

CURRICULUM VITAE & BIOGRAPHY FOR SEBASTIAN MICHAEL CHUWA

NAME - Sebastian Michael Chuwa

DATE OF BIRTH – June 11, 1954

PLACE OF BIRTH - Kibosho Moshi Kilimanjaro (Rural), Tanzania

DATE OF DEATH – April 8, 2014

PLACE OF DEATH – Kilimanjaro Christian Medical Centre Hospital, Moshi, Tanzania

MARITAL STATUS - Married with four children. My wife is a teacher and lives in our family home - Kibosho Rural District Moshi, Kilimanjaro Region.

EDUCATIONAL RECORD

<u>Educational Institution</u>	<u>Place</u>	<u>Certificate Obtained</u>	<u>Year Attended</u>
1) Kibosho Primary School — Kilimanjaro	Tanzania	Primary School Education Certificate	1962-1968
2) St. Peter's Seminary — Khayega Kakamege	Kenya	General Certificate of Secondary Education	1969-1971
3) College of African Wildlife Management — Moshi	Tanzania	Wildlife Management Certificate	1973-1974
4) University of DSM	Tanzania	Herbarium Techniques	1981-1982
5) Royal Botanical Gardens — Kew	England	International Diploma (Botany)	1990
6) Ardhi Institute — Dar es Salaam	Tanzania	Certificate G. I. S. Course	1995

EMPLOYMENT RECORD

<u>Post</u>	<u>Employer</u>	<u>Year Employed</u>
1) Research Field Assistant	Ngorongoro Crater Conservation District	1974-1976
2) Conservation Assistant	" " " "	1976-1979
3) Senior Conservation Asst.	" " " "	1979-1983
4) Assistant Conservator	" " " "	1983-1991
5) Botanical Officer	Wildlife Conservation Society (Tanzania)	1991-1992
6) Botanist and Guide	Wildlife Explorer Tanzania	1992-2011
7) Self-employed Botanist — Special projects, biodiversity surveys, youth group organization and Mpingo conservation.		1994-present

COURSES AND SEMINARS

<u>Course</u>	<u>Institution</u>	<u>Year</u>
1) Herbarium Management	E. A. Herbarium	1975
2) Meteorological Observing/ Data Processing	FAO in conjunction with Meteorological Dept./DSM	1986

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3) Computer Programming & Vegetation Data Processing	WCI Regional Office Nairobi, Kenya	1987
4) Aerial Survey Workshop	Mikumi National Park	1988
5) Ecological Monitoring Workshop	Serengeti Research Institute	1988
6) Ecological Monitoring Workshop — Forest Elephant Counting, Botanical Material Storage	Arusha, Tanzania	1989
7) Computer Short Course/ Word Processing	Ngorongoro Conservation Area Headquarters	1989
8) Forests, Trees and People Programme PRA Seminar/Short Course	Uppsala University Stockholm, Sweden	1992

CONSERVATION-BASED ACTIVITIES

<u>Activity</u>	<u>Year</u>
1) The planting of 5 million trees: 2 million indigenous trees, 2 million coffee trees, 1 million mpingo trees.	1992-present
2) Organized 71 Malihai Youth Conservation Clubs in Kilimanjaro area.	1992-present
3) Organized student and adult environmental field trips.	1992-present
4) Organized teacher's environmental seminar.	1995
5) Co-founder of African Blackwood Conservation Project (ABCP)/ Established Moshi Mpingo Plot and Nursery.	1995-present
6) Coordinated Environmental Day activities in Kibosho East.	1996-present
7) Organized youth and adult Environmental Choir.	1997-present
8) Organized 45 Roots and Shoots groups in Arusha/Moshi area.	2001-present
9) Cooperative tree-planting and educational efforts in alliance with adult groups for environmental improvement and economic empowerment.	2001-present
10) Mpingo outreach into outlying areas.	2003-present
11) Initiative to help coffee farmers on Kilimanjaro with improved, shade-grown, organic, disease-resistant varieties.	2004-present

CONFERENCE ADDRESSES

<u>Conference</u>	<u>Year</u>
1) Delivered address on environmental conservation at Mweka College of African Wildlife Management. Conference theme: "Wildlife Management in the New Millennium". Jane Goodall was keynote speaker.	2000
2) Delivered address on conservation work at Malihai Clubs of Tanzania (MCT) regional conference.	2001
3) Attended "Eco-Schools" seminar sponsored by UNEP (United Nations Environmental Programme) in Mombasa, Kenya. Demonstrated environmental programs in Kilimanjaro area.	2001
4) Attended conference sponsored by Fauna and Flora International (FFI) in Dar es Salaam on topic of sustainable use practices for African blackwood. Addressed delegates about ABCP conservation efforts for the species.	2001
5) In celebration of Earth Day 2002, spoke at US Embassy in Dar es Salaam on topic "The Relationship between Sustainable Development, Community-based Education, and Tree Planting in Northern Tanzania.	2002
6) Spoke on sustainable development and poverty alleviation at High Summit	

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- Africa Conference sponsored by UNEP in Nairobi, Kenya to celebrate International Year of the Mountains. 2002
- 7) Delivered address about conservation work at conference celebrating the 40th anniversary of the College of African Wildlife Management, Mweka. Symposium theme: "Conservation in Crisis: Experiences and Prospects for Saving Africa's Natural Resources." 2003
- 8) Participated as part of the leadership team for the Nature Action Collaborative for Children (NACC) in Nebraska City, Nebraska, USA, jointly sponsored by the Arbor Day Foundation and the World Forum Foundation. 2008
- 9) On leadership team for World Forum/NACC conference in Belfast, Ireland 2009
- 10) Keynote speaker at a public lecture on the topic of *Planning for the Future In Tanzania*. Sponsored by the University of Aberdeen. 2009
- 11) On leadership team for World Forum/NACC conference in Honolulu, Hawaii 2011

SCIENTIFIC ACTIVITIES

- 1) Established herbarium of 30,000 species for Ngorongoro staff, visitors and scientists.
- 2) Cooperated with Kew Gardens in sending species in duplicate for their collection.
- 3) Discovered 4 new species, two of which were named in my honor.
- 4) Compilation of annotated checklist of vascular plant species, including poisonous, medicinal and food plants of Ngorongoro Conservation Area and adjacent areas/Tanzania.
- 5) Scientific reports for ecological monitoring program for Ngorongoro Conservation Area.
- 6) Vegetation Species Surveys:
 - a) Vegetation mapping — Ngorongoro Crater, Tanzania.
 - b) Vegetation Survey of Udzungwa Mountains National Park, Tanzania.
 - c) Vegetation species composition mapping in Tarangire National Park, Tanzania.
 - d) Vegetative survey of plant species in Olduvai Gorge area in 1975/request of Mary Leakey.

OFFICES/POSITIONS

<u>Position</u>	<u>Year</u>
1) Chief Patron of Malihai Clubs, Kibosho East.	1992-present
2) Chairman of Kilimanjaro Environmental Conservation Management Trust Fund (3-year term). This Fund finances community-driven activities geared towards combating environmental problems and improving living conditions.	1999-2005
3) Counselor of Kibosho Ward (Elected Political Office).	2000-2010

AWARDS

<u>Description</u>	<u>Year</u>
1) Recipient of Award by the Charles A. and Anne Morrow Lindbergh Foundation for funding of environmental educational activities.	2000
2) Recipient of "Spirit of the Land" award, presented by the Salt Lake City Olympic Committee for international accomplishment in environmental education.	2002
3) Recipient of Associate Laureate Award from the Rolex Awards for Enterprise	

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| Committee, presented in London, England for spirit of enterprise in addressing environmental concerns. | 2002 |
| 4) Recipient of <i>Conde Nast Traveler</i> magazine "World Savers" award for commitment to the cause of environmental conservation. | 2006 |
| 5) Recipient of J. Sterling Morton Award, presented by The National Arbor Day Foundation in Nebraska City, Nebraska, for tree planting and environmental education efforts in Africa. | 2007 |
| 6) Recipient of Malihai award for 30 years of service | 2011 |

Sebastian Chuwa Biography

Education and Employment

I was born in 1954 at Sungu Village in Kibosho Moshi Rural District in Kilimanjaro, Tanzania. I live with my wife, my four children and my mother in my ancestral home on the slopes of Mt Kilimanjaro, 11 miles north of Moshi. As a young boy I studied with my father the various plants species and learned how to prepare medicinal remedies. On completing my primary and secondary education I was very interested in getting an environmental education because I wanted to learn more about plants and their environment. So in the middle of 1972 I got a government scholarship to join the College of African Wildlife Management, Mweka in Moshi, Tanzania. This college is recognized internationally for its fine curriculum in conservation. I graduated in 1974 with a Certificate in Wildlife Management.

After graduation I found employment as a research assistant with the Ngorongoro Conservation Area Authority. Over the next 17 years I advanced to the position of Assistant Conservator. During those years I conducted extensive research on the plants of Ngorongoro. I collected many species of plants in duplicate and sent them to universities and museums for identification. At the Ngorongoro Conservation Headquarters I also established a herbarium of 30,000 species to give visiting scientists, park rangers and tourists an authoritative guide to identification of plants in the crater area. I also collaborated in drawing up a New Management Plan for Ngorongoro Conservation Area.

With the aim of stopping poaching of the endangered black rhinoceros, I introduced a documentation system for every rhino. In this system each rhino was named, photographed and then assigned to a park ranger. It was the responsibility of every ranger to keep an eye on his animal. One can literally say that these rangers were the watchdogs of the black rhinoceros in Ngorongoro. When the rhinoceros-monitoring program was published in the Ngorongoro Bulletin, it drew the attention of many international organizations interested in ecological monitoring. To date this project is funded by many international organizations.

This position also allowed me time to study the medicinal practices of various groups in the area, like the Masai. I learned to identify and use many plants that can cure human and animal illnesses. During the course of my work at Ngorongoro I was able to compile an annotated checklist of its vascular plant species, including separate category listings for poisonous, food and medicinal species.

During my employment I advanced and updated my botanical knowledge. In 1990 I was chosen by my government for the honor of studying for a diploma in botany at the Royal Botanical Gardens in Kew, England. There I studied plant identification, herbarium techniques and gardening for tropical wild plants.

A GIS (Geographical Information Systems) course gave me the training needed to prepare Vegetation Species Composition Maps. I used this knowledge in the Ngorongoro Crater area, Tarangire National Park and Udzungwa National Park. In 1992 I travelled to Uppsala University in Sweden for a workshop called "Participatory Rural Appraisal Program," learning about organising and implementing projects at the community level. Through this workshop I learned a way of consulting and working with communities prior to establishing programs in their area. Upon my return I set up educational programs, tree nurseries of endangered species and wildlife youth clubs in many schools. I have also worked as a botanical officer at

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the Wildlife Conservation Society of Tanzania in Dar es Salaam and Arusha, conducting biodiversity studies in the coastal forests and national parks of Tanzania.

Environmental Problems in Tanzania

For background information I would like to tell about some of the problems in my country which are leading to the destruction of its environment.

Tanzania is one of the richest countries in the world in terms of biodiversity. It contains some of the largest remaining herds of wildlife in the world. It contains marine ecosystems, savannah, forests, and huge lakes. It contains Mt. Kilimanjaro, the highest peak in Africa and Lake Tanyanika, the second deepest lake in the world. It contains Olduvai Gorge, the Serengeti Plain and Ngorongoro Crater, home of one of the largest lion populations in the world. Its mountains are climbed by hikers from around the world and millions of tourists visit its parks every year, giving Tanzania a much-needed source of income. But a combination of factors has resulted in increasing pressure on natural resources in many parts of our land. Rapid population growth and agricultural clearing, economic liberalization, influx of refugees, poaching, reliance on firewood, tourism and mining are all leading to environmental damage and causing many changes in our ecosystems. Its wild animals are being decimated and its forests are disappearing.

It is amazing that when I was little I could not see the peak of Kilimanjaro from our home because there were so many tall trees everywhere. Today we can see the peak from every corner of the land. We are also bothered with mosquitoes which never happened when I was young and these insects are bringing cases of malaria to the mountain communities which were once free of that disease. Another thing I remember is that when I was young we would see elephants crossing near to our area west of Kilimanjaro. That was in the 1960's but today we no longer see any elephants there. All of these changes have worried me very much and I have resolved to spend my time in helping to correct the factors that have caused them to happen.

At the heart of the problem is the extreme poverty of my government and its people. Our park personnel are underpaid and the park system is so understaffed that there are only a few rangers to keep an eye on many thousands of acres of land. Many people in Tanzania are very poor and look to taking care of their families first before they consider that some of their actions have a negative impact on the environment.

Nevertheless, despite its limited resources, Tanzania is attempting to institute programs to protect its wildlife. It has officially sanctioned the need for Environmental Education and Communication (EE&C) to promote improved management of natural resources, considering this a pre-requisite for sustainable development. It recognizes that these efforts must reach down to the community level, for that is where changes in behavior towards the environment will result in meaningful improvement. Because of this its National Environmental Action Plan (NEAP/1994) has called for a National Environmental Education and Public Awareness Program to improve citizen's knowledge about the environment. In addition, the 1997 National Environment Policy seeks to raise public awareness and promote individual and community participation in environmental action. Its National Environment Management Council (NEMC) is actively working with the Ministry of Education and other concerned agencies to promote educational initiatives throughout the country.

In order to help my country realise some of these goals I have organised a number of community-based programs in the region of Mt. Kilimanjaro to directly help correct environmental damage from the past. Kilimanjaro is a Biosphere Reserve and a World Heritage Site. It is a very important ecosystem for the whole surrounding area because it is a major source of clean water for the plains below and a power generating source for the National Grid. It is one of Tanzania's most productive agricultural areas and a great attraction for tourists from around the world. But despite its beauty and biodiversity Kilimanjaro is unfortunately faced by the same environmental hazards and aquatic degradation that I have found while doing botanical surveys in areas throughout Tanzania in a number of forest reserves such as the Northern Highland Forest Reserve of Ngorongoro, the Coastal Forests of Pugu, Kazimzumbivi and Udzungwa Mountain Forest Reserves. These are: land degradation, non-availability of clean water, habitat fragmentation and loss of biodiversity, deterioration of aquatic systems, deforestation, frequent forest fires and pollution.

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In the 1960's the Coffee Berry Disease (CBD) attacked coffee trees, our main cash crop, and was the main contributory factor to poverty in the Kilimanjaro area. People finding no other way to gain income resorted to felling trees and selling timber and firewood as a means of survival. Due to this setback parents were no longer able to renovate/build schools, bridges and repair roads. As a result development was retarded. The continued excessive tree felling on the mountain is leading to a situation in which some of her rivers and streams are beginning to dry up, depriving small farmers of irrigation, and giving warning of larger problems to come if the situation is not reversed.

In order to combat these problems, I have begun an educational effort, dedicated to teaching about the following conservation practices: tree planting programs, encouraging local people to stop indiscriminate use of pesticides, terraced crop planting on steep slopes to eliminate soil erosion, crop mulching and grass planting to preserve moisture, reduction of water wastage by improved irrigation practices, introducing zero-grazing, reducing the wide use of fire in agriculture and honey harvesting, and controlling wasteful use of fuel wood by using alternative sources of domestic energy and modern cooking stoves.

Malihai Clubs of Tanzania

In 1992 I became the first Chief Patron of Malihai Clubs in Kibosho East (a district on the southern slope of Mt. Kilimanjaro). In this capacity I began to teach the people of my locality the value and need of conserving the environment.

I began this work of organising youth clubs by consulting with teachers of primary and secondary schools and colleges in the area. In talking with these teachers I found out that none of them had ever visited our national parks and seen the many animals and plants that they were teaching about in their classrooms. Because of this we arranged for them to go on safari to Lake Manyara and Ngorongoro Conservation Area. They were very excited to have the experience of seeing all of the wild animals and plants that are part of our national heritage and it has helped very much in their teaching about these matters. Now they are arranging trips to take students to these parks and conservation areas. Thus they are learning first-hand to identify and value the wildlife and are becoming more aware of all our endangered species. These children are teaching their parents and neighbourhood friends about conservation and encouraging them to adopt better measures to protect resources on the mountain.

We were also able to organise the teachers and talk with them about how to include environmental studies in their curriculum. By working with these teachers and speaking at various schools in the region I have managed to establish a network of 71 Malihai Clubs, averaging 300 members each. The formation of these clubs has enhanced good co-operation among the schools, villagers and various institutions in the Kilimanjaro Region. One of our most important activities is the tree nurseries which are starting to appear in many places. Each club is directly responsible for planting seeds and raising trees which are then transplanted into the surrounding ecosystem. Every year our Kilimanjaro Malihai Clubs replant as many as 10,000 trees on the mountain.

The activities that Malihai members participate in include the following:

- 1.) They learn various types of sports and offer sports gear for soccer, volleyball, etc.
- 2.) They learn personal hygiene and beautification and cleanliness of surroundings. This will help prevent the outbreak of health threats, such as cholera epidemics.
- 3.) They visit National Parks and learn the principles of conservation and plant identification. We try to make the students understand all the living communities in the African ecosystem and the way they interact and coexist. This is a very important program. Because they are very expensive to visit and transportation is difficult, many African citizens never get to see these beautiful parks which are a part of their heritage.
- 4.) Every club has a tree nursery and is directly responsible for training and encouraging its members, as well as surrounding neighbours, to plant trees in order to conserve the environment. Every year our clubs in the Kilimanjaro area raise thousands of seedlings and replant them back into the natural ecosystem. Some of our Malihai Clubs in Tanzania have participated in programs to help farmers in reforesting erosion-prone areas of their land.

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Malihai is a Swahili word meaning "Living Wealth". The Malihai model is a very effective educational tool and we hope it will have long range effects for the future of Tanzania. Within these clubs a whole generation of young people is being inspired to leadership. They are being given an intelligent grasp of what constitutes wise conservation strategy and will hopefully lead their nation in the fight to protect their natural resources and reverse the many decades of land misuse.

In 2001 I also began organizing Roots and Shoots youth clubs in the Moshi and Arusha area. These are similar to Malihai Clubs and I have managed to organize 45 of them to the present.

Rafiki Friends Foundation

From 1994-1998 the Rafiki Friends Foundation was a major contributor to my botanical, educational and conservation work, having assisted me in planting trees and providing funds for Malihai Youth Groups. During that time they sent me used computers, pens, pencils, paper, crayons, sports gear and environmental books, as well as herbarium equipment. All these have been used in inculcating Tanzanian children with a concern and responsibility for their natural resources. They also helped in refurbishing schools, as well as providing desks and school lunches. They provided funds to publish a book called "Environmental Conservation Kibosho East" edited by myself. It recounts and documents the conservation efforts of the Kibosho Malihai Clubs, provides a handbook for teaching environmental awareness and includes an extensive list of plant and animal species found in the region compiled by myself. This includes an extensive list of medicinal species, their uses for both humans and animals and means of preparation. It can be viewed online at: http://blackwoodconservation.org/kibosho_east.html

Environmental Day

In 1996 I worked with government officials in initiating the first ever Environmental Day celebrations in Kibosho East in conjunction with International Environmental Day, organized every year on June 5th. This first time event held in Tanzania was celebrated at Sungu Primary School. The main aim was to make the villagers more aware of the importance of conserving the environment. On that day, everyone was encouraged to plant at least one tree in his farm as a sign of putting words into action. In the years since, tens of thousands of trees have been planted on Mt. Kilimanjaro in association with this event, some on the major backpacking trails, others along river banks and in burned and degraded areas.

Kilimanjaro Environmental Conservation Trust Fund

Between 1999 and 2005 I was Chairman of The Kilimanjaro Environment Conservation Trust Fund ([url: http://www.kilimanjarotrust.org/](http://www.kilimanjarotrust.org/)) in acknowledgement of my contribution towards environmental conservation. The objective of the fund is to mobilize resources and channel them to the community with a view to financing community-driven activities geared towards combating environmental problems and hence improving living conditions.

Councilor of Kibosho East

Between 2000 and 2010 I held the political position of Councilor of my district. This gave me a voice in determining future environmental policy in my area and worked hand in hand with my position as Chairman of the Trust Fund.

Mpingo Conservation

In my many years of traveling in the bush country of Tanzania, it has pained me to see that the survival of a very magnificent tree of the woodlands is becoming threatened. This tree is *Dalbergia melanoxylon* - African blackwood, or in Kiswahili, mpingo, and it is harvested by international companies for the manufacture of woodwind instruments. It is used in my country by the Makonde carvers, but in some regions, because of its scarcity, they can no longer harvest the trees on public land. Instead they must pay a fee to harvest from the national reserves. They often travel long distances on foot to find the wood for their carvings. This is a very hard job because the wood is dense and heavy.

This tree faces many threats. Frequent brush fires and agricultural clearing are killing older trees and preventing young seedlings from sprouting. In some regions of our country it is already almost extinct. In 1992 I was interviewed for a PBS Nature program called *The Tree of Music*. This program tried to tell the

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world about the plight of mpingo and my hope was that it would be noticed by some of the international conservation organizations and programs would be started to help regenerate the species.

It wasn't until three years later that James Harris, an ornamental woodturner from Texas, saw the documentary and contacted me to propose that we form an organization devoted to mpingo conservation. As a result in 1996 we founded the African Blackwood Conservation Project (ABCP) - <http://blackwoodconservation.org/>. Its objectives are: 1) to establish community-based tree planting efforts on behalf of the tree, 2) to educate citizens worldwide about the economic, ecological and artistic value of mpingo, with the aim of enlisting them to aid the conservation effort; 3) to conduct experimental studies to ascertain its optimal growth requirements and add to scientific understanding of the tree, 4) to sponsor a variety of programs in Tanzania, teaching about the general principles of conservation for purposes of poverty alleviation and environmental recovery.

Since its inception the ABCP has been successful in establishing a model project in Moshi, called the Moshi Mpingo Plot. We have a nursery for the propagation of mpingo seedlings and are planting trees over the course of a number of years so that we can study them scientifically and compare growth rates. People from the surrounding area come to our nursery to get seedlings for their fields or yards. I am educating local villagers about the importance of this tree for the ecosystem and economy of Tanzania. People in the towns are planting the trees for shade or as a windbreak. Farmers are using them as living fences or as a barrier to soil erosion.

Since the tree takes so long to reach maturity, I am organizing educational campaigns so that the trees being planted today will still be cared for in the future. To this end I have begun to establish Mpingo Clubs, running alongside the Malihai Clubs, but with a specific focus on the conservation and care of mpingo. In October, 1999 we started a pilot project to educate people in the areas where mpingo grows about the importance of both replanting and the conservation of the tree, including branches that have already been cut. Each person who signs up for membership receives 10 mpingo tree seedlings to plant. At a regional Malihai conference I addressed the audience and interested several groups in starting projects for mpingo regeneration. I will be working with them in setting up their nurseries. Funding from the Good Gifts Catalogue of Great Britain has enabled us to expand our efforts, enlisting schools and individuals over a wide area to replant seedlings for our nursery. Makuyuni Village has planted 25 acres of Village land with mpingo and the Moshi Police Academy is planting the tree on its academy and training grounds. So far our groups have planted 1 million mpingo in the northern Tanzanian area. The ABCP website can be viewed at: <http://blackwoodconservation.org/>

Women's Land Rights

Tanzanian tradition dictates that women are not allowed to plant trees and own land but in 1998 this tradition begun to change because of the passage of a new Land Act. I have always been trying to speak up for the rights of women, because in my opinion, if you want a job done well, you should ask women to help you in accomplishing it. Years ago we began to organize environmental meetings for teachers. We discussed a lot of environmental matters, especially tree planting, and I taught them some of the principles of Participatory Rural Appraisal. As a result we now have many women in the Kilimanjaro region co-operating to help our environment.

I was also approached by several groups of women from different communities who were interested in organizing environmental and economic undertakings. These women's families are supporting them and encouraging them to plant trees and start a business enterprise. They came to consult with me about how to start a nursery and I gave them my advice. They are establishing a number of activities which will provide economic benefit to their families. They are growing maize and selling vegetable seedlings. They are establishing a bee-keeping operation and community nurseries where they grow and distribute a variety of tree seedlings, including mpingo. Every year they are expanding their organizations and they wish not only to establish businesses that will profit their families but are helping to educate the other villagers about environmental hazards in the community. In the future they wish to also start other educational efforts to teach young people the skills they are developing and help them to find careers in conservation. The ABCP has written grants and procured funding for a number of these women's groups to carry out this work. At present I am working with 8 women's groups, namely the Mpingo, Green Garden, Faraja, Fonga, Uru,

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Sungu, Wapendanao, and Ndekira Women's Groups, which are all cooperating in enterprises that help the well-being of their families, communities and the environment.

Disease-Resistant Coffee Trees

My father established a tree nursery in 1924 and was one of the first among indigenous residents to receive coffee seedlings from Roman Catholic missionaries. He was an excellent horticulturalist and gladly shared his production with all of his neighbors. In 2004, in cooperation with personnel of the Tanzania Coffee Research Institute (TaCRI), I started experimenting with germination, planting and grafting techniques that would best supply the mountain's farmers with the new disease-resistant varieties that have been developed by TaCRI. Using these techniques, several school and community groups are working together to raise coffee seedlings and have distributed about 2million trees to local farmers as well as farmers and plantations in the Arusha, Karatu and Ngorongoro area.

In our area we have also started a project for installing biogas technology. Twenty families are cooperating and are not only reducing forest use by generating their own fuel but are experimenting with the best methods of using the biogas slurry on their coffee farms as fertilizer.

In Conclusion

The details above are some of my efforts to preserve the natural environment for the future generation. Since 1992, our efforts have succeeded in the planting of 5 million trees. My long experience in environmental conservation has cultivated in me a love for nature and a desire to see it conserved. It pains me when I see how the environment is being destroyed by forces which could have been and can be controlled by man. Through serious scrutiny, I have come to realize that through education the situation can be alleviated. This of course requires self-motivation and commitment from the people themselves. There is a great need to educate them on the necessity and importance of self-involvement in environmental conservation. Environmental efforts will only succeed in my country if environmental education is targeted at the grassroots level, i.e. Primary Schools onwards. The future of Tanzania depends on that.