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**THE ROLE OF PARLIAMENT IN PRESERVING BIO-
DIVERSITY**

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Biodiversity defined

The concept of biodiversity is a contraction of "biological diversity" that represents the way that life is organized and interacts on the planet. These interactions take place on scales ranging from the smallest, at chromosome level to organisms and systems and entire landscapes. It has many overlapping definitions including:

- The variety of plants and ecosystems within particular habitats.
- The variety of animal species and the micro-organisms and the genes they contain
- The total diversity and variability of living things and the systems of which they are a part
- The natural processes of which living things are a part.

Diversity includes:

- Genetic diversity
- Species diversity
- Ecosystem diversity

Biodiversity in Eastern Africa

There is a rich and diverse biological resource in the region with a variety of habitats that range from high montane forests to tropical lowland forests, plains and savannas, freshwater and soda lakes, coastal forests and mangroves. All these make the region a desirable tourist destination.

It is estimated that Kenya is the home to over 6,000 codified plant species, 10% of which are found in gazetted national parks, forests and reserves. Much of the biological resource is used for agricultural, pharmaceutical, construction, clothing and ornamental products.

Threats to Biodiversity in Eastern Africa

Loss of natural habitat and species could have a negative impact on tourism in the region yet the sector generates a huge amount of foreign revenue. The lack of adequate legal framework for protection of biodiversity loss in Eastern Africa has also contributed to the loss of biological resources.

Although countries in the region are signatories to the United Nations Convention on Biological Diversity (CBD) and have ratified it, their individual efforts at meeting the provisions of the Convention are far from adequate.

Threatened species

Some threatened species in the region include: the Grevy's Zebra, the Turkana Mud Turtle, the Tana River Red Colobus, and the Tana River Crested Mangabey.

Threats from new species

The introduction of non-native animal and plant species has also created problems for instance:

Nile Perch- The introduction of Nile Perch into Lake Victoria is believed to have led to the disappearance of more than 200 endemic species of fish.

Water hyacinth has also caused havoc to the lake by forming mats on the lake surface creating a hazard to boats, impeding the flow of water and reducing the nutrients available to species below the water surface and releasing toxics to other species.

Intellectual Property Challenges

International obligations undertaken under the auspices of the World Trade Organization (WTO) pose a threat to the preservation of biodiversity, indigenous knowledge and rights of farmers to seed.

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) lays down the minimum standard of intellectual property to be implemented through national legislation by member countries.

It allows the **patenting on life forms** thus Reducing people's control over their own genetic resources and conflicts with cultural/religious/social-ethical values as it threatens the sanctity of life.

The result is the establishment of a monopoly for the patent holders. Some of the effects of this clause include:

- stolen knowledge,
- lost seeds and
- patently unjust actions by multinational corporations

Many communities in developing countries have suffered as a consequence. For instance the **Hoodia succulent cactus of the San people**, who are indigenous inhabitant of the Southern Africa was patented by a British company as a sliming drug. The San have traditionally used the plant to stave off hunger and thirst when on long journeys as it acts as an appetite suppressant.

The rights to license the drug were sold to a US pharmaceutical firm, Pfizer. The firm has failed to comply with the rules of the CBD which require prior informed consent of all stakeholders. The Sans traditional knowledge has been used to produce the drug but they have not been compensated. TRIPS however, allows the patenting of "inventions" based on traditional knowledge and genetic resources.

Consequences of TRIPS

By allowing the patenting of life forms and natural processes, seeds and genetic resources for food and agriculture, the livelihoods of farmers and food security is threatened.

Farmers using patented seeds are deprived of the right to use, save, plant and sell their seeds.

The consolidation of multinational corporations in the seed, agro-chemical and food-processing industries has concentrated the control of seeds, seed choices and ultimately food security into the hands of a few corporations and out of the hands of farming communities.

The imposition of patent rights over biological resources and traditional

knowledge unfairly deprives communities over rights and access to the same resources they nurtured and conserved over generations. This contradicts the key principles of the Convention on Biological Diversity (CBD) which protects indigenous knowledge.

This race to patent genes, cells, DNA sequences and other naturally occurring life forms has blurred the crucial distinction between discoveries and basic scientific information which should be freely exchanged and truly invented products or processes meriting patent protection.

The Protection of Biodiversity

Internationally and regionally, there are numerous treaties intended to preserve biodiversity one of the most important is:

The Convention on Biological Diversity (CBD) (1992)¹

The Convention recognizes biological diversity and requires its preservation for all humankind. Some of the most important clauses are with regard to:

- Adopting a preventative approach to biodiversity loss and the application of the **precautionary principle**-which states **that the lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize a likely danger.**
- Incorporating indigenous contributions of knowledge into the modern initiatives of

biodiversity conservation and equitable compensation to the custodians of such traditional knowledge.

- The need to recognize special contributions made by women to biodiversity efforts.
- Access to genetic resources being subjected to prior informed consent of the State Party providing the resources.
- Transfer of biotechnology for effective implementation of the Convention.

Following the entry into force of this Convention, an accompanying Protocol was prepared in furtherance of certain parts of the CBD.

The Cartagena Protocol on Biosafety to The Convention on Biological Diversity (2000)²

Its objective is to contribute to **ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity**, taking also into account risks to human health, and specifically focusing on transboundary movements.

The Protocol was prepared taking into account:

* That many countries, particularly developing countries, had limited capabilities to cope with the nature and scale of known and potential risks

¹ Kenya signed the Convention on 11th June 1992 and ratified it on 26th July 1994.

² Kenya Signed the Protocol on 15th May 2000 and Ratified it on 24th January 2002.

associated with living modified organisms.

The Protocol relates to transboundary movement, transit, handling and use of all living modified organisms that may have adverse effects on the conservation and sustainable use of biological diversity. It requires:

- * Advance informed consent
- * Notification before movement
- * Adherence to the procedures regarding domestic use, including placing on the market, of a living modified organism for use as food or feed, or for processing.
- * Risk assessment & risk management in order to identify and evaluate the possible adverse effects of living modified organisms on the conservation and sustainable use of biological diversity.
- * Prior informed consent to access to genetic resources.

Other international treaties touching on conserving biodiversity include:

- Convention for the Protection of the World Cultural and Natural Heritage (1972).
- The Convention on the Conservation of Migratory Species of Wild Animals (1979).
- The Convention on Fishing and Conservation of Living Resources of the High Seas (1958)
- The UN Convention on the Law of the Sea (1982).

Conventions Specific to African Countries

There are specific treaties dealing with issues of biodiversity in the continent such as :

- **The African Convention on the Conservation of Nature and natural Resources (1968).**

Requiring the harnessing of the continent's natural resources for advancement of the welfare of the people and the conservation of biological diversity.

A key feature is the requirement that **customary rights should be taken into account in the implementation of conventions on biodiversity conservation.**

- The Convention for the Protection, Management and Development of the Marine and Coast Environment of the Eastern African Region(1985)
- The UN Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (1994).
- The Lusaka Agreement on Co-operative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora (1994).

All these treaties have however not stopped the loss of biodiversity indeed the number of endangered plant and animal species has increased almost unabated.

Conservation of Biodiversity

Conservation is being carried out through in a variety of ways. Programmes such as the **Lake Victoria Environment Management Programme**, a regional conservation management project aimed at developing profitable fisheries and controlling the water hyacinth through manual chemical and biological control methods.

Other conservation methods include the **reintroduction of species to areas from which they have been eradicated** and management of wildlife-livestock interactions.

Human and wildlife conflicts have resulted in near extinction of wildlife in some areas and this has had to be addressed. For instance in 2001, KWS translocated 56 elephants from Sweetwaters Rhino sanctuary in Laikipia district to Meru National Park. Meru's herds had been reduced during the 1960's and 70's.

Policies and laws are placing greater emphasis **on community participation in conservation**. Kenya has also created a number of Institutions to enhance conservation.

The National Environmental Management Authority (NEMA)

The Authority has authority to coordinate all aspects of environmental protection and oversee that conduct of Environmental Impact Assessments to evaluate possible effects of certain projects.

The National Museums of Kenya

This houses a Centre for Biodiversity and the Kenya Research Centre for Indigenous Knowledge.

The Kenya Wildlife Service

Has the mandate of conservation and management of wildlife and Kenya's National Parks. Outside the National Parks, community activities such as ecotourism are part of the efforts to enhance environmental conservation.

Preservation through preventing Biopiracy

Biological Piracy "Biopiracy" is the theft of biological matter such as plants, seeds and genes which more often than not find their way to developed countries where multinationals make huge profits for their sale.

Transnational Corporations are racing one another to manufacture pharmaceutical and agricultural products, the main ingredients of which are genetic materials of medicinal plants, soil microorganisms, and crops for which they have acquired the patent. Genes of living organisms are being patented in what has now become "**The Gene Rush**" this is the new scramble for future profits.

By patenting, companies gain exclusive rights to produce and sell the "modified" plants and animals which have been manipulated to contain selected foreign genes.

High profits are reaped by charging royalties to other firms wishing to use the technology.

Biopiracy in Kenya

Kenya has over the years suffered from the exploitation of its biological resources by foreigners and foreign companies in collusion with Kenyans. Without adequate legal protection and regulation, Kenya could lose its wealth of biogenetic resources at times through faulty material transfer agreements.

Extremophiles from Lakes Bogoria and Nakuru- In the 1990's samples of *extremophiles* were "exported" from the lakes under unclear circumstances and with the co-operation of a local university. A US-based biotechnology company (Genecor International) used the samples to develop industrial enzymes used for the commercial manufacture of detergents. The sale of the enzymes has brought in millions of dollars for the company.

Lake Bogoria is a National Reserve while Lake Nakuru is a National Park managed by the Kenya Wildlife Services. KWS is considering taking legal action.

Contrary to the CBD, local communities around the lake have been totally ignored in the transaction between the Universities and the foreign companies.

Gene-banking- The Royal Botanical Gardens-Kew in the United Kingdom entered a material transfer agreement with the National Museums of Kenya allowing it to harvest genetic plant material from Kenya's arid and semi-arid lands for storage in Britain. The aim is to collect and conserve genetic materials from plants that are not endangered for their Millennium Seed Bank Project.

Some of the concerns emerging from the agreement include the possibility that intellectual biopiracy may occur especially as plant genetic mapping is lacking thus unless the genetic material is from plants endemic in the country's ecosystem, the occurrence of biopiracy may not be wholly ruled out. It would have been better if the specific types of species to be prospected had been identified so as to erase the ambiguities that can help abet biopiracy.

What can parliaments do?

Farmers and indigenous people from different parts of the world, including Africa, have suffered greatly from exploitation of their natural resources for commercial gain without their knowledge, consultation or compensation. In the absence of close implementation of laws regulating access to these resources, pharmaceutical, agrochemical and seed multinationals exploit Africa's biological wealth and obtain rights of intellectual ownership to the resources and knowledge of communities.

In the mid-1990s while the debate on patenting of life was at its peak, especially during the introduction of the TRIPS agreement, Parliaments around the world participated in the debate. For instance in 1995, **India's Upper House of Parliament** forced the government to defer a Patent amendment Bill due to the contentious patenting of life forms allowed under the TRIPS agreement.

The European Parliament also voted against a proposed directive on the "legal

protection of biotechnological inventions" as the directive would have allowed patenting of biological materials and microbiological processes with few restrictions.

Parliaments have a role to play largely in two areas; legislative and oversight.

Parliamentary action in Kenya

A keener oversight role can be activated through the Committees of the House such as Education, Research and Technology and agriculture, Lands and Natural Resources in the preservation of biodiversity and use of biotechnology.

Currently, there is lack of effective policy framework in Kenya to enhance and regulate biotechnology development and application. There are major challenges to development and application of biotech in Africa which can be addressed through policy, regulation and legislation. Members of parliament change this course by:

- Lobbying government to allocate more resources to build and maintain effective capacity for biotechnology.
- They can spur public debate and engage in dissemination of information to the public.
- Participate in the formulation of appropriate national policy on biotechnology and biosafety.

- Actively engage in the debate as and when the Biosafety legislation is introduced in the House
- Disseminate information to the public about the pros and cons of biotechnology and GMOs.

Biotechnology and Biosafety & Genetically Modified Organisms Policy in Kenya

Biosafety issues relate to the need to protect human health and the environment from possible adverse effects of products of modern biotechnology. This is due to the uncertainties on the actual behaviour of GMOs in the natural environment.

Biotechnology refers to the technologies used to improve plants and animals or to develop microorganisms for specific applications. Modern biotechnology involves the application of cell modification techniques that overcome natural physiological, reproductive and recombination barriers and impart desirable traits or food, medicine and other applications.

Concerns about biotechnology relate to frequent and unpredictable food shortages, declining nutritional levels of foodstuffs, inadequate health care provision, environmental degradation and declining industrial development.

In order to address the concerns, there is need for the formulation of appropriate national policy on biotechnology and biosafety.

Discussion about biodiversity, biotechnology and the place of GMOs has been on going in Kenya since the late 1990s and interested stakeholders have made their positions known in readiness for up-coming legislation in these areas.

Currently, the known status in Kenya is that no GMOs have been released into the environment however, there is on- going research in the development of GMOs for bio-degradation and pollution control products.

The government's position seems to be pro- biotechnology and GMOs. While opening a biosafety greenhouse in KARI this year the Kenyan President stated:

"We must embrace and apply modern science and technology in farming. Indeed, there is evidence that countries that have embraced modern agricultural technologies have improved economic performance, reduced poverty, and ensured greater food security for their people.... The development of a biotechnology policy is at an advanced stage. Bills to support this policy are being prepared for consideration by Parliament."

The Ministry for Education, Science and Technology has in collaboration with stakeholders prepared a draft National Policy on Biotechnology and Biosafety whose contents will be translated into a Bill.

The Objective & Scope of the Policy

The policy document intends to provide:

- A framework for safe development and application of biotechnology in the country.
- Basic conditions for securing safety in the application of GMOs
- Disseminate information of the public and industry on safe use of biotechnology
- Resources for investment to ensure effective implantation of the policy.
- Ensure self-reliance in the development & production
- Access to and benefit from safe ethical and profitable uses of biotechnology-based products.

The policy' scope extends to:

- Traditional and modern biotechnology
- Genetically modified organisms in transit
- Genetically modified organisms that are pharmaceuticals for human use.

The marketing and utilization of biotechnology products, Material Transfer Agreements and Intellectual Property Rights are also addressed.

Guidelines principles are elaborated with regard to implementation, ethics and public participation in the decision-making process.

Parliamentarians can actively engage in the debate as and when the Biosafety legislation is introduced in the House and in ensuring that public bodies with information make it accessible to the public and ensure that the citizenry are consulted.

Kenya Agricultural Research Institute (KARI) is engaged in conducting agricultural research for the promotion of crop and livestock sectors and so contributes to towards the attainment of food security and poverty reduction.

It is in the process of developing genetically modified crops such as sweet potatoes, maize, wheat and cotton with potential for increasing yields but also reducing production costs.

In 2000-2 KARI released 14 variety of maize suitable for semi-arid, mild latitude and high altitude areas.

Between 2001-2, KARI registered over 152 varieties and inbred lines of crops for the purpose of protection. Varieties of crops developed include; beans, sorghum, millet, cow peas, beans, toot and tuber crops.

A local breeding programme involving local and European breeds of goats has produced a dual purpose goat which performs well in both arid and high rainfall areas and is capable of producing up to 3 litres of milk per day.

A COMMON EAST AFRICAN POLICY?

None of the three East African countries has adequate regulation to control the entry and use of products of biotechnology especially genetically modified products, thus there are no specific laws to protect indigenous organisms and agriculture from the onslaught of GMOs.

There is also no compensating mechanism in the event that the use of GMOs causes problems.

Since the three countries are working towards regional integration under the auspices of the East African Community, cooperation in the area of biodiversity, agriculture, food, environment and natural resources. Biotechnology and the production and use of GMOs is an area that can receive a common approach if it is debated and legislated on by the East African Legislative Assembly. Already there is co-operation on Lake Victoria on aspects of transportation and conservation of the environment.
