiversity Management and Resilience project with funding support from the Treaty's Benefit Sharing Fund via Local Initiatives for Biodiversity, Research and Development (LI-BIRD) of Nepal with technical support from Wageningen UR Centre for Development Innovation (Wageningen CDI) will contribute in capacity building of project partners and extend the global partnership to support effective project implementation.

ICRISAT and government research institutions in the 3 countries will provide foundation seed of released sorghum, pearl millet, cowpeas for multiplication and further distribution to smallholder farmers in the project sites.

3.3. Project management team

The project management teams will be composed of the following people:

Name	Title	Qualifications	Responsibilities
Mr. Andrew Mushita	Executive Director, CTDT Zimbabwe	BSc Agronomy, MSc, Agriculture	As the project contact person, Andrew will be overall responsible for project implementation in the 3 countries, ensuring that the project is on course in terms of delivering on contractual
Mr. William Chaza	Executive Director, CEPA Malawi	BSc Agriculture	Responsible for the coordination and implementation of the policy related aspects of the project such as Farmers Rights, impacts of proposed regional seed laws on smallholder farmer seed systems and also responsible of implementation of the project in Malawi.
Mr. Charles Nkhoma	Country Director, CTDT Zambia	BSc Agriculture, MSc PGR Conservation and Utilization	Responsible for project implementation in the Zambia project sites, capacity development of project staff on community seed banking and implications of seed policy and laws on PGR conservation and farmers' rights.
Mr. Patrick Kasasa	Programme Leader, Agricultural Biodiversity Programme, CTDT	BSc, Agriculture, MPhil, Agriculture	Overall project coordination responsible for project implementation, planning, narrative and financial reporting, monitoring and evaluation
Ms Precious Matiya	Finance Manager at CTDT	Higher National Diploma (Finance), CIS, B Com (Finance)	Responsible for project financial management, preparing of financial reports
Dr Abishkar Subedi	Genetic Resources and Seed System Specialist	BSc, MSc, PhD	Consultant, responsible for capacity building of project and other key stakeholders' staff on genetic resources management and seed systems
Mr. Regis Mafuratidze	Programme Leader at CTDT responsible for Policy and Advocacy	MA (Laws), LLM	Legal and policy analysis of national and regional seed laws including advising on the possible impacts of e.g. the SADC Seed Harmonization Protocol on Farmers' Rights

3.4. Sustainability

The project has been designed in such a way that the target communities and local leadership actively participate in the development of the project design and plans, at the same time the interventions proposed are there to address the challenges that the communities are facing due to climate change.

The project will use a training of trainers (ToT) approach, where lead farmers and committee members are adequately trained; then empowered to cascade the knowledge acquired to other farmers. This will create a bank of information within the community thereby enabling farmers to constantly refer to one another even after the project is closed. The project will employ the Farmer Field School; a participatory, empowering and experimental learning approach with organized groups working with e.g seed production groups and other groups will be supported. Interventions will be tailor made for each community hence they will address their food security needs. Involvement of local authorities, government ministries and departments and other stakeholders means that even after the termination of the project, efforts made during the project life time will be taken forward. Knowledge imparted on conservation and sustainable use plant genetic resources and appropriate environmental management will be passed down generations hence will be useful for generations to come. Empowering the communities to influence programmes and policies will also ensure that the voice of the smallholder farmers can continue to be heard after the project has been completed.

The seed production initiative under enabling policy environment will generate income for the project beneficiaries and this will create interest and enthusiasm to continue working on the project beyond its life-span and sustain smallholder farmers' activities.

SECTION D: APPENDIXES

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.

Signature of contact person:

Mr. Andrew Tonderai Mushita

Date and location

4 December 2014, HARARE

