Development of a Strategy for Building the Resilience of Pastoral Communities to Climate Change in Two Ecosystems of Sudan Project (PSAP)

Workshop on: Regional and International treaties on conservation and sustainable use of renewable natural resources between Practices and Adoption.

Conventions Related to Biodiversity and Genetic Resources and the Nagoya Protocol on Access and Benefit Sharing (ABS)

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BACKGROUND

"Genetic material" means any material of plant, animal microbial or other origin containing functional units of heredity. "Genetic resources" can be defined as genetic material of actual or potential value. These values include traditional knowledge and local practices that have accumulated through generations to distinguish a certain community. Plant genetic resources are conserved for use by people as food, medicine, fuel, fodder and building materials.

The plant genetic resources are the vital component of plant bio-diversity, precious heritage of mankind, therefore needs to be collected and conserved before they are lost forever. Plant genetic resources consist of genotypes or population of land races, advanced cultivars, genetic stocks, wild and weedy species which are maintained in the form of seeds, plants, tissues etc. The great wealth of genetic diversity existing in these gene-pools holds vast potential for current and future use for the benefit of mankind. These genetic resources have a part to play in the future improvement of economically important plant species. Their importance is due to use in breeding programs, crop improvement, developing new varieties resistant to biotic and a-biotic stresses, as they are drought/insect/pest/disease tolerant and resistant to biotic/ a-biotic stresses.

Plant genetic resources conservation without use has little point and conversely, use without conservation means neglecting the genetic base needed by farmers and breeders alike to increase productivity in the future. To be of use, material held in gene banks must be well documented. This entails maintaining: passport data, giving location, site characteristics, species, cultivar name, characterization data, recording highly heritable characteristics that can be used as a basis to distinguish one accession from another; and evaluation data, giving traits such as yield, quality, phenology, growth habit and reactions to pest, disease and abiotic stresses.

The issue of genetic resources has become an issue of concern in many developed countries of the North. This emanates from the fact that these countries are trying to protect their investments which are based on employing modern technologies. Therefore, developing countries of the South are bound to collectively protect their natural resources including genetic resources, their traditional knowledge and their innovative local practices associated with these genetic resources. This is because these resources constitute the foundation of the development, heritage, and source of food, clothing and medicine for these communities and for humanity, at large.

This trend has started after the Second World War and with the advents of technology and its importance in development. But the concept of sustainable development which has been proposed aims to using the resources, especially genetic resources, in a sustainable manner. In-situ and ex-situ conservation methods were brought about with the appreciation that what is being utilized from the resources today is borrowed from the future generations. Genetic erosion is the irreversible loss in genetic diversity, usually of crop plants or domestic animals.

Genetic resources became the new "green gold". Given the considerable financial means that need to be devoted to research and development for biotechnological innovations (including the production of genetically Modified Organisms (GMOs)), recourse to patents has spread. Patents thus coexist with plant variety certificates. Developing countries that are considered centers of origin to genetic resources do not usually have adequate modern technology capabilities or financial resources to enable them develop their genetic resources or protect their traditional knowledge and distinctive traditional practices. Eventually, some agreements were established that recognize community intellectual property rights to genetic resources

and their associated traditional knowledge and practices, in developing countries. Developing countries have the right to develop their own national legislation by which in return gain access to technologies, information and modern scientific methods as a kind of benefit sharing arising from the utilization of genetic resources and the related traditional knowledge and practices at the commercial scale.

BIODIVERSITY-RELATED CONVENTIONS (Species and Genetic Diversity)

Convention on Biological Diversity (CBD)

The CBD was opened for signature at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in June 1992. It entered into force on 29 December 1993 and currently has 193 Parties. The principal objectives of the Convention on Biological Diversity are

· *the conservation of biological diversity,*
· *sustainable use of its components,*
· *the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, as well as by appropriate funding.*

Convention on the Conservation of Migratory Species of Wild Animals (CMS) CMS is also known as "Bonn Convention" and it aims to conserve terrestrial, aquatic and avian migratory species throughout their range. It is an intergovernmental treaty, concluded under the aegis of the United Nations Environment Programme, concerned with the conservation of wildlife and habitats on a global scale. A Secretariat, in Bonn Germany, under the auspices of the United Nations Environment Programme (UNEP) provides administrative support to the Convention. The decision-making organ of the Convention is the Conference of the Parties (COP). A Standing Committee provides policy and administrative guidance between the regular meetings of the COP. A Scientific Council consisting of experts appointed by individual member States and by the COP gives advice on technical and scientific matters.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES is an international agreement between governments. The objectives of (CITES) are to organize international trade, movement, transfer and possession of endangered wild species of fauna and flora. It also aims to protecting all plants and animals as they constitute components of nature and cannot be restored if they become extinct. Such protection can be achieved through awareness and international cooperation. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. CITES works by subjecting international trade in specimens of selected species to certain controls. All import, export, re-export and introduction from the sea of species covered by the Convention has to be authorized through a licensing system. Each Party to the Convention must designate one or more Management Authorities in charge of administering that licensing system and one or more Scientific Authorities to advise them on the effects of trade on the status of the species. The CITES Secretariat is administered by UNEP and is located at Geneva, Switzerland.

Convention on Wetlands of International Importance Specially as Water Fowl Habitat (Ramsar) (1971 modified in 1982),

The Convention on Wetlands of International Importance or Ramsar is an intergovernmental treaty that provides the framework for national action and international cooperation for the

conservation and wise use of wetlands and their resources. The Ramsar Convention is the only global environmental treaty that deals with a particular ecosystem. The treaty was adopted in the Iranian city of Ramsar in 1971. The Convention uses a broad definition of the types of wetlands covered in its mission, including lakes and rivers, swamps and marshes, wet grasslands and peat lands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans. The Convention secretariat is located in Gland, Switzerland.

World Heritage Convention (WHC)

The World Heritage Convention or WHC recognizes the way in which people interact with nature, and the fundamental need to preserve the balance between the two. This 1972 Convention concerning the Protection of the World Cultural and Natural Heritage developed from the merging of two separate movements: the first focusing on the preservation of cultural sites, and the other dealing with the conservation of nature. The most significant feature of WHC is that it links together in a single document the concepts of nature conservation and the preservation of cultural properties. The Convention defines the kind of natural or cultural sites which can be considered for inscription on the World Heritage List, and stipulates the obligation of States Parties to report regularly to the World Heritage Committee on the state of conservation of their World Heritage properties.

Commission on Genetic Resources for Food and Agriculture (CGRFA)
In 1995, based on the increased awareness of the importance of biodiversity in achieving sustainable development, the Commission's mandate broadened. In addition to plants, its work now encompasses all other components of biodiversity for food and agriculture – animal, aquatic, forest tree, invertebrate and micro-organism genetic resources, through its Multi-Year Program of Work.

CONVENTIONS RELATED TO PLANT GENETIC RESOURCES (Access and Benefit-Sharing)

The Convention on Biological Diversity (CBD)

The CBD is a comprehensive, binding global agreement. The Convention establishes three main goals: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources.

The Convention encourages the governments to invest in conserving biodiversity on the basis of sovereignty rights over their genetic resources and calls on governments to establish their own national legislation that enables them to use, transfer and trade in their genetic resources. The CBD has provided several mechanisms, most important of which is the Clearing-House Mechanism (CHM) that helps in exchange of information between the parties.

- Cartagena Protocol on Biosafety to the Convention on Biological Diversity

The Cartagena Protocol on Biosafety to the Convention on Biological Diversity which was adopted in 2000 has entered into force in 2003. It aims to ensuring an adequate level of protection in the field of state of transfer, handling and use of Living Modified Organisms (LMOs) or Genetically Modified Organisms (GMOs) that may have adverse effects on conservation and sustainable use of biological diversity, taking into account risks to human health. The CBD also provides funding for capacity building in developing countries to help these countries conserve their biodiversity and develop biosafety national frameworks.

- Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization

In the year 2002, the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization, were published. These guidelines aim at helping parties and governments and other stakeholders develop strategies which enable access to genetic resources and benefit sharing and develop mechanisms to contribute in establishing legislative or administrative frameworks or the policies which help these entities to negotiate. Are voluntary guidelines for the parties (member states) to the Convention on Biological Diversity.
These guidelines identify the steps to be taken towards access to plant genetic resources and means of benefit sharing after obtaining prior informed consent (PIC). They also identify the basic requirements for mutually agreed terms and define the main roles and responsibilities of users and providers and stress the importance of the involvement of all stakeholders in decision making. The guidelines came in time for many countries to consider them when drafting their own legislation on genetic resources.

-The Nagoya – Kuala Lumpur Supplementary Protocol
The Nagoya – Kuala Lumpur Supplementary Protocol is a treaty intended to supplement the Cartagena Protocol on Biosafety. Its adoption marks the completion of the negotiations that started in earnest in 1996 at the first meeting of the Open-ended Ad Hoc Working Group on Biosafety, an intergovernmental working group mandated by the second meeting of the Conference of the Parties to the Convention on Biological Diversity to negotiate a biosafety protocol.

International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

The FAO has developed an international treaty named the "International Treaty on Plant Genetic Resources for Food and Agriculture" and it was adopted in 2001. The treaty went into effect in 2004 and has been ratified by more than 120 countries. The FAO International Treaty on Plant Genetic Resources for Food and Agriculture helps the developing countries conserve their genetic resources for food and agriculture and ensure their utilization in a sustainable manner to provide for food security of the peoples in these countries. The treaty recognizes the role of local and traditional communities and farmers and their traditional knowledge and practices worldwide especially in centers of origin of plant genetic resources. Additionally, the treaty recognizes farmers' rights to new plant varieties and the equitable sharing of benefits from the use of the resource from the center of origin and also the right to participate in decision-making. This treaty recognizes the intellectual property rights of communities, groups and countries that own plant genetic resources for food and agriculture. The treaty has established several institutional mechanisms for example the, 'Multilateral System of Access to Genetic Resources and Benefit Sharing'. This system allows free exchange of plant genetic resources especially those deposited at the Consultative Group on International Agricultural Research (CGIAR) centers. This is done, taking into account the sovereignty rights of the countries on their genetic resources, through the Material Transfer Agreement (MTA) which makes collection and transfer of genetic resources possible. The treaty has an appendix listing the crops that abide by the Multilateral System's information.

ITPGRFA aims at recognizing the enormous contribution of farmers to the diversity of crops that feed the world, establishing a global system to provide farmers, plant breeders and scientists with access to plant genetic materials, and ensuring that recipients share benefits they derive from the use of these genetic materials with the countries where they have been

originated. The treaty protects Farmers' Rights, which include the protection of traditional knowledge, and the right to participate equitably in benefit-sharing and in national decision-making about plant genetic resources.

TRADE AND INTELLECTUAL PROPERTY RIGHTS-RELATED CONVENTIONS AND ORGANIZATIONS

New advances have been made in modern biotechnology and the 'know-how' is considered a propriety of those who developed it. Furthermore, the protection of these technologies has been proposed locally and internationally under what is known as Intellectual Property Rights (IPRs). These are linked with their commercial exploitation, movement of products, and use of trademarks, geographic indicators, distinct plant varieties and others. This has been achieved through the world trade agreements and the World Trade Organization (WTO) oversees the implementation of such agreements.

Due to the newly developed free trade agreements there are now bilateral and regional partnerships between developed and developing countries or between regional organizations of the North and countries of the South. The opportunity of benefiting from modern technologies that was obtainable for developing countries has shrunk as some new restrictions imposed by such regional agreements were not initially cited in the international conventions and treaties. Such restrictions could be interpreted as an intrusion in the sovereign rights of the countries.

As a result of these new developments in technology, the genetic resource is not necessarily a whole organism or an organ or even a cell but can simply be a trait or the genetic makeup which has rare physiological qualities which can be transferred to another organism. Ultimately, the wild plant that didn't have economic use and value in the past has now become a significant source of rare genes that can be used to upgrade the economic value, marketability and production.

It should, however, be noted that despite the fact that there are several conventions and treaties dealing with the issue of genetic resources, the objectives of their ratification remain the same. That is basically making these resources available for exploitation by all to develop new products which contribute to upgrading the standard of living, curb hunger, and minimize certain diseases or for the welfare of societies, under a system which provides participation and benefit sharing for all.

Intellectual property refers to rights in creations of the human mind which arise under the laws of patents, copyrights, trademarks, trade secrets, unfair competition and related laws. At least two major international agreements, both legally binding, deal with this issue: the Convention on Biological Diversity (CBD) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) of the World Trade Organization (WTO). In addition, the World Intellectual Property Organization (WIPO) and other international institutions are increasingly becoming active on the subject.

World Trade Organization (WTO)

The World Trade Organization came into being in 1995. One of the youngest of the international organizations, the WTO is the successor to the General Agreement on Tariffs and Trade (GATT) established in the wake of the Second World War.

The purpose of the WTO is to ensure that global trade commences smoothly, freely and predictably. The WTO creates and embodies the legal ground rules for global trade among member nations and thus offers a system for international commerce. The WTO aims to

create economic peace and stability in the world through a multilateral system based on consenting member states (currently there are slightly more than 140 members) that have ratified the rules of the WTO in their individual countries as well. This means that WTO rules become a part of a country's domestic legal system. The rules, therefore, apply to local companies and nationals in the conduct of business in the international arena. If a company decides to invest in a foreign country, by, for example, setting up an office in that country, the rules of the WTO (and hence, a country's local laws) will govern how that can be done. Theoretically, if a country is a member to the WTO, its local laws cannot contradict WTO rules and regulations, which currently govern approximately 97% of all world trade.

-Trade Related Aspects of Intellectual Property Rights (TRIPs) Agreement

The TRIPs Agreement includes some articles that deal with the protection of new plant varieties only as intellectual property. The agreement does not include protection of local or wild plant genetic resources even though they can be the base which breeders can use as a source for genetic diversity necessary for breeding new varieties. WTO agreements do not recognize traditional knowledge of local communities. It was therefore suggested that developing countries attach their local legislation with the use of plant genetic resources when breeding new plant varieties with the validity of its protection not as an additional condition to access protection but as an obligation for benefit sharing from technology and financial returns. Since the TRIPs agreement allows using other systems for example the (sui generis) system, many members to the agreement from developing countries found that UPOV offers a better alternative that suits better their demands.

The World Intellectual Property Organization (WIPO)

The United Nations has established the World Intellectual Property Organization (WIPO) in 1974 based in Geneva, Switzerland. The objectives of WIPO are to encourage the protection of intellectual property rights all over the world through cooperation among the countries and cooperation with international corporations. WIPO develops mechanisms to enhance the protection of intellectual properties according to Paris convention for the Protection of Industrial Property (1883) and Berne Convention for the Protection of Literary and Artistic Works (1896) and any other convention or international treaty. The Organization also encourages countries to join new treaties or agreements and to improve national legislation of member countries and at the same time transfer technology associated with industrial property to developing countries.

-Convention of the International Union for the Protection of New Varieties of Plants (UPOV)

International Union for the Protection of New Varieties of Plants (UPOV)
(The acronym UPOV is derived from the French name of the organization, *Union internationale pour la protection des obtentions végétales)*. UPOV Convention (1961), revised at Geneva (1972, 1978 and 1991). UPOV was established to protect intellectual property rights either on modern technologies or new plant varieties. UPOV provides that Plant Variety Protection (PVP), also called "Plant Breeder's Rights" (PBR) may be granted to the "breeder" of a "new" variety that is Distinct, Uniform and Stable**.** The UPOV technical requirements for breeder's rights are referred to as the "DUS" requirements.

The importance of UPOV is gained from its relation to plant genetic resources and also from its connection with the WTO's (Trade Related Aspects of Intellectual Property Rights - TRIPs Agreement.

THE NAGOYA PROTOCOL ON ACCESS TO GENETIC RESOURCES AND THE FAIR AND EQUITABLE SHARING OF BENEFITS ARISING FROM THEIR UTILIZATION (ABS)

Objective the Nagoya Protocol

The *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity* is a supplementary agreement to the Convention on Biological Diversity. It provides a transparent legal framework for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources.

The Nagoya Protocol on ABS was adopted on 29 October 2010 in Nagoya, Japan and will enter into force 90 days after the fiftieth instrument of ratification. Its objective is the fair and equitable sharing of benefits arising from the utilization of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity.

Importance of the Protocol

The Nagoya Protocol will create greater legal certainty and transparency for both providers and users of genetic resources by:

- Establishing more predictable conditions for access to genetic resources.
- Helping to ensure benefit-sharing when genetic resources leave the contracting party providing the genetic resources.

By helping to ensure benefit-sharing, the Nagoya Protocol creates incentives to conserve and sustainably use genetic resources, and therefore enhances the contribution of biodiversity to development and human well-being.

Coverage (scope) of the Protocol

The Nagoya Protocol applies to genetic resources that are covered by the CBD, and to the benefits arising from their utilization. The Nagoya Protocol also covers traditional knowledge (TK) associated with genetic resources that are covered by the CBD and the benefits arising from its utilization.

The main obligations of the Protocol with respect to genetic resources

The Nagoya Protocol sets out core obligations for its contracting Parties to take measures in relation to access to genetic resources, benefit-sharing and compliance.

Access obligations

Domestic-level access measures are to:

- Create legal certainty, clarity and transparency.
- Provide fair and non-arbitrary rules and procedures.
- Establish clear rules and procedures for prior informed consent and mutually agreed terms.
- Provide for issuance of a permit or equivalent when access is granted.
- Create conditions to promote and encourage research contributing to biodiversity conservation and sustainable use.
- Pay due regard to cases of present or imminent emergencies that threaten human, animal or plant health.
- Consider the importance of genetic resources for food and agriculture for food security.

Benefit-sharing obligations

Domestic-level benefit-sharing measures are to provide for the fair and equitable sharing of benefits arising from the utilization of genetic resources with the contracting party providing

genetic resources. Utilization includes research and development on the genetic or biochemical composition of genetic resources, as well as subsequent applications and commercialization. Sharing is subject to mutually agreed terms. Benefits may be monetary or non-monetary such as royalties and the sharing of research results.

Compliance obligations

Specific obligations to support compliance with the domestic legislation or regulatory requirements of the contracting party providing genetic resources, and contractual obligations reflected in mutually agreed terms, are a significant innovation of the Nagoya Protocol. Contracting Parties are to:

- Take measures providing that genetic resources utilized within their jurisdiction have been accessed in accordance with prior informed consent, and that mutually agreed terms have been established, as required by another contracting party.
- Cooperate in cases of alleged violation of another contracting party's requirements.
- Encourage contractual provisions on dispute resolution in mutually agreed terms.
- Ensure an opportunity is available to seek recourse under their legal systems when disputes arise from mutually agreed terms.
- Take measures regarding access to justice.
- Take measures to monitor the utilization of genetic resources after they leave a country including by designating effective checkpoints at any stage of the value-chain: research, development, innovation, pre-commercialization or commercialization.

The Protocol and traditional knowledge associated with genetic resources and genetic resources held by indigenous and local communities

The Nagoya Protocol addresses traditional knowledge associated with genetic resources with provisions on access, benefit-sharing and compliance. It also addresses genetic resources where indigenous and local communities have the established right to grant access to them. Contracting Parties are to take measures to ensure these communities' prior informed consent, and fair and equitable benefit-sharing, keeping in mind community laws and procedures as well as customary use and exchange.

Tools and mechanisms to assist implementation

The Nagoya Protocol's success will require effective implementation at the domestic level. A range of tools and mechanisms provided by the Nagoya Protocol will assist contracting Parties including:

- Establishing national focal points (NFPs) and competent national authorities (CNAs) to serve as contact points for information grant access or cooperate on issues of compliance.
- An Access and Benefit-sharing Clearing-House to share information, such as domestic regulatory ABS requirements or information on NFPs and CNAs.
- Capacity-building to support key aspects of implementation. Based on a country's self-assessment of national needs and priorities, this can include capacity to:
  - Develop domestic ABS legislation to implement the Nagoya Protocol.
  - Negotiate MAT.
  - Develop in-country research capability and institutions.
- Awareness-raising.
- Technology Transfer.
- Targeted financial support for capacity-building and development initiatives through the Nagoya Protocol's financial mechanism, the Global Environment Facility (GEF).

REFERENCES AND BIBILIOGRAPHY

Glowka, L, *et al.*, (*1* 994), *A Guide to the Convention on Biological Diversity*, IUCN Gland and Cambridge. xii + 161pp. 2nd printing 1996. ISBN 2-8317-0222-4.

International Union for the Protection of New Varieties of Plants (UPOV). 2001. International Convention for the Protection of New Varieties of Plants of December 2, 1961, as revised at Geneva on November 10, 1972, on October 23, 1978s , and on March 19, 1991. UPOV Publication No.221 (E). ISBN 92-805-0332-4, Geneva.

IPGRI. 1999. Diversity for Development. The New Strategy of the International Plant Genetic Resources Institute, IPRGI, Rome, Italy.

Mugabe, J; Barber, C. V.; Henne, G; Glowka, L. and La Vina. 1996. Managing Access to Genetic Resources: Towards Strategies for Benefit Sharing. ACTS, Biopolicy International Series, No. 17. ACTS press, Kenya, Nairobi

Websites

CBD website http://www.cbd.int/

CMS website http://www.cms.int/index.html

CITES website http://www.cites.org/

ITPGRFA website http://www.planttreaty.org/

Ramsar website http://www.ramsar.org/

WHC websitehttp://whc.unesco.org/en/convention/