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Synthesis Report

Nagoya Protocol

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Synthesis Report

This report was prepared to fulfil the requirement of the project "*Strengthen Human Resources, Legal Framework and Institutional Capacities to Implement the Nagoya Protocol*". This project is a three years project funded through UNDP-GEF, and aims to assist 24 countries to develop and strengthen their national ABS frameworks, human resources, and administrative capacities to implement the Nagoya Protocol.

This project was designed in direct response to the decision of the Second meeting of the Intergovernmental Committee for the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization held at Delhi in 2012, where the Conference of the Parties "*Reiterates its invitation to the Global Environment Facility to provide financial support to Parties to assist with the early ratification of the Nagoya Protocol and its implementation*".

Report was developed with three main sections, where the first section dealt with the Nagoya Protocol from an international point of view, followed by the second section which provided the national context of the Nagoya Protocol in Jordan, and the third section summarized the available literature and desktop research findings on Nagoya Protocol.

Section One: Introduction to the Nagoya Protocol

Part One: Overview and History

1.1 The Nagoya Protocol

Several stages have preceded the development of the **Convention on Biological Diversity** (**CBD**) by the United Nations (UNs), including the declaration of the United Nations Conference on the Human Environment in 1972; the Stockholm Declaration specifically the UN Working Group on Indigenous Populations in 1982, the World Charter for Nature in 1982, and the Report of the World Commission on Environment and Development "Our Common Future" published in 1987.

These events have led to the development of the CBD, which is considered the only international legal instrument comprehensively addressing biological diversity. The convention came out of the 1992 UN Conference on Environment and Development in Rio de Janeiro, Brazil with 196 Parties involved and 168 signatures so far (available online at https://www.cbd.int/information/parties.shtml). It has entered into force on 29th of December 1993, to be implemented under three core objectives which are: i)

conserve biological diversity, ii) sustainably use of its components and iii) ensure fair and equitable sharing of benefits arising from the utilization of genetic resources (Secretariat of the Convention on Biological Diversity, 2012).

The CBD has established only general obligations on access to genetic resources and the sharing of the benefits arising from their utilization (**ABS**) within its articles which created an ambiguity over its implementation. The articles which have specifically dealt with genetic resources and the traditional knowledge associated with are included in **Articles 15** (*Access to Genetic Resources*) and **8(j)** (*Traditional Knowledge*), and as follows:

1. **Articles 15(1)** and **15(7)** acknowledge the supreme rights of provider countries to regulate access to genetic resources under their sovereignty.
2. **Article 15(2)** contains a requirement for provider countries not to impose restrictions that hinder access to genetic resources and thereby restrain conservation and sustainable use of biodiversity.
3. **Article 15(4)** stipulates that access shall be granted on mutually agreed terms (MAT).
4. **Article 15(7)** sets onward that all parties, including users of genetic resources, shall take legislative, administrative or policy measures, with the aim of sharing benefits arising from the utilization of genetic resources with provider countries.
5. **Article 8(j)** stated that parties have an obligation to encourage the sharing of benefits from the utilization of traditional knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for conservation and sustainable use of biological diversity (Kamau et al, 2010). However, this is subject to national legislation.

Due to this ambiguity, and the lack of clear rules and measures of the ABS at the international level; very restrictive conditions for access in some provider countries have been recognized. Therefore, a legally binding instrument dedicated to ABS was agreed in Nagoya, Japan on 29 October 2010 and named after by the **Nagoya Protocol**. Agreement on the ABS Protocol was a *sine qua non for reaching* an overall agreement at Nagoya on the 20 targets under the CBD Strategic Plan 2011-2020. The Protocol was opened for signature by CBD Parties between 2 February 2011 and 1 February 2012, and during that time; it has been signed by 92 States, and entered into force in 2014.

1.2 Objective, scope and Importance of the Nagoya Protocol

Article 1 of the Protocol has set its objective of fair and equitable sharing of the benefits arising from the utilization of genetic resources, including access to these resources, technology transfer and funding. This should in return, contribute to the conservation of biodiversity, and its sustainable use. **Article 3**

and **15** identified the scope of the protocol, which includes access to genetic resources, sharing of benefits arising from the utilization of these resources, access to traditional knowledge associated with these resources and sharing of benefits arising from the utilization of such knowledge.

The Nagoya Protocol is considered an important tool, as it create greater legal certainty and transparency for both **providers** and **users** of genetic resources through the following means:

- Establishing more likely conditions for access to genetic resources.
- Ensure benefit sharing when genetic resources leave the country providing the genetic resources
- Ensure benefit sharing, as 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.

1.3 Definition of Genetic Resources

There is no specific definition to the **Genetic Resources** within the Nagoya Protocol, but **Article 2** provided a definition of the term "utilization of genetic resources", which mean to "conduct research and development on the genetic and/or biochemical composition of genetic resources, including through the application of biotechnology". However, the definition of Genetic Resources has been provided by the CBD as "genetic material of actual or potential value". It further defines "genetic material" as "any material of plant, animal, microbial or other origin containing functional units of heredity".

The Nagoya Protocol provider countries the rights to control access to genetic resources found within their jurisdiction, where two categories of provider countries exist

- An originating country where the genetic resource exists ***in situ***, i.e. genetic resource exists in its natural habitat
- An originating country where the genetic resource exists ***ex situ***, i.e. genetic resource exists outside of its natural habitat. A country falling within this category must have obtained the genetic resource from an originating country under the CBD.

Buck and Hamilton, 2011 stated that two categories of the genetic resources require special attention in relation to the Nagoya Protocol, which are the genetic resources from areas beyond national jurisdiction and those subject to a specialized ABS regime. In addition, the protocol defines genetic resources which are found within the limits of national jurisdiction, but it does not apply in areas beyond national sovereignty or jurisdiction, notably the high seas or Antarctica according to **Article 3** in scope of **Article 15** of the CBD.

Article 4 dealt with Genetic Resources under a specialized ABS regime, where the protocol does not bind the parties to that specialized regime. The most important regime that is currently in place is the **International Treaty on Plant Genetic Resources for Food and Agriculture** (**ITPGRFA**). This regime covers certain genetic resources, and therefore, any parties which are members with are bounded by, rather than the Nagoya Protocol.

1.4 The ABS Concept

Genetic resources whether it derived from plant, animal, or micro-organisms and the knowledge associated with was under heavy exploitation, utilization, and/or monopolization. Laird and Wynberg, 2008 stated that genetic resources could be used for different purposes including but not limited to the basic research or commercialization of products. In addition, they explained that users of genetic resources and/or traditional knowledge associated with the genetic resources include research institutes, universities, ex-situ collections, and private companies operating in a wide range of sectors, including the pharmaceutical, biotechnology, seed, crop protection, horticulture, cosmetic and personal care, fragrance and flavor, botanicals, and food and beverage industries.

The ABS concept was developed where the provider countries shall facilitate access to their genetic resources while user countries shall share in a fair and equitable manner the benefits arising from the access to and use of those resources. Greiber, 2012 stated that genetic resources are considered as a common heritage to recognizing the sovereign rights of States to those resources and to regulating their use.

However, challenges exists when it comes to defining the line between providers and users, especially that countries are often both provider and user at the same time. In addition, the enormous circumstances and situations related to the use of genetic resources makes it impossible for each country that could provide genetic resources to specify, a priori, what benefits should be shared and the modalities to be employed to facilitate sharing. Greiber, 2012 provided a set of factors to what will be desired by the State providing access to genetic resources, and what will be acceptable to the party (government institution or private enterprise) seeking access, and these are:

- The nature of the genetic resources provided whether it came from a collection (*ex-situ*) or its natural habitat (*in-situ*)
- The location where the genetic resources are found (e.g., on State or privately owned lands, protected areas, indigenous and community conserved areas, or areas under no conservation management regime)
- The types of subsequent use proposed (e.g., whether it is used for scientific research, education, and/or commercial development)

- Whether genetic resources from multiple providers shall be used to create a particular end product
- Whether the final product and/or final user have already been determined

It worth to mention that the genetic resources are biological resources needed or used for their genetic material and not for their other attributes according to the context of the CBD. Therefore, access to a forest for "conventional" timber extraction or hunting would not be covered by the ABS concept of the CBD. On the other hand, if it were the intention to use the genetic material of such timber or prey, ABS obligations would come into play.

ABS has a set of obligations and commitments under the CBD and as follows:

1.4.1 Access

Glowka et al., 1994 highlighted that **Article 15(1)** of the CBD clearly confirms the authority of governments to regulate physical access to genetic resources in areas within its jurisdiction, but it does not grant the State a property right over these resources. In addition, the ownership of genetic resources is not addressed by the CBD at all, but is subject to national and sub-national legislation or law

Article 15(2) requires the Contracting Parties to create conditions that facilitate access to their genetic resources for environmentally sound uses by other Contracting Parties and do not impose restrictions that run counter to the objectives of the CBD. While **Article 15(3)** limits the genetic resources covered by **Article 15** (as well as **Articles 16** and **19**) to those provided by Parties that are countries of origin ("country of origin" of genetic resources is defined by **Article 2** of the CBD as "the country which possesses those genetic resources in in-situ conditions") or provided by Parties that have acquired the genetic resources in accordance with the CBD.

1.4.2 Prior Informed Consent and Mutually Agreed Terms

Any access to genetic resources is subject to the **Prior Informed Consent (PIC)** of the Party providing the genetic resources, unless otherwise determined by that Party (**Article 15(5)** of the CBD). In addition, when access is granted, it is conditional upon reaching **Mutually Agreed Terms (MAT)** between the Party providing the genetic resources and the potential user (**Article 15(4)** of the CBD). Therefore, **PIC** and **MAT** are the primary means to authorize access to genetic resources, control their subsequent use, and establish the fair and equitable sharing of benefits from their subsequent use.

In addition, **PIC** requires that the provider of the genetic resources gives his/her consent through an affirmative act, where the decision (affirmative act/consent)

is based on information provided by the potential user of the genetic resources, and the information is provided prior to the actual decision (affirmative act/consent) that grants access (Greiber, 2012).

From another hand, Greiber, 2012 indicated that **MAT** infer a negotiation between the Party granting access to genetic resources and an entity aiming to use those resources. In the case of a successful negotiation, this will lead to an access agreement (sometimes called a material transfer agreement, research agreement, or contract).

1.4.3 Benefits

Article 15(7) of the CBD requires each Contracting Party to take legislative, administrative, or policy measures of which is the fair and equitable sharing of benefits with the Contracting Party providing genetic resources, but the CBD does not provide a definition for the term "**benefits**".

However, the CBD foresees different types of (monetary and non-monetary) benefits to be shared, including:

- **Article 15(6)**: Participation in all types of scientific research based on the genetic resources.
- **Article 15(7)**: Research and development results
- **Article 15(7)**: Commercial or other benefits derived from utilizing the genetic resources provided
- **Article 16(3)**: Access to and transfer of technology using the genetic resources
- **Article 19(1)**: Participation specifically in biotechnological research activities based on the genetic resources.
- **Article 19(2)**: Priority access to the results and benefits arising from biotechnological use of the genetic resources.

Therefore, benefit sharing has to be based on **MAT** (as identified in **Articles 15(7)**, **16(3),** and **19(2)**) and negotiated for each individual case.

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.

1.4.5 Traditional Knowledge

The text referred to traditional knowledge were made available at **Article 8(j)** of the CBD, which requires each Contracting Party, subject to its national legislation, to

- *Respect*, *preserve*, and *maintain* knowledge, innovations, and practices of **Indigenous and Local Communities (ILCs)** embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity
- *Promote* their wider application with the approval and involvement of the holders of such knowledge, innovations, and practices
- *Encourage* equitable sharing of benefits derived from their utilization.

Laird and Wynberg, 2008, highlighted that isolating particular properties of genetic resources found in nature has led to the development of new products when it was combined with traditional knowledge. This certainly indicates the importance of linking the genetic resources with traditional knowledge.

1.4.6 Compliance Obligations

The Nagoya Protocol provided specific obligations (Annex II) 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, including:

- Take measures providing that genetic resources utilized within their jurisdiction have been accessed in accordance with **PIC**, and that **MAT** have been established, as required by another contracting party
- Cooperate in cases of supposed violation of another contracting party's requirements
- Encourage contractual provisions on dispute resolution in **MAT**
- 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

1.5 The Access and Benefit sharing Clearing House (ABS CH)

According to **Article 14** of the Protocol, as part of the **Clearing House (CH)** of the Convention established under **Article 18**, paragraph 3 of the Convention; the **ABS CH** was established as a platform for exchanging information on access and benefit sharing. The ABS CH enhance legal certainty and transparency on

procedures for access and benefit sharing, and for monitoring the utilization of genetic resources along the value chain, including through the internationally recognized certificate of compliance. Therefore, it is considered as a key tool which will facilitate the implementation of the Nagoya Protocol, especially that it provide the connections between users and providers of genetic resources and associated traditional knowledge (Available Online at: https://absch.cbd.int/).

1.6 Limitation of the Protocol at Temporal Level

The Protocol applies to genetic resources and the associated traditional knowledge accessed and utilized after its entry into force. However, countries could prefer to have retroactive effect of the protocol. IEEP, Ecologic and GHK (2012) provided four possible scenarios with retroactive effect and these are:

- Apply to genetic resources accessed before the entry into force of the CBD
- Apply to genetic resources accessed before the Protocol if no benefit sharing agreement existed according to the CBD requirements
- Apply to continuing and new uses of genetic resources and/or traditional knowledge associated with genetic resources accessed before the CBD
- Apply to traditional knowledge associated with genetic resources accessed before the Protocol (Kamau et al., 2010).

Article 28 of the **Vienna Convention on the Law of Treaties (VCLT)** established that a treaty "*does not bind a party in relation to any act or fact which took place or any situation which ceased to exist before the date of entry into force of the treaty with respect to that party*". This implies that the international law did not explicitly support eventual sovereignty or benefit sharing claims of countries where genetic resources were collected before the entry into force of the CBD. Therefore, genetic resources accessed before the entry into force of the CBD cannot ex post be made subject to any **PIC** requirements in the sense of the Protocol and Parties have no legal obligations from the Protocol to take any user compliance measures in that regard.

1.7 Tools and mechanisms to assist implementation

The Nagoya Protocol's success will require effective implementation at the national level. Therefore, a range of tools and mechanisms were provided by the Nagoya Protocol which 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)**.

Part Two: An International Perspectives

2.1 Aichi Biodiversity Target 16 on the Nagoya Protocol

The Strategic Plan for Biodiversity 2011-2020 was adopted in 2010, during the CBD meeting at Nagoya, Japan. The Strategic Plan includes a "*shared vision, mission, strategic goals and 20 ambitious yet achievable targets, collectively known as the Aichi Targets*" The vision is that "*By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people*".

Aichi target 16 specifically dealt with the Nagoya protocol as "*By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation*". The target set addresses two main issues and these are:

1. **Entry into force of the Nagoya Protocol by 2015**: The Nagoya Protocol will enter into force 90 days after the date of deposit of the fiftieth instrument of ratification. As such for Target 16 to be met 50 countries must ratify the Protocol by October 2015 at the latest.
2. **The Nagoya Protocol is operational, consistent with national legislation**: The operationalization of the Nagoya Protocol requires that it be implemented effectively at the national level. Countries will need, depending on their specific circumstances, to revise legislative, administrative or policy measures already in place or develop new measures in order to meet the obligations set out under the Protocol. Countries will also need to determine the institutional structure needed for implementing the Protocol.

The target has set implications for setting national targets, and it provides a guiding questions for setting national targets (Quick Guide to Aichi Biodiversity Targets; 2013)

2.2 Sustainable Development Goals (SDGs) and the Nagoya Protocol

SDGs are a collection of 17 global goals and 169 targets set by the United Nations to cover a broad range of social and economic development issues. These include poverty, hunger, health, education, climate change, gender equality, water, sanitation, energy, urbanization, environment, and social justice. The Sustainable Development Goals give great importance to the contribution of plant genetic diversity to food security, through its conservation, access and benefit sharing. The following table shall illustrate the direct links between the **SDGs** goals and targets set with special concerns to genetic resources and the **Nagoya Protocol**.

Table 1: Links between the Nagoya Protocol and SDGs (Source: How ABS and the Nagoya Protocol contribute to the Sustainable Development Agenda; Policy paper: Internationale Zusammenarbeit (GIZ) GmbH**)**

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	
Target 2.5	**Links to ABS**
By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed	• Preserving and sustainably managing global genetic diversity is at the core of ABS, as spelled out in the NP and in the International Treaty on Plant Genetic Resources in Food and Agriculture (ITPGRFA). • Establishing ABS-compliant value chains, especially where indigenous peoples and local communities – often small-holder farmers or pastoralists – participate in the benefits, contributes to rural development, food security, improved nutrition and sustainable agriculture. • Sustainable management of cultivated plant and farm animal genetic resources also helps to preserve ecosystems, thus contributing to climate change mitigation and adaptation.

	• The economic potential of ABS serves as trigger/incentive for the creation or maintenance of gene banks and traditional knowledge inventories at national and community level.
Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss	
Target 15.6	**Links to ABS**
Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed	• Target 15.6 directly repeats and reinforces the main policy objectives of the NP and ITPGRFA, underlining the need for their implementation. • Promoting these agreements will require specific programs and projects to help countries establish the necessary institutional and regulatory frameworks as well as develop ABS compliant value chains.

In addition, the Nagoya Protocol is linked indirectly to other SDGs goals and targets where it is linked to:

- **Goal 3** "Ensure healthy lives and promote well-being for all at all ages" **Target 3.b** which state to "support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all".
- **Goal 8** "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" **Target 8.3** of "promoting the development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services".
- **Goal 9** "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation" **Target 9.5** "Enhance scientific research, upgrade the technological capabilities of industrial sectors in all

countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending", and **Target 9.b** "Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities".

- **Goal 13** "Take urgent action to combat climate change and its impacts" **Target 13.1** "Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries".
- **Goal 14** "Conserve and sustainably use the oceans, seas and marine resources for sustainable development" **Target 14.7** "By 2030, increase the economic benefits to Small Island Developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism", and **Target 14.a** to "increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries".
- **Goal 15** "Protect, restore and sustainably manage use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" **Target 15.a** "Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems".
- **Goal 16** "Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels" **Target 16.3** "Promote the rule of law at the national and international levels and ensure equal access to justice for all", and **Target 16.6** "Develop effective, accountable and transparent institutions at all levels".
- **Goal 17** "Strengthen the means of implementation and revitalize the global partnership for sustainable development" **Target 17.3** "Mobilize additional financial resources for developing countries from multiple sources", **Target 17.7** "Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favorable terms, including on concessional and preferential terms, as mutually agreed", **Target 17.9** "Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation", **Target 17.14** "Enhance policy coherence for

sustainable development", and **Target 17.15** "Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries".

Part Three: Nagoya Protocol and Other ABS Instruments

The main global tool for regulating rights and access to genetic resources is the Convention on Biological Diversity. However, the CBD does not distinguish among different categories of genetic resources whose conservation and sustainable utilization vary. In addition, a major features of most of the current ABS regimes or measures is that they attempt to treat the different species, providers, users, uses and sectors by identical regulations. The following shall summarize the major ABS tools and its relation to the Nagoya Protocol

3.1 Overview on ITPGRFA and the Nagoya Protocol

International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) is considered a global binding treaty for food security and sustainable agriculture, developed as parties involved convinced of the special nature of plant genetic resources for food and agriculture, their distinctive features and problems needing distinctive solutions; and are alarmed by the continuing erosion of these resources. The treaty aimed for the conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity, for sustainable agriculture and food security (Cabrera Medaglia, et al, 2013).

ITPGRFA establishes a **Multilateral System (MLS)**, to facilitate access to **Plant Genetic Resources for Food and Agriculture (PGRFA)** and share, in a fair and equitable way, the benefits arising from their use. The **MLS** covers the genetic material of a set of crops and forages listed in Annex 1 of the **ITPGRFA** (Annex I). Benefit sharing includes: i) facilitated access; ii) exchange of information; iii) access to and transfer of technology; iv) capacity building; and v) sharing of monetary and other benefits of commercialization. In addition, the **MLS** sets up opportunities for developed countries with technical know-how to use their laboratories to build on what the farmers in developing countries have accomplished in their fields.

Generally, the **ITPGRFA** and the **Nagoya Protocol** are meant to operate together, thus; parties to either treaty or any other specialized instruments which govern the ABS have to implement them in a complementary and mutually

supportive way. In addition, no hierarchical relation between the **ITPGRFA** and the **Nagoya Protocol** occurs as the **Nagoya Protocol** is on equal basis with any other treaty. Moreover, the Nagoya Protocol apply to all genetic resources, including **PGRFA**, which are not in the **MLS** of the **ITPGRFA** or which are used for purposes other than those stated in the **ITPGRFA**.

Medaglia, 2013 provided the main provisions contained in the Nagoya Protocol, which are of relevance and present a close relationship with the ITPGRFA provisions and are critical "from a legal point of view" for the national implementation of both instruments. The following illustrate these:

- **Preamble**: it constitutes an integral part of the treaty because it has the same legal status as the remainder of the text in providing context for the interpretation of a treaty's terms. Several texts appeared within the permeable contains relevant statements to the **ITPGRFA**, and these are:
  1. *Recognizing* the importance of genetic resources to food security, public health, biodiversity conservation, and the mitigation of and adaption to climate change
  2. *Recognizing* the special nature of agricultural biodiversity, its distinctive features and problems needing distinctive solutions
  3. *Recognizing* the interdependence of all countries with regard to genetic resources for food and agriculture as well as their special nature and importance for achieving food security worldwide and for sustainable development of agriculture in the context of poverty alleviation and climate change and acknowledging the fundamental role of the **ITPGRFA**, and the **Food and Agriculture Organization (FAO)** Commission on Genetic Resources for Food and Agriculture in this regard,
  4. *Acknowledging* ongoing work in other international forums relating to access and benefit sharing,
  5. *Recalling* the Multilateral System of Access and Benefit sharing established under the International Treaty on Plant Genetic Resources for Food and Agriculture developed in harmony with the Convention,
  6. *Recognizing* that international instruments related to access and benefit sharing should be mutually supportive with a view to achieving the objectives of the Convention,
- **Article 4 at Nagoya Protocol**: it is the central core to understand the relationship between the Nagoya Protocol and other treaties including **ITPGRFA** and as follows:
  1. The provisions of this Protocol shall not affect the rights and obligations of any Party deriving from any existing international agreement, except where the exercise of those rights and obligations would cause a serious damage or threat to biological diversity. This

paragraph is not intended to create a hierarchy between this Protocol and other international instruments.

2. Nothing in this Protocol shall prevent the Parties from developing and implementing other relevant international agreements, including other specialized access and benefit sharing agreements, provided that they are supportive of and do not run counter to the objectives of the Convention and this Protocol.
3. This Protocol shall be implemented in a mutually supportive manner with other international instruments relevant to this Protocol. Due regard should be paid to useful and relevant ongoing work or practices under such international instruments and relevant international organizations, provided that they are supportive of and do not run counter to the objectives of the Convention and this Protocol.
4. This Protocol is the instrument for the implementation of the access and benefit sharing provisions of the Convention. Where a specialized international access and benefit sharing instrument applies that is consistent with, and does not run counter to the objectives of the Convention and this Protocol, this Protocol does not apply for the Party or Parties to the specialized instrument in respect of the specific genetic resource covered by and for the purpose of the specialized instrument.

- **Provisions on the protection of traditional knowledge or TK** (and its relation to the concept and legal elements of food resources under the **ITPGRFA Article 9**).
    1. The establishment of farmers' rights, as recognized in **Article 9** of the **ITPGRFA**, is an acknowledgment of the immense contributions made by local and indigenous communities to the conservation and development of plant genetic resources globally. The **ITPGRFA** does not limit domestic's rights of farmers, rather, responsibility for protecting both explicit and implicit rights is vested with national governments.
- **Special considerations of article 8 (c)**:
    1. **Paragraph 8c** refers to the importance of genetic resources for food and agriculture and their special role for food security. However, this provision does not constitute a strong obligation as it only requires parties to 'consider the importance' of those resources and does not demand any specific action. **Article 8c** reflects the fact that most domestic ABS frameworks that currently exist do not sufficiently address the special characteristics of genetic resources for food and agriculture. While recognizing the special nature of **PGRFA** several countries and regions do not agree with a broad exclusion of the Protocol of this type of genetic resources. They were concerned that explicit recognition of Genetic Resources for Food and Agriculture

(**GRFA**) would not result in an exclusion of genetic resources for food and agriculture from the scope of the ABS Protocol.

- **Article 17** on monitoring utilization of GR and the internationally recognize certificate of compliance and the potential role of the **Standardized Material Transfer Agreement (SMTA)** under the **ITPGRFA** to prove the legality of access to PGRFA covered by the MLS at the appropriate check points designed (e.g. if a plant variety protection office is designed as check point at the national level).
- **Article 19** set a system for developing two types of 'Model Contractual Clauses': The first one is that each Party shall *encourage*, as appropriate, the development, update and use of sectoral and cross sectoral model contractual clauses for mutually agreed terms. This option is very relevant for the link to the regulation of **GRFA** in general. The second option is that the Conference of the Parties serving as the meeting of the Parties to this Protocol shall periodically take stock of the use of sectoral and cross-sectoral model contractual clauses. Here also the COP is given a role in the development and overview over model clauses that might become a core of the relationship to the **GRFA**.

Other linkages which could exist between the Nagoya Protocol and the ITPGRFA is the establishment of check points and the role of the **SMTA**, where the later provides the legal evidence of the compliance with the ABS legislation.

Despite both Nagoya Protocol and International Treaty shares the same scope, but grey areas are perceived, especially when it comes to which regulatory system should apply? However, a clear delineation exist as the ITPGRFA is all the genetic resources for food and agriculture, but not the pharmaceutical or other uses (such as industrial ones) which are covered by the Nagoya Protocol. One main difference between the idea behind the CBD and the MLS is that benefit sharing under the ITPGRFA is linked to a specifically defined trigger point for when benefit sharing shall take place. Consequently, benefit sharing is detached from the individual access situation and provider.

Therefore, it is critical to understand the 'food and agriculture', utilization, and conservation for research, breeding and training for food and agriculture. In addition, it is highly recommended to determine the national authorities/entities responsible for granting access either under the CBD/Nagoya Protocol and for signing the SMTA under the ITPGRFA and improve cooperation and information exchange among them to clarify and respect their respective legal competences; built trust and minimize any sense of competition between both types of entities. Therefore, it is highly recommended to strengthen the collaboration between the different entities responsible of the implementation of the two treaties. Also, any interpretation of the ITPGRFA and Nagoya Protocol provisions should be done with the purpose of creating mutual supportiveness between the instruments.

3.2 PIP Framework and the Nagoya Protocol

The **World Health Organization (WHO)** has developed a new framework entitled "Pandemic Influenza Preparedness Framework for the sharing of influenza viruses and access to vaccines and other benefits (PIP Framework)". This framework includes two legally binding standard material transfer agreements for regulating ABS between the provider of influenza viruses and institutions within the "Global Influenza Surveillance and Response System (GISRS)" as well as between the WHO and third parties respectively.

However, it is not entirely clear whether the PIP Framework qualifies as a specialized instrument in accordance with **Article 4(4)** of the Nagoya Protocol (IUCN 2012) (Available Online at: http://www.who.int/influenza/pip/en/).

3.3 Bonn Guidelines and the Nagoya Protocol

The **Bonn guideline** are not legally binding instrument which was developed and adopted by 180 countries. It aimed to support Parties, Governments and other stakeholders in developing their overall access and benefit sharing strategies, and in identifying the steps involved in the process of obtaining access to genetic resources and benefit sharing. The guidelines are intended to help them when establishing legislative, administrative or policy measures on access and benefit sharing and/or when negotiating contractual arrangements for access and benefit sharing (Secretariat of the Convention on Biological Diversity, 2002). The Guidelines:

1. Identify the steps in the access and benefit sharing process, with an emphasis on the obligation for users to seek the prior informed consent of providers.
2. Identify the basic requirements for **MAT** and define the main roles and responsibilities of users and providers and stress the importance of the involvement of all stakeholders.
3. Provide details on other elements such as incentives, accountability, means for verification and dispute settlement.
4. Count suggested elements for inclusion in material transfer agreements and provide an indicative list of both monetary and non-monetary benefits.

The guidelines provide that an effective **PIC** system should respect basic principles, such as i) legal certainty and clarity, ii) facilitated access to genetic resources at a minimum cost and iii) restrictions on access to genetic resources should be transparent, based on legal grounds, and not run counter to the objectives of the Convention.

It also provides that an effective **PIC** system should include asset of measures such as: i) the establishment of **Competent National Authorities (CNAs)** who can grant prior informed consent, ii) procedures for obtaining prior informed consent from the **CNAs**, iii) clearly specified timing and deadlines, iv) specifications of use, and v) mechanism for consultation of relevant stakeholders.

Finally; the Bonn Guidelines outline principles and basic requirements to be considered in the development of mutually agreed terms, including: i) legal certainty and clarity, ii) facilitating the transaction through clear information and formal procedures, iii) reasonable periods of time for negotiations, and 4) terms set out in a written agreement.

Section Two: A National Perspective of the Nagoya Protocol

Part One: Overview

1.1 The Nagoya Protocol in Jordan

The Government of Jordan has recognized the importance of conserving biodiversity, where it has becomes the first country in the Arab region, and the second to the Convention on Biological Diversity (CBD) to ratify the Nagoya Protocol on Access to Genetic Resources (GR) and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity. The protocol entre into force in Jordan on 12th of October 2014.

In order to ensure compliance with the Nagoya Protocol at the national level, the Government of Jordan has adopted several measures at the legislative, administrative or policy levels which are consistent and mutually supportive with other existing ABS instruments. Therefore, the Nagoya Protocol was included in Jordan's **National Biodiversity Strategy and Action Plan (NBSAP)** over the period 2015-2020. The strategy provided a clear strategic goal under the "Ecosystem Values and Benefits", for the implementation of the Nagoya Protocol where **National Target Number 24**, stated that by 2015 "the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is nationally adopted". Therefore, three **Key Performance Indicators (KPIs)** were developed and these are: i) a national awareness on the Nagoya Protocol raised, ii) pilot initiatives on the implementation of the Nagoya Protocol implemented, and iii) national regulation for the enforcement of the Nagoya Protocol developed and legally adopted.

In addition, three main legal frameworks have been formulated and addressed biodiversity, and they contains a direct or indirect relation with the Nagoya Protocol, and these are:

1. **The Environment Protection Law, (Number 6 for the year 2017)**: It is managed and developed by the Ministry of Environment, in consultation with key stakeholders. It contains two bylaws concerned specifically with biodiversity and these are the bylaw on Protected Areas and National Parks (Number 29 for the year 2005), and the Bylaw on Environmental Impact Assessment (Number 37 for the year 2005).
2. **The Agricultural law, (Number 13 of the year 2015)**: it is implemented by the Ministry of Agriculture, and includes a series of articles addressing the sustainable use of natural resources, including genetic diversity and the protection of wildlife species inside and outside their natural habitats (section below). It is considered the most relevant law, which could support the development of a specific bylaw for the Nagoya protocol

3. **The law of the Aqaba Special Economic Zone Authority, (Number 32 for the year 2000)**: it contains a series of articles for the conservation of biodiversity at Aqaba as well as the Aqaba Marine Park bylaw Number 21.

1.2 Legal Framework and the Nagoya Protocol in Jordan

Within these legal framework, a number of bylaws, directives and regulations related to the conservation and utilization of Genetic Resources, either directly or indirectly, were formulated within the previously mentioned legal frameworks. The following describe these:

1.2.1 Agriculture and Forestry

Agriculture Law No. 44 of 2002 provides the framework for variety release and registration, seed production, quality control and seed trade. The regulation and its guidelines cover variety registration, seed production, seed processing, seed marketing, seed quality control and seed trade (import\ export). Seed multiplication, production, processing and marketing are prohibited unless it is registered as described in the law. The regulations covers seed trade, import, export and produce of agricultural crops. The following reviews the acts, directives or bylaws related to that.

- Protection Law of New Varieties of Plants (24/2000): this law was issued to protect the plants variety that is registered according to the provisions of this Law. The variety was defined according to this law as any plant grouping within a single botanical taxon of the lowest known rank, irrespective of whether the conditions for the grant of the protection right are fully met, and is defined by the expression of the characteristics resulting from a genotype or combination of genotypes, distinguished from any other plant grouping by the expression of at least one of the said characteristics, and considered as one unit with regard to its suitability for being propagated without changing any of its characteristics. **Article 15** as an example stated in **paragraph D** that "In particular, essentially derived varieties may be obtained as a result of the selection of natural or induced mutants, or the selection of a variant individual from plants of the initial variety, backcrossing, or transformation by genetic engineering".
- Directive No. Z/13 of 2003 regulating the exploitation and investment of private forests: This Directive is composed of 23 articles. Article 9 decrees the establishment of a committee composed of specialists entrusted to inspect on private forests. **Articles 10-13** define species of trees to be protected and trees to be uprooted.
- Regulation No. 3/G of 2013 on the import, export and trade of Agricultural seed crops: This Regulation provides for the import, export, and trade of

agricultural seed crops according to the **Agricultural Law No. 3 of 2015**. It is composed of 33 articles, where **Article 3** prohibits the trade or the production of quantities of vegetable seeds for commercial use unless the varieties are registered in the Ministry of Agriculture. **Article 4** authorizes only specific companies and sectors stated in this article to import agricultural seeds. **Article 6** allows the importing of unregistered seed varieties for commercial and non-commercial use according to some conditions. It also provides for the documents needed and the sampling requirements for the registration process of the seeds.

- Regulation No. (4/G) of 2013 on vegetable seed varieties registration: This Regulation is composed of 21 articles mainly on rules and procedures for seed varieties registration. **Article 3** prohibits the production or trade of vegetable seed varieties locally for commercial purposes or for private use unless registered in the Ministry of Agriculture.
- Regulation No. Z/6 amending Dispositions No. Z/9 of 2003 on licenses for sale of ornamental plants and seeds: This Regulation amends **Article 2** and **3** of the **Regulation No. Z/9** on licenses for the sale of ornamental plants and seeds. Article 2 authorizes the sale of ornamental plants and its seeds only in authorized places and according to specific conditions mentioned in the article. Article 3 states that the request of authorization of ornamental plants places should be first submitted to the Agricultural Director in the province who then issues the certificate of authorization.

It worth to mention the agricultural law exempts seed and mother plants imported for multiplication from taxes. For example the private sector is allowed to import inbred lines free of tax to encourage seed production locally.

1.2.2 Protected Areas and Wildlife Species Conservation

- **Regulation No. 29 of 2005** on natural protected areas and national parks: The aim of this Regulation is to protect wildlife and the ecosystem. It is composed of 10 articles. **Articles 1** and **2** deal with terms and definitions. **Article 3** provides for the establishment of the Technical Committee which shall study applications for the creation of national parks and protected areas. **Article 4** entrusts the Council of Ministries with the definition of the borders of protected areas or national parks in accordance with the recommendations of the aforementioned Committee.
- Directive No. Z/34 of 2003 protecting of wild animals and birds, regulating hunting and trading.
- Regulation No. (Z/2) of 2010 concerning the instructions on the international trade of endangered wildlife flora and fauna: This Regulation sets forth the international trade of endangered wildlife flora and fauna. It starts by defining some terms. Annexes attached to this Regulation are an integral part of its provisions. According to this regulation the ministry is

establishing a scientific advisory committee of specialists in Fauna and Flora setting forth its administration and management systems and tasks. The Regulation provides for the certification processes for the import and export of endangered species

1.2.3 Fisheries and Marine Environment

- Directive No. Z/20 of 2003 licensing and regulating mariculture and aquaculture: This Directive is composed of 14 articles, where Article 9 imposes upon mariculture and aquaculture breeders to keep a register in order to facilitate the control and inspection.
- Law on the Organization of Fishing (No. 25 of 1943): Article 3 provisions of apply to commercial fishing in marine waters only.

1.2.4 Patent Rights

- Patent Rights Law (32/1999), and its amendment (71/2001): this law was issued with its amendments to govern the patent rights which was defined as "the certificate granted for the protection of the invention". It includes articles which could be correlated directly or indirectly to the Nagoya Protocol, specifically within **Article 4** which defines the exclusions of the patent protection where "**paragraph A**: Inventions, the prevention of its commercial exploitation, is necessary to protect life and health of humans, animals, or plants, or to avoid serious prejudice to the environment", "**paragraph D**: Plants and animals, other than microorganisms are excluded from patent protection", and "**paragraph E**: Biological processes for the production of plants or animals, other than non-biological and microbiological processes".

It worth to mention that objectives set under some of these laws are very similar to those of the ITPGRFA and the CBD. For example, the objectives of the Agriculture Law are sustainable use of natural agricultural resources without harming the environment, increasing the production of food and agricultural products, and increasing farmers" income and living standards. **Article 12** of the Law prohibits the transfer of GRs without prior permit that are identified by regulation issued by the minister. Violation of this provision is subject to a fine and the materials will be confiscated. Despite this array of laws and regulations, laws with ABS as a specific area of focus are still a new issue. The **International Development Research Centre (IDRC)** supported project on ABS issues is working together with a team from the **National Agricultural Research Centre (NARC)** and **International Centre for Agricultural Research in Dry Areas (ICARDA)** to explore a workable ABS on PGRFA model for the country.

Finally, Jordan has assigned a focal point represented by the Director of the Nature Protection Directorate at the Ministry of Environment for the **ABS CH** platform. However, still several shortcomings are occurring such as defining a i) Competent National Authorities (CAN), ii) Legislative, administrative or policy measures on access and benefit sharing (MSR), iii) National Databases and Websites (NDB), iv) Checkpoints (CP), v) Internationally Recognized Certificates of Compliance (IRCC), vi) Checkpoint Communiqués (CPC) and vii) Interim National Report on the Implementation of the Nagoya Protocol (NR).

Part Two: ITPGRFA in Jordan

The Government of Jordan has signed the ITPGRFA in 2001, and it entered into force in 2002. It is currently lead by NARC, where some projects have been implemented such as the "Integrated Approach to Identify and Characterize Climate Resilient Wheat for the West Asia and North Africa Region" Project. This project aimed to identify and characterize climate-resilient wheat germplasm that can be used to develop high yielding varieties with improved adaptation to the drought and stress conditions prevalent in the **West Asia and North Africa (WANA)** region. In addition, another project was implemented with the title "Use of genetic resources to establish a multi-country program of evolutionary participatory plant breeding". It aims to use farmers knowledge to support and strengthen national participatory **Plant Breeding Programs (PPB)** and to start new programs of **evolutionary participatory plant breeding (EPPB)** in Iran and Jordan by developing locally-adapted varieties of wheat, barley, rice and maize while enhancing biodiversity within and among farmers (Available online at: http://www.fao.org/plant-treaty/countries/membership/country-details/en/c/359306/?iso3=JOR).

Section Three: Literature Review

Smith et al, 2017 provided an explanation of the Nagoya Protocol on Access and Benefit Sharing and its implication for microbiology. They have stressed that microbiologists and culture collections comparable have to be aware of the legislation of the country of the materials they use and put in place best practices for compliance. In addition, they have provided an insight on the available best practices and/or codes of conduct to ensure legitimate exchange and use of genetic resources available, which were produced by the Global Genome Biodiversity Network and the International Organization for Biological Control.

Nijar, et al, 2016 published their work on the implementation of the Nagoya ABS Protocol for the research sector: experience and challenges. They aimed at commercial research. Non-commercial public research which contributes to the conservation and sustainable use of biological diversity is encouraged, particularly in developing countries, through simplified measures. There are undoubtedly practical challenges in operationalizing this provision without impeding research in the sector most potentially affected by ABS measures. Their article presents the results of a survey of the practices of such researchers in one developing country, namely Malaysia. It examines the potential implications for the national implementation of the Protocol. Lastly, their study highlights and shows the importance of increasing knowledge about existing practices for an efficient design and implementation by developing countries of a complex legislation such as the Nagoya ABS Protocol.

Schindel, et al, 2015 suggested in his paper "The New Age of the Nagoya Protocol" a new approach that researchers can use in negotiating international Access and Benefit Shar¬ing agreements under the Protocol. Research on medicinal plants is used as a case study because it is a domain with many competing stakeholders involving non-commercial and commercial research, as well as national and international commercial markets. They proposed a decision-based framework to aid all participants as they negotiate ABS agreements for non-commercial biodiversity research. Their proposed approach promotes transparency and builds trust, reflects the principles in the Convention on Biological Diversity, and respects and protects the interests of biodiversity rich developing countries. This approach is an alternative to often used adversarial approaches

Rabitz, 2015 published his work on Biopiracy after the Nagoya Protocol: Problem Structure, Regime Design and Implementation Challenges. He have assessed the effectiveness of the 2010 Nagoya Protocol to the Convention on Biological Diversity (CBD) for addressing "biopiracy" of genetic resources. His study dealt with the biotechnological utilization in violation of either the provider country

legislation or mutually agreed contractual obligations. His result showed that the Nagoya Protocol predominantly focuses on compliance management while lacking the necessary enforcement provisions for deterring non-compliance through effective monitoring and sanctions. Therefore, it only offers modest improvements over the status quo ante.

Tamminen, 2015 published an article with the title "Changing values of farm animal genomic resources, from historical breeds to the Nagoya Protocol". He have reviewed the history of Animal genetic resources (AnGRs) and claims that over the course of history they have been conceptually transformed from economic, ecologic and scientific life forms into political objects, reflecting in the way in which any valuation of AnGRs is today inherently imbued with national politics and its values enacted by legally binding global conventions. In addition, he have provided that the criteria of "in situ condition" has become the necessary starting point for all valuation efforts of AnGRs, effectively transforming their previous nature as natural property and global genetic commons into objects of national concern pertaining to territorially discrete national genetic landscapes, regulated by the sovereign powers of the parties to the global conventions.

Bagley, 2015 published a guide on "Digital DNA: The Nagoya Protocol, Intellectual Property Treaties, and Synthetic Biology". She have discussed potential issues between the Nagoya Protocol and Synthetic Biology. She have considered current challenges for the intellectual property protection of synthetic biology outputs, implementation issues concerning the Nagoya Protocol on Access and Benefit Sharing ("NP," "Protocol," or "Nagoya Protocol") to the Convention on Biological Diversity (CBD), and possible interactions between the requirements of the Protocol and the World Trade Organization's (WTO) Agreement on Trade Related Aspects of Intellectual Property (TRIPS).

David, et al 2015 described how botanic gardens are affected by the Convention on Biological Diversity's provisions on access to genetic resources and benefit sharing and related national laws and policies. They have established a global survey of botanic gardens to assess awareness of access and benefit sharing and potential preparedness for Nagoya Protocol requirements, using an online questionnaire distributed via Botanic Gardens Conservation International and American Public Gardens Association. Data were collected on gardens' location, governance, size, international involvement, network membership, familiarity with access and benefit sharing, collections policies and extent to which gardens track material and permit terms. Representatives of 222 gardens from 46 countries responded. Their results indicated that many respondents are not yet familiar with access and benefit sharing or the Nagoya Protocol. Exchange of plant material is common, but many gardens do not track transfers to third parties, use material transfer agreements, or link permits or restrictions to

collection records. Global socio-economic region and international involvement were significantly related to several measures of familiarity and preparedness. The survey demonstrates a need for more effective communication with government authorities and within institutions. Capacity-building initiatives and practical tools are needed to enable gardens and their networks to understand access and benefit sharing, comply with new legislation, build trust and safeguard their role in conservation.

Coolsaet et al, 2013 published their work on the "Challenges for Implementing the Nagoya Protocol in a Multi-Level Governance Context: Lessons from the Belgian Case". Authors stated that the protocol implementation can lead to two fundamentally different processes: a market-oriented self-regulatory approach, which emphasizes the self-regulating capacity of the economic actors involved, or a normative institutionalist approach, which focuses on the norms and formal rules of institutions that not only support and frame, but also shape and constrain the actions of the players acting within them. They have analyzed the challenges related to the implementation of the Nagoya Protocol in the specific case of Belgium, and evaluates the possibility of moving from a self-regulatory to an institutional approach of implementation, which we argue is necessary to achieve the objectives of the Protocol.

A Quick guides to the Aichi Biodiversity Targets was developed by the Biodiversity Indicators Partnership, enabled by a grant from the European Union to UNEP-WCMC in 2013. This guides provide an overview of the main issues addressed under each target. It aims to provide Parties and other stakeholders with an introduction to each of the Aichi Biodiversity Targets by quickly introducing key terms, highlighting some of the implications for national target setting, providing guiding questions for consideration as part of national target setting exercises, providing ideas for preliminary national actions, identifying possible indicators to monitor progress and identifying further resources. The information they contain needs to be considered in light of national conditions and circumstances. This guide is meant to complement other guidance materials related to the development of national biodiversity strategies and actions plans (NBSAP), the fifth national reports and the Strategic Plan for Biodiversity 2011-2020

Talaat, 2013 published his work from Malaysia, aiming to examine the obligations set by the Nagoya Protocol on the parties to CBD to implement ABS by taking legislative, administrative and policy (LAP) measures at the domestic level. The findings reveal the core obligations laid down by the Nagoya Protocol for its contracting parties to take appropriate LAP measures to protect traditional knowledge and to sustainably manage and use their biodiversity

Greiber, et al, 2012 published an Explanatory Guide to the Nagoya Protocol on Access and Benefit sharing through the International Union for the Conservation of Nature (IUCN). This guide has provided a comprehensive overview on the Nagoya Protocol, where several topics were discussed including the history, background, challenges to implementation, the road to Nagoya and beyond and the relationship with other instruments.

Arjjumend and Alam, 2012 discussed the negotiation to evolve an international regime called ABS or "access to fair and equitable sharing of the benefits arising from the use of genetic resources". They have provided an insight on the process of negotiating since COP10 at Nagoya, following the Second Meeting of the Open-ended Ad Hoc Intergovernmental Committee for the Nagoya Protocol on Access and Benefit sharing (ICNP-2) was held in July 2012 in New Delhi. In addition, they have described how developed countries led by the European Union and other industrialized countries such as Canada, Switzerland and UK attempted to diffuse majority of legally-binding agreements and Articles, while Africa Group was well-coordinated and united in negotiating hard with developed countries on most of the issues. The case of India remained marginal in the negotiations, the developing countries like Malaysia, Jordan, Yemen, China and Korea were often very vocal in raising voices.

Dedeurwaerdere, et al, 2012 aimed to show in what respect scientific research commons have become an essential tool for promoting scientific research and innovation based on biodiversity. In particular, they have highlighted the social motivations that play a role in the complex non-monetary incentive mechanisms that drive science and innovation in the research commons (such as reputational benefits, intrinsic values and reciprocity relationships) and analyze under what conditions these can be taken into account in a more effective way in the implementation of the Nagoya Protocol, with a view to improving the production and use of public research resources in a global context. Through their analysis, the main goal of the chapter is to contribute to better global regulation of the scientific research commons in the specific context of the obligations under the Nagoya Protocol on Access and Benefit sharing.

A study was performed by the Institute for European Environmental Policy in 2012, aiming to identify the most effective methods for implementing the Protocol in the European Commission (EU). This study provides technical support to inform the Commission’s Impact Assessment before it takes the necessary initiatives towards the ratification of the Nagoya Protocol and its implementation by the Union and its Member States (IEEP, Ecologic and GHK, 2012). The study was conducted with two main phases of work where a comprehensive stocktaking (baseline analysis) of relevant EU policies and existing rules of the acquis, together with a study of law and practice in selected Member States and third countries (users and providers); and an in-depth legal and economic review

to identify, analyze and compare the potential building blocks for effectively implementing the Nagoya Protocol in the EU, taking account of stakeholder consultations.

Medaglia, et al, 2012 provided an insight on countries that have or are in the process of putting in place national ABS measures to share their experiences in implementation. They have reviewed the ABS measures in countries from Latin America and the Caribbean, Asia, the South Pacific, Africa, Europe and North America as well as the regional measures of the Andean Community, ASEAN, the African Union plus discussions in the European Union and the Nordic countries. They have examined the relevant laws and policies and their provisions on scope, prior informed consent, mutually agreed terms on benefit sharing, compliance, and monitoring and enforcement as well as any access agreements that have been granted or relevant experience gained in the implementation of the ABS measures. It also presents a discussion and conclusions on the main legislative. Lastly, they have provided details on the challenges to implementing the Nagoya Protocol on ABS. Finally, Appendix I summarizes national and regional ABS measures, and Appendix II has a chart providing a general overview of the national actions and information taken to present that implement the different obligations of the Nagoya Protocol.

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Online Resources

- https://www.cbd.int/information/parties.shtml
- http://www.who.int/influenza/pip/en/
- https://absch.cbd.int/countries/JO
- https://www.cbd.int/abs/key-absch.shtml
- http://www.fao.org/plant-treaty/areas-of-work/the-multilateral-system/overview/en/

- http://www.fao.org/faolex/country-profiles/general-profile/en/?iso3=JOR
- http://www.wipo.int/wipolex/en/profile.jsp?code=JO

Annexes

Annex I: ITPGRFA Annex 1 Priority crops

FOOD CROPS

Crop	Genus	Observations
Breadfruit	Artocarpus	Breadfruit only
Asparagus	Asparagus	
Oat	Avena	
Beet	Beta	
Brassica complex	Brassica et al.	Genera included are: *Brassica, Armoracia, Barbarea, Camelina, Crambe, Diplotaxis, Eruca, Isatis, Lepidium, Raphanobrassica, Raphanus, Rorippa,* and *Sinapis*; this comprises oilseed and vegetable crops such as cabbage, rapeseed, mustard, cress, rocket, radish, and turnip; the species *Lepidium meyenii* (maca) is excluded
Pigeon Pea	Cajanus	
Chickpea	Cicer	
Citrus	Citrus	Genera Poncirus and Fortunella are included as root stock
Coconut	Cocos	
Major aroids	Colocasia, Xanthosoma	Major aroids include taro, cocoyam, dasheen and tannia
Carrot	Daucus	
Yams	Dioscorea	
Finger Millet	Eleusine	
Strawberry	Fragaria	
Sunflower	Helianthus	
Barley	Hordeum	
Sweet Potato	Ipomoea	
Grass pea	Lathyrus	
Lentil	Lens	
Apple	Malus	
Cassava	Manihot	*Manihot esculenta* only
Banana / Plantain	Musa	Except *Musa textilis*
Rice	Oryza	
Pearl Millet	Pennisetum	
Beans	Phaseolus	Except *Phaseolus polyanthus*
Pea	Pisum	
Rye	Secale	

Potato	Solanum	Section *tuberosa* included, except *Solanum phureja*
Eggplant	Solanum	Section *melongena* included
Sorghum	Sorghum	
Triticale	Triticosecale	
Wheat	Triticum et al.	Including *Agropyron, Elymus,* and *Secale*
Faba Bean / Vetch	Vicia	
Cowpea et al.	Vigna	
Maize	Zea	Excluding *Zea perennis, Zea diploperennis,* and *Zea luxurians*

FORAGE CROPS

Genera	**Species**
LEGUME FORAGES	
Astragalus	*chinensis, cicer, arenarius*
Canavalia	*Ensiformis*
Coronilla	*Varia*
Hedysarum	*Coronarium*
Lathyrus	*cicera, ciliolatus, hirsutus, ochrus, odoratus, sativus*
Lespedeza	*cuneata, striata, stipulacea*
Lotus	*corniculatus, subbiflorus, uliginosus*
Lupinus	*albus, angustifolius, luteus*
Medicago	*arborea, falcata, sativa, scutellata, rigidula, truncatula*
Melilotus	*albus, officinalis*
Onobrychis	*Viciifolia*
Ornithopus	*Sativus*
Prosopis	*affinis, alba, chilensis, nigra, pallida*
Pueraria	*Phaseoloides*
Trifolium	*alexandrinum, alpestre, ambiguum, angustifolium, arvense, agrocicerum, hybridum, incarnatum, pratense, repens, resupinatum, rueppellianum, semipilosum, subterraneum, vesiculosum*
GRASS FORAGES	
Andropogon	*Gayanus*
Agropyron	*cristatum, desertorum*
Agrostis	*stolonifera, tenuis*
Alopecurus	*Pratensis*
Arrhenatherum	*Elatius*

Dactylis	*Glomerata*
Festuca	*arundinacea, gigantea, heterophylla, ovina, pratensis, rubra*
Lolium	*hybridum, multiflorum, perenne, rigidum, temulentum*
Phalaris	*aquatica, arundinacea*
Phleum	*Pretense*
Poa	*alpina, annua, pratensis*
Tripsacum	*Laxum*
OTHER FORAGES	
Atriplex	*halimus, nummularia*
Salsola	*vermiculata*

Annex II: Summary of Protocol obligations relating to access and benefit sharing for providers (Source: IEEP, Ecologic and GHK (2012))

Article	Core obligations on access to genetic resources (GR) and associated traditional knowledge (TK)	Applicable to GR/TKaGR
5(2)	Take measures to ensure benefit sharing, upon MAT, with ILCs having established rights over GR	GR
5(5)	Take measures to ensure benefit sharing arising from TKaGR, upon MAT, with ILCs holding such TK.	TKaGR
6(3)(a-e), (g)	If PIC required under 6.1, take measures for: -legal certainty, clarity and transparency; -non-arbitrary rules/procedures for access and MAT establishment	GR
6(2), 6(3)(f)	Take measures for ILCs to obtain PIC/approval & involvement for access if ILCs have the established right to grant access to GR. Set out criteria/processes for obtaining PIC/approval & involvement of ILCs for GR access	GR
6(3)(g), 17(1)(b), 18(1)	Set out procedures for establishing MAT and encourage minimum content of MAT	GR, TKaGR
7, 12(1)	Take measures aimed at ensuring PIC/approval & involvement of ILCs for access to TK associated with GR that is held by ILCs in accordance with domestic law, in accordance with domestic law take into consideration ILCs' customary laws, community protocols and procedures, as applicable, with respect to traditional knowledge associated with genetic resources	TKaGR
8(a)	Create conditions to promote and encourage biodiversity research, particularly in developing countries, including through simplified access for non-commercial purposes.	GR
12(2)	Inform users about their obligations with regard to TKaGR, with effective participation of ILCs	TKaGR
Article	Institutional provisions	Applicable to GR/TKaGR
13(1)	Create ABS focal point to share information on ABS	GR, TKaGR
13(2)	Create competent national authority to grant PIC and issue evidence of PIC/MAT	GR, TKaGR
14(2)	Provide information on permits issued to CH	GR, TKaGR
17(1)(a)	Take measures to monitor and enhance transparency	GR

	on GR utilization, including designation of checkpoint(s) to receive information on PIC and MAT at any stage of research, development, innovation, pre-commercialization or commercialization	
Article	Supplementary obligations on access to genetic resources and associated traditional knowledge	Applicable to GR/TKaGR
8(b)	Pay due regard to emergencies that threaten or damage human, animal or plant health	GR
8(c)	Consider importance of genetic resources for food and agriculture and their special role for food security	GR
9	Encourage users and providers to direct benefits arising from utilization of GR to biodiversity conservation/sustainable use	GR
11	Endeavour to cooperate where: GR found in situ on territory of more than one Party (11.1) and/or TK shared by ILCs in several Parties (11.2)	GR, TKaGR
12(3)	Support, as appropriate, the development by ILCs of community protocols, minimum requirements for MAT, model contract clauses benefits arising out of the utilization of such knowledge	GR, TKaGR
19, 20	Encourage development, update and use of: -model contractual terms for MAT -voluntary codes of conduct, guidelines and best practices and/or standards	GR, TKaGR