

Responding to Climate Change from the Grassroots:

The Green Belt Movement Approach

*"I cannot live without the
green trees, and nor can you"*

Wangari Maathai



Foreword by Wangari Maathai

Trees provide many things: food, shade, wood-energy, building and fencing materials. They regulate micro-climates and rainfall patterns, hold soil to the ground, serve as habitats for other life forms and help to harvest and retain rainwater. They sequester carbon and thereby clean the air.

Among the lessons learnt in the last three decades of Green Belt Movement's work is that tree planting continues to bring communities together, build a common purpose, more sustainable livelihoods, and over time, build resilience. Successful tree planting also requires capacity, commitment, proper financing, political will and good governance. It demands ownership by communities involved, respect for rights and, most importantly, that local people remain united behind a common vision.

Preventing deforestation and increasing tree cover is challenging but the rewards to communities and country are manifold and provide benefits far beyond simply absorbing carbon.

Trees and Forests have a significant role to play in a global climate deal when the right trees are planted in the right places and their survival is ensured. They must also simultaneously improve the livelihoods of local communities. The Green Belt Movement's integrated and holistic approach to climate change addresses livelihoods of communities, adaptation, mitigation and sustainable development.

As we continue, we thank our partners for joining us on the journey to reduce vulnerability of communities to climate change by not only continuing to plant trees, but by also reducing deforestation and forest degradation.



Professor Wangari Maathai
Founder, the Green Belt Movement
Nobel Peace Laureate, 2004



With over 30 years of experience in engaging communities at the grassroots to address issues of environmental degradation, gender and human rights, GBM is uniquely positioned to offer an integrated response to climate change based on a number of factors:

- GBM has a tested model for community-led reforestation which takes into account the value of threatened ecosystems as well as community livelihoods.
- The GBM model addresses adaptation, mitigation and sustainable development strategies.
- GBM's approach provides multiple benefits across a number of developmental areas.
- GBM Founder, Wangari Maathai, is a global advocate for Africa, women, climate justice and integrated climate change solutions.

GBM supports communities to plant and nurture trees, which improves their livelihoods and helps them become active participants in environmental regeneration. GBM's long term vision is to substantially increase forest cover in Kenya whilst helping to create sustainable livelihoods for all.



Introduction

The Green Belt Movement (GBM) has an existing network of over 4,000 community groups in Kenya mobilized to plant trees and protect their natural environment. These community groups actively engage with climate change in three ways:

- **Mitigation**, carbon sequestration through tree planting and ecosystem conservation and management.
- **Adaptation**, promoting tree planting and sustainable agricultural techniques including growing of indigenous food crops to enhance food security, harvesting rain water and curbing soil erosion to build resilience.
- **Promotion of Sustainable development:**, livelihood diversification and education to become more economically resilient and make progress towards the Millennium Development Goals (MDGs).

This report shares the experience of the Green Belt Movement as it seeks to address the challenges of climate change. GBM's holistic, grassroots approach to environmental management responds to multiple problems faced by communities including the negative impact of climate change. The following document will examine how this approach reduces environmental deterioration and provides sustainable livelihoods to local communities. As a non-governmental organization (NGO), GBM does not have all the answers. However, after 30 years of work at the grassroots level and particularly with women, there have been lessons learnt that provide a tried and tested model that could effectively respond to the current environmental crisis precipitated by climate change.



Climate Change: an issue of Justice and Security

Temperatures are rising because of an increase of green house gases (GHG) in the atmosphere and much of the GHG emissions have been made by developed countries which powered their economies with the burning of fossil fuels. The Intergovernmental Panel on Climate Change (IPCC) has now explicitly stated that climate change will seriously affect first and foremost the poorest and most vulnerable people on the planet, i.e. the people in less developed countries and especially in Africa. It is unfair that those who bear little responsibility to the crisis should pay the highest prices. Climate change is an issue of climate or carbon injustice.

Africa and tropical regions where agricultural yields fluctuate significantly with climatic variation will be especially hard hit by climate change. Scientifically modelled trends clearly show that if anthropogenic global warming continues at the current rate there will be catastrophe in Africa.

As Wangari Maathai says, *"First of all there will be a fast spread of the Sabara desert. It is spreading now. So crises like what is happening in Kenya and Darfur will get much worse. There will be violent competition over shrinking arable land, grazing land and water points as the desert spreads and dries up the land, rivers and lakes. Second, there will be crop failure because of changing rainfall patterns, and we will get massive starvation and migrations. As we all know, people don't sit down and wait to die. They migrate and do whatever they can to overcome political and economic barriers. Climate change is therefore also an issue of security."*

An effective and fair response to climate change requires not just emission reductions, but also a significant scale-up of support from the developed world to the less developed world to finance adaptation and mitigation. This needs to include finance for reforestation and prevention of ongoing deforestation and forest degradation, also known as REDD+.

There is also need for technology transfer and finances to facilitate the process. The United Nations Development Programme (UNDP) estimated that the amount of additional funds to address the impact of adaptation alone would require \$86 billion per year.¹ Besides the collective and common responsibility, climate change also calls for the principle of 'polluter pays' for the harm pollution is causing. Whether the world leadership is ready to commit substantial financial resources to deal with the crisis of climate change will only become clear in the days ahead.

¹ IPCC (2007b). Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, New York

"Climate change is the greatest humanitarian challenge facing mankind today. And it is a challenge that has a grave injustice at its heart."

Kofi Annan



Climate Change and Gender

Around the world women are already disproportionately affected by climate change. Two-thirds of the people living in extreme poverty are women. As climate impacts deepen, these effects are likely to worsen. Women are disproportionately affected because of the roles they play in households; they are the key providers of food, fuel and water. The impacts of climate change directly affect the availability of these vital resources. Women may also have reduced access to land and natural resources, reduced ability to earn a living and less voice in decision making. However, women are not victims but powerful change makers in their communities! By empowering women over the last 30 years GBM has highlighted the role that women play as key protectors and advocates for the environment. They deserve climate justice.

What is a forest?

What constitutes a forest is a vital definition when it comes to discussing the role forests will play in fighting climate change. UNFCCC only gives three criteria for defining a forest: tree canopy cover, tree height and area covered.

GBM advocates for the protection of standing natural forests, and places great emphasis on the difference between a plantation of exotic trees and a native forest. A plantation is a monoculture farm of exotic trees.

Chopping down a natural forest and replacing it with a plantation eliminates multiple benefits that forests provide including: water catchment, climate regulation, biodiversity and use of non-forest products like medicine and food.

Forests and Agriculture as part of the solutions

Arguably, approximately 20% of global emissions come from land use change, mainly the clearing and burning of forests.³ The environmental impact of this is two-fold: deforestation causes a direct rise in emissions and reduces the planet's natural ability to remove CO₂. So to be effective a global climate deal must include ecosystem carbon management of which reducing emissions from agriculture and deforestation is paramount.

A primary driver of forest degradation is unsustainable agricultural practices such as slash and burn, and replacing of indigenous forests with commercial monocultures. As biodiversity is lost and agricultural land degrades, farmers expand into new areas, often at the expense of forests. With the loss of vegetation comes the loss of soil and soil fertility as well as the hydrological services of forests. All these are drivers of reduction of water; and they lay the ground for desertification processes. To stop these drivers communities have an important role to play.

The Green Belt Movement Approach to Climate Change

With over 30 years of experience in engaging communities at the grassroots level, creating a linkage between conservation, sustainable livelihoods and peace has been at the heart of GBM's work since its inception. GBM works with a voluntary network of women and their families who form community groups and establish tree nurseries. To date over **45 million trees** have been planted across the country. Once groups are formed and 'sensitized' to environmental issues a range of projects are established to address local needs.

Individual farmers and groups plant a mixture of exotic and native species of trees on farms and public lands. They only plant native tree species in forests. The species include: *Prunus Africana*, *Olea African*, *Podocarpus Spp*, *Cordia Africana*, *Juniperus Procera*, *Vitex Keniensis*, and *Hagenia* among others depending on the ecological zones.

Investing in Adaptation

Communities that depend on subsistence farming are the most vulnerable to the negative effects of climate change, because if their crops fail they do not have the purchasing power to go to the market. To improve their security rural people will need to become more resilient to changes in water availability and to extreme weather patterns. Traditional knowledge and strategies have an important role to play in climate resilience. Droughts have been experienced before and local knowledge can inform for an effective response. Encouraging farmers to strengthen indigenous knowledge systems and build upon them creates more community ownership of solutions and reduces their vulnerability.⁴

² Parker, C., Mitchell, A., Trivedi, M., Mardas, N. (2009) The Little REDD+ Book

³ Quéré, C., et al, (2007) Contributions to accelerating atmospheric CO₂ growth from economic activity, carbon intensity, and efficiency of natural sinks, Proceedings of the National Academy of Sciences 104, 18866-18870

⁴ IPCC (2007b). Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, New York

"In the same way as there is no solution to climate change without forestry, there is no solution to deforestation without the support of forest populations"

His Excellency Bharrat Jagdeo, President of Guyana²



GBM Adaptation strategy supports the following activities that meet the needs of rural communities:

Concern	Actions (examples)	Outcome
Access to water	<ul style="list-style-type: none">• Dig channels to guide rain water into farms and ponds• Rainwater harvesting off roofs and roads)• Build sand dams	<ul style="list-style-type: none">• Irrigated fields and gardens• Improved crop yields• Improved water security
Alternative income generating activities (IGAs)	<ul style="list-style-type: none">• Develop sustainable forest IGAs• Community tourism and eco-tourism• Capacity building of women in business enterprising, business support	<ul style="list-style-type: none">• More money at household level• Improved local economies• Improved resilience
Agricultural resilience	<ul style="list-style-type: none">• Increase use of indigenous crops• Kitchen gardens, no till farming and irrigation with rainwater• Plant trees to stop soil erosion and for soil nutrient enhancement	<ul style="list-style-type: none">• Improved yields• Better nutrition• Improved local economies
Environmental rehabilitation	<ul style="list-style-type: none">• Plant trees,• Protect standing forests• Remove alien species that impact negatively on water table e.g. Eucalyptus• Advocate for better environment laws	<ul style="list-style-type: none">• Enhanced ecosystem services• More resilient ecosystems• Protection of forests, riverine systems and wetlands

“Over the coming decades these efforts might reduce well over 50 gigatonnes of carbon emissions that would otherwise enter the atmosphere.”

Achim Steiner, Executive Director United Nations Environment Programme (UNEP)⁵

Investing in Mitigation

GBM safeguards and restores carbon in three systems – forests, wetlands and agriculture. Mitigation against global warming involves taking actions to reduce emissions and then to enhance sinks.⁶ Large scale and ongoing mitigation efforts are urgently required to reduce the risk of dangerous run-away climate change and that is exactly what GBM is doing especially in protecting standing forests and intensifying re-afforestation. This is especially in the degraded areas of the five forested water towers of Kenya, where over 90% of all water in the country originates and about 70% of the population derive their livelihoods.

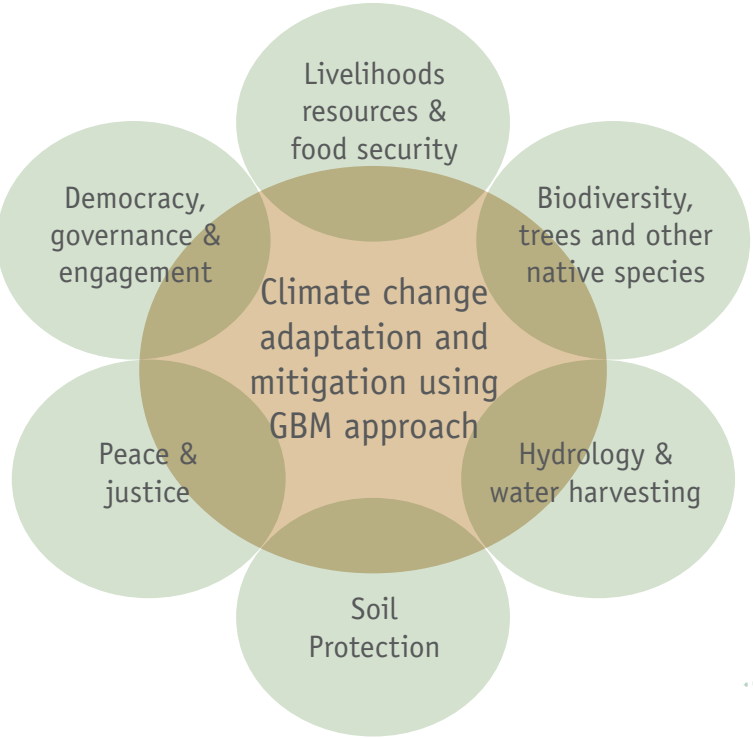
Planting trees is the first step, however ensuring their survival is essential. The long-term survival of trees is central to GBM’s tree planting strategy. This is monitored by a new state of the art GIS laboratory. Periodic land use change reviews in collaboration with government agencies and other international NGOs will help to safeguard against future ownership issues.

GBM is also engaged in active advocacy for national and regional forest protection such as Kenya’s REDD plan, the Green Wall of Africa and the Congo Basin Forest Fund. Educating farmers on skills to increase farm productivity helps to keep them from encroaching on forested areas.

Sustainable and holistic development has been GBM’s approach and it has developed an internationally recognised, truly grassroots, 10 step model of community mobilization and development in which local people themselves identify problems and take action to realize their solutions. GBM intervenes to restore ecosystems and to create a buffer against the negative effects of climate change with different co-benefits. Unless communities do the work themselves, own it and believe in it, those who do it for them invest in unsustainable efforts that are not worth the time or the money spent.

⁵ UNEP (2009), The Natural Fix?: The Role of Ecosystems in Climate Mitigation
⁶ IPCC Glossary Working Group III, p. 818, www.ipcc.ch/pdf/glossary/ar4-wg3.pdf

Multiple benefits of the GBM approach:



“We are seeing more regular heat waves. Droughts are more frequent and last longer. Our rivers and wells are drying up. The seasons have changed. The rain is not predictable now which makes planting crops and trees more difficult. Farmers cannot tell when to plant.”

Njogu Kahare, GBM Programme Officer

GIS @ GBM

The introduction of a Geographic Information System (GIS) and Remote Sensing- the use of satellite data- has provided a new tool for planning and monitoring projects. The GIS lab has trained over 100 GBM staff on field-based data collection and baseline surveys to support the implementation and management of GBM projects in Kenya. Handheld Global Positioning System (GPS) devices are being used to collect data on tree nurseries, tree planting, socio-economic indicators and field measurements on biomass and biodiversity.

The GIS lab is working with staff and communities to develop a comprehensive database of GBM projects which will provide a complete inventory of project information. This quantitative tool is invaluable in the planning and implementation of landscape-scale projects. The Lab is also working on spatial analysis to support national integrated conservation and development plans and the development of web applications to support data sharing. Information products from the GIS lab such as maps and charts are powerful communication tools to show stakeholders how Africa is being impacted by climate change.





Carbon Finance

Carbon finance projects are playing a valuable role in creating awareness of climate change among local communities and other sectors. However, developing countries will need to have more robust institutions to effectively implement these kinds of projects.

In Africa there are large numbers of small-scale farmers who access forest lands for cultivation. In Kenya, for example, a forest based farming system, also known as the shamba system, is entrenched in the Forest Act. Under the system communities are allowed to grow crops along with exotic tree species. This has resulted in the degradation of the indigenous forests, especially with the invasion of new species that eliminate other biodiversity.

GBM pilots a Clean Development Mechanism (CDM) project. The experience highlights the need for governments' policies and programmes to be aligned with specific requirements for carbon projects. CDM calls for projects to certify there will be no 'leakage'. In Kenya, some of the challenges faced include grazing of domestic animals in forests as well as the monoculture developments at the expense of forests, the shamba system. These challenges will limit the number of projects that can be implemented.

A great deal of due diligence needs to be done where communities are being involved to ensure successful CDM projects. Developing countries' policy has to allow carbon finance projects to thrive without denying communities their rights. As climate change is a cross cutting issue, it will require a holistic approach at all levels.

Lessons Learnt: Implications for Decision Makers

The Stern Review described climate change as the greatest and widest-ranging market failure ever seen.⁷ Funding relevant initiatives now will be far more effective than money spent in 10 years time to prevent further deforestation, protect the great terrestrial carbon sinks, the mighty tropical forests which are also the 'lungs of the world'. Therefore, it is vitally important to agree and implement emergency measures to begin to slow deforestation and forest degradation now.

It will take a combination of financial and policy mechanisms to protect forests and achieve significant reduction of deforestation and degradation rates. To achieve this, it is crucial that the following are taken into consideration:

- Capacity building for governments so that they implement effective strategies to protect critical ecosystems and land rights issues.
- Capacity building and support for local populations so they can shift away from livelihoods that deplete forests.
- Suitable monitoring and measuring mechanisms for forest carbon projects.
- Protection of ecosystems by prioritizing indigenous trees, and tree planting in water catchments and areas rich in biodiversity.
- Transfer of technology to developing countries.
- Financial resources to facilitate many of the processes

This is a crucial time in human history. The challenge of climate change requires that humanity shares its wealth more responsibly and accountably, and also shares it more equitably. It also needs to tread more lightly on the earth and reduce its carbon footprint for a better future. Time is not on our side but a better world is within our reach, if there be the political will from leaders.

"We are all in this together irrespective of our level of contribution to the problem. Business-as-usual for anyone would be a tragedy."

Wangari Maathai (2009) Address to the UN General Assembly on behalf of Civil Society



⁷ Stern, N., (2006) Stern Review: the economics of climate change Cabinet Office-HM Treasury UK



Congo Basin Forest Ecosystem

The Congo Basin Forest Ecosystem is the second largest tropical forest in the world after the Amazon. It crosses the borders of 11 countries and covers almost 50% of the land mass of Central Africa, sustaining over 50 million people in the region. The Congo Basin ecosystem plays a vital role in stabilising the global climate and needs to be protected. In 2005 Wangari Maathai was appointed Goodwill Ambassador to the Congo Basin Forest Ecosystem by the 11 Heads of State in the region to advocate for the forest. At the launch of the Congo Basin Forest Fund in June 2008, a multi-donor fund to take early action to protect the forests in the Congo Basin region, Wangari Maathai said, "The Congo River Basin does not need us. We need it... The stakes are high, but our future depends on it".

Kenya

Green Belt Movement
Adams Acard, Kilimani Lane Off Elgeyo
Marakwet Rd.
P.O Box 67545 - 00200 Nairobi – Kenya
Tel: +254 20 3871523/3873057
Email: gbm@greenbeltmovement.org

United Kingdom

Green Belt Movement International
Development House
56-64 Leonard Street
London EC2A 4JX
United Kingdom
Tel: +44 (0) 20 7549 0395
Email: gbmi@greenbeltmovement.org

United States

Green Belt Movement International
1666 K St, NW, Suite 440
Washington, DC 20006
Tel: +1 (202) 457 8080
Email: gbmius@greenbeltmovement.org



www.greenbeltmovement.org

Printed on 100% recycled paper
using vegetable based inks