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ONE EARTH
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TERRAFRICA
REGIONAL SUSTAINABLE LAND MANAGEMENT

ARC

The Earth is the Lord's, and everything in it,
the world, and all who live in it.

Psalm 24:1

The Earth is green and beautiful, and Allah has appointed you his stewards over it. The whole Earth has been created a place of worship, pure and clean.

Hadíth

Thou art the dark-blue bee; Thou art the green parrot with red eyes; Thou art the thunder-cloud, the seasons and the seas. Thou art beginningless and all-pervading. From Thee all the worlds are born.

Svetasvatara Upaníshad IV.4

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CONTENTS

A New Awakening by Alison Hilliard, ARC Africa Programme Manager 7

Restoring the Land 17
- Farming God's Way 18
- Farming With Islam 25
- Putting Food on the Plate 27
- Religious Buildings as Eco-Models 29

The Power of Women 35
- Women-Led Tree Nurseries 36
- Gomba Women's Environment Project 47

The Power of Tree Planting 57
- Tree Planting with Relbonet in Northern Ghana 58
- Hindu Religious Service 63
- A Community Forest in Uganda 66
- Protecting Community Woodlots in Ghana 70

Shaping the Environmental Champions of the Future 75
- Developing the ESD Toolkit 80
- School Micro-Projects 84
- The Eco-Schools Approach 90

The Power of Partnerships 105
- Partnership & Learning from Others 106
- Sharing Good Practice 110
- Partnering With the Faiths 112

The Power of Outreach 115
- Spreading the Message 116
- Eco-Congregations: A Model for Environmental Action 119
- Reaching the Community 127
- Using the Media 128
- The Power of the Mosque 129
- Other Ways of Spreading the Word 136
- Wildlife Commitments 138

OPPOSITE: Children from All Saints Cathedral School, Nairobi, sing at ARC's Nairobi Celebration in September 2012

A NEW AWAKENING

"Each one of us is intimately attached to the soil of this beautiful country. Each time one of us touches the soil of this land, we feel a sense of personal renewal. We are moved by a sense of joy and exhilaration when the grass turns green and the flowers bloom. That spiritual and physical oneness we all share with this common homeland."

Nelson Mandela

"A new awakening that will help shape beliefs, behaviour and actions for a greener and better Africa"

In September 2012, 27 Christian, Muslim and Hindu faith communities in sub-Saharan Africa launched long-term action plans on the environment at a Celebration in Nairobi organised by ARC, entitled 'Many Heavens, One Earth: African Faith Commitments for a Living Planet'. The plans outline the action that each faith tradition commits to taking over the next seven years, focusing in particular on community awareness raising, agricultural practice, sustainable use of land and water, and education on the environment in faith schools.

This was the first time African faith traditions had come together in this way, each having developed its own long-term commitments, with the specific aim of changing the behaviour and outlook of their followers towards the environment for generations to come. The significance of the event was recognised by the speakers at ARC's Nairobi Celebration who described it as *"potentially transformative"* (Mounkaila Goumandakoye, UNEP Director and Regional Representative for Africa) and *"a new awakening that will help shape beliefs, behaviour and actions for a greener and better Africa"* (Dr Ali Mohamed, Permanent Secretary of the Ministry of Environment and Mineral Resources, Kenya).

OPPOSITE AND ABOVE: At ARC's Nairobi Celebration in September 2012, 27 Christian, Muslim and Hindu faith groups launched their long-term Faith Commitments for a Living Planet

Between them, the 27 faith groups in this project reach out to around 184 million people in 11 countries in sub-Saharan Africa. Their plans are the result of extensive consultation by faith groups with their members over the last two years, ranging from their women's and youth groups to their most senior hierarchy. They include each faith's theological mandate for caring for the environment and have been approved by the highest authority within each group.

While they've been drawing up their plans, faith groups have also been getting on with implementing what they believe in. As eco schools champion Tom Barasa Wafula put it at our Celebration in Nairobi:

"If you have a good idea, don't wait for funding. Do what you believe and then you'll attract funding because you have a good project to show…so begin small, finish big. A little faith moves mountains."

That faith has been inspired by a re-examination of what the holy books in each tradition say about the need to protect the environment as a religious responsibility. Many groups took as their starting point the Jesuit approach that to live a faithful life means achieving four 'right relationships' – with God, with each other, with oneself and with the environment. This last relationship is often the one that has been neglected or given a low priority. These long-term plans have helped redress that

balance and restore caring for creation to an integral place in the lives of faithful people. That has resulted in many new initiatives and innovative projects. In this book, we have tried to capture some of these new projects, and the good practice they demonstrate, with the hope that it can inspire others.

Inspiration leads to replication. In Kenya, for example, many faith groups have been inspired by training they received on Farming God's Way. This is based on Christian teachings and helps restore degraded land and protect the environment, and also increases crop yields, sometimes by three, five or even 10 times. Farmers who have been trained in Farming God's Way are keen to show how this can transform land and lives – and how land belonging to the faiths can be used to bring about a new message of hope through improved sustainable agricultural practice. Muslim farmers are excited about this too – and we have here the first news of the development of Farming in Allah's Way that is being pioneered in Uganda, Kenya and Tanzania.

Engaging women

Women farmers are the pillars of African agriculture, producing 80 per cent of food in the Global South. In these reports of best practice, we see women pioneering new projects. Women from the Evangelical Lutheran Church in Tanzania, for example, are leading the way in setting up and running women-led tree nurseries. These provide much needed supplementary income to women, allowing their children to attend school and nutritious food to be put on the family table. Women are learning about watering and planting techniques, micro-finance and entrepreneurship, as well as new skills in nursery management and agroforestry.

There are also lessons to be learnt from Muslim women in the Gomba region of Uganda. They are pioneering a faith-based project which is reducing the number of trees being cut for firewood, planting new trees and developing environmentally friendly income-generating activities to improve women's livelihoods. They're building energy efficient stoves which use up to half of the usual amounts of firewood, and producing charcoal briquettes as an alternative, more environmentally friendly source of cooking fuel made from agricultural wastes such as maize stalks, banana fibres, bean or coffee husks. They're using water tanks for harvesting water and recycling plastic water bottles to supply a constant supply of water to individual tree seedlings, pushing the survival rate up to 80 per cent.

Survival rates are vital given the scale of the tree planting promised by our faith partners in their long-term plans: more than 43 million trees in the next seven years. Tree planting is often an entry point into environmental awareness and action – a crucial first step with tangible benefits and concrete results. And in this book, we have examples of how communities have been engaged in this process.

The Catholic Church of Kenya, for example has launched a National Tree Planting Day. Ethiopia's Islamic Supreme Council has, for the first time, engaged its mosques in environmental action, launching an eco-mosques programme to establish several mosque woodlots and tree nurseries to achieve self-sufficiency in wood supply in five years. And there's practical advice, too, not just on planting trees but on ensuring their survival as well as preventing their destruction by fire and promoting community ownership.

Shaping the next generation

Faith groups have been crucial providers of education in Africa: it's estimated, for example, that more than 80 per cent of all schools in Kenya are faith-sponsored. We're proud of the Education for Sustainable Development Toolkit we have initiated through our partner, the Kenyan Organisation for Environmental Education (KOEE). The toolkit is a unique model which will be used in primary schools

throughout Kenya. It outlines the faith teachings of Christianity, Hinduism and Islam on the caring for the environment alongside teaching young people life-changing practical skills they need to adapt to a changing world and a changing environment – skills such as rainwater harvesting, growing vegetables, using biogas digesters and alternative energy, setting up small-scale businesses such as beekeeping as well as hand washing, hygiene and sanitation.

Excellent work has already been done in the 10 schools chosen to become demonstration centres illustrating best practice and some of the practical outcomes of adopting an eco-school strategy. Many of their micro-projects addressed issues around water, sanitation and hygiene. For example, Iriani Primary School in Meru, Kenya, built water points where children could wash their hands after using the toilets and before eating. Their headmaster Danison Kimathi reported: "This has been an astounding success with a massive reduction of water related illnesses at this one school by an astonishing 90 per cent."

In total, 35 schools in all six regions of Kenya and all five faith groups – the Anglican Church in Kenya, the Anglican Church in Kenya, the Catholic Church in Kenya, the Methodist Church in Kenya, the Presbyterian Church of East Africa and the Supreme Council of Kenyan Muslims – have taken part in this project. We're grateful for their input as well as for the contribution and enthusiastic support of Kenya's Ministry of Education, Ministry of Environment and Mineral Resources and National Environmental Management Authority, as well as the Kenyan Institute of Education.

The toolkit holds out a vision of education that is transformative and brings an opportunity to motivate and sustain action on the environment for generations. Again, it is our hope that its good practice will be taken up by other teachers in schools throughout sub-Saharan Africa and spread from schools to informal education through Sunday schools, madrassas and youth clubs. We hope, too, that it will influence the wider community through the messages, attitudes and skills brought home each day.

We were also reminded at our Celebration in Nairobi not to reinvent the wheel when coming afresh to caring for the environment. Ann Thomas, water, sanitation and hygiene expert for UNICEF's East and Southern Africa Regional Office, reminded us to "look at people who are looking in the same direction".

Many of our faith groups are keen to share their experiences of partnership, whether with government bodies or with each other. There's certainly a wealth of experience to learn from – whether it's the manufacture of low cost biosand filters which remove 97 per cent of bacteria and 90 per cent of viruses from dirty water, or the building of biogas digesters in monasteries or schools which create alternative low-cost energy, allow more girls to attend school, decrease respiratory problems and provide fertiliser for increased crop yields.

'You have the trust'

There's a new call, too, to give faith groups a seat at the table – to include them as natural partners at a national and regional level when drawing up strategies to tackle climate change and environmental issues. After all, around 90 per cent of Africa's population describe themselves as Christian or Muslim – meaning the faiths are the biggest element of civil society and have unparalleled outreach and influence on the Continent. This was highlighted by one of our speakers at our Celebration in Nairobi. Mounkaila Goumandakoye, the Regional Director of the United Nations Environment Programme Regional Office for Africa, noted:

> "You have the trust of more people than any other national or international organisations. Coming here this morning I realised that we could be *more* successful, that we could be *more* relevant to the needs and aspirations of the Continent, we could have *more* impact in all African countries, if we can work with you, the faiths, hand in hand."

Mr Goumandakoye has commited to making working with the faiths a top priority for UNEP Africa. We look forward to a new partnership emerging as we seek to explore this relationship in Kenya, Tanzania and Ethiopia. Other new partnerships are beginning too. Here, the emerging partnership on conservation agriculture and sustainable land management with Uganda's Ministry of Agriculture, Animal Industry and Fisheries, under the TerrAfrica mantle, is breaking new ground. We hope this might set a precedent to take the faith groups seriously as partners.

However, the process of drawing up long-term plans of environmental action has also been an opportunity for the faith groups themselves to reflect on how they might make best use of their existing structures and networks. No other group, after all, has people meeting at least once a week 52 weeks a year in large numbers on a local basis through the country – whether on a Sunday at church for Sunday worship or a Friday at the mosque for Friday prayers. And so in this book, there's also sharing of good practice on how to transform congregations into eco congregations or models for promoting environmental action.

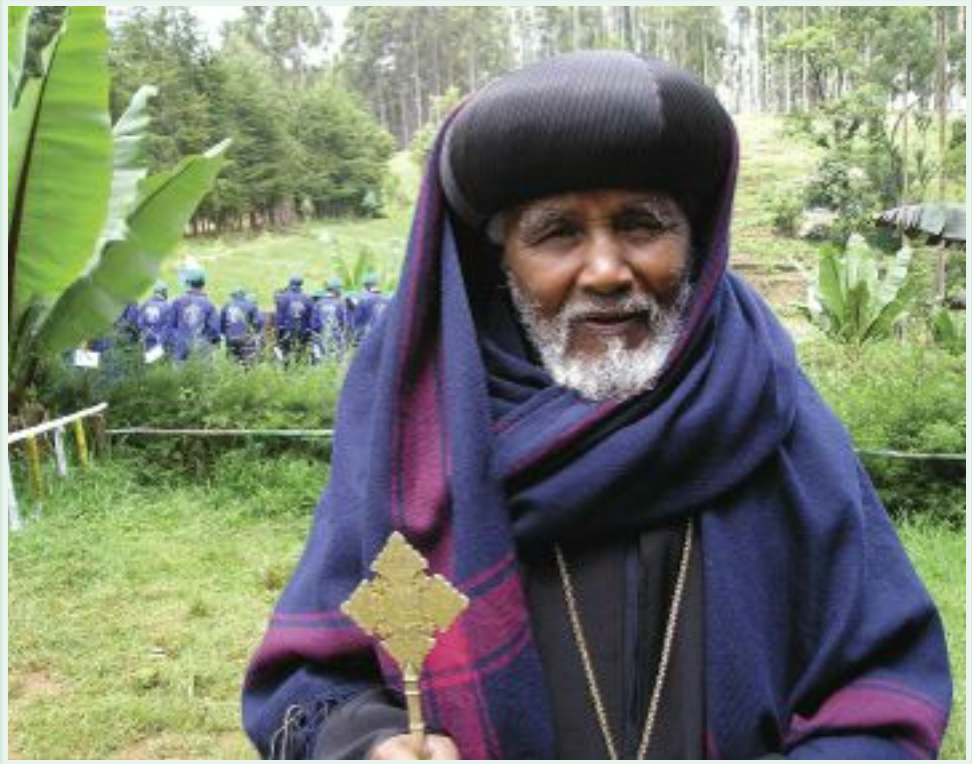
We have examples from Kenya of how a pastoral letter was read out in all Catholic churches in Kenya spelling out why it is a Biblical mandate to care for creation. And an example from Uganda where a day dedicated to honouring the environment – Greening Friday – has become firmly established as part of Ramadan, the Muslim holy month of fasting and prayer. Greening Friday is spreading as a

movement that raises awareness and inspires communities to take action on the environment directly as a result of the teaching and example set by imams at Friday prayers and led by the Ugandan Muslim Supreme Council. Or from Nigeria we learn how millions of Muslim pilgrims are being targeted with messages from their religious leaders to reduce the use of plastic bottles, plastic bags and promoting recycling and tree planting.

The African Faith Commitments for a Living Planet are the result of an initiative by ARC to engage faith communities in sub-Saharan Africa in caring for the environment and in sustainable land and water management. The initiative is supported by the World Bank as part of its TerrAfrica partnership which aims to address land degradation in sub-Saharan Africa. Additional funding has come from Norway's Ministry of Foreign Affairs (MFA) and USAID (via the African Biodiversity Conservation Group).

I'd like to thank all of our partners in this project and of course, the faith groups that have generously shared with us their inspiration, their wisdom and their work. Our hope is that with faith, vision and partnership, the "new awakening for a greener and better Africa" that was so enthusiastically hailed at our Nairobi Celebration in September 2012 will only be a beginning – on our journey together to protect our shared living planet.

Alison Hilliard
ARC Africa Programme Manager



RESTORING THE LAND

"And God said, Let the Earth bring forth grass, the herb that yields seed, and the fruit tree that yields fruit according to its kind, whose seed is in itself, upon the Earth: and it was so."

Genesis 1:11

OPPOSITE: *Abuna Nathanael, Archbishop of Arsi Diocese, Ethiopian Orthodox Tewahido Church at a training workshop on biogas and sustainable farming*

FARMING GOD'S WAY

Agriculture is in crisis everywhere in Africa with soil erosion rising, crop yields falling and erratic rains due to climate change leaving farmers confused and despairing. Now a new form of agriculture based on Christian teachings – Farming God's Way – is transforming farming across Africa, changing practice, increasing crop yields and protecting the land.

A group of men and women are gathered in a field in Kenya, excitedly chatting as they measure distances using lengths of string. Following the measurers are others digging small holes at very precise angles and applying specific amounts of fertiliser and seed. There's a lot of laughter and animated talk, but also focus and concentration.

These pastors and church leaders from the Anglican and Catholic Churches in Kenya are learning a new form of agriculture called Farming God's Way, which is not only helping to restore degraded land and protect the environment, but also increasing crop yields – sometimes significantly, by three, five or even ten times. The three-day training, run by Craig Sorley of Care of Creation Kenya, is the second of two workshops organised by ARC for Christian faith leaders in Kenya. As well as Anglicans and Catholics, representatives of the Methodist Church in Kenya and the Presbyterian Church of East Africa have also been trained.

The aim is to create a network of Farming God's Way champions who will spread this sustainable farming method to their congregations throughout Kenya, and beyond – transforming agriculture across Africa and, in the words of Craig Sorley, "bringing glory to God and hope to the hungry".

This faith-based approach to agriculture is even spreading beyond the Christian community: it has inspired Muslim groups to look at what their own holy texts tell them about their responsibility to the land (see page 27) and to develop their own approach called Farming in Allah's Way.

Agriculture is the backbone of sub-Saharan Africa, providing the biggest source of employment, livelihoods and foreign exchange. Yet African agriculture is in crisis: soils are worn out and agricultural production is falling. Per capita, agricultural production fell by about 5 per cent over the last 20 years in sub-Saharan Africa while increasing by 40 per cent in other developing countries.

Faith leaders from the Methodist Church in Kenya and the Presbyterian Church of East Africa at a Farming God's Way training workshop in Kijabe, Kenya

Africa's fragile soils have suffered from a combination of poor agricultural practices, degradation of natural resources, over grazing and the pressure of growing populations. Other problems include lack of access to land, particularly for women farmers, adding to the problem of soil degradation. Most people farm on plots of two hectares or smaller, and these smallholder farmers provide as much as 90 per cent of agricultural production in some countries. As populations increase, the soil is worked harder on ever decreasing plots.

Moreover, the International Fertilizer Development Center (IFDC) estimates that sub-Saharan Africa loses around eight million tonnes of soil nutrients per year, and that more than 95 million ha of land has been degraded to the point of greatly reduced productivity. No wonder no one wants to be a farmer in Africa these days; it's seen as the job of last resort.

God 'is the Master Farmer'

Now this new approach to farming, based on the idea that God is the Master Farmer and calls upon us to be faithful stewards of the land and to farm in a way that glorifies Him, is transforming both attitudes to agriculture and crop yields among Christian communities. "Farming God's Way puts God back where He belongs – into the very centre of how we view and practice agriculture. This is a holistic approach that ministers to farmers, addressing the spiritual and physical roots of the decline that is taking place," says Farming God's Way trainer Craig Sorley in his book *Farming That Brings Glory to God and Hope to the Hungry.*

"For Christians, the story of agriculture begins in Eden with the knowledge that God was the one who planted a magnificent and diverse garden. This story brings tremendous meaning and dignity to the realm of agriculture. As Christian gardeners we need to follow the example of the First Farmer and uphold the garden of Eden as a model to be pursued. The beauty of a healthy, productive and well cared for agricultural landscape should be a testimony to the Christian faith. Farming is a meaningful and noble way of life because God was the first Farmer and God has given farmers a special responsibility to care for their landscapes in the best way possible."

So how does it work? In terms of practical application, Farming God's Way is a Biblically-based approach to conservation farming, which is promoted in Africa as a form of climate-smart agriculture that both restores degraded land and increases crop

Craig Sorley leads a Farming God's Way training workshop

Mulching is used to protect the soil and improve water retention

yields. As well as reducing drudgery and labour for smallholder farmers by up to 50 per cent, this farming method nourishes the soil and enables it to retain water much better, which means it's particularly useful in dry areas. "Conservation agriculture is Farming God's Way without God. But it's the God part of this picture that really changes attitudes," says Craig Sorley. He explains the core principles:

- Minimal disturbance of the soil (no tillage) – the practice of plowing destroys soil structure including the micro organisms that live in the soil, leading to erosion and rapid water loss;
- Permanent organic cover in the form of mulch – in Farming God's Way, this is called 'God's blanket'. "In Creation we observe that God does not leave the soil bare," says Craig Sorley. Covering with protective mulch:
  - Stops soil erosion
  - Improves water filtration of the soil
  - Minimises evaporation of water from the soil
  - Adds organic matter, improving fertility
- No burning of crop residues – these are used to cover the soil instead;
- Weed faithfully – labour saved on plowing is transferred to regular weeding;
- Practice crop rotation – because God's garden was diverse;
- Pay attention to detail – "Since we serve a God of detail, we should give careful attention to everything on our farms throughout the year, including the proper spacing of plants, how fertiliser or manure is added, how seed is planted, etc," he says;

Maize crop with mulching used to protect the soil and improve water retention

- Pursue high standards in all things – "God is glorified when we strive for excellence";
- Incorporate trees into your farming system – "Agroforestry is not something invented by man, it is something God demonstrated in the very first garden. Agroforestry combines both agriculture and forestry with conservation practices for long-term sustainability," he says.

'If we restore the soil, we will bring more food into our families'

Craig Sorley has a demonstration farm at his training centre in Kijabe, west of Nairobi, where he grows crops using both Farming God's Way methods and conventional agriculture to compare how well they do. His plots are just two or three years old; with every year, the soil will become richer and more productive. Even so, he's already seen big improvements. In 2012 he harvested 89 kilos of potatoes from his Farming God's Way plot compared to 51 kilos of potatoes from the conventional

plot. His bean harvest was even more impressive – three and a half times as much from the Farming God's Way plot compared to the conventional plot.

"They are planted on the same day, same variety, same small amount of inorganic fertiliser applied and this is all rain-fed agriculture," he says. "The beauty of this is that it's simple, it's achievable, you use your own resources in the community – you don't have to bring in fertilisers and seeds from the outside – it's just a change in management and a change in commitment to the soil itself. If we restore the soil we will bring more food into our families."

His results are echoed elsewhere in Africa where similar techniques are applied. In Uganda, for example, the Ministry of Agriculture, Animal Industry and Fisheries reports crop yields up to six times higher with farms using conservation agriculture.

ARC funded Christian and Muslim faith leaders to attend a Farming God's Way workshop in Uganda. We are in discussion with the Ministry of Agriculture, Animal Industry and Fisheries, Uganda, on developing joint sustainable land management projects, with Farming God's Way at the heart of faith activities on the land. It will be the first example of how faith communities and governments can work together in a coordinated way on sustainable land management efforts, in a model that will, we hope, spread across Africa.

'Our land will be richer rather than more spent'

Augustine Muema Musyimi of the Methodist Church in Kenya, who attended one of Craig Sorley's Farming God's Way workshops, speaks for many when he says: "We've trained people to understand what the Lord says about farming and because we are Christians that really resonates with us. We feel that we need to take care of Creation and we need to take care of the way that we are farming, that it is a way that honours the Lord and glorifies Him.

"What do I think? That farming will be transformed across Kenya, that many people will learn to farm in a way that glorifies the Lord and our produce will increase and, more than that, that we will conserve our land and it will be richer rather than more spent."

FARMING WITH ISLAM

At ARC's Nairobi Celebration in September 2012, Muslim participants listened with great interest to the presentations on Farming God's Way. They were particularly struck by the way this Christian approach to farming both improved crop yields, protected the environment and linked a farmer's faith to the way he cared for the land. At the end they had a question: "What about Muslim farmers? Why isn't there a faith-based approach to farming for our farmers?" It was a valid question; out of one billion people in sub-Saharan Africa, 234 million are Muslim, and many are small scale farmers.

As a result of this call, ARC commissioned Global One 2015, a UK-based international Muslim NGO, to work with faith partners in Africa to develop an Islamic approach to sustainable agriculture. Like Farming God's Way, it would take a faith-based approach to farming, and would be based upon conservation agriculture in terms of practical application.

Developing Farming in Allah's Way

Work began to develop a Farming in Allah's Way manual and training programme inspired by Islamic teachings and beliefs. The first step was a thorough theological assessment of Islamic scriptures, followed by a study of Farming God's Way training manuals and teaching DVDs.

Two members of Global One 2015 went to Uganda and Kenya to attend an intensive three-day Farming God's Way workshop, sponsored by ARC, and to conduct a series of focus group meetings. Six people from ARC's Ugandan Muslim faith partners also attended the workshop, as well as representatives of Islamic Help Tanzania and the National Muslim Council of Tanzania (BAKWATA) which are also working on an Islamic approach to farming. Islamic Help is developing a programme to establish an 'EcoVillage' to improve the livelihood and address the needs of Tanzanian farmers, as well as a guidebook called Farm Islam.

Focus group meetings were held in Kampala with Muslim clerics and scholars, the Uganda Muslim Women's Vision, Uganda Muslim Teachers' Association and the Islamic University Uganda, to consider issues around Islam and farming. There was tremendous enthusiasm for the project from all involved. A meeting was also held with Stephen Muwaya, Sustainable Land Management Project Coordinator for the Ugandan Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) to discuss opportunities for collaboration between Muslim faith groups and MAAIF.

Global One 2015 followed up these focus group sessions with meetings in Kenya. Like their counterparts in Uganda, senior clerics from the Supreme Council of Kenya Muslims (SUPKEM), the highest ranking religious authority for all Muslims in the country, were also inspired by the project. As well as confirming that there was a wealth of knowledge in hadith and the Qur'an that supported sustainable agriculture, the SUPKEM senior clerics eagerly pledged their support.

They represent all the Muslim organisations, mosques and madrassas in Kenya, and have more than 6.5 million members. Several other meetings were held with religious authorities around the country. These included Dr Ibrahim Farah, a religious studies lecturer at Kenya University, and Dr Ali Sheikh, President of Mogadishu University, in the presence of various scholars, at the Nairobi campus. Finally, a field visit to Isiolo, Kenya, was conducted to scope out a permanent site for training which includes over 700 acres of arable land. The plan is to set up a permanent training site of local trainers for the Farming in Allah's Way initiative. This ambitious project has an estimated cost of $500,000 in the first phase.

Global One will also pilot this concept in Muslim madrassas in Kenya where there has been great interest. A mushroom farming project has begun in Uganda to increase food security and to support Muslim women to adopt new farming technologies in line with Farming in Allah's Way.

Next steps

A manual of Farming in Allah's Way will be published and developed further through practical application and testing on field sites in Uganda and Kenya. Longer term, the support of influential Islamic scholars and key Islamic foundations and think-tanks will be sought to promote the concept of a faith-inspired approach to sustainable agriculture throughout the Islamic world.

Women say "you can see the freshness in our children's faces" because they now have vegetables in the dry season. PHOTOGRAPH: REDGIE COLLINS

PUTTING FOOD ON THE PLATE

Faith groups are some of the biggest deliverers of relief and development in Africa – and not just to their followers. The Evangelical Presbyterian Church of Ghana has been working in the country's northern region for more than 50 years to support any community that is in need, whether Christian or Muslim.

One of its most successful projects is a dry season gardening project which has transformed the lives of people in a village in Yendi district, helping women feed their families at what is typically the leanest time of year. Traditionally farmers plant their main crops, such as maize, during northern Ghana's rainy season and then live on the proceeds of the harvest for the remainder of the year. In a good year, all is well but in a bad year, people go hungry.

The dry season gardening project encouraged women to grow vegetables out of traditional planting season for home use. They planted green leafy vegetables,

tomatoes and peppers. The most immediate benefit was access to fresh vegetables. "We plant and in three weeks, we can cut the leaves," explained one woman. This ready supply of food had a big impact on people's health: "You can see the freshness in our children's faces and also in the faces of the old people," she added.

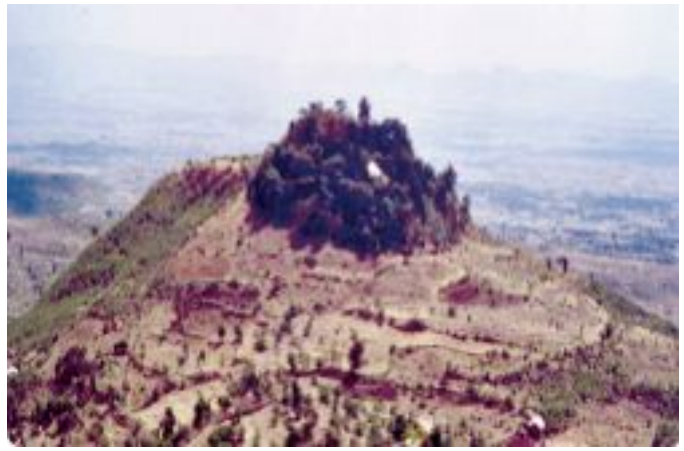
In fact, the women grew so much they were able to sell their produce and earn much-needed income for their families. The project was so successful that soon the men were volunteering to water their wives' plots for them to ensure the plants were well cared for. This project succeeded because a ready source of water – a dam built by Action Aid – was available; another project failed for lack of water.

BELOW: Families tend to their gardens in Yendi district, Northern Ghana.
PHOTOGRAPH: REDGIE COLLINS

ABOVE: This photograph, and the one on the next page, show how important the Ethiopian Orthodox Tewahido Church's monasteries and churches are to protecting Ethiopia's tree cover; 75 per cent are still surrounded by forests in contrast to the widespread deforestation seen elsewhere.
PHOTOGRAPH: MATTHEW JELLINGS

RELIGIOUS BUILDINGS AS ECO-MODELS

Faiths have rich assets at their disposal to champion environmental care. It is estimated, for example, that they own 8 per cent of the habitable surface of the planet and manage or own 5 per cent of the world's forests. Often they own church land and have numerous buildings from churches, temples, mosques and monasteries under their control. Introducing environmentally friendly practices into their buildings can be a powerful example of their commitment to environmental care. Many of the faiths see the potential of transforming their buildings into eco models for their communities – whether through practicing rainwater harvesting or installing solar power or other energy saving alternatives.



Monasteries and Biogas in Ethiopia

This is the case in Ethiopia where the Ethiopian Orthodox Tewhido Church, with 43.5 million followers, has 70,000 parish churches and more than 3,000 monasteries. Its monasteries have been traditional beacons of environmental care down the centuries – often the only place where trees have not been cut down and where biodiversity has been protected. Today, 75 per cent of its monasteries are still surrounded by forests – in marked contrast to the widespread deforestation and environmental degradation seen elsewhere in the country.

The Ethiopian Orthodox Tewhido Church is now proposing that its monastic communities act as pioneers for the introduction of environmental conservation and carbon trading, and that they become centres of demonstration and learning for improved agricultural practices, sustainable land management techniques and innovations such as the introduction of solar energy and biogas digesters. Such techniques and innovations are crucial to the livelihood of Ethiopia's people. While 85 per cent of Ethiopians earn their living from agriculture, declining soil fertility, unreliable rains and poor farming practices mean that more than 3.7 million people need food assistance.

ARC funded the installation of a biogas digester to produce an alternative source of energy at Sebata nunnery, just outside Addis Ababa in 2007. The methane gas produced from the biogas digester provides fuel for cooking meals for more than 105 schoolchildren and 215 orphaned children it supports. It also provides light for more than 60 dairy cows.

There was also training on organic, sustainable farming using the biogas byproducts. These are an excellent source of high quality fertiliser for fruit and vegetable crops. The farmer training was designed to have maximum impact at minimal cost in the hope that using more efficient farming methods, as well as the environmentally friendly source of organic fertiliser from the biogas digester, would lead to greater profits. These profits materialised and have, in turn, been fed back into the nunnery's schools and clinics and care of HIV/AIDS orphans.

Pupils from the Junior Secondary School at the Sebata nunnery help in the construction of the biogas digester.

The construction of one of the biogas digesters which is linked to new pit latrines; the nuns now use biogas for cooking and electricity

Installation of the biogas digester also means that more girls are able to attend school instead of spending valuable time gathering firewood. Direct health benefits also come from not using fuelwood as a source of energy. Many women and children who spend long periods in the kitchen suffer from respiratory problems as well as eye irritations because of the smoke from fires.

Today Sebata nunnery is used to demonstrate the working of biogas digesters and sustainable farming techniques to government staff and members of the local community. The nunnery is also supplying organic food crops (cereals and vegetables) as well as milk to the surrounding community at a reasonable price.

Since then ARC supported the installation of two further biogas digesters in Elala Betedengel and Dibbo nunneries in Ethiopia's Tigray regional state. Installation was carried out by the development wing of the Ethiopian Orthodox Tewahido Church – the Development and Interchurch Aid Commission – and its Tigray Diocese Development coordinating office in co-operation with the Rural Energy Supply Desk office at Mekele town. Here, again, the aim was help the two nunneries become

learning centres for the use of alternative energy for the local community and to provide training in sustainable farming techniques using the biogas byproducts.

Two biogas digesters, with a capacity of 10 cubic metres, were constructed at each site along with two communal improved pit latrines. Pit latrines were connected to the biogas digesters to supplement the energy supply to the two digesters, encouraging the local community to address environmental hygiene, and pipes were installed to connect the biogas digesters to stoves and lamps. This has provided the nunneries with energy for cooking and lighting and improved the sanitation of the area, for example, reducing open defecation. It has also reduced pressure on natural vegetation, protecting natural resources from tree cutting for firewood and subsequent land degradation as well as alleviating the burden on the nuns to collect fuel wood, and providing a source of organic fertiliser for their farmland.

Another biogas digester is currently being installed at Waldba Dalsheh and Chuge St Mariam nunnery. In addition to the biogas installation the initiative will train 40 farmers from the surrounding community on sustainable farming. ARC is supporting the installation of biogas digesters in a further six monasteries. It is hoped that this will pave the way for monasteries to serve as centres of learning and demonstration for sustainable farming techniques and use of small-scale biogas digesters.

Mosques in Ethiopia to go green

There are 40,000 mosques in Ethiopia serving around a third of Ethiopia's population of 77 million. Now, through the Ethiopian Islamic Affairs Supreme Council, and with ARC's support, mosques are about to embark on a two-year, mosque-based, tree planting project.

This tree planting project supports mosques to establish their own woodlots and tree nurseries with a view to achieving self sufficiency in wood supply in four to five years when the trees are mature for harvesting. Woodlots will be set up using volunteer Muslim labour. This is a much needed initiative as many of Ethiopia's mosques have been constructed using wood harvested from local forests. Currently, the demand for wood has nearly doubled due to the increase in the Muslim population and the construction of more mosques.

The Eco-Mosque Approach

The programme will be piloted in nine mosques and is designed to be replicated through other areas and scaled up once shown to be successful. Four mosques will create tree nurseries, and each mosque will plant at least 10,000 trees. It will be underpinned by three days of national level training in environmental protection for more than 100 selected Muslim leaders with training for 25 imams in each of the target districts. This is the first time mosques have been engaged in a drive to promote environmental protection in Ethiopia.

Church land as demonstration sites

Using church land to spread good practice of environmental care is an idea that is also being promoted by the Ethiopian Evangelical Church, Mekane Yesus. With more than 5.8 million members, it is one of the biggest Lutheran church organisations in Africa and is growing fast.

Supported by ARC, it now plans to set up five nurseries on church land to act as demonstration sites for the students of Ejaji Bible School and church communities at five different congregations. There will also be training in making and using energy-saving stoves and in how to conserve water. This will then be taken up by 24 target church congregations whose members will be trained in the sustainable use of natural resources. The Church hopes this will be a pilot project pioneering the widespread greening of church compounds and land.

OPPOSITE: Nambi Aliziki, leader of the Gomba Women's Environment Project, addresses members, Gomba, Uganda

THE POWER OF WOMEN

"I am concerned about the wounds and bleeding sores on the naked body of the Earth. Have we not seen the long-term effects of these bleeding sores? The famine? The poverty? We are responsible, directly or indirectly. We are strangling the Earth."

Wangarí Maathaí, founder of Kenya's Green Belt Movement and 2004 Nobel Peace Prize winner

WOMEN-LED TREE NURSERIES

Women are often the farmers in Africa – producing 80 per cent of food in the global south. They are often also the main bread earners, carrying prime responsibility for raising the family. This central role is reflected in Africa's faith structures too. Women's organisations and groups such as the Mothers' Union, the Christian Women Association, the Muslim Women Association, the Woman's Guild or the Christian Women Fellowship are the heart of the life of faith groups.

Not surprisingly, women's groups have been to the forefront in designing environmental action proposed by the faiths. They know firsthand how food production has been greatly impacted by climate change and environmental degradation. They know, too, that they are the ones who cut trees for firewood and charcoal, selling it to earn an income and sustain their families. In some areas, such as in the Maasai area of Tanzania, women are also responsible for house construction, requiring poles for building houses as well as trees for firewood.

Women-led tree nurseries run by the Northern Diocese of the Evangelical Lutheran Church of Tanzania

Here, the example of women in the Northern Diocese of the Evangelical Lutheran Church in Tanzania is inspiring. The aim is to establish a women-led tree nursery in every parish in the Diocese. This would not only give the women involved new skills in nursery management and agroforestry but also enable them to earn money to put food on the table and send their children to school. In June 2012, the President of Tanzania, Dr Jakaya Kikwete, initiated his country's Environment Day by coming to one of the women-led nurseries of the Diocese to plant a tree. The demand for seedlings from the new nurseries has come from the parishes of the Church – fuelled by the drive to plant trees.

Women-led nurseries: how they started

ARC gave the Diocese some seed funding money to set up three women-led tree nurseries and to organise training for women in nursery establishment. There are now 21 groups of women who have established tree nurseries in different parishes. The women are highly motivated and trained and supervised by an ex-forester, Mary Ali Mwfute, who attended ARC's Nairobi Celebration in September 2012 to launch the long-term plans on environmental action.

Plastic bottles, large or small, with drip holes on the lid and bottom, allow small amounts of water to flow from the bottle to the base of the sapling

'A dream of so many trees you can't see through them'

Mary Ali Mwfute is based in Moshi on the slopes of Mount Kilimanjaro. She started her working life with the Tanzanian Forestry Department but has run her own nursery since 1996. She started on a three-acre patch of land next to the forest, with three employees and around 8,000 saplings, and now she has 20 workers and 1.3 million seedlings. The key areas of her work are growing and distributing saplings and sharing her skills and experiences with others. Speaking through her colleague Elimringi Abraham Maringo, she told us about her work and her passion for growing trees.

Can you tell us about your relationship with the Evangelical Lutheran Church in Tanzania?

The Bishop encourages believers in all parishes to grow trees. So when somebody registers for confirmation they have to plant 10 trees around their homes and they have to take care of them for the first two years until after the second rainy season when they are able to look after themselves. The same is for weddings. The aim is to encourage those people who are getting married to plant a tree as it reminds them of their wedding day. And they say 'Oh yes, when I was married….' And when they see someone trying to cut the tree they say, 'No, you must stop', and they feel a direct relationship, perhaps even a blood relationship, with that tree.

Tell me more about the confirmations.

The class starts every year, and runs for two years. It was introduced three or four years ago. I think that it will result in a forest so big and dense that you cannot even see through it and that is the intention. We have a dream of having so many trees that you can't see through them. The Bishop said that we must plant like mad, because people cut like mad. We can thin it later, and that will be good firewood.

Do you teach people how to look after the saplings?

Yes, very much. Before they take them I train them in how to plant and how to take care. We talk to villages and people in the church, and we encourage schools to plant trees and they come to me and they get some training. It is primary and secondary students and sometimes even college students. This is important for everyone.

What trees do people want to buy?

They like trees for fencing, and also decorative ones, fruit trees, mangoes. Some of my trees have already been harvested. They are the type of trees that grow very quickly such as grevillea robusta and acrocarpus – timber that is useful for furniture and buildings.

Mary Ali Mwfute and her colleague Elimringi Abraham Maringo planting trees

What techniques can you pass on?

I reuse plastic water bottles to slowly water the seedlings. It is simple: we fill it, make a hole in the lid and then turn it upside down and let it drip slowly. I also teach grafting for mangoes and oranges for better production. And I want to pass on patience. Often people don't want to plant things that take time. They often want to see results in six, nine months, but of course it doesn't work like that.

In the future?

It is the children or young men who do not know how difficult it is to grow a tree who will cut them easily. They think that cutting an acre is equal to growing an acre. But it takes only a few minutes to cut and maybe another 50 years to grow the same size of tree. I hope that people will understand that if you have your own forest lot, you grow trees at different times. Then when they get to a certain height and you cut them down, you still see forest. Even if you cut, you will still maintain the forest.

How to set up a tree nursery

We asked Mary to explain how to set up a women-led tree nursery. This is her guide.

What is needed:

- *Equipment*: Wheelbarrows, hoes, mattock, bush knives, rack, coffee tray wire, water hose, watering cans, vegetable soil and fertilizers (salt).
- *Assistants*: A few people are required: 8 to 10.
- Parishes select the women to be trained. These women do not have to invest money, just their time.
- Women receive training on entrepreneurship and how to plant and care for trees, how to establish a tree nursery and why we should grow trees, climate change and global warming.
- To set up a tree nursery takes six months until seedlings are ready to plant.
- The land is provided by the parish/diocese.
- The initial size of land required is a quarter of an acre (35mx35m) for a seedbed of 10,000 seedlings. The land should slope a little (1-5%) to help drain the land.
- Clear the land of all weeds and then dig using a hoe/mattock and later rake to remove all vegetable matter and stumps.
- We use soil from the forest. This is sieved to remove unwanted vegetable matters. Add approximately 28g of fertilizer for each five wheel barrows of soil. After thorough mixing, then water is added to a workable mix.

Filling polythene tubes with soil

Sowing of seeds into polythene tubes

- Polythene tubes about 15cm high and 10cm diameter are filled manually with this soil and laid in line on a well prepared base.
- Selected seeds, depending on type and local climate, are sown in the soil-filled polythene tubes, one or two seeds per tube.
- Watering is done for the next six months. During these six months, the seedlings are sorted to see which ones are strong, sprayed for insects and fungus. They are root pruned so that they do not grow strong roots at the nursery bed, to ensure their survival.

General advice on planting

- When trees/saplings are planted in farms, they need to be planted well. Holes are made into the ground about 20 cm deep and 15cm wide. Saplings are then put into these holes, backfilled and watered to start with.
- These are then watered continuously as they grow, as well as weeded and pruned to a level where they no longer need to be watered frequently. This may take within four to six months. It is good to plant trees during the rainy season because less watering is needed.
- In dry spells, watering is done using plastic bottles, better known as drip irrigation. Holes are made through the lid and bottom of these bottles to allow small amounts of water to flow from the bottle to the base of the sapling in the ground. In this way a small amount of water sustains the sapling/young tree until the rainy season, thus keeping it alive. This is one method of keeping the survival rate high.

Plastic bottles with drip holes allow small amounts of water to the base of the sapling

Challenges

- Cost and effort of watering and water availability: Sometimes you need to hire water tank carriers to ferry water and buy plastic 'simtanks' storage tanks of 1-5 sq m to store water for irrigation. Irrigation is done by spray watering, using cans or hoses as necessary. Survival depends on good watering and care.
- As the seedlings grow, regular follow up is necessary to ensure that the process is done well and corrected where wrong.
- Sustainability: Guaranteeing sales through the children's confirmation tree planting project is important because this is a stable and consistent market. The women-led tree nursery project supplies seedlings to the children's confirmation tree planting project. Money is needed to buy the seedlings for them. Each sapling/seedling bought costs 500 Tanzanian shillings; if you adds transport to take the seedling to where it will be planted, the final cost may be around $1. We need to expand our nurseries, in terms of land and number of seedlings, to become sustainable.

The seedlings are watered contiously as they grow

Making this initiative sustainable

Moshi is the main town in northern Tanzania, situated on the lower slopes of Mt Kilimanjaro and the headquarters of the Northern Diocese of the Evangelical Lutheran Church of Tanzania. ARC supported the Diocese's children's tree planting project in Moshi in order to assist the women's tree nurseries through the sale of additional seedlings. That additional income has been used to increase the scale of seedling production to promote sustainability.

This follows a vote of confidence from the municipal authorities of Moshi town who were impressed with the tree planting activities of the Diocese – by the excellent survival rate of the trees planted and by the engagement and commitment of the women involved. They also responded to a request by the Diocese to provide some appropriate land for confirmation children to plant their seedlings. The Municipal Council allocated a large strip of land alongside the Rivers Rau and Karanga running right across the town. The banks of these rivers and the area are threatened by erosion due to human activities.

The Diocese has begun by planting one area of about 50 acres, requiring about 25,000 saplings. Twice a week the children water their trees drawing water from the rivers using watering cans. ARC funding helped purchase seedlings from the women nurseries. The income from selling these seedlings provided the women with additional money to develop their nursery beds for the next season and hence make the nurseries more sustainable.

Almost 6,000 children in confirmation classes took part in this seedling planting project in 60 parishes in the Diocese. The Diocese is now committed to expanding the nurseries project and to making it self-sustaining. This year it will set up a further 10 demonstration nurseries in 10 parishes. Mary explains: "We have five church districts covering Kilimanjaro Region and part of Arusha Region. In each district we plan to establish two demonstration nurseries in two parishes – 10 in total. These will be expanded to produce up to 100,000 seedlings. From these demonstration nurseries, other nurseries will be developed in other parishes within the district.

"The demonstration nurseries will be small to start with. In time they will be expanded to become sustainable. They will also be open to the general public who might want to establish their own small nurseries at home."

How this could be replicated

The idea of women-led nurseries has been taken up by the Bunyoro Kitara Diocese of the Church of Uganda. There, supported by ARC, the Christian women's group, the Mothers' Union, has set up a pilot nursery at Kigaya Archdeaconry and a further three nursery beds at the Archdeaconries of Kagadi, Bulindi and Kakumiro. This has trained 30 Mothers' Union members in nursery bed management. It is hoped to extend this scheme to 24 parishes in the Diocese.

Working with the Mothers' Union is crucial here. The women provide labour at the nurseries free of charge as their Christian service to the community. The Mother's Union is a global movement, which has a widespread and respected network throughout the Anglican Church in Africa. This could lead to successful replication or twinning of Mothers' Union groups in the global north and south to support the idea. There are 1.3 million Mothers' Union members in African dioceses.

As in Tanzania, demand for seedlings from the nurseries in Uganda is high as every parish in the Bunyoro Kitara Diocese must plant annually a woodlot of pine trees and every candidate for confirmation and baptism must plant a tree.

RIGHT AND OVER PAGE:
Children plant and water trees as part of their confirmation into the Evangelical Lutheran Church of Tanzania

GOMBA WOMEN'S ENVIRONMENT PROJECT

Women farmers may be the pillars of African agriculture, yet they face an uphill struggle. Traditional inheritance laws means land often goes to male relatives. Women also tend to have less access to money or resources, and often have less time to work their plots due to their other family responsibilities. In Gomba District, Uganda, a faith-based initiative seeks to change that by helping them protect the environment and improve their livelihoods at the same time.

Creating a 'greener and better Gomba'

Hadijah Namuli Semwanga and her husband Hamdan Semwanga have always grown cassava on their farm in Gomba, Uganda. But it is only in the last two years that they have grown enough to sell to the cars that travel two to three hours from Kampala to buy this staple of Ugandan cuisine to sell in the city.

The profit they made from their cassava last year was enough to buy a secondhand motor cycle and a young calf. Dung from the calf is spread on their fields, nourishing the soil further, and soon they will begin harvesting their passion fruits, one of the new crops they have been encouraged to grow in between the rows of potato in their fields and supported by the newly planted ficus trees.

Hadijah Namuli Semwanga (left) shows Hajjat Aphwa Kawaase Sebyala her farm in Gomba, Uganda

A new harvest of cassava ready to be transported for sale in Kampala

These are some of the real financial benefits that have come to Hadijah and Hamdan following Hadijah's participation in the Gomba Women's Environment Project. She is one of 32 women from five mosques in Gomba district taking part in the initiative which began in 2011 with ARC support. She had to seek permission from her husband to take part but he is now equally as enthusiastic about the project as she is. The project is aimed at reducing the number of trees being cut for firewood, planting at least 12,000 new trees every year, and developing environmentally friendly income-generating activities to improve the women's livelihood.

Gomba-based project leader Nambi Aliziki says: "We started with 20 members and more joined later. Our mission is to sensitise people to be aware of the environment. The project started with tree planting and every member has to plant 300 trees. We also do poultry keeping and rear animals. Some have goats, some have cows. We also have stoves which use only a little firewood, and water tanks for harvesting water."

The Semwanga family's farm, where they have planted trees among the crops

Intercropping food crops among trees

A key strategy in the project is intercropping, where trees are planted among food crops. Project director Hajjat Aphwa Kaawaase Sebyala explains that people were not aware that they were damaging the environment when they cut down all the trees before planting.

"Our people are not sensitised to environmental issues. They have cut down all the trees in Gomba and our hills are bare, the rains are not coming and we have prolonged drought. They are not aware of the use of trees in preserving the environment," she says. "We advise them to leave the trees and plant the beans or maize or coffee under the trees. Now all our people are asking for seedlings because they are aware that the environment is very important, and those who have cut trees are replacing them. In the next few years we should see a better and greener Gomba."

The trees planted range from fruit trees, such as paw paws, mangoes, oranges, jackfruit, guava or avocado, to indigenous species such as ficus natalensis (also called matuba or Natal fig), used for fuelwood, fodder, windbreaks or to make bark cloth, or pine, grown to sell commercially for construction.

One member has established a tree nursery, selling avocado and jackfruit tree seedlings to other members at a reasonable price and earning money for herself at the same time, as well as planting them on her land. "In two or three years she'll get the fruits from these trees," says Hajjat Sebyala. "She'll also be answering Sadakatul Jaria (everlasting gift to Allah), the teachings of Islam that you have to plant a tree and care about the environment."

Water harvesting

Another critical aspect of the project is water harvesting. When the first tree seedlings were planted, the survival rate was around 50 per cent. But once water harvesting was introduced, this increased to 80 per cent, says Hajjat Sebyala. Large water tanks, holding between 5,000 and 10,000 litres, have been erected at each of the five mosques for use by community members. Smaller water tanks, holding 1,000 litres each, have been established in 10 households, while five water reservoirs have been dug in members' gardens.

One of the water reservoirs built by the Gomba Women's Environment Project

The water reservoirs are lined with heavy duty polythene and used to store water in the rainy season ready for use during the dry season. "When the rains came, previously we were not harvesting it," says Hajjat Sebyala. "Now we are harvesting it and we will use it to water the plants in the dry season."

The water bottle drip feeder

As in Tanzania, the women in the Gomba group have found that the most useful tool transforming the chore of watering is the recycled plastic water bottle which drip-feeds a constant supply of water to individual tree seedlings. Each water bottle is pierced several times underneath, filled with water and tied to a seedling or to a support near a seedling. The rate at which the water seeps out can be regulated by tightening or loosening the lid; the tighter the lid, the slower the rate of water flow. It can take up to a week before the water bottles are emptied of water, enabling farmers to provide plants with much needed moisture at the driest time of the year, ensuring healthier, stronger crops.

Hamdan Semwanga checks the plastic bottle that is drip-feeding a seedling

Gomba Green Brigade

To help members of the Gomba Women's Environment Group, Hajjat Sebyala set up the Gomba Green Brigade, made up of young adults, to carry out some of the more arduous tasks, such as digging water reservoirs. Brigade leader Katanza Baker says the 15-member group also helps build energy efficient stoves and make charcoal briquettes. The work brings much needed extra income to members. "Some of us have used that small income we got for our education, others to boost their family income. Others have bought bicycles to enable them to transport their small produce to nearby markets. One of our members has bought goats and now has about 10 of them," says Katanza Baker.

"We are very happy with this project because apart from getting the money and boosting our families, we have got another perspective about the environment. Usually, when someone wants to practice farming, they first cut down all the trees and then plant the beans or the potatoes. But due to the sensitisation we got from Hajjat, we have learned that farming can be done with environmental conservation."

Fuel efficient stoves

Most people in Africa cook on a traditional three-stone open fire which uses large amounts of wood and also creates a great deal of unhealthy smoke. The Gomba Women's Environment Project has built 20 fuel-efficient stoves for its members, which use up to half of the firewood needed by open stoves. Not only does this save trees from being cut down (as well as the time needed to collect firewood) but it also produces less smoke which causes fewer respiratory problems. The fuel efficient stoves are made from a mix of soil, clay and sand. There are several different types of energy saving stove available; Gomba women favour the large fixed stoves with a chimney, which have space for two or even three pots.

A survey by Green Africa Foundation in 2010 found households used at least 10kg of firewood every day – amounting to 5.6 million trees cut down daily for houshold use in Kenya alone. Studies also show that people can travel up to 50km to the nearest town to buy kerosene or spend more than five hours gathering firewood. A guide to encouraging clean energy in households, such as solar lanterns and charcoal briquettes, has been produced by GVEP International, called *Review of Household Clean Energy Technology for Lighting, Charging and Cooking in East Africa – Kenya and Tanzania*, funded by the Africa Biodiversity Collaborative Group. You can download it from http://tinyurl.com/la6xdwe.

Charcoal briquettes

Charcoal briquettes provide an alternative, more environmentally friendly source of cooking fuel made from agricultural wastes such as maize stalks, banana fibres and bean or coffee husks. Green Brigade member Kayingo Ali explains: "We collect the wastes and burn them in a mini furnace; we then remove the ash and mix it with water." The ash/water mix is put into a molding machine (in the shape of a tube of metal), with metal plates inserted every few centimetres to separate the briquettes, and mechanically pressed to squeeze out the water.

The resulting circular briquettes are removed and placed in the sunshine to dry. When ready for use, they burn slowly and without smoke. To date, the team has made around 3,000 kg of charcoal briquettes for sale. "These briquettes help reduce the rubbish in homes as well as the need to cut down trees for firewood," says Kayingo Ali. "Not only do we use them for cooking, we also sell them and earn some income."

Waste residues are placed in the molding machine and pressed to make charcoal briquettes

Views from the members

Margret Setumba: "This programme embraces all in the community, even we Christians are members, I am able to feed my family and send both my children and orphaned grandchildren to school."

Madina Tebasoka: "This project has enabled me to pay fees for my children with the little income it has helped to generate. As women we were helpless before this project."

Nantali Sarah: "My avocado project has helped me pay school fees for my children."

Nambi Alizik: "I bought 150 chicks and was able to raise 130 layers. With the profit, I immediately bought another 200 chicks. I can get daily income from the eggs that I get from my layers. Each tray of eggs is 7,000 Ugandan shillings and I sell four trays a day giving me a daily income of Sh.28,000."

More information:

Hajjat Sebyala has produced a number of videos about the Gomba Women's Environment Project. They are available to watch on YouTube:

Gomba part one: http://tinyurl.com/cm9vrkm
Gomba part two: http://tinyurl.com/czvt53d

Women for Change in Zimbabwe

The United Church of Christ in Zimbabwe drew up a long-term plan on the environment committing each member of the Church to plant five trees each, totaling half a million trees. Women are largely responsible for delivering that target as they make up two thirds of the Church's 300,000 members.

Many are members of the Church's Women's Union (Ruwadzano). They have a Council of their own and meet every year in large numbers. They have decided to champion environmental issues and have formed pressure groups to protect springs and stop riverbank cultivation, grow flowers and fruit trees at home and participate in national tree planting events. This enthusiasm led the Church to organise workshops of its own for its women's groups in environmental stewardship and tree planting. A Pastors' and Women's Climate Change workshop was held in 2010 for more than 100 women to discuss climate change and how to initiate environmental activities to mitigate and adapt to climate change.

Following this ARC sponsored a workshop on the environment and climate change for 177 women from the three Conferences or Provinces of the Church. The workshop offered practical training in tree planting, tree care and species selection and demonstrated the benefits of agroforesty. In addition, a further two-week 'training of trainers' course was sponsored for 25 women focusing on tree planting and species selection as well as understanding rainfall pattern and its impact on food production and climate change adaptation measures.

The Church now plans to train 25 women in tree nursery planting per church, to establish tree nurseries on all church sites, hospitals and schools and to organize annual field days to launch tree-planting initiatives. Here, once again, we have an example of the potential for women and womens' groups to be champions of environmental care.

THE POWER OF TREE PLANTING

"He that planteth a tree is a servant of God, for he provideth a kindness for many generations, and faces that he hath not seen shall bless him."

Presbyterian minister and writer Henry van Dyke (1852-1933)

TREE PLANTING WITH RELBONET IN NORTHERN GHANA

Tree planting is major focus of action for the 27 faith groups that drew up long-term plans to protect the environment. Between them, they plan to plant more than 43 million trees in the next seven years. Tree planting is often top of the agenda for faith groups keen to commit to environmental care. One reason is that it offers a practical way of addressing the serious problem of deforestation experienced in so many countries. Another is that it provides an entry point to faith discussions and activities on the environment. Tree planting is something everyone can do, it has tangible benefits and the results can be seen quickly. It is often the first step in environmental awareness and action.

ARC linked up with RELBONET, an interfaith body in Ghana, West Africa, to provide agroforestry training to Christian and Muslim representatives in northern Ghana. For many, it was the first time they had discussed environmental issues in the light of their faith beliefs and practices.

The Religious Bodies' Network on Climate Change (RELBONET) was established in Ghana in 2010 to give the faiths a voice in environmental issues. It is made up of more than 10 major Protestant, Pentecostal and Charismatic religious bodies as well as three major Muslim organisations and the Federation of Muslim Women's Associations. Between them, the members of RELBONET reach five million Ghanaians a week.

Mobilising the community

From its earliest days, one of RELBONET's key concerns has been the high level of deforestation experienced in this West African country, particularly in the drylands of Northern Ghana. The country as a whole has lost 33.7 per cent of its forest cover, or around 2,508,000 ha, between 1990 and 2010, according to UN and Ghana Forestry Department figures.

The losses in Ghana's hot dry northern region, however, are particularly severe. Once covered in thick forest, today this region is characterised by desertification, semi-desert and wasteland. Deforestation by farmers and charcoal burners, combined with recurrent drought and overgrazing, has led to environmental degradation – depleting soils, damaging water sources and impacting agricultural yields.

REGGIE COLLINS

ABOVE AND RIGHT: Wood cut for use as firewood in Northern Ghana, and stacks of charcoal for sale in Uganda

Charcoal production is a particular problem. Virtually everyone uses wood for cooking and charcoal production is often the only source of income for farmers during the lean months in between harvests. As more trees are cut down, women and girls are forced to go further afield to find fuel, which is immensely time consuming, physically dangerous as well as enormously environmentally damaging and, ultimately, unsustainable. Promoting tree planting – for food, fodder, fertiliser, fuel, construction and shade – has been highlighted by bodies such as the World Bank and the World Agroforestry Institute as a key strategy to reduce soil, water and environmental degradation and improve livelihoods.

Agroforestry workshops

Faith groups have also highlighted tree planting as an important environmental activity. Supported by ARC, two workshops on tree planting and tree nursery management were held in Tamale, capital of Northern Ghana, for Christian and Muslim faith groups. The first workshop was delivered by Tree Aid, a British NGO that has more than 20 years of experience in helping communities in Africa's drylands to maximise the benefits of trees for food security, income generation and environmental protection.

It aimed to share experience, best practice and project management skills, both in terms of appropriate tree species selection (for environmental, livelihood and food security benefits) and also in terms of community engagement. The second workshop was run in conjunction with the Ghana Forestry Department and was focused on practical aspects of tree nursery management and growing seedlings.

As a result of both workshops, the faith communities planted nearly 24,000 seedlings in northern Ghana in 2012. RELBONET coordinator, Charles Agboklu, reports: "Planting took place in the months of June and July when rains were heaviest and the seedlings expected to be very well established before the dry season. A total of 23,900 seedlings were actually planted and the average survival rate is 72 per cent, covering a total land area of 32 acres. The deficit was the result of loss and shock encountered during transportation and a swap of tree seedlings for fruit seedlings, which resulted in fewer seedlings planted at Tumu Deanery."

In addition, RELBONET's lead organisation, the Evangelical Presbyterian Church of Ghana, started tree planting in the new community of Adaklu Waya in the Volta Region on a five acre plot. "A total of 5,000 seedlings were planted, out of which

Agroforestry workshop supported by ARC for Christian and Muslim leaders in Tamale, Northern Ghana

Above:
Following the workshop, 24,000 seedlings were planted by faith groups in and around Tamale, Northern Ghana

Right:
A woman harvests wood from one of the Evangelical Presbyterian Church's community woodlots in Northern Ghana

a survival rate of 80 per cent was recorded," says Charles. Two new nurseries have also been developed at Dambai and Ho in the Volta Region, growing a total of 15,000 seedlings, including oil palm, melina, teak, moringa, cassia, mahogany and mangoes.

"These seedlings will become the storehouse from which the next year's tree planting activities start," says Charles. "In total, 32 acres of vegetation cover have been restored to Ghana, which go a long way to contribute to mitigating the negative effects of climate change in Ghana, especially Northern Ghana, where studies have shown that climate variability contributes to poverty through food insecurity, and seasonal migration."

Planting seedlings as part of the Hindu Religious and Service Centre's tree-planting efforts in Nairobi, Kenya

HINDU RELIGIOUS SERVICE

It's easy to focus on how many seedlings are planted but what's important is how many survive. The Hindu Religious and Service Centre started its first tree-planting project in conjunction with the Hindu Council of Kenya in 2005 and now has four projects underway. Here, Dr Minesh Shah shares its experience in how to succeed in tree planting.

We began our project in 2005 because we wanted to help Kenya achieve its target of 10 per cent forest cover from the current three per cent. Also, as Hindus, we call the Earth our mother and revere nature. The Hindu religion preaches that we must endeavour to bring a balance in nature.

We realised that most tree projects have a survival rate of 20-25 per cent so we made a conscious decision to aim for at least 80 per cent survival. In our project, tree planting is done twice a year, at the start of the rainy season, and to date we have planted 61,200 trees with a survival rate of close to 90 per cent.

Our Recipe for Success

1. The local community in the area must be involved and benefit from the project – by supplying the seedlings, labour, after care, and so on. Where possible, there should be some other benefit to the local community too. In our project, they are encouraged and supported to start their own nurseries from which we purchase the seedlings. We pay the local community to look after the seedlings for at least a year after planting, with the caveat that if a seedling dies, they must replace it themselves. If the local community performs well, we source additional

sponsorship such as school fees. This keeps the community motivated to continue in the aftercare of the planted seedlings.

2. The tree planting committee is made up of committed volunteers who give 'honorary service' to the projects. This means we have minimal or no admin costs so that a large percentage of the budget goes directly into tree planting.

3. The seedlings should be of a good mix, good size, indigenous and of environmental benefit to the area and preferably from a local nursery to avoid the shock of transplanting and minimise transport costs.

4. The volunteers must be educated on the activity and importance of tree planting; we also get a forestry expert to show them how to plant the seedlings correctly.

5. Planting is done at the start of the rainy season (in Kenya this is March/April and October).

6. There should be a water source nearby.

7. The site should be protected from trespassing and grazing animals.

8. The cost of seedlings, labour and aftercare must be reasonable. We pay Kshs 20-60 per seedling, depending on species, and Kshs 60-120 per seedling for labour, depending on the community and location. This includes digging the hole, transporting the seedling to the planting site and nurturing, weeding and watering for up to one year post planting.

9. The local community must give regular reports (every four to six months).

10. We carry out impromptu monitoring every six months or so to verify the reports and count the surviving seedlings.

Dr Minesh Shah

A COMMUNITY FOREST IN UGANDA

"If a Muslim plants a tree, whatever is eaten from it is his charity and whatever is stolen from it is his charity. Even what is lost from it is his charity. If a Muslim plants a tree or sows seed and then men or beasts or birds eat from it, all of it is charity from him."

– Hadíth

When the Muslim community in Lugazi, a small town in Buikwe District, Central Uganda, decided to launch a community land project, the temptation was to plant it with sugar cane. Lugazi is in the heart of Uganda's sugar country, home to the giant Sugar Corporation of Uganda's 10,000 ha plantation, among others.

Lugazi Muslim community did indeed plant their 10-acre plot of land with sugar cane. But after a visiting preacher spoke in the mosque about the importance of trees in 2009, they decided to turn it into a community forest instead. Recalling the debate, Hajj Abdul Mubarak, treasurer of Lugazi mosque, says with a chuckle: "We were battling with the sugar cane growers and we defeated them. They wanted to sponsor us to plant sugar cane, but we chose trees because people are cutting down too many trees, and this is contributing to climate change. We came thinking we would do a small project and we ended up doing a big one – we've planted more than 10,000 trees."

Left: Imam Kasozi and Hajj Abdul Mubarak outside Lugazi mosque's community forest, Uganda

Above: Imam Ibban Iddih Kasozi hands out tree seedlings after Friday prayers, Uganda

The tree loving preacher who inspired Lugazi Muslim community was Imam Ibban Iddih Kasozi, Vice National Chairman of the Uganda Muslim Youth Assembly. In 2009 he had attended the British Council's interfaith forum on climate change. When asked what actions he personally would undertake, he pledged to plant 6,000 trees (he has since in fact planted 42,000) and to preach on climate change and the environment in mosques throughout Uganda.

The forest of 3,000 trees planted by Kiryasaka Muslim Primary School, Bukomansimbi District, Uganda

"We came thinking we would do a small project and we ended up doing a big one – we've planted more than 10,000 trees."

In 2011, he attended ARC's meeting of African faith groups in Nairobi, Kenya, together with Muguluma Hamed, Executive Director of Humanitarian Efforts and Relief Uganda (HEAR Uganda), to discuss developing a long-term action plan on the environment. As a result, a year later Imam Kasozi and Muguluma Hamed launched their Green Top Tree Planting Project aimed at planting 2.5 million tree seedlings for fruit, amenity, and agroforestry purposes over the next seven years.

Hajj Abdul Mubarak recalls the impact of Imam Kasozi's sermon. "Imam Kasozi gave us a lecture in the mosque about tree planting and offered us seedlings. Jokingly we said, we have land. He said, can I see the land? We came here," he recalls. "The following day, he gave me seedlings which I started to plant. And when we planted, those sugar cane people said they were going to sponsor us, they were going to give

us money. But we said no, we decided to go for nature rather than sugar cane. After realising the importance of trees, we, as the leaders of the Muslim community, said how could we fail to do this?"

"After realising the importance of trees, how could we fail to do this?"

Working in partnership with UMYA and HEAR Uganda, the community has planted 10 acres with trees chosen for their speedy growth and commercial potential. "Insha'Allah, in future, this will be used for community support for wood and fuel rather than cutting the other natural forests that are in the neighbourhood," says Imam Kasozi. The whole community has been involved in the project, helping to plant the trees and maintain the land. Income from the forest will go to support Lugazi mosque's charitable activities, for example, caring for orphans.

The message is spreading. Hajj Abdul Mubarak says: "I tell people, whoever has land, plant at least 10 trees. And people are planting. I have also brought leaders from outside mosques to see the forest. We want this place to be environmentally protected and without trees the environment will not be as we all need it to be."

Imam Kasozi and Muguluma Hamed have spread their tree planting message far beyond Lugazi, helping many Muslim communities establish forests. These include Buyita in Mukono District (7,500 trees), Ali Bin Abutwalib Islamic Centre, Kikooto (7,500) and Kiryasaka Muslim Primary school in Bukomansimbi District (3,000), Aisha Girls High School (6,000) and Kibibi Secondary School, Butambala District (4,000), among others.

PROTECTING COMMUNITY WOODLOTS IN NORTHERN GHANA

It is not enough simply to plant trees. Aftercare is vital if the new seedlings are to survive and flourish. In Ghana, the Evangelical Presbyterian Church of Ghana takes a proactive approach, creating firefighting teams at the same time as it develops community woodlots.

Bushfires are a major and recurrent hazard in northern Ghana. The tinderbox conditions of this semi-arid region provide plenty of natural opportunities for fire to break out but human activities are also a major cause of fire. Farmers frequently set fire to their land in the mistaken belief that this is the best way of clearing it for the next planting season and hunters use fire to flush out wildlife. All too often, these fires rage out of control causing major environmental damage over a wide area, destroying crops and homes and even threatening human life.

Charcoal burners also pose a fire hazard. This is a major industry in Ghana because of the demand for wood for cooking; wood is the main source of fuel in Ghana. The Evangelical Presbyterian Church is addressing this issue by training communities to fight fire while at the same time growing a woodlot for use by villagers to meet their wood fuel demands sustainably. So far it has trained more than 400 fire volunteers in three districts of Northern Ghana and this has proved very successful: one village won the Regional Best Environmentally Protected Area in Northern Ghana in 2010 after its work had protected the woodlots and surrounding bush from fire for more than six years.

As well as training them in how to respond to fire threats – by clearing a strip of land around the woodlots to provide a fire belt, for example – the EPC also supplies them with basic equipment, such as wellington boots, and provides food and water to those undertaking vital labour to create fire belts. More equipment and more teams are always needed but these initiatives provide a vital service to the communities developing woodlots, empowering them to manage their wood fuel needs more sustainably. The community woodlots also make life easier for women and girls, who don't have to travel so far for firewood.

Building Bridges with Tree Planting

The Catholic Archdiocese of Abuja, Nigeria, has around one million members. As part of its long-term plan for environmental action, it has established Catholic Archdiocesan nurseries which have provided more than 5,000 seedlings free of charge to parishes, schools and non-Catholic institutions.

In 2012, it organised a tree-planting event, called 'Planting for Peace and Development in Nigeria', for 250 Christian and Muslim young people in the streets of the capital Abuja. As well as encouraging reforestation efforts, the aim was to build bridges between young people of different faiths.

SHAPING THE ENVIRONMENTAL CHAMPIONS OF THE FUTURE

"It is not too late. God's world has incredible healing powers. Within a single generation, we could steer the Earth toward our children's future. Let that generation start now."

Pope John Paul II, 2002

LEFT:
The National Muslim Council of Tanzania worked with the Jane Goodall Institute to introduce environmental education into Muslim schools, including this one in Dar es Salaam

ENVIRONMENTAL EDUCATION INCORPORATING FAITH VALUES

Schools are central to all religions: more than half of the world's schools are connected to faiths and in Africa, faith groups have played an indispensable role in setting up and running schools and in shaping generations of young people. In Kenya, for example, it is estimated that 80 per cent of all schools are faith sponsored. And the influence of the faiths stretches beyond the pupil – influencing the wider community through messages, attitudes and skills brought home each day.

Here, too, is an unprecedented opportunity to influence the next generation of farmers, political leaders, mothers and role models. Equipping this generation to adapt to the impact of climate change is essential to survival as communities increasingly struggle with water shortages, degraded lands, deforestation, crop failure and erratic weather patterns. Learning practical skills such as rainwater harvesting or sustainable farming has never been more important – and schools are a natural early learning point. But equally important is the role that faiths play in their schools in teaching values and attitudes which can motivate and sustain action for generations. Outlining why care of trees or the soil is important from a faith perspective is more likely to bring about a change in behaviour than a report filled with statistics.

It's no surprise, therefore, that combining teaching on faith values and teaching practical action on the environment to young people was a key objective for all the faith groups that drew up long-term plans. This is about safeguarding a future for young people by harnessing their energy and adaptability in an education system where the faiths have great influence through schools and through informal education such as Sunday schools, madrassas and youth clubs.

DEVELOPING THE ESD TOOLKIT

ARC, in partnership with the Kenya Organisation for Environmental Education (KOEE), saw the opportunity to create a unique model. Starting in Kenya, working with Christian, Muslim and Hindu faith groups as well as the relevant government departments, the aim was to create a faith-based ESD toolkit to inspire faith-motivated environmental education in schools, using eco schools as a strategy for

Teachers gather in Kibera Primary School, Nairobi, during the education for sustainable development workshop organised by ARC and KOEE in March 2012

implementation. This was a model that could be replicated in other sub-Saharan countries and could provide a valuable contribution to international initiatives.

Education for Sustainable Development (ESD) is a UNESCO-driven strategy that seeks to develop values, knowledge and skills that will enhance the quality of life now, but without damaging or degrading the environment for the future, through education and learning about sustainable ways of living. Eco-Schools is a worldwide movement, operated by the Foundation of Environmental Education (FEE), to empower students to create a sustainable world by engaging them in fun, action-based learning. Schools run clubs engaging students, teachers and the wider school community to address local environmental challenges in a practical way.

Dr Dorcas Otieno of KOEE addresses the ESD workshop in Nairobi, Kenya

Previously these worldwide programmes had not specifically focussed on how faith values could enhance their work, or how religious groups and faith-based schools could uniquely engage in ESD and eco-schools. This project aimed to enable faith-supported schools to promote environmental education using faith values about nature as a motivation for learning and action. It did so by:

- Integrating faith values into formal education about environmental and sustainable development issues, for faith-supported primary schools.
- Promoting active learning and skills development for positive environment behaviours in faith-supported schools, using the eco-schools approach.
- Adopting an Education for Sustainable Development framework, thus seeking a more holistic approach to environmental education.
- Engaging faith groups and mobilising faith networks in national and international environmental educational strategies.

Using Kenya as a trial, the aim was to develop a model that could be feasibly taken up by other sub-Saharan African countries and adapted to suit their particular requirements.

How the toolkit was developed

Partnership

It was important for ARC to work with a partner with experience in working with schools on ESD and also developing resources on environmental education. The Kenya Organisation for Environmental Education (KOEE) is a national organisation with precisely that expertise. It also administers the Eco-Schools programme in Kenya and has strong links to government and international bodies.

It was equally important to work with Kenya's faith groups to develop the crucial religious values element of the toolkit. ARC's faith partners in Kenya were invited to be part of the process and nominate participating schools. The faith groups included the Anglican Church of Kenya, the Catholic Church in Kenya, the Methodist Church in Kenya, the Presbyterian Church of East Africa and the Supreme Council of Kenyan Muslims (SUPKEM). In total, 35 schools covering all six regions of Kenya and all five faith groups, agreed to help develop the toolkit.

ARC and KOEE consulted widely with teachers, our partner faith groups and representatives from the Kenyan Ministry of Education (MOE), Kenyan Institute of Education (KIE) and the National Environmental Management Authority (NEMA). It was our faith partners who insisted a combined toolkit for Christian and Muslim schools was needed, rather than separate versions. This was partly because most schools in Kenya have pupils of different faiths, and partly because it was felt desirable to help actively promote interfaith understanding within schools, with the environment being a common interest and concern to all religions.

Toolkit development

A workshop was held in Nairobi, Kenya, involving representatives from the five Kenyan faith groups, 35 schools, and representatives from MOE, KIE and NEMA, as well as faith representatives from five other sub-Saharan countries where it is hoped the project will later be taken up. The training focused on eco-schools, ESD and curriculum development and included field visits to participating schools. Delegates agreed the themes to be developed in the toolkit, and shared faith teachings, values, stories and traditions.

A draft toolkit was then presented at a development workshop in Nairobi. A select number of teachers from the participating schools, faith leaders and KIE and NEMA representatives attended to give feedback and further develop the draft toolkit. UNESCO's former Programme Specialist in ESD also gave feedback on the

draft toolkit. A small working group was set up to edit and test the toolkit, published and launched in Kenya in July 2013.

The inclusion of KIE and MOE in the development phase of the toolkit strengthens the resource nationally, ensuring that the toolkit complements the Kenyan curriculum and complies with government standards. This will increase the outreach and uptake by schools. NEMA spearheads ESD nationally and UNESCO internationally, so its inclusion in the development stage also ensures that the resource lies within the national and international frameworks for ESD and will feed into the worldwide movement.

During the development phase, the Hindu Council of Africa expressed its interest in becoming part of the project. This resulted in Hindu Council representatives, Hindu-supported schools and a Hindu curriculum developer being incorporated into the project.

What is in the toolkit?

The toolkit is for primary school teachers to use as an aid in teaching about the environment. It integrates faith values as a key aspect of that teaching – emphasising the faith basis for caring for the environment. Primary teachers can use the resource to support lessons in science, English, social studies and other

Left:
Teachers develop games and exercises for the toolkit at a workshop held in Nairobi, Kenya

Above:
Kibera Primary School, Nairobi

subjects. The toolkit looks at seven environmental themes in detail. They are: water, health (sanitation and hygiene), agriculture, waste, energy, biodiversity and climate change. Within each theme are specific faith-based messages highlighting faith values and teachings on each topic, as well as background information and class activities that link into the curriculum. The toolkit also includes sections on good practice teaching methods, such as drama, games or role play, to encourage pupils to engage imaginatively with environmental issues. There are also sections on how to become

an eco-school, how to set up small micro projects and good practice in school case studies.

The toolkit is designed for teachers who have no or little experience in ESD or environmental education but will also provide new activity ideas for those teachers already working in these areas. It can also be used in conjunction with existing text books and supporting materials. From its launch, the toolkit will be available to be downloaded as a PDF from the ARC website, www.arcworld.org. It will be shared with faith groups, educationalists and government representatives in Tanzania at a meeting in partnership with KOEE and international conservation organisation, The Jane Goodall Institute.

Key to the toolkit's development has been the widespread consultation with the faith groups involved, as well as partnership with government ministries and institutes to secure its uptake in faith-sponsored schools.

Even children as young as these Kawanware Methodist Church Academy infants can learn good environmental practice

Its integration of faith values into the curriculum and its promotion of practical activities on sustainable living has great potential for replication in secondary schools and in informal education.

School demonstration centres

As part of the development of the ESD toolkit, 10 schools were chosen to become demonstration centres illustrating some of the practical outcomes of adopting an eco-school strategy. The schools covered all six regions of Kenya and all ranges of environmental challenges relevant to the country, as well as all of the five faith traditions.

Using the eco-schools approach, the schools formed eco-committees consisting of students, teachers, schools management and community members. The eco-committee undertook an audit of the school's environmental needs and formed a micro-project plan to address the priority areas. This had to address a real local environmental need that could be tackled in a realistic and practical way, which engaged students in learning about the environment and was sustainable. Each school received small-scale funding as well as practical support and monitoring from KOEE and the faith groups.

A significant number of the micro-projects addressed issues around water, sanitation and hygiene (WASH). This indicated a specific need so KOEE expanded its team to include a WASH officer to provide specific support and technical guidance to the WASH micro-projects.

An 11th school joined in the later stages to include the Hindu faith. This school was an existing eco-school with up and running eco-projects which already practiced faith consistent messages about the environment in their eco-clubs and could therefore exemplify good practice.

The other micro-projects included agroforestry in a Muslim-based school to increase food security in an arid area and promote the Muslim expression of Sadaqah Jariyah – a form of charity that provides everlasting rewards for as long as others benefit from your good deeds. They also included latrine construction in a Catholic-supported school and improving hand washing facilities in a Presbyterian-supported school.

SCHOOL MICRO-PROJECTS

Iriaini Primary School, Meru, Kenya

A year ago the parents and teachers at Iriaini Primary School, a Christian school in Meru, Eastern Kenya, realised that many of the children were falling ill from water-related illnesses. They formed an eco-committee and assessed the school's environmental needs. The first problem was that there was only one water tap for the entire school of 438 pupils, meaning that hardly any of the children were able to wash their hands after using the toilets or before eating.

"Due to hygiene, the health of the students has improved tremendously. We have reduced the rate of sickness by 90 per cent."

Headmaster Danson Kimathi

With ARC's support through KOEE, the Iriaini eco-committee built waterpoints near all the latrines, increasing the number of taps at the school from one to 11. All the pupils were trained in washing hands after using the toilets, and the teachers and eco-committee worked hard on integrating ideas about the appreciation of water and care for school facilities into the lessons and prayer times.

Iriaini Primary School eco-committee increased the number of taps at the school from one to 11

Their desire was to convey their own Christian values into handwashing practices, with the hope that the children would take the message home to their parents and siblings. It has been an astounding success. "Due to hygiene, the health of the students has improved tremendously. We have reduced the rate of sickness by 90 per cent," says headmaster Danson Kimathi.

Young Muslim Primary School, Garissa, Northern Kenya

Pupils and teachers at this remote primary school in northern Kenya have started a school agri-business, growing fruit trees with the idea of selling the fruit and also fruit tree seedlings to people in neighbourhood areas. Garissa is an arid area, regularly suffering debilitating food shortages due to drought. The new business encourages the planting of trees, provides food, teaches the children about the business side of agriculture and helps them develop entrepreneurial skills.

"My school is a faith-based school, the sponsors are the Young Muslim Association and for them, their happiness is when they see that learning is incorporated into religious values. This is something that they have advocated for and been looking to achieve."

Deputy Head Teacher, Mohammed Youssef Dahir

As the trees mature and begin producing fruit, they anticipate this will become a sustainable business as well as improve the environment of the school grounds. Teachers take their classes to the garden to teach the young pupils about food, farming and the environment. The project has enabled the school to incorporate faith messages about caring for the environment and sharing of resources into student's learning.

Star of the Sea Girl's School, Mombasa

It is only recently that the Star of the Sea School had proper taps installed near its kitchen. Previously all lunch dishes were washed in sinks in the toilets. This caused contamination, illness and even accidents due to students scrambling to use the few water points. The 'Waterhouse' was built through the active engagement of students, staff and the school community. As well as sinks and taps for children to wash their hands, it has facilities for cleaning cups and dishes.

> "Before we had very few water points and the girls would push one another and fall down but now we have more, where the girls can go in a queue and wash their hands very well. It has really reduced the problems of accidents and it has also reduced problems of diarrhoea."
>
> *Teacher Newton Mwatoa*

The school has introduced systems for queuing outside the Waterhouse. Faith-based values about the environment (and about water in particular) are promoted throughout the school using display boards, which highlight the 'value of the week'. Values are also incorporated into teaching using role play, songs and drama.

The project has reduced the number of children with diarrhoea and resulted in fewer arguments and accidents among pupils queuing to wash; going to school is both safer and more enjoyable.

Star of the Sea School's new 'Waterhouse'

Kanyore Primary School, Kiambu, Central Kenya

When the Catholic Church in Kenya nominated Kanyore Primary to become a demonstration school, many of the existing latrines had been condemned and the temporary plastic wash-points provided had been vandalised or stolen. The school was keen to address this issue when it became a demonstration school. It also wanted to set up an income-generating vegetable garden to capitalise on its large school grounds.

An eco-committee and eco-club were formed. They coordinated the construction of sanitation and hygiene facilities and growing school gardens. A new six-latrine block and hand-washing point were constructed. Wildlife and gardening clubs were developed and trees planted in the school grounds.

"It has also made our teachers and students very responsible because they live together with the trees in a very friendly way, even the smallest children," says head teacher Peter Kariba. "We evaluated ourselves and we thought that we had been living in a very ignorant manner. It is out of that seminar (the March education workshop in Nairobi) that we are able to engage our children to learn about taking care of the environment."

The school is already generating an income from the school garden, which is used to enable students to go on school trips. The school grounds are more beautiful because of the trees and gardens. And due to the high level of commitment from the eco-school committee, the school raised match funding from the community to build the wash-points, which has not only greatly improved hygiene and health but fostered a closer relationship with local people.

New latrines and hand washing facilities at Kanyore Primary School

Benefits of micro-projects

The micro-projects were conducted in order to demonstrate how to put the theory into practice. Their examples and learning points are included within the ESD toolkit and serve as case studies and inspiration for others. These schools are also set to become demonstration centres for their region for the next stage of the project. With a growing number of schools using the toolkit and conducting micro-projects, these demonstration centres will be places of learning for other schools to visit – becoming regional training centres for teachers on faith-based ESD. As well as addressing real issues through developing better washing facilities, improving latrines, growing food or planting trees, the micro-projects also developed pupils' practical skills and encouraged community participation.

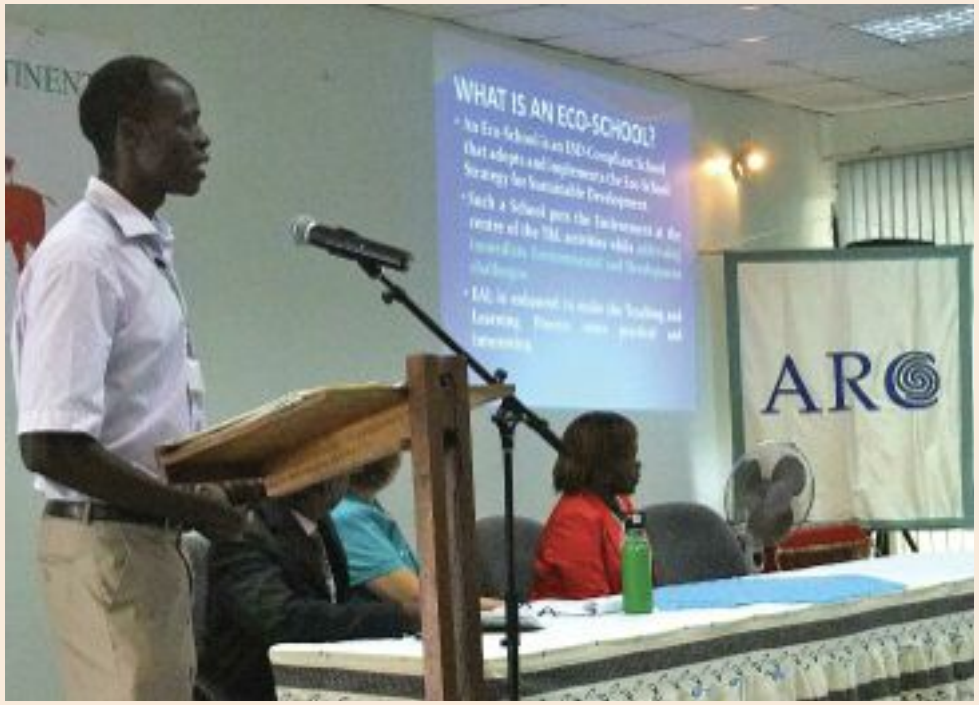
Many of the micro projects addressed issues around water, sanitation and hygiene. Here, a Star of the Sea pupil fills up from the school's water point

A greater sense of ownership

One unexpected result of the more participatory eco-schools approach has been an increased sense of ownership of the projects by the school community, including students, parents and faith groups. This has resulted in some cases in increased funding and enrolment, as well as people stepping forward to offer practical skills and contribute their time. For example, the eco-committee at Kirukuma primary school raised one year's worth of soap and six months' worth of sanitary towels during a community meeting when they officially opened its new toilets.

Kambala primary school also raised extra resources from its community. Head teacher Katherine Nganga explained that when the school drew up its budget, they found the seed funding provided was not enough to achieve all the improvements they wanted. "So we called the school committee and decided to ask for extra money from the parents," she said, "and so we managed to complete our project. The effect of this project was that we introduced the parents into the ownership of the school."

For the first time, faith based messages about the environment have been integrated into environmental education – and for many faith-based schools, that is a welcome development. The project has shown how faith messages can add value and raise motivation within schools and communities with a strong religious link. It has stimulated a behaviour change towards the environment due to religious motivation.



Tom Barasa Wafula explains how eco-schools work at ARC's Nairobi Celebration, September 2012

THE ECO-SCHOOLS APPROACH

Eco-schools are a key strategy for implementing the Education for Sustainable Development toolkit, not least because they provide a practical way of learning about environmental issues as well as achieving educational goals. But eco-schools can do more than this, says Kenyan teacher Tom Barasa Wafula. Through setting up micro-projects aimed at solving real problems (for example, lack of water) or at addressing conservation issues (such as waste management), they empower young people with the skills as well as the values needed to promote a healthy and sustainable life.

Translating plans of action into real projects also brings a host of practical and even financial benefits. Vegetables grown as part of an eco-school project can be used to supplement school meals or sold for income. Rainwater harvesting can provide extra water for drinking, cooking or washing. In the process, pupils develop practical and entrepreneurial skills that will equip them for life.

Eco-Schools: practical benefits

Here, Tom Barasa Wafula describes some of the practical and environmental benefits that can be achieved through eco-schools, based on his own experience in Goibei High School, Western Kenya. Goibei High School is a very successful eco-school, with a variety of micro projects including vegetable growing, rainwater harvesting, biogas, solar energy, solid waste management (including sale of recycled plastics and scrap metal), composting, tree planting, bee keeping and chicken farming.

Information contained below was compiled in a survey of several community-based organisations (CBOs), schools and individual farmers involved in sustainable income generating activities in Nyanza and Western provinces, Kenya.

ROOF RAINWATER HARVESTING:

a) Lower pumping frequency hence lower energy (electricity) bills.
b) Provision of clean water that does not require treatment before consumption.
c) Reducing the water-scarcity problems.

Savings that could be made from one tank therefore works out at Ksh.13,778 per annum, implying it would take about 10 years to recover the cost of construction from savings made; this does not take into account other advantages of using rainwater. The financial figures are based on the fact that average construction costs of a 10,000-litre capacity tank are about Ksh.150,000–250,000 depending on the design and availability of construction materials. Note should be taken that these savings can be greatly enhanced if the roof harvesting system is fitted appropriately to ensure maximum catchment and maintenance of the system is done accordingly.

Waste is segregated at Gobei High School, while its biogas digester provides compost

Consumption in dry months		Consumption in wet months		Savings in energy	Monthly savings in cost	Annual savings in cost
Watts	Ksh.	Watts	Ksh.	Watts	Ksh.	Ksh.
1,048	20,535	761	14,794	323	5,741	68,892

Table showing the saving of energy through collection rather than pumping of water

Youngsters from Gobei High School, Western Kenya, with produce from their school garden

SCHOOL VEGETABLE GARDENS

Most rural schools in Kenya have land suitable for horticultural production to supplement school kitchen supplies. Those schools that are urban can use a variety of techniques to maximise space or grow food in tubs or bags. Goibei High School in Western Kenya has seen its vegetable garden become a great success story. Crops such as cabbages, kales, tomatoes and onions have been produced from the farm and supplied to the school kitchen.

Labour is usually provided by the students since each is allocated a plot to work on; thus the major financial input involves the cost of certified seeds and, sometimes,

The following figures were worked out from the growing of cabbages/kales and onions grown in a square plot measuring 36m x 36m (just one eighth of a hectare)

Vegetable	Weekly production (kg)	Unit price (Ksh./kg)	Total weekly revenue (Ksh.)	Monthly revenue
Kales/cabbage	120	20	2,400	9,600
Onions	25	50	1,250	5,000
Total	145		3,650	14,600

pesticides/fungicides. Manure from the school dairy farm and biogas slurry work perfectly as fertilisers. With a ready market from the school kitchen and from teachers, school kitchen-gardening can be a very viable project.

With good management, kales will take three to four weeks in the nursery and one to 1.5 months from transplanting to first harvest and, depending on variety, can remain in production for three to four months or perennially. At Goibei School, the perennial type is preferred since it is harvested throughout the year and is quite tolerant to drought. For vegetables such as kales, the input is quite minimal.

If profits are worked out from growing kales for three months, a profit of Ksh.42,090 is realised in three months, (i.e. Ksh.14,600 x 3 less input cost of Ksh.1,710), or Ksh.56,690 in four months.

BEE KEEPING

Bee keeping for honey production is becoming increasingly popular with a lot of farmers as an adaptation to climate change. The enterprise has been a major income generating activity at Goibei High school for the last eight years. Several advantages are associated with bee keeping:

1. Not labour intensive;
2. Requires little space – bee keeping does not have to interfere with other enterprises on the farm in so far as competition over land is concerned;
3. There is usually a ready market for the bee products (commonly honey). The enterprise thus becomes a handy extra earner for the farmer or for the school;
4. Although some basic skills are required for commercial bee keeping, usually these can easily be grasped through hands-on training of farmers; in any case most farmers already have some indigenous knowledge of traditional bee-keeping and management;
5. Low initial capital investment – usually purchase of the hive(s), costs which can often be paid off within a year or less of rearing bees;
6. The enterprise combines well with agroforestry programmes as the farmer grows trees/shrubs/flowers to provide forage for bees.

The price of a complete Langstroth hive (the standard hive used around the world) ranges from Ksh.3,500-5,000 – depending on availability of materials for construction and the quality of workmanship. Note should be taken, however, that very few carpenters have the knowledge and skill to construct Langstroth hives to specification – which usually affects management and production. In terms of market prices for honey, the raw honey sells at Ksh. 300-600 per kg when no value addition has been done. Packaged and branded honey goes at Ksh. 500-1,000 per kg. In terms of market prices for honey, the raw honey sells at Ksh. 300-600 per kg when no value addition has been done. Packaged and branded honey goes at Ksh. 500-1,000 per kg.

Based on these statistics, income from bee keeping is summarised as:

No. of hives	1	3	5	10
Cost of hives (Ksh.)	4,000	12,000	20,000	40,000
Cost of packaging material (1kg plastic bottles @ Ksh.35)	35x32 =1,120	35x72 =2,520	35x120 =4,200	35x210 =7,350
Misc. costs - e.g. labour	200	400	600	1000
Total input cost (Ksh.)	5,320	14,920	24,800	48,350
Honey yield (per hive)	8	8	8	7
No of harvests (per year)	4	3	3	3
Honey yield per year (kg)	32	72	120	210
Price of honey (per kg)	650	650	650	650
Total revenue generated	20,800	46,800	78,000	136,500
Net income Year 1 (Ksh. less input cost)	15,480	31,880	53,200	88,150
Net income Year 2 (Ksh. less misc. and packaging material only)	19,480	43,880	73,200	128,150

BIOGAS AND ENERGY SAVING

The assessment demonstrated that, among other benefits associated with biogas as a renewable energy option, substantial savings were made from using biogas to support work in the school kitchen. In both cases, three tasks were accomplished using biogas:

a. Cooking green vegetables
b. Boiling meat/beef
c. Boiling water for drinking (for use by students)

The biogas digesters are fed with substrate every morning if animals are on semi-zero or free-range grazing systems, or morning and evening if animals are on full zero-grazing. The figures given in this document refer to the biogas digester at Goibei High school, where biogas is used to supplement fuelwood in cooking for 750 students, 30 teachers and 35 support staff. Comparison with the findings at Keveye school revealed that the practices, use and challenges were basically similar, with the actual use doubling for Keveye due to variations in the size of the biogas digesters.

TASK	*Vegetable cooking (80kg)*	*Boiling beef (34 kg)*	*Boiling water (150 ltrs)*	**Total**
No. of hours biogas in use	40-45 minutes with 2 burners in use	1 hr – with 2 burners in use	40-45 minutes with 2 burners in use	
No. of days per week	Daily	2	Daily	
Equivalent fuelwood	1 Stack of 10 pieces	2 stacks of 10 pieces	1.5 stacks of 10 pieces	**4.5 stacks**
Unit price of fuelwood (Ksh.)	300	300	300	
Total savings per day (Ksh.)	300	600	450	**1,350**
Equivalent quantity of charcoal (bags)	0.5 bags	0.75 bags	0.6 bags	**1.4 bags**
Unit price of charcoal (per bag)	900	900	900	
Total savings per day (Ksh.)	450	675	540	**1,665**

USE OF FUNDS AT GOIBEI HIGH SCHOOL

Funds generated from sale of honey from the bee keeping project or the school garden are managed in a special account called the Eco-Account operated by the Eco-School Committee. This is meant to ensure prudent use of the proceeds without interfering with other school funds. The money is put to various uses, including:

1. Expansion of the bee keeping project through purchase of more beehives. The project began with five beehives, and this has grown to 15.
2. Sponsoring eco-club students to go on educational trips on ESD themes as a motivation to continue participating in the project.
3. Savings from the sale of recycled plastic waste is channelled towards the purchase of waste handling equipment and construction of more waste-segregation structures. From only one structure, now the school has four segregation structures.
4. Purchase of internet-bundles and stamps to support communication between Goibei students and their penpals in our partner school in Germany (Paul-Gerhard-Schule). This enhances information sharing as well as fostering global peace and understanding.

Conclusion

Several conclusions can be made from this data. Firstly, that some eco-school projects can create direct generation of income while others make savings by providing services or products that would otherwise require funds to purchase.

Further, most of the projects are flexible enough in operation that input costs can be minimised to enhance benefits; for example, using students' labour in market-gardening during practical agricultural lessons instead of hiring labour. In the same way, students can be very useful in waste collection and segregation to obtain organic materials for composting and plastics for recycling.

Community groups and farmers, in particular, can improve their livelihoods greatly by practicing bee keeping as an income-generating activity. Bee keeping, apart from not usually requiring extra land, combines very well with tree planting, as it enhances farmers' perception of trees/forests as beneficial assets.

In areas that are water stressed, students' hygiene can be improved tremendously by embracing roof-water harvesting. Schools usually have large surface areas from roofs that, in most cases, can be put to this use (except where tiles or asbestos are used

on the roofs), as long as sufficient water storage facilities, such as concrete tanks, are provided. Worth noting is that many of the projects can be implemented at the micro-level with minimum financial input, without necessarily requiring external input.

Tom Barasa Wafula

More information about Eco Schools

• At ARC's Nairobi Celebration in September 2012, Tom Barasa Wafula gave an excellent presentation on developing an eco-school, with useful tips on 'dos and don'ts'. You can read it here:
http://tinyurl.com/c8yjo8n

• Eco-Schools International: http://www.eco-schools.org/

Developing school eco clubs in Ghana

The concept of engaging faith communities and promoting a faith commitment to the living planet in environmental education in schools is spreading throughout Africa using practical educational techniques. For example, the Evangelical Presbyterian Church (EPC) in Ghana is leading the effort to establish eco clubs within its schools and other religious educational institutions as part of a larger effort to include environmental studies into their syllabus.

The Evangelical Presbyterian Church in Ghana is setting up eco clubs in its schools

Inspired by the Education for Sustainable Development workshop in Kenya, which it attended in 2012, the EPC began mobilising its own teachers and school heads, organising seminars and workshops to explain the eco-schools concept. The EPC decided to pilot the concept within its own schools. The EPC has now set up 15 eco clubs within the Ho metropolis, where the EPC has its headquarters, and two other districts outside Ho.

Community woodlots

Tree planting is a major focus for eco club activities as deforestation and land degradation is a major environmental problem in Ghana. Two of the eco clubs planted four acres of woodlots at Adaklu Waya and Peki Dzake junior high schools. Some of the clubs were supported to install 3000-litre water tanks to harvest water from school roofs so that they could establish tree seedling nurseries. Club members proudly wear their T shirts branded with environmental messages; some of these activities were funded by the SODIS project supported by the Lions Clubs of Germany.

The Eco Clubs in the rural areas are very active and have engaged in waste management activities such as the collection of plastic and other rubbish as part of community cleaning campaigns. The EPC says the clubs are also developing leadership qualities in some of the pupils, especially girls, who are becoming more confident in public speaking and community engagement.

Picking up poly bags in Nigeria

School children from the Qadiriyyah Movement in Kano city in Nigeria are taking part in a recycling and street-cleaning programme. Used polythene water bags or 'poly bags' litter the streets of the city. Now two Qadiriyyah schools are piloting a scheme where each child is required to pick up 100 discarded poly bags every week and bring them to their school's recycling point. In turn, they receive academic points required in their environmental studies.

Queuing to deposit weekly polythene picks at the Turathul Islam secondary school in Kano

Some of the collected 'poly bags' are used as tree seedling holders in a tree nursery project run by the schools involved. The Qadiriyyah Movement, however, has plans to expand the scheme to all public schools and establish an eco-friendly poly recycling facility in Kano city. Currently 3,500 school children take part in the project and the plan is to expand it to other Qadiriyyah schools.

The Qadiriyyah Green Vanguards after the weekly polythene bags collection

Environmental Education in Madrassas in Tanzania

This project was a partnership between the National Muslim Council of Tanzania (BAKWATA) and ARC partner, The Jane Goodhall Institute (JGI). The Jane Goodall Institute is an international conservation and education organisation. The partnership aimed to teach young people in coastal communities about coastal and marine ecosystems and engage them in addressing conservation issues through the Jane Goodall Institute's schools programme, Roots and Shoots.

Most people living along the Tanzanian coast are Muslims and young people attend madrassas (Muslim schools that are often attached to a mosque) as part of

Tree planting at Ebukoolo Primary School, Kisumu, Kenya

their education. The Jane Goodall Institute was therefore keen to engage madrassa students as well as work in the formal education system.

Using the Jane Goodall Institute's resources for schools, BAKWATA developed a complementary guide for Madrasa teachers which included the Islamic perspective on environmental management and conservation. BAKWATA and the Jane Goodall Institute worked together to develop project activities and train teachers, and relationships were built between the formal education system and the madrasa network.

This project was regarded as very successful by all involved. All parties recognised that the initial engagement of both the government and the Islamic community were essential to its success. Involving religious leaders made imparting the knowledge and skills to madras pupils easier, training the madrassa teachers both improved teaching techniques and increased their motivation, while students enjoyed the 'learning by doing' approach, which made learning more enjoyable. In September 2013, ARC and The Jane Goodall Institute will host a meeting of faith leaders, educationalists and government representatives in Tanzania to share the ESD toolkit. Faith representatives from Uganda will also attend to learn about the toolkit.

More information:

For faith-based school environmental initiatives:

- ARC website: http://www.arcworld.org
- WaterSchools website: http://waterschools.org/
- WASH in Schools mapping website: http://www.washinschoolsmapping.com/
- Kenya Organisation for Environmental Education: http://www.koee.org/

For school-based environmental programmes:

- Eco-schools: http://www.eco-schools.org/
- Education for Sustainable Development: http://www.unesco.org.uk/education_for_sustainable_development
- Jane Goodall Institute: http://www.janegoodall.org/

Right:
Muslim schools and madrassas such as this one in Dar es Salaam, Tanzania, have introduced environmental education

THE POWER OF PARTNERSHIPS

"This morning I realised that we could be more successful, that we could be more relevant to the needs and aspirations of the Continent, we could have more impact in all African countries, if we can work with you, the faiths, hand in hand."

– Mounkaila Goumandakoye, Director and Regional Representative, Regional Office for Africa, UNEP, Nairobi, 18 September 2012

PARTNERSHIP & LEARNING FROM OTHERS

"Look at people who are looking in the same direction."

Ann Thomas, WASH advisor, UNICEF East and Southern Africa Regional Office

"If you have a good idea, don't wait for funding. Do what you believe and then you'll attract funding because you have a good project to show… So begin small, finish big. A little faith moves mountains."

Tom Barasa Wafula, Eco-Schools Champion, Goibei High School, Kenya

The phrase 'Don't re-invent the wheel' has become a cliché. However, it is wise to remember that faith groups may have much to learn in care of the environment from other groups – from governments to secular or faith-based NGOs – that have been working in this area for decades. Many groups have pioneered good practice and are willing to share simple technologies and small-scale techniques that are accessible and affordable.

ARC is starting a partnership with the international Christian conservation organisation, A Rocha International, which has branches in Kenya, Uganda, South Africa and Ghana. As well as sharing its experience of sustainable farming techniques by teaching Farming God's Way, A Rocha has also been promoting some low cost simple technologies such as bio-sand water filters, basket cookers and charcoal briquette-making.

Such simple techniques can be very effective. Switching to charcoal briquettes, for example, not only reduces deforestation but can also save money. A study published in the International Journal of Renewable Energy Development in 2013 found poor families in Nairobi saved up to 90 per cent in cooking fuel costs by using briquettes. Mary Njenga, lead author and a doctoral fellow with the World Agroforestry Centre (ICRAF), said cooking a meal of maize and beans for a family of five cost just Ksh.3 with charcoal briquettes. "This is nine times cheaper than cooking the same meal with charcoal (Ksh.26) and 15 times cheaper than cooking with kerosene (Ksh.45)," she said.

Water is life

"I will give of the fountain of the water of life freely to him who thirsts"

Revelation 21:5-7

A Rocha Uganda is transforming the lives of people in Kampala's Namungoona slum by teaching them to make bio-sand filters which filter dirty water until it is clean enough to drink. About 80 per cent of illnesses in developing countries are linked to poor water and sanitation conditions and one out of every five deaths in children under the age of five worldwide is due to a water-related disease.

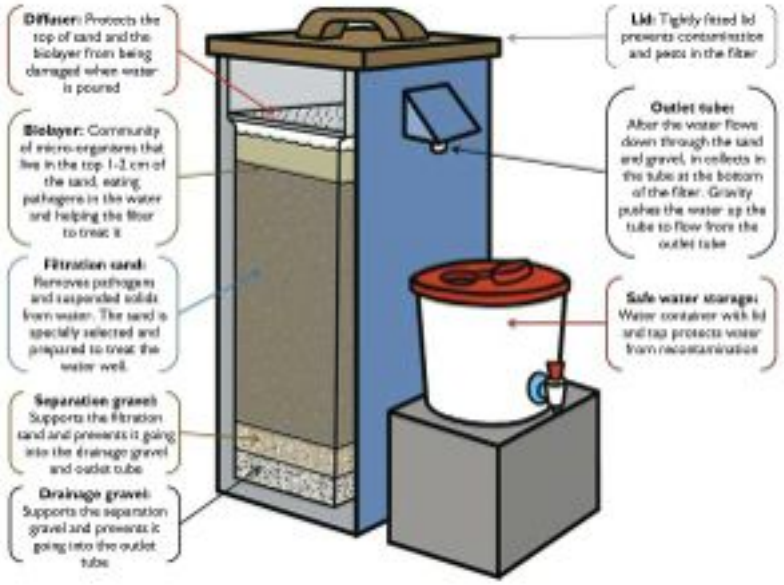
Bio-sand filters remove 97 per cent of bacteria and 90 per cent of viruses from dirty water. Made from concrete and standing approximately 1m high and 30cm wide, each one is filled with layers of gravel and sand, through which the water passes, with larger gravel at the bottom and the finest sand at the top. The top 2cm layer of sand quickly becomes a biological community of micro-organisms that eat most of the pathogens in the water – hence the name 'bio-sand' filters.

A Rocha Uganda has helped install 500 filters in the Namungoona slum and they have had a big impact on both individuals and the environment. Not only do people using a filter report far less diarrhoea and other illnesses, but each one saves an estimated 15 days a year spent boiling water. This amounts to fewer 70,000 trees being cut down for charcoal per filter.

LEFT: Charcoal briquettes made by Gomba Green Brigade in Uganda. RIGHT: Larger briquettes made by A Rocha Uganda; each one takes several hours to burn

The Bio-Sand Filter

Diagram courtesy of CAWST, Centre for Affordable Water and Sanitation Technology (www.cawst.org)



A bio-sand filter in use (photograph: www.water.org) and more waiting to be collected outside A Rocha Uganda's Kampala office

Cooking without fire

A Rocha Uganda and Christian conservation organisation Care of Creation Kenya are teaching people how to make basket cookers, or fireless cookers, to enable them to cook food without using fuel. This efficient, super-simple technology uses stored heat to cook food over a long period of time without having to watch it over a fire. As well as freeing women from hours spent stirring a pot, which means they can work on their farms or earn money at the market, the basket cooker saves up to 40 per cent of fuel. That means less time foraging for firewood or buying charcoal, and fewer trees being cut down.

You start cooking your food over a traditional stove before putting a lid on the pot and transferring it to the basket cooker. This is a simple basket padded with local resources such as banana leaves, cotton or old clothes.

The basket cooker also has a padded lid and is so well insulated that the heat is retained – which means the food carries on cooking inside the pot. Hours later, the meal is ready to eat. Even foods that previously needed hours of simmering, such as beans, rice and whole maze, can be cooked this way. And because the basket cooker produces no smoke, it's healthier for the whole family. The basket cooker also saves precious water – by up to 25 per cent – because it is retained in the food, preserving nutrients and flavours, instead of evaporating.

Basket cookers: after four hours in the basket cooker, water is still hot enough to make tea

More information on basket cookers:

- A Rocha Uganda: http://www.arocha.org/ug-en/index.html
- The charity Practical Action has a very useful 'how to' document on basket cookers: http://practicalaction.org/our-work/fireless-cooker
- The Centre for Affordable Water and Sanitation Technology guide to making a bio-sand filter: www.cawst.org/en/resources/biosand-filter

SHARING GOOD PRACTICE

The Ethiopian Evangelical Church Mekane Yesus serves approximately 5.8 million people, taking a holistic approach to its mission by serving people's physical as well as spiritual needs. Its development and social service work is carried out through the Ethiopian Evangelical Church Mekane Yesus Development and Social Services Commission (EECMY-DASSC). A major focus of its activities are food security and natural resources management programmes, particularly in parts of Ethiopia suffering high levels of deforestation, soil degradation, poor crops and repeated crop failure.

Thanks to the EECMY-DASSC's work on soil and water conservation, tree planting and small-scale irrigation, seriously degraded land has been brought back to life and families, who had been forced to move elsewhere to survive, have returned to their home areas. The EECMY-DASSC has been promoting 'low external input sustainable agriculture' (LEISA), a form of agriculture that is based on principles that are ecologically sound, economically viable and culturally acceptable. LEISA minimises the use of 'external inputs', such as chemicals and artificial fertilisers, and emphasises sustainable techniques such as composting, mulching and crop rotations.

Last year the EECMY-DASSC completed a major study of its eight integrated rural development/food security projects to assess which aspects of LEISA were most useful and could be scaled up. The study, funded by the Church of Sweden, found that the soil and water conservation measures proved the most successful and were most suitable for scaling up. These techniques included keeping the soil under

permanent cover by annual or perennial cover crops, mulching, multi-storey cropping and selective weeding. The study found they had generated real benefits in terms of protecting soil health, enhancing water use and increasing crop production.

EECMY-DASSC has produced a comprehensive 130-page report detailing its study. It has also commissioned three films about its development work, including its low external input sustainable agriculture work (see links below) and is also sharing its findings in training workshops with organisations working in sustainable agriculture in Ethiopia.

More information:

You can see the three films made by the EECMY-DASSC on YouTube:

- EECMY-DASSC – film one: www.youtube.com/watch?v=3oydYM-zDYE
- EECMY-DASSC – film two: www.youtube.com/watch?v=ofONVHfeqKE
- EECMY-DASSC – film three: www.youtube.com/watch?v=k4jr4M372bE

Termite Control

EECMY-DSSC's method of termite control used in its Mena-Sibu Integrated Food Security Project has been hailed as one of the best practiced in Africa by the International Livestock Research Institute (ILRI). Mena-Sibu is a woreda (administrative district) in western Ethiopia. Once rich in natural resources, in the last 40 years it has suffered serious degradation through soil erosion, caused mainly by deforestation, poor agricultural practices, over grazing by cattle and lack of pasture.

Termite infestation is also a very serious problem. Termites are an essential part of the soil ecosystem but they can be immensely destructive to crops and pasture. In Mena-Sibu, they devastated the land to such an extent that there simply wasn't enough grass for cattle to feed and many farmers were forced to leave.

"Before, I was desperate. I thought our land provided nothing for our generation"

EECMY-DSSC began working in the area in 1999 and used a combination of natural resource management, farming methods and termite mound destruction to bring the land back to use. For example, it constructed more than 1,100 km terraces and created more than 3,300 ha of area closures (land protected from human or livestock interference). It established more than 1,700 ha new grass pastures and planted nearly 5.5million tree seedlings, emphasising termite-resistant species.

To destroy termite mounds, they used a variety of methods. Nearly 43,000 termite mounds were destroyed with chemicals while more than 63,600 were smoked out and 113,000 were flooded. The community was involved in planning how to use the land, and farmers were encouraged to control their cattle to minimise over-grazing. Women were taught practical nutrition. In total, more than 2,600 farmers and women benefited.

The results of this ambitious project – it cost ETB 17,923,278.75 (approximately $969,628) – have been impressive. The termite control programme has reduced attack on crops and grasses which in return has helped improve productivity of both crops and animals. Digging terraces and protecting springs has controlled the impact of water erosion on agricultural lands. Streams have been recharged and indigenous trees returned to the area.

People's lives have improved and they have hope for the future. As one Genada youth said: "Before I was desperate. I thought our land provided nothing for our generation. Now I am convinced we can benefit from it if it is rehabilitated."

PARTNERING WITH THE FAITHS

Since ARC's 'Many Heavens, One Earth, Our Continent' Celebration in September 2012, the vision of using faith networks to spread the green agenda has extended beyond faith groups to the world of social enterprise. Representing the Hindu Council of Africa, Deepali Gohil attended this event to present the Hindu Bhumi Africa long-term plan. Inspired by the potential reach and impact that the faiths have on spreading the environmental message, she decided to bring this vision back to her role as co-founder of the social enterprise SolaTaa.

SolaTaa aims to improve economic empowerment through using environmentally sustainable projects and technologies. Working through village structures, it uses a network of entrepreneurs and grassroots organisations to create awareness of clean energy. It has created a network of foot soldiers, called 'Light Advocates', to help people move from using expensive, polluting kerosene to eco-friendly alternatives such as solar lanterns, solar water heaters and solar power panels. It particularly focuses on people in rural areas who don't currently have access to energy. Its aim is to enable poor people to acquire these energy-friendly technologies so that they can be adopted on a wide scale.

Deepali Gohil saw the potential of collaborating with faith groups to reach rural communities in Kenya, therefore increasing the number of people that could benefit from SalaTaa's micro-enterprise programme. SolaTaa is now working with the Full Gospel Churches of Kenya to support its church-based group activities to generate livelihoods, through micro-enterprise initiatives such as tree planting, selling solar lanterns and eco-friendly stoves. The social enterprise is developing its approach further to coordinate with other faith groups in Kenya and their environmental efforts.

More information:

- For more information on SolaTaa visit: www.solataa.wordpress.com/

THE POWER OF OUTREACH

"We worship a creator God. The more we learn about the natural world, the more wonderful we discover it to be. There is a real danger that with all our modern technical discoveries we lose sight of the magnificence and intricacy of creation. We are discovering that Creation is seriously under threat... Now is the time to recognise that we have a responsibility to God to care for this intricate web of life, acknowledging that 'The Earth is the Lord's and all that is in it'."

– the Most Reverend Thabo Makgoba, Archbishop of Cape Town

OPPOSITE: Presbyterian Church of Cameroon workshop to develop a curriculum in environmental studies and climate change for PCC primary schools, Mankon, Cameroon

SPREADING THE MESSAGE

The potential outreach of faith groups is unprecedented. In Africa, the vast majority of the Continent's population describe themselves as either Christian or Muslim. For example, out of a population of around one billion people in sub-Saharan Africa, 470 million are Christian and 234 million are Muslim. Moreover, faith leaders are figures of huge influence, often trusted where politicians, governments and military leaders are not. They are key to the challenge of changing perceptions and behaviour in order to protect our planet. No other group has similar levels of authority or reach with a well defined existing structure for community engagement and outreach.

Kenya is a good example of this. It's a country with more than nine million Catholics – making up a third of the population. Millions of Kenyans attend a church service every Sunday and often attend other church meetings in the week. The Kenyan Episcopal Conference – made up of Kenya's Catholic Bishops – has well-established procedures for getting its message out. One is the weekly sermon. Another is the pastoral letter.

Catholic Pastoral Letter

In June 2012, the Kenyan Episcopal Conference published a pastoral letter to all Catholics in Kenya supporting the long-term plan for environmental action that the Bishops had drawn up. This pastoral letter, which discusses why it is a Biblical mandate to care for Creation and recommends how to protect the environment in practical ways, was read in all Catholic churches in Kenya.

To all the Christ faithful of the Catholic Church – Kenya:
Clergy and Religious, Catechists, Lay faithful (Catholic Men, Women and Youth)

"…God saw all he had made, and indeed it was very good" (Gen 1. 31)

May the Peace of our Lord Jesus Christ, the Son of God the Father and creator of heaven and earth, and in fellowship of the Holy Spirit descend upon you. I write on behalf of the Kenya Episcopal Conference and the entire body of the Christ Faithful of the Catholic Church in Kenya to remind you and call your attention, my brothers and sisters, to the moral and pastoral responsibility we have towards our creator and his creation by virtue of our Christian faith.

The opening chapter of the Bible begins with these words; "In the beginning God created the heavens and the Earth." At the end of creation he created man and woman in his own image (cf. Gen 1.26). He blessed them and gave them every creature and the whole earth to rule over, care for, and cultivate. (cf. Gen. 1.28-31)

The Catholic tradition teaches that creation is part and parcel of the salvific plan of God… All Christ Faithful must, therefore, show respect for the Creator by good stewardship of creation. The Holy Father, Pope Benedict XVI in his Post-Synodal Apostolic Exhortation, (Africa's commitment) Africae Munus, reiterates that unprecedented desertification and environmental pollution are caused by human exploitation and greed. The Holy Father observes that, "Serious damage is done to nature, to the forests, to flora and fauna, and countless species risk extinction. All of this threatens the entire ecosystem and consequently the survival of humanity." (Africae Munus no. 80). This environmental challenge has fundamental moral and ethical dimensions which cannot be ignored.

The Kenya Episcopal Conference (KEC) is committed … to promote environmental care from an integral pastoral perspective. The Kenya Episcopal Conference has committed to develop a long term plan for pastoral approach to the care of God's creation in partnership with the Alliance of Religions and Conservation (ARC).

This initiative … is a Pastoral approach to environmental care and is specifically addressing environmental care from a faith point of view. We need to integrate the practice with our faith: through catechesis, homilies, Christian songs, poems, drama and all the literature that can promote the care of the environment as a Christian obligation and priority. It is an invitation to all the Christians to participate actively in the all-inclusive initiative to protect our planet Earth.

We invite all the Christ faithful: religious, clergy, catechists and laity; including, Youth, Catholic Women Associations, Catholic Men Associations and all other lay associations to prioritize their engagement with environmental care as a way of appreciating and advancing the creative mission of God whose image we bear. The areas of engagement include, in general: education, farming and agriculture and tree planting.

Through our Catholic institutions, schools, parishes, retreat centres, pastoral centres, shrines and Church owned land, we are committed to realize this dream of building a healthy society, a healthy earth and a healthy Church. Your cooperation, creativity and contribution are all we need to realize this dream together. Faith commitment to a living planet is a Catholic commitment to the care of God's creation.

Rt. Rev. James María Waínaína
CHAIRMAN
KEC-Commission for Pastoral and Lay Apostolate

Training for Catechists: spreading the message at the grassroots

The Pastoral Letter, read out in parishes, was a first step. The Centre for Social Justice and Ethics (CSJE) of The Catholic University of Eastern Africa in Kenya was then mandated to take the message on environmental care further. It is now drawing up a unique module to train catechists in the Catholic Church in Kenya on what Christian Catholic theology says about creation care alongside African spirituality, culture and traditional beliefs on the environment. This recognises the powerful force of traditional beliefs in Africa which bring a sense of the sacred to trees or mountains or the sense of belonging to a traditional homeland or particular spiritual place.

The module on environmental stewardship from a Catholic and African perspective will be approved by the Kenyan Episcopal Conference – an essential step to ensure that the message is distributed through existing, well organised, official structures. Catechists are the key to ensuring the message is received at the local level. They are unique to the Catholic Church – teaching the Catechism within a diocese and disseminating Catholic teaching and information to all sections of society – from women's and youth groups to parish communities. They form the backbone of the Church – a powerful and well organised force for spreading teaching on care of the environment and for promoting practical action.

This module will be taught to catechists at the University. This is an effective, tested and unparalleled method of grassroots dissemination of a message of environmental stewardship. The module will be piloted this year in Kenya after training workshops. It will also be further developed and adapted to teach seminarians in Catholic theological colleges and Sunday school children as well for teaching in secondary and tertiary level in Catholic schools.

This has huge potential to reach millions of Catholics in Africa. After being tested in Kenya, the plan is to take it to Catholic Churches who form part of The Association of Member Episcopal Conferences in Eastern Africa (AMECEA). The CSJE – which is drawing up the module for catechists – was established by AMECEA, an umbrella body for Catholics in the region, covering Eritrea, Ethiopia, Kenya, Malawi, Sudan, South Sudan, Tanzania, Uganda and Zambia. AMECEA serves a total population of about 280 million people in these nine countries, of whom 48 million are Catholics in 120 different dioceses.

ECO-CONGREGATIONS: A MODEL FOR PROMOTING ENVIRONMENTAL ACTION

Faiths are unquestionably the largest organised sector of civil society worldwide. Where else would you find members who meet together at least once a week in large numbers on a local basis throughout the country – whether on a Sunday at church for a Sunday worship service or on a Friday at the Mosque for Friday prayers?

The weekly meeting in congregations is the backbone of the structure of the faiths. Challenging congregations to reflect on their relationship with Creation and their care of the environment is the thinking behind the eco-congregations programme. Eco-Congregation is an international ecumenical programme "helping churches make the link between environmental issues and Christian faith, and respond in practical action in the church, in the lives of individuals, and in the local and global community".
(For more information see page 124.)

The Southern African Faith Communities' Environment Institute (SAFCEI) has pioneered an Eco-Congregation Programme in partnership with religious organisations and institutions in Southern Africa. Eco-congregations are local faith-based communities that make a commitment to try to live in greater harmony and more sustainably on the earth. This is a response to wisdom held in sacred texts and learning from faith traditions.

SAFCEI's Eco-Congregation programme encourages action in three core areas:

Ecological Spirituality

This is concern for the Earth in learning about and expressing one's faith through worship and teaching. Caring for the Earth is encouraged in formal and informal acts of worship and celebration – such as liturgy, preaching, music, prayer and meditation or through group study, retreats or discussions with children and young people. Examples here could include using environmental days as a focus or theme, including prayers for the Earth in worship, exploring references to Earth care in sacred texts and organising reflective walks or sermons on environmental topics.

Custodianship of God's Gifts

These are practical activities focusing on using resources such as water, energy and food more sparingly and considerately. Activities could include caring for land, buildings, open spaces, plants and animals more thoughtfully and creatively, ensuring financial assets are invested ethically and that all people are treated with dignity and respect.

This means places of worship, community meeting spaces and homes can become centres of good, sustainable practice where leadership is given by example and talk and good intentions are turned into practical actions. Examples of action here could range from recycling waste, installing rainwater tanks, reducing energy use after undertaking an energy audit or growing vegetables on faith owned land.

Community Action, Partnerships and Networks

Eco–congregations are encouraged to lead the way to a more sustainable future by becoming actively involved in local community projects and networks and in lobbying for better environmental standards and more ethical and accountable practice from government, business and community leadership.

Action here could range from encouraging faith leaders to call on politicians to make decisions guided by ethical principles and not short-term financial expediency; organising community clean ups; objecting to inhumane treatment of animals; and criticising polluting or unethical mining and shale gas fracking, as well as destructive agricultural and 'development' practices.

LEFT: *Learning about solar cookers, as part of SAFCEI's Eco-Congregations programme*
BELOW: *Faith groups take part in protests against plans to frack for gas in South Africa*

Eco-Congregation churches launch a clean up campaign

Steps to becoming an Eco-Congregation

- Form a working group or 'green team';
- Review what eco activities are already happening in your congregation;
- Plan new actions for the three core areas of involvement;
- Share your stories with SAFCEI and the eco-congregation community;
- Receive an eco-congregation award, celebrate your achievements.

Helpful further advice

- The Eco-Congregation programme is operated in several different countries through independent organisations in England, Wales, Scotland, Ireland, Norway, Canada, Hungary and the United States. Find out more at www.ecocongregation.org or email enquiries@ecocongregation.org

- Find out more about SAFCEI's Eco-Congregation programme at www.safcei.org.za. An eco-congregation handbook which provides guidelines is available from www.safcei.org.za along with an eco-congregation environmental audit.
- Help with undertaking an eco-audit can be found on international websites such as www.ecocongregation.org or www.webofcreation.org as well as through the SAFCEI Energy 100 Programme.
- A tool to help measure your carbon footprint or calculate how much carbon dioxide your congregation is contributing to climate change can be found at www.shrinkingthefootprint.cofe.anglican.org. This is a Church of England campaign, which offers online auditing tools to help churches in the UK reduce their ecological footprint and cut their carbon emissions.
- The Johannesburg Anglican Environment Initiative, www.jaei.org.za, has details of church environment projects and briefings for theological reflection.

Permaculture training as part of SAFCEI's Eco-Congregations programme

Resources for churches

The Season of Creation is the title of two imaginative Christian resource books drawn up by the environmental network of the Anglican Church of Southern Africa, which explores the six ecological themes of biodiversity, land, water, climate change, need not greed and stewardship. Each theme has liturgical material, background information, fact sheets and practical ideas for worship. It is endorsed by the Anglican Archbishop of Cape Town and Metropolitian of the Anglican Church of Southern Africa, Thabo Makgoba:

> "I warmly commend it for wide use across the Anglican Church of Southern Africa, to help us in responding to God's call to care for his creation. Caring for the environment has been identified as one of the priority areas for action at Provincial level, as part of our Vision for our church. Yet our vocation to be faithful stewards of all that God has entrusted to us is not new, being rooted in the creation accounts with which our Bible opens. Here we read that God 'formed man from the dust of the ground, and breathed into his nostrils the breath of life ... and put him in the garden of Eden to work it and take care of it' *(Genesis 2:7,15)*.

The Power of Outreach

> "Sadly, we have not done a great job of taking care of God's good gifts. Instead, all too often we bring about lasting damage. Now we are faced with environmental degradation, climate change, and, in many places, soaring food prices and falling food security. These resources remind us that with God's help, we can rediscover his vision for living in harmony with the world in which he has placed us."
>
> *Thabo Makgoba, Archbishop of Cape Town*

You can download the books at www.safcei.org.za

Many Christian Churches also keep the four Sundays in September to celebrate the 'Season of Creation', with special liturgies, prayers and sermons. This begins with the Celebration of Creation Day on September 1 and culminates on October 4, which is St Francis of Assisi Day. St Francis is the patron saint of the environment, associated with care of animals and the natural world and for seeing God in every living creature. Visit: http://seasonofcreation.com/

One of The Season of Creation books published by the Anglican Church of Southern Africa

THEOLOGICAL CHARTER OF THE ENVIRONMENT

Council of Protestant Churches in Rwanda

Commitment no 1

We commit to mobilise Christians from CPR member churches to value more the land, to protect and manage it in a proper manner because we, human beings were created out of the land, the soil; we live on it, get our livelihood from it and will return to the land as we depart from our present day existence *(Genesis 2.7; 3.19)*.

Commitment no 2

We value more everything that God created for when the work was done, God found it good. Therefore, we should protect the integrity of the creation and take care of it *(Genesis 1.26-27; 2.15)*.

Commitment no 3

We call to the people of God, Christians in particular, to be aware of their role, as people chosen by God; we ought to take up our responsibility of leading and protecting the environment; we should be aware that we will have to account for how we have fulfilled that mission of protecting it *(Genesis 1.26; 2.15)*.

Commitment no 4

We commit ourselves to be advocates of the environment, protecting it and undertaking concrete actions in our respective churches like planting trees of all species (food trees, trees that protect the land, medicinal plants and alike).

Commitment no 5

We commit ourselves to familiarise and live in harmony with the ecosystem because one of Jesus's mission has been to reconcile us with God and the environment *(Genesis 1.28; Col 1. 15-20; Romans 8.28)*.

Commitment no 6

We commit to doing our best so that our residential areas look like a new Eden and we commit to teach this culture to our children. By so doing, our children will inherit a good country to hand to future generations.

Commitment no 7

We commit to integrate the programme of protecting the environment in our strategic plans of all CPR member churches by taking into account the national policy of the government of Rwanda in protecting the environment.

REACHING THE COMMUNITY

In Rwanda, heads of Churches and committee members of the Council of Protestant Churches in Rwanda from all 30 districts of Rwanda and from all 23 Church members and church-related organisations met for two days in Kigali in September 2011. They drew up a *Theological Charter of the Environment* which has been adopted by the Church and is to be put into action by each parish.

Church leaders after adopting the Charter, joined by the Minister of Gender and Family, Hon Ms Aloisea Inyumba and Archbishop Dr Onesphore Rwaje

Commitment no 8

We commit to support and promote Rwandan values that do not conflict with the Gospel on the protection of the environment.

Commitment no 9

As we participants were trained, we commit to set up youth clubs and to sensitise them on the urgency and imperatives of protecting the environment.

Commitment no 10

We, trained pastors, commit to organise competitions around the protection of the environment calling from Rwandan culture – poems, songs, dances, proverbs, tales – and from the Bible.

Commitment no 11

We commit to inform Christians that mankind is the leader of all creation and that God has given them such a big responsibility.

Commitment no 12

We particularly commit to remind human beings that the environment existed before them, henceforth it is the existence of the environment that makes human beings' existence possible. Therefore, whoever destroys the environment destroys themselves.

The Charter is another example of good practice illustrating how faith groups can effectively spread the message of environmental care to the local community. Again, the important first step is the agreement of the faith hierarchy on the faith mandate for action on the environment. ARC recognised this when asking faith groups to draw up long-term plans on the environment and pledged a small amount of financial support to bring each faith group's leaders together to reflect on what their holy texts and traditions had to say about caring for the environment.

This was the bedrock for any commitment to action and fundamental in ensuring subsequent action was rooted in the faith's teaching and had the support of its leaders. This brought ownership, commitment and potential sustainability – as well as mobilising faith structures.

USING THE MEDIA

There are other ways of getting the message out. Faith groups have traditionally had publishing houses for their regular magazines, books, journals and newsletters. In fact, it's said that the faiths produce more newspapers than the whole of the European Union. Often the faiths also have their own radio and television stations.

In Rwanda, the Protestant Council of Churches was granted a license for a new CPR radio station in December 2011. It started broadcasting through its Radio Inkoramutima, the following year. In the first six months, the aim was to broadcast six hours per day. Broadcasts cover the whole of Rwanda, and part of neighbouring Burundi, Tanzania, Uganda and DRC. Environmental issues are high on the agenda for the new radio station. A formal cooperation with the Rwanda Environment Management Authority [REMA] to run shared programmes is planned.

THE POWER OF THE MOSQUE

"Whoever plants a tree, reward will be recorded for him so long as it produces fruit"

– Majma' al-zawaid, v.480

Environmental action: a form of prayer in practice

When a faith group takes the environmental message to the very heart of faith worship and practice, the impact can be very powerful. This is more than words. By embedding action in faith, the result is not only a greater acceptance among faith communities but a far more effective and long-lasting change in practice. Here's an example of how Ugandan Muslims are becoming more sensitised to

Greening Fridays began at the National Mosque, Kampala, Uganda

environmental issues through a tree-planting campaign that takes place in their holiest month every year.

In 2010, Hajjat Aphwa Kawaase Sebyala attended a British Council-run interfaith forum looking at issues around climate change in Abuja, Nigeria. At the end participants were asked to pledge what action they would take to protect the environment. Deforestation had been one of the issues discussed and Hajjat was horrified to discover that in the last century, Uganda's tropical forests had shrunk from 12.7 per cent of land cover to just 3.6 per cent. So she decided to launch a tree planting campaign in the Muslim community.

Greening Friday

The result was Greening Friday, a day dedicated to honouring the environment that has become firmly established in Uganda as part of Ramadan, the holy month of fasting and prayer that is regarded as one of the five pillars of Islam. And from that idea, Greening Friday is rapidly spreading as a movement that raises awareness and inspires community action on the environment.

Tree seedlings are distributed after every Greening Friday

From the start, the aim was to release the untapped potential of the Muslim community. "Most people in Uganda belong to a faith group and respect the views of their leaders. In the case of the Muslim community, imams attract believers every week, especially for Friday prayers," explains Hajjat. "Despite teachings on sustainable use of the environment in the Qur'an, there has not been a deliberate effort to pass on these teachings to believers. Most people attribute changes in weather patterns to an act of God. So we need to fight climate change from a faith perspective."

'Best practice starts here'

Hajjat knew her campaign would need the support of the Uganda Muslim Supreme Council (UMSC), the body leading Uganda's six million Muslims, and the country's 8,000 imams in district mosques, from the National Mosque in Kampala. "This is the headquarters, best practice starts here. Whatever Muslims see here, we follow," she says. "It is very important because the Qur'an has specific verses about the environment and if you are a believer, you must follow it. For you to protect the environment the way that Allah prescribed is the best way because then you are praying at the same time as protecting the environment."

The first Greening Friday was held at the National Mosque in 2010; since then Greening Friday has been firmly established as the second Friday of Ramadan. Holding Greening Friday during Ramadan means huge numbers of people get to hear the environmental message: "The mosque is packed to capacity because it is a holy month."

The sermon (Kutba) focuses on Islam and the environment, and is broadcast live across Uganda via the National Mosque's dedicated radio station, Radio Birali. Afterwards tree seedlings are distributed to worshippers and trees are ceremonially planted at the National Mosque itself by religious leaders led by His Eminence, the Mufti, and the Chief Imam who is also the Director of Sharia.

So far more than 30,000 tree seedlings have been distributed, donated by the National Forest Authority, and the campaign has spread to other mosques; every year demand for seedlings grows and more mosques want to take part. Greening Fridays are set to extend to all 8,000-plus mosques in Uganda, with more than 100,000 trees planted within the next seven years. Greening Fridays have also been taken up by Makerere University Business School in the capital, which this year will expand the programme to Kampala's prisons.

Sadaqah jariyah

Greening Fridays resonate with Muslims because they believe there is an additional blessing to be obtained in planting trees – particularly those which provide food for a human or animal. This is known as sadaqah jariyah – a form of charity that provides everlasting rewards for as long as people benefit from your good deeds. In other words, a person who plants trees will keep on accumulating rewards even after death. That's why most of the trees planted at the National Mosque are fruit trees, such as guava, avocado, mangoes and orange trees. "The best of the best are planted here so that people can see them and can emulate what is done here," Hajjat explains.

Although it is only three years old, Greening Fridays has already had a huge impact. Hajjat says: "People have become aware. Every time I walk through the gate, people say 'Hajjat of the trees' has come, give us trees, Hajjat'. So the awareness has been created and they know that it is a provision in the Qu'ran and they are also planting in their respective homes.

"That is the impact – creating awareness and changing the mindset. You don't see a forest here but every tree has a story and a very powerful story, so that story is the one people come for, just to tour this small place."

LEFT: Sheikh Qaribullah advises pilgrims to carry re-usable bottles or traditional gourds instead of plastic bottles. ABOVE: The 'Qadiriyyah Green vanguards' who champion environmental action

Spreading the word through pilgrimage, festivals and gatherings

Every year, 1.5 million Muslim pilgrims from West Africa go to Kano in Nigeria to visit the tombs of the local Qadiriyyah saints for the annual Maukib pilgrimage. The Qadiriyyah Movement's leader in Nigeria, Khalifa Sheikh Qaribullah Nasir Kabara, is working to make the pilgrimage more environmentally friendly.

The Qadiriyyah Movement is Nigeria's largest Islamic sect, with an estimated 15 million followers. It was one of the founding members of ARC's Green Pilgrimage Network which was launched in 2011 to encourage pilgrims, pilgrim cities and pilgrim places of every faith throughout the world to become models of care for the environment. Sheikh Qaribullah has signed a working partnership with the seven metropolitan councils of Kano to green the city and the Maukib pilgrimage.

Sheikh Qaribullah travels by horseback to the Maukib pilgrimage in Kano, Nigeria

The first guide to an environmentally sustainable Hajj – the largest annual pilgrimage in the world – was also launched as part of the Green Pilgrimage Network to encourage Muslim pilgrims travelling to Mecca to reduce their environmental impact on the Earth. More than 100 million plastic bottles, as well as many tons of other rubbish, are left behind every year after the Hajj. *The Green Guide for Hajj* asks pilgrims to avoid using plastic bottles and plastic bags, to clear up their own litter and to care for the environment once they return home from pilgrimage.

In 2012, the Qadirriyyah Movement adapted *The Green Guide for Hajj* and translated it into Hausa, spoken as a first language by around 34 million people, for use by Nigerian pilgrims going on the Hajj or on the Maukib pilgrimage each year. Its environmental message will be promoted through the annual pre-Hajj workshops in Nigeria.

The Hausa *Green Guide* message of environmental care is being spread though specially appointed 'Qadiriyyah Green Vanguards' who promote, for example, drinking from traditional water gourds instead of plastic bottles. New mobile water drinking points have been established along the pilgrim routes and local school children are involved in a 'pick up' campaign to collect plastic water bags from the streets. Rubbish bins and toilet facilities will also be installed along the pilgrimage route.

There is a ban on cars and motorcycles travelling to the site and Sheikh Qaribullah is leading by example: travelling to the pilgrimage on horseback. During the pilgrimage, he blesses and distributes free tree seedlings for planting and preaches on the environment.

- To read more about the Green Pilgrimage Network, visit www.arcworld.org
- You can also download *The Green Guide for Hajj* from the ARC website.

OTHER WAYS OF SPREADING THE WORD

Faith leaders have unique power to promote environmental awareness given their central role in the landmarks of people's lives – at baptism, confirmation, weddings or funerals. Increasingly, faith leaders in Africa are using their role at such seminal times to promote a message of environmental care.

For example, in Uganda, in the Bunyoro-Kitara Diocese of the Anglican Church in Uganda, every parish must plant annually a woodlot of pine trees and every candidate for confirmation and baptism must plant one tree each. The Diocese's Bishop, Bishop Nathan Kyamanywa, is known as the 'Bishop of the Trees'.

Likewise, the Northern Diocese of the Evangelical Lutheran Church in Tanzania has its own 'Bishop of the Trees' *(see opposite)*. Assistant Bishop Dr Fredrick Shoo has pioneered a policy where all young people attending confirmation classes plant trees. He also insists that young couples plant a tree during their wedding ceremony and recommends that trees are planted when someone dies.

Bishop Martin Shao plants a tree as Assistant Bishop Fredrick Shoo (left) looks on

Faith leaders can also use their office and status to convene large numbers to spread the environmental message. This has been the role played by Sheikh Mohammad Alshaikh Gariballah, the leader of the Samanniya Sufi section in Sudan. He has more than one million followers and in March 2012 he organised a conference on global warming, its effects and Islam's view on the environment in Khartoum, Sudan. The event was attended by more than 1,000 people with the leaders of some of the largest Sufi sects in the country attending, along with the Minister of the Environment.

Tanzania's Tree Bishop

Bishop Fredrick Shoo is a man on a mission – to plant millions of trees on the slopes of Mount Kilimanjaro. The Assistant Bishop of the Northern Diocese of the Evangelical Church of Tanzania is known locally as 'the Tree Bishop' and he has made tree-planting a core part of faith celebrations such as marriage, baptism and confirmation. For example, children must plant at least 10 trees and care for them over a two-year period before being confirmed.

It's all part of the Bishop's plan to place environmental conservation at the heart of faith action. As he says: "It does not need a PhD to see that already people are experiencing the impact of global warming. A simple farmer in the village can tell that something is wrong with our climate."

Not everyone understood why the Bishop was so concerned about trees at first. "In the beginning it was very difficult to be understood," he says. "I remember I spoke among some pastors and they were saying, 'Instead of preaching spiritual things, now he is talking about the environment, what does it mean?' They thought I was maybe out of my senses."

Bishop Shoo has set up women-led tree nurseries to grow hundreds of thousands of seedlings a year: "Of course we cannot replace the amount of trees which are being cut in a short time but I think we must begin somewhere," he says. "At the beginning of the Bible in the book of Genesis it is well stated that God created human beings and other creatures but he gave the human beings the greatest responsibility to take care of Creation. When we care for Creation, I would say that we care for life."

In 2012, the US broadcaster PBS travelled to Tanzania to interview Bishop Shoo. To watch the short film, Kilimanjaro Trees, visit:
http://video.pbs.org/video/2256074737/

WILDLIFE COMMITMENTS

"The richness of this world is a gift and a blessing from Allah. May we in turn be a blessing to all that Allah has made and given to our care"

Wildlife statement by the Supreme Council of Kenya Muslims

Conservationists have watched in despair as the illegal wildlife trade has decimated Africa's great species. So enormous is the destruction of rhinos, elephants, great apes and other species that the illegal wildlife trade is estimated to be worth between US$10-$20 billion per year. Dekila Chungyalpa, director of WWF-US's Sacred Earth programme, says: "This is not local poaching, it is wildlife crime. It is a trade run by international crime syndicates."

In September 2012, at the end of ARC's 'Many Heavens, One Earth, Our Continent' Celebration in Nairobi, 50 African Christian, Muslim and Hindu leaders made a special trip to Nairobi's National Park to speak out against the illegal wildlife trade, issuing statements calling upon their followers to protect 'the gifts of God in nature'. In doing so they joined a new movement of 34 major religious traditions around the world united in opposition to the illegal wildlife trade. The movement is aimed at tackling the issue through education, awareness-raising and action, through sermons and other outreach by the faith groups in the key countries in Asia and Africa affected by the illegal wildlife trade.

This is the first ever partnership of faiths to protect wildlife. It was made possible only after each tradition considered the matter in the light of its theology and decided this was a moral and spiritual issue. As ARC Secretary-General Martin Palmer says: "This marks a new and potentially highly significant development in the struggle to preserve the great species of our planet, or, as many of the faith would put it, those creatures that most need the protection of God." Here again is an example of faith groups allowing their holy texts and traditions to dictate their response and action to a serious environmental issue.

Faith leaders pray over the site where 12 tons of ivory were burned at Nairobi National Park

Photographs: WWF USA / James Morgan

Excerpts from faith statements on wildlife

United Church of Christ in Zimbabwe

"When we look with eyes of faith at the wonders of all that God has created: at the strength of the lion, the beauty of the gazelle, the swirling patterns of the birds of the air and the fish in the waters; when we see the flowers of the field greater in their beauty than even Solomon in all his riches, we should rejoice that God has placed us in the midst of such a glorious world. Therefore, when we see this glory diminished by our sin, greed and foolishness, we should be horrified and speak out against this wanton destruction of the wonder that God has created. We should both repent and seek to do all in our power to protect all that God has created.

"In the light of this, our faith, we call upon all Christians, but especially those of our tradition, to protect the gifts of God in nature. In particular, in this time of deep crisis of creation, caused by human folly and sin, we ask all Christians to protect and defend our most endangered species in Africa, such as the rhinoceros, gorillas and the elephant."

Supreme Council of Kenya Muslims

"In the light shed by the Qur'an and by the Hadith we call upon all the Ulumma of the faithful to remember that on the Dreadful Day of Judgement, we must answer for any wasteful use of creation, any destruction of a part of nature that was not necessary.

"We therefore ask all the faithful to protect those species in our own lands that are most threatened, such as the elephant, gorilla and rhinoceros, and to assist in the prevention of poaching and the illegal wildlife trade in order that on the Dreadful Day of Judgement, when the community of creatures stand before Allah, we will not be condemned by their words.

"The richness of this world is a gift and a blessing from Allah. May we in turn be a blessing to all that Allah has made and given to our care."

Hindu Council of Africa

"Hindus are guided to act according to dharma, striving to do the right thing in the most responsible way. As a pathway to dharma, Hindus are encouraged to always act in goodness, sattva, aspiring for the highest, purest and most excellent form of action. An essential principle of goodness is ahimsa, non-cruelty to others. The practice of ahimsa inspires us to avoid harm to any living being, to offer respect to all and to develop the virtue of compassion in our hearts.

"All Hindus are encouraged to be respectful of all life on earth and to protect those who are under threat from exploitation, poaching and extinction. We particularly encourage Hindus to defend the most endangered, including the elephants and rhinos of Africa and the tigers of India."

More information

- Visit ARC's website for information on the Wildlife programme including the faith statements: www.arcworld.org
- WWF-US's Sacred Earth Programme: http://worldwildlife.org/initiatives/sacred-earth-faiths-for-conservation

The Power of Faith

If a community is mobilised from the perspective of faith, it can 'do wonders'. So believes Imam Ibban Iddih Kasozi, Vice National Chairman of the Uganda Muslim Youth Assembly. That's partly because people in Africa listen to religious leaders rather than politicians because they trust them, he says. But it's also because when people are mobilised for faith reasons, they are powerfully motivated to take action.

He explains his own journey on faith and the environment. "I picked this up from the British Council's Abuja meeting for faith groups in 2009. We were a small group. But since the Abuja meeting and the meetings we have held in Nairobi with ARC, we have grown into a big group.

"It shows that if we can organise meetings for faith leaders at regional levels and give them this same challenge – 'what do you pledge?' – as in Abuja, we can do something. I pledged to plant 6,000 trees; I have planted 42,000. That is something. Bishop Nathan Kyamanywa has done the same, with his community. Hajjat Sebyala Aphwa has done the same, the other people we met from Zimbabwe, from Sudan and so on, have done the same. So if a community is properly mobilised from the level of faith, I think it would do wonders."

Launch of the long-term plan developed by the Uganda Muslim Youth Assembly and Humanitarian and Relief Efforts (Uganda) in August 2012

A Franciscan Blessing

May you be blessed with discomfort
at easy answers, half truths and superficial relationships
so that you may live deep within your heart.

May you be blessed with anger
at injustice, oppression and exploitation of people
so that you may work for justice, freedom and peace.

May you be blessed with tears
to shed for those who suffer pain, rejection,
hunger and war so that you may reach out your hand
to comfort them and turn their pain into joy.

And may God bless you with enough foolishness
to believe that you can make a difference in the world
so that you can do what others claim cannot be done
to bring justice and kindness
to all our children and the poor.