

Project Title: “Enhancing healthy wealthy, food secure rural communities, with sustainable livelihoods in ecologically stable, highly productive rangeland ecosystems in Zimbabwe, Africa and Globally”

The Njeremoto Biodiversity Institute/Osmond Mugweni’s Watershed Management Innovation for Rehabilitation of Degraded Arid and Semi-arid Rangeland Ecosystems Using Livestock with Time Controlled Grazing and Community Empowerment, Capacity Building for Sustainable Development, improved livelihoods and sustainable lifestyles.



Guided by the four pillars of the Earth Charter; Respect and Care for Community of Life; Ecological Integrity; Social and Economic Justice and Democracy, Non-Violence and Peace that it embraces. NBI Zimbabwe is using the Earth Charter as an ethical framework for all of its future individual projects and as an educational instrument for community outreach work areas. The programme is being implemented in Zimbabwe since 2003 when the founder become an Ashoka Fellow on the idea and is now at a Scale-up phase to other areas in Zimbabwe and globally. The innovation has gone through the following stages as shown below:

1. Development of the Idea Phase (I) 1986 to 2009 after training in Holistic Management (1986 in Albuquerque USA at the Centre of Holistic Management); BSc Geography and Psychology (1991 by distance education with the University of South Africa; MSc in Ecology and Resource Management with Distinctions at Edinburgh University UK; LEAD a Rockefeller Foundation Fellowship Programme of Leadership for Sustainable Development that stretched from 1995 to 1997, BEARS ELP in 2008 Leadership for Sustainable Development Fellowship Programme and ASHOKA recognition a Social Entrepreneur in 2003 Trainings with stipend from 2003 to 2010.
In this Phase the NBI in Zimbabwe as the implementing Unit and NBF in Washington DC as the fund raiser for NBI, were registered as NGO and 501c Not for Profit Organizations respectively to contact the implementation of the Innovation.

2. Research and Development Phase (II) 2010 to 2015 with Ashoka Stipend. Pilot tested the idea in Musoni smallholder community in Buhera in 1987 to 89, the Razi/Charinge Stallholder Community in Chivi in 1989 to 1995, Triangle Ranch in Chiredzi in 1990 to 1995. This work resulted in the 1991 HLLM Award By Center for Holistic Resource Management, Albuquerque USA; **the** 1991 HLLM Best Practice Award By the Research Council of Zimbabwe; the 1994 Best Practice Award By the Grasslands Society of Zimbabwe and the 2003 Social Entrepreneur Award By ASHOKA, Arlington, Washington DC, USA.
3. Proof of Concept Phase (II) 2015 to 2018 with Tudor Trust Grants for the Outreach to Pilot test the innovation with smallholder communities in Ward 5 Mufiri Shurugwi. that are still running upto July 2021. The approach is improving the livelihood and environment as well as intensifying rangelands livestock productivity in the Piot Community. Also received the 2013 Communicator of the Year 2013 Award By the Banga Chiftanship, Ward 5 Mufiri, Shurugwi, Midlands Province, Zimbabwe and the 2014 Teach A Man to Fish Pan-African Award Winners 2013 By Pan-African -african-award-winners-2013 Award Winners 2013: March 2014: Country Winners: Zimbabwe
4. Now at the Transition to Scale Phase. Now Fund Raising to Scale-up the work in Zimbabwe, East and Southern Africa; Costa Rica and USA.

Njeremoto Biodiversity Institute: The Six Innovation Stages

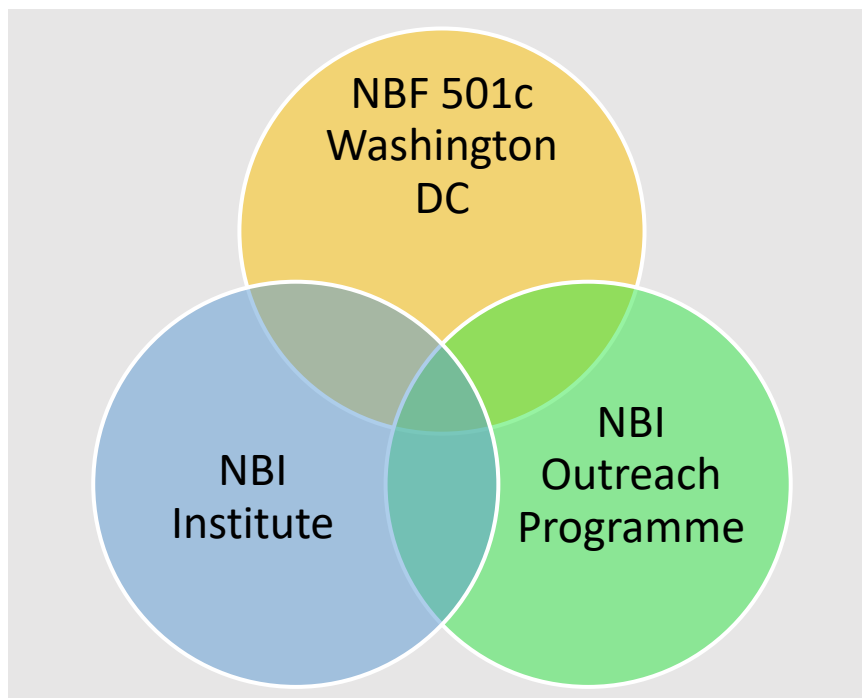


As an Earth Charter Affiliate for Zimbabwe since May 2015 and as a One Planet (UNEP/FAO 10 YFP) Sustainable Food Systems and Lifestyles Partner since 2016, NBI-Zimbabwe is now due for its Phase 4 Stage, Scaling -up Stage. This requires to secure strong collaboration with proactive funding and collaborating partners to scale up the work in Zimbabwe, Southern and East Africa, Costa Rica partnering with Earth University's Pacific Campus and Earth Charter International.

This stage can be expedited by funding Partners Collaborating with the Njeremoto Biodiversity Fund (NBF) an 501© Not -for-Profit organisation register in 2009 in Washington DC (Again Facilitated by Ashoka – see Certificate attached) whose missions will be:

EMPOWERING THE SMALLHOLDER COMMUNITIES AND NEXT GENERATION OF LEADERS IN SUSTAINABLE Watershed Management for Rehabilitation of Degraded Arid and Semi-arid Rangelands Using Time Controlled Grazing and Community Empowerment and Capacity Building for Sustainable Development AS WELL AS IMPROVED LIVELIHOODS

Empowering the Next Generation of Leaders in Sustainable Agriculture and Rehabilitation and Rejuvenation of Degraded Arid and Semi-Arid Rangeland Ecosystems. Restoring Grasslands, Reversing Desertification and Intensifying Arid and Semi-arid Rangeland Productivity, Enhancing Healthy, Wealthy, Food & Nutrition Secure Rural Communities with Sustainable Livelihoods and Lifestyles in Ecologically Stable, Highly Productive Ecosystems in Zimbabwe and globally.



The NBI experiential curriculum is guided by the Earth Charter four pillars of Respect and Care for the Community of life; Ecological Integrity; Social and Economic Justice and Democracy, Nonviolence and PEACE. (Earth Charter International - 2005).

NBF 501c Not-for Profit in Washington DC

- Fund Raiser
- Resource Mobilizer and Collaborator
- Develops Collaborative Partnerships with Funders
- Funds NBI Programme

NBI The Institute (NBI-Zimbabwe):

- Experiential Training and Demonstration Centre of Excellence
- Affiliate of Earth Charter International,
- Partner of One Planet Sustainable Food Systems & Lifestyles,
- Implements, Develops and Documents the Innovation
- Practices Adaptive Research & Development,
- Tests, Documents Best Practice
- Developing Fourth Revolution Ethos,
- Promotes Social Entrepreneurships
- Hosts University Student Interns

The Njeremoto Biodiversity Institute Training and Development Centre of Excellence provides public access to a first-class experiential education and the tools of discovery. This has resulted in a culture of ambition and leadership, where physical scale is matched by bold goals and achievements.

At NBI Zimbabwe our events and learning experiences are modelled on the changes we want to see in higher education and in our lives.

Since its inception, environmental stewardship has been an integral part of NBI-Zimbabwe's values, academic model and operations. At NBI-Zimbabwe, community members learn to balance human activities, particularly agriculture, with biodiversity conservation in order to ensure long-term protection of the environment.

NBI Outreach Programme

- Secure Food and Nutrition Security
- Ensures Ecological Ethics,
- Enhance Sustainable Development & Livelihoods
- Mitigate Climate Change Impacts and Reversing Desertification
- Rehabilitating Degraded Arid and Semi-arid Rangeland Ecosystems.
- Increase and Intensify Rangeland Productivity
- Create Employment at Local Level

Scaling up this innovation will enhance the Njeremoto Biodiversity Institute which is a product of Ashoka, as well as being a Partner Organization of the One Planet Sustainable Food Systems Program (SFSP of the 10 YFP) Program and an Affiliate of Earth Charter International (see logos below)



One planet
eat with care

Sustainable
Food Systems



Earth
Charter
Initiative

to carry the future work forward from 2019 Onwards.

NBI-Zimbabwe's activities primarily contribute to Goal Number 15: Protect, Restore and promote sustainable use of terrestrial ecosystems, combat desertification and halt and reverse land degradation and halt biodiversity loss of the United Nations Sustainable Development Goals.

Aside from Goal 15, NBI also addresses the following sustainable development goals:

- Goal 1: No poverty; end poverty in all its forms everywhere.
 - Goal 2: Zero hunger; achieve food and nutrition security and improve nutrition and promote sustainable agriculture.
 - Goal 8: Decent work and economic growth; promote sustained, inclusive and sustainable economic growth, enhance full and productive employment and decent work for all particularly in rural areas.
 - Goal 13: Take urgent action to combat climate change and its impacts.
 - Goal 5: Achieve gender equality and empower all women and girls. and Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Develop practical skills through experiential learning.
- Innovation and Impact** What is the innovation and how does it solve a development challenge?

NBI is developing an Ecological Biodiversity Institute for the sustainable management of the arid and semi-arid rangeland ecosystems at the Njeremoto Biodiversity Institute in Zimbabwe (<http://njeremotobiodivers.wixsite.com/njeremotoinstitute>).

This will ensure the realization of its Commitment to Sustainable Management of degraded Semi-arid Rangelands and Create Wealthy Communities with Sustainable Livelihoods and lifestyles. To NBI, the biggest threat to mankind in these environments, is not Climate Change; but the predominance of Bare ground from past land use practices.

This innovation is bringing new knowledge or insight to the management of arid and semi-arid ecosystems for the rehabilitation and restoration of degraded rangeland ecosystems thereby increasing and diversifying/intensifying rangeland animals' productivity leading to poverty eradication and empowerment of communities as well as mitigate the impacts of climate change. The innovation achieves this by simulating large herds of wild animals which used to live in these environments. The problem of degraded rangelands will be solved by encouraging communities to create one large herd of animals which is herded by means of cluster groups and by creating paddocks using natural demarcations such as roads, rivers, etc (no fences) which the animals will be herded in. Finally, the solution will also require a strong monitoring and participatory evaluation system to be put into place.

Why does the innovation have the potential to be better than other ways of addressing the challenge (to lower costs and/or increase impact)?

This is about whole catchment and whole society management: Use of Experiential Learning Cycle: a process which facilitator use with individuals and outreach community groups involved in learning and/or promoting collective action through community mobilization. The approach guides the learner through four phases; Experience, Process, Generalize and Apply. Use of Community Action Cycle a model with seven (7) steps in implementing; initial preparation, organizing the community for action, exploring the issues and setting priorities, planning, acting, evaluation together and scaling up. In applying the Community Action Cycle the external players should keep in mind a simple rule of thumb: Community mobilization is not just something done to the community but something done by the community.

What evidence supports this claim?

The Southern Africa Region where Zimbabwe lies cannot afford to delay addressing the deterioration of its land. Droughts and floods are increasing in both frequency and severity. Though many attributes this to climate change, this would be the case even if it were not a factor, due to the state of the land. One has only to look around the coastline of the region to see just how much of its soil has been lost to rivers emptying into the Indian and Atlantic Oceans. The zone of silt-laden water fans out for miles. Countries losing that much soil have an abundance of bare ground, which means most of the rain that falls either evaporates immediately or runs off, creating floods lower down in the catchment. This is desertification in process and until Southern Africa begins to reverse it, the chronic, impoverishment, and social breakdown that accompany this desertification will only increase. An unfortunate obsession with planting trees to reverse desertification ignores the fact that the grasslands and savannas of Africa and the rest of the world receive rainfall too low to produce soil-protecting solid tree cover. Only by producing healthy grasslands and abundant fertile soil cover can drought and flood disasters be avoided. In order to ensure sustainability of agricultural production systems, future scientific knowledge should incorporate and strive to improve on local community knowledge and traditions. In the Shona culture and belief system, the land evolved with herding grazers and the absence of one result in the destruction or extinction of the other. The conventional grazing management belief that too many animals cause overgrazing is a misconception of the semi-arid savanna environments of Southern Africa where these environments evolved with thousands of herding grazers such as wildebeest, buffalo, and elephants with their predators' lions, leopards, cheetah and hyena. The Shona believe that overgrazing is caused by inadequate recovery period for grazed plants. Hence, to the Shona's view, that in conventional grazing management, overgrazing is due to either continuously grazing plants or due to rapid rotational grazing cycles where the plants are continuously exposed to the animals or grazed too soon before they have recovered from the last grazing (plants do not have an adequate physiological recovery period).

In the wild, predators controlled the timing of rangelands use as they kept the grazers bunched and moving. When animals intensively grazed for short periods (at most a month) they left and came back after one or two seasons later. The numbers game (that too many animals cause overgrazing) had no role to protect vegetation from overgrazing then.

The project beneficiaries are smallholder farmers. These smallholder farmers survive on less than US\$2 per day. These areas are the home of the 85% unemployed youth in Zimbabwe. Agriculture when managed in the way being proposed here would be the biggest employer in the country.

Under the Community Governance component, the project will: Develop farmers' eco-literacy, transfer of knowledge and management skills; Develop self-reliant, motivated, action oriented and cohesive communities; Enhance food and nutrition security, increase income, and eliminate poverty and hunger for sustainable livelihoods and Attract investment, create employment and attain rural economic growth.

What progress have you made so far?

This programme will be working with smallholder farmers living in degraded arid and semi-arid rangelands in Zimbabwe, Kenya, Uganda and other parts of the globe, who are already working in/have already worked in the field of agro-ecology with the Tudor Trust UK Grants. Tudor is funding Njeremoto's continued work in Shurugwi district having been impressed with the early results. To give a snapshot of some of the success - Njeremoto's HLLM programme is currently working on planned grazing in 33 villages (13 clusters) in Mufiri Ward 5, Shurugwi district. Household participation levels per cluster average 59%.

Success is shown by the fact that in the project area no cattle were lost in the 2016-2017 droughts in Zimbabwe as the cattle had grass to graze on (compared to high losses elsewhere – nationally 16,681 cattle died). Calving percentages have increased in each of the 13 clusters (average 2016: 10%, 2017: 19% and 2018: 29%). Farmers have started selling mature animals as a result.

Potential to Scale

Livestock grazing occupies one-quarter of land area in the world—some 3.3 billion hectares. About 1.3 billion hectares of the earth’s plant-able surface to be wet enough to be suited to the HLLM practice. If managed grazing could be amped up worldwide, it could sequester over 16 gigatons of carbon by 2050.

Livestock provide ecological services too great to warrant their complete removal from the landscape.

The Institute’s work is committed to rehabilitation, regeneration and restoration of degraded arid and semi-arid rangeland ecosystems using Holistic Land and Livestock Management approaches. NBI Zimbabwe currently works with Smallholder Rural Communities in arid and semi-arid degraded rangeland areas of Shurugwi District in Zimbabwe. NBI, supported by Tudor Trust UK has been successfully carrying out this work for the last four years. To NBI, one of the biggest climate change problems, is the predominance of bare-ground as a result of unsustainable land use practices. This problem can be tackled through scaling up our work

Livestock emit greenhouse gases. They also can sequester carbon and boost biodiversity. Sequestering carbon has become a topic essential to the broader conversation about how our planet might survive the escalating effects of climate change. Livestock are frequently demonized as the enemy of this process. That’s partly because raising animals for meat and dairy accounts [for 5 percent of global carbon dioxide emissions](#); unsurprisingly, study after study—including the United Nations’ most recent, bleak [climate report](#)—affirms that humans need to reduce consumption of animal-based products in order to fend off planetary disaster. This has led to the advent of a booming industry centered on plant-based “meats” and “milks,” buoyed by a rallying cry from some quarters to abolish meat and cheese and butter and eggs from our diets wholesale.

Livestock farming, as practiced conventionally, the way many farmers and ranchers continue doing it, by overgrazing of open grass- and rangelands, or by grazing lands not suited to the practice—can be an ecologically ruinous way to produce food. It can destroy soil health and biodiversity, emitting greenhouse gasses in the process, including carbon dioxide. And yet, research also confirms that livestock provide ecological services too great to warrant their complete removal from the landscape.

Properly managed under the right confluence of conditions, as proposed by upscaling HLLM here, livestock can help mitigate degraded soils and restore healthy ecosystems, which helps lock carbon deep in the ground. About 40 percent of ice-free land on earth is considered grazing land, which sequesters about [30 percent of our planet’s carbon pool](#). [If managed grazing could be amped up worldwide, it could sequester over 16 gigatons of carbon by 2050.](#)

Project Target Group: Geographic Areas in Zimbabwe are smallholder rural farmers around the Institute and surrounding areas of Gutu, Masvingo and Chirumhanzu Districts. These are smallholder farmers in the Runde – Tokwe Mukosi - Mutirikwi catchments of the Midlands Province and of Masvingo Province and the Manicaland Province

The current Ward 5 Mufiri Shurugwi District Midlands Province: Beneficiaries are 5000 households/Families in five Village Development Committees spread over 34 Traditional village heads areas which translates to a total population of 30 000 people: Owning 500 herd of cattle, covering a catchment area of 8 000 ha

Extrapolation for the scale-up to 5 Wards: Smallholder farmer Beneficiaries: 25 000 households/families with a total population of 150 000 people owning 2 500 herd cattle and covering a catchment area of 40 000 hectares.

NBI's Philosophy and Hypothesis

Research Hypothesis I

Vegetation in arid or semi-arid rangelands is a function of human management or land use practice.

Research Hypothesis II

The missing dimensions are:

1. Absence of an effective management structure to manage common property resources and
2. Inappropriate knowledge to manage arid and semi-arid rangeland ecosystems

Thanks to Ashoka for identifying and moulding the innovation from 2002 to date and to Tudor Trust for Pilot Testing the innovation with the smallholder farmers since May 2015. The programme is now ripe for scaling =-up and replication.

Required Development and Operational Budget

Required is a start-up replication three-year budget either grant or soft 10 year soft loan with a grace period of 3 years and interest rate between 5% and 10% disbursed as follows:

Year 1 (2019/20) = USD\$1,000,000.00;

Year 2 (2020/21) = USD\$1,300,000.00

Year 3 (2021/22) = USD\$1,200,000.00 Total

Over 3 Years USD\$3,500,000.00

See Table below

DESCRIPTION	AMOUNT REQUIRED/REQUESTED FOR THE ACTION			
	YEAR 1 Jan -Dec 2019/20	YEAR 2 Jan-Dec 2020/21	YEAR 3 Jan-Dec 2021/22	THREE- YEAR TOTAL
	USD	USD	USD	USD
PERSONNEL EXPENSES	300,000	360,000	480,000	1,140,000
VEHICLE PURCHASES, TRANSPORTATION AND TRAVEL EXPENSES (INCLUDING PER DIEM) whole outreach programme	160,000	50,000	30,000	240,000
INFRASTRUCTURE DEVELOPMENT AT THE INSTITUTE in Zimbabwe only	360,000	300,000	50,000	710,000
COMMUNITY INVESTMENT FUND FOR SATTELLITES whole outreach	100,000	360,000	340,000	800,000
FEES FOR COMMISSIONED WORK	5,000	5,000	5,000	15,000
SUPPLIES AND EQUIPMENT	40,000	50,000	60,000	150,000
MEETINGS INCLUDING PER DIEMS AND TRAVEL COSTS whole outreach	10,000	110,000	130,000	250,000
RENTAL whole outreach	10,000	20,000	40,000	70,000
PHOTOCOPY AND PRINTING	10,000	20,000	40,000	70,000
POSTAGE, PHONE, FAX and INTERNET	5,000	5,000	5,000	15,000
CONTINGENCY	0	20,000	20,000	40,000
GRAND TOTAL	1,000,000	1,300,000	1,200,000	3,500,000

Njeremoto Biodiversity Institute Training



Centre Plans

