



5/5/2018

Analytical Report

Nagoya Protocol



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BIODIVERSITY AND PROTECTED AREAS EXPERT

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Analytical 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 by 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.

The project is in direct response to the decision made at 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 in Delhi July 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".

This report was prepared to provide details concerning: i) opportunities for the implementation of the Nagoya Protocol in Jordan, ii) review of global models, and iii) develop a proposed institutional setup.

Part One: Opportunities, Gaps and Risks of Implementing the Nagoya Protocol in Jordan

1.1 Opportunities and Gaps for the Implementation of Nagoya Protocol in Jordan

According to the protocol obligations, Jordan Government has to establish ABS measures, which meet basic criteria, including: 1) legal certainty, clarity and transparency; 2) fair and non-subjective rules and procedures; and 3) clear rules and procedures for PIC and MAT. Therefore, several opportunities and gaps exist regarding the implementation of the Nagoya Protocol in Jordan, and the development of the ABS measures. The following define these opportunities and describe the gap behind each opportunity that the government of Jordan shall deal with:

1.1.1 Opportunities in the implementation and compliance with the protocol obligations

- The successful formulation of ABS bylaw, institutional setup, institutional and capacity strengthening will result in a better networking and linkages between various stakeholders.
Gap: Several entities are working in Jordan to conserve biological resources; In Suite and Ex Suite. However, no common vision exist toward conserving genetic resources
- Raising awareness of genetic resources and traditional knowledge and associated ABS issues through several means including workshops, publications, and media channels including social media...etc.
Gap: Despite that the Nagoya protocol was ratified by the Government of Jordan since six years (in 2012), but very limited efforts were performed to raise the knowledge of institutions, public and other relevant stakeholders about its articles.
- Existence of a National Focal Point in Jordan, which will facilitate and enable coordination between different entities to implement the Protocol
Gap: Despite the existence of a NFP, but limited resources are provided in means of human capacities and financial allocations which will enable NFP to effectively implement and follow-up the protocol
- Mapping actors, existing expertise, national and international instruments.
Gap: Several entities are working in Jordan to conserve biological resources; In Suite and Ex Suite. However, no detailed and comprehensive stakeholder mapping exist, and most implementation of activities performed based on knowledge gained by individuals over time

- The existence of representatives from different entities trained on the ABSCH, which will provide a register of information about permits issued and other related documents
Gap: Despite the capacity building programs performed by the Ministry of Environment, but still not every entity trained assigned a focal point for data entry. In addition, no clear mechanism for data registry was provided to ensure compliance of these entities trained for data register.
- Establish mechanism to monitor the utilization of genetic resources including designation of checkpoints
Gap: the Nagoya protocol is still unclear for a wide range of stakeholders and local communities. Thus clear gap occurs in the means of implementation, monitoring and evaluation
- The availability of research on genetic resources in Jordan, and the presence of various entities working with research on biological and genetic resources.
Gap: Research on genetic resources is available in Jordan, but its visibility is not promoted in the appropriate way. In addition, there no specific database to compile the published, and unpublished research on genetic resources and\ or traditional knowledge related to.
- The availability of a secured fund through the “Environmental Fund” at the Ministry of Environment which could enhance the compliance to the protocol.
Gap: The Environmental Fund was established under the umbrella of the Ministry of Environment for several purposes including raising awareness toward environment, and support any activity that will back the sustainable environment in Jordan. However, no allocations were invested from this fund to support the implementation of the Nagoya protocol and strengthen the knowledge about.
- The existence of checkpoint at the custom department in Jordan, which will facilitate the compliance to the protocol implementation.
Gap: The custom department released a Comprehensive Customs Guide with the title “Single Information Station”, which is an inclusive information database for all import / export to or from the Kingdom of Jordan. In addition, customs officers are engaged in different training programs on CITES convention to raise their capacities toward species in trade acknowledgment. However, gaps are still exists in means of using this single information station for the purposes of Nagoya protocol as well as the existence of skilled officers in the field of species identifications.

1.1.2 Opportunities for the development, implementation and enforcement of national legislative, administrative or policy measures on ABS

- Develop a bylaw and a policy frameworks for the ABS in Jordan
Gap: the Nagoya protocol was mentioned directly or indirectly by other laws, acts and regulations (Reference: Synthetic report). However, no specific and direct legislative structure subsists to define the structure to be followed for this protocol.
- Develop a standardized procedures for granting or refusing the applications and\ or prior informed consent
Gap: This is the first attempt to establish a structure for the implementation of the Nagoya protocol in Jordan. Thus, a standardized procedure for the application process is needed
- Strengthen the compliance with national legislation or regulatory requirements on ABS
Gap: the Nagoya protocol was mentioned directly or indirectly by other laws, acts and regulations (Reference: Synthetic report). However, no specific and direct legislative structure subsists to define the structure to be followed for this protocol.

1.1.3 Opportunities for the development of negotiating mechanisms of mutually agreed terms

- Training of relevant stakeholders in relevant legal, scientific and technical skills associated with mutually agreed terms (MAT)
Gap: Key legal, technical and scientific staff members exists at the Ministry of Environment and other entities which have a relation with the Nagoya protocol, but they are not equipped with knowledge and experiences toward the protocol and the negotiation skills it require either at the international level or locally if a MAT was adopted.
- Develop and implement a pilot ABS agreements
Gap: no documentation for the Nagoya protocol is still developed in Jordan. Therefore, if an institutional setup will be formulated, then all necessary document and agreement which are necessary for appropriate implementation of the protocol shall be developed
- Promote a better understanding of business models in relation to utilization of genetic resources and traditional knowledge
Gap: the use of traditional knowledge is still unclear due to several reasons including the absence of documentation, lack of previous practices in relation to the use of this knowledge and the economic revenue it might have and the deficiency in the presence of a business model that defines the benefits each species might provide

- Develop the capacity to enhance transparency about the utilization of genetic resources and traditional knowledge in accordance with the Nagoya Protocol after users have left provider countries.

Gap: the implementation of this protocol will require time, efforts and financial resources. Still very limited resources are secured which might obstruct the progress

1.1.4 Opportunities for the capacity of local communities and other relevant stakeholders

- Enable local communities and other stakeholders participation in legal, policy and decision making processes

Gap: There is a lack of clear methodology to engage local communities and other stakeholders in decision making process in Jordan. This might form a gap when the Nagoya protocol is implemented

- Develop a minimum requirements, as appropriate, for mutually agreed terms to secure fair and equitable sharing of benefits from use of traditional knowledge

Gap: Lack of familiarity and adequate knowledge of the contractual status, nature and methods of involving local communities will be a gap if not clarified and employed in the appropriate manner

- Develop the community protocols in relation to ABS to traditional knowledge and benefit sharing therefrom

Gap: Lack of familiarity and adequate knowledge of the contractual status, nature and methods of involving local communities will be a gap if not clarified and employed in the appropriate manner

- Enhance local communities, tribes and landowners in particular women, access to genetic resources and or traditional knowledge. In addition, involving these groups in decision making process will be a great opportunity to present a true case study from Jordan.

Gap: Involvement of local communities “especially women” capacities toward the Nagoya protocol will be a challenge especially if they will be involved in decision-making process

- Develop and increase knowledge of different actors including decision makers, animal’s keepers, and plants gardens on conservation and use of national animal and plants genetic resources in different contexts.

Gap: Lack of familiarity and adequate knowledge of the Nagoya protocol is a gap, which shall be addressed and defined for all relevant stakeholders including but not limited to decision makers, animal’s keepers, and plants gardens

1.1.5 Opportunities of developing research capabilities on genetic resources

- Develop and use methods for assessing genetic resources and associated traditional knowledge

Gap: no specific methods or mechanisms have been developed to assess genetic resources and the related traditional knowledge.

- Facilitate transfer of technology and developing infrastructure for research, and building technical capacity to make such technology transfer sustainable

Gap: the exchange of knowledge, and technology transfer between Jordan NFP and other entities worldwide has to be strengthened to facilitate an effective implementation of the Nagoya protocol.

- Undertake research and taxonomic studies related to conservation of biodiversity and sustainable use of its components and bioprospecting

Gap: despite the presence of information on taxa's of Jordan, but still several groups lack detailed information which will help the NFP and CAN to act.

- Develop the national databases on genetic resources.

Gap: despite the presence gene banks at the National Agricultural Research Center (NARC) and the Royal Botanic Garden (RBG), but both sites are lacking advance technologies, and major development.

1.2 Risks of Implementing the Nagoya Protocol in Jordan

Risks of implementing the Nagoya protocol in Jordan was defined according to the following major topics

1.2.1 Related Risks to Resources Availability

The establishment of a mechanism for the implementation of the Nagoya protocol on ABS, involves several risks related to resources acquiring including financial and man power; in spite of research and commercialization of nature-based products. The genetic regulations proposed in the institutional setup include "but not limited to" somehow a market-driven financial mechanisms; milestone fees (application for access and research fees), payment of penalties, contribution to fund communities and research in place.

In addition, the necessity to implement capacity building program for the various stakeholders involved in the implementation of this protocol to end up with a qualified and trained staff in the future. This require financial resources which should be secured by the Government of Jordan. This is also true when it come to the coordination mechanism and capacity building programs that shall target other legal instruments related to the Nagoya protocol such as ITPGR, and CITES.

Awareness toward the Nagoya protocol shall impose a high rick such as: i) financial allocations it require to reach local communities and relevant stakeholders, ii) misinterpretation of the protocol might lead to conflict between gene providers and could lead to the depletion of biological diversity and iii) conflicts with gene users especially if rights over resource used were provided.

As a conclusion; Economic expectations of ABS is always a risk if not managed appropriately through extensive awareness and capacity building programs.

1.2.2 Related Risks to Local Communities

Risks could occur from the involvement of local communities in decision making process, especially if no clear, transparent and accountable measures have been produced. Any discussion observed and supervised by CNA shall take into consideration PIC and well acknowledgment to the benefits which might arise from using the genetic resources. In addition, CAN could encourage community's leaders to manage a fund levied from the fee which will be collected from gene users. Thus, financial and regulatory mechanisms shall be in place, but have not been practiced to reduce financial risk to sustainability.

Therefore, the court, lawyers and legal people shall be involved and educated about this protocol and the various dimensions it hold.

1.2.3 Institutional Framework and Governance risks

It is important to adopt the Nagoya protocol by the Government of Jordan to ensure governing the collection of genetic resources and benefit-sharing in a fair and equitable basis within communities.

1.2.4 Risks of Defining Ownership

Ownership of genetic resources is a critical issue that users and providers have to consider carefully. Users of genetic resources need to be sure that a provider has the authority to provide such resources, and the provider have to be sure that the user has specifically filled the application form including details on the genetic resources correctly.

Part Two: Review of Global Models

The following review was concise to provide provisions adopted by several countries at the regional and global levels, on access and benefits sharing (ABS) for genetic resources. The review followed Medaglia et al, 2012, who performed their study with the aim to examine 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.

The main features of ABS frameworks vary from one national system to another, but some of the underlying elements include:

- **Competent National Authorities (CNA)**: some countries have an organization already existed, while other countries are establishing new organizations by the ABS measure.
- **Prior Informed Consent (PIC)**: It exists in some countries, where access to genetic resources has to be made by some type of application.
- **Mutually Agreed Terms (MAT)**: set out by different type of agreements depending on whether the genetic resources are being accessed for research or commercial purposes, and approved by the National Competent Authority.
- **Compliance measures**: the measures examined generally include provisions for compliance. Although few address monitoring and enforcement to ensure compliance with ABS measures, they generally provide penalties, permissions for infractions or offences, such as violations to the provisions of the legislation, regulation or guideline. These sanctions include fines, seizure of samples, revocation and cancellation of the permission to access, revocation of the agreement, a ban on future bioprospecting and imprisonment

This review will be the base for establishing the institutional setup of Jordan, and it will provide a suggested provisions on scope, prior informed consent, mutually agreed terms on benefit sharing, compliance, and monitoring and enforcement which is applicable according to the context of Jordan.

2.1 Central America, South America & the Caribbean

This region is characterized by a rich biodiversity cultural diversity, which reflected on a high activity on ABS. The following describe ABS implementation in Brazil, Columbia, Costa Rica, Mexico, Panama, Peru, Venezuela and the Andean Community.

2.1.1 Brazil

The federal government in Brazil has established a Provisional Measure (MP) supported by the establishment of a Council to address, manage and implement national policies on access to genetic resources and traditional knowledge. The MP provides a prior authorization on the access to genetic resources that depends on the location of these resources (indigenous territory, protected area, private land, land indispensable for national security, or jurisdictional water), and develop technical and administrative activities for providing or denying access. Any expeditions by foreign institutions or persons for accessing genetic resources are not allowed, without a prior coordination and approval by the council,

The council is chaired by the Ministry of Environment with 19 membership, all of them holding the right to vote. Some representatives of civil society are invited and hold the right to speak as well. The process of access to genetic resources according to the MP articles are:

1. The applicant, besides obtaining the authorization, must sign a contract that sets out how the benefits arising from the commercialization of the resources are to be distributed. The contract must include
 - The resources accessed
 - Benefit sharing provisions which could include:
 - Royalties
 - Technology transfer
 - Free licenses to products or process
 - Human capacity building.
 - Rights and obligations
 - Intellectual property rights
 - Contract cancellation clauses
 - Jurisdiction in Brazil for dispute settlement.
2. Non-compliance will be punished by different types of penalties such as:
 - Fines
 - Confiscation of samples and products
 - Suspension of the sale of products
 - Closing down establishments
 - Suspension or cancellation of the registry
 - Patent
 - License or authorization
 - Prohibition of contracting with the public administration
 - Restriction of tax incentives according to Chapter 8 of the MP.

The legal framework for implementation of the Nagoya Protocol in Brazil is very complex, since the MP is complemented with a number of Decrees (around 4) and Resolutions (more than 15). Currently, the Brazilian Government is discussing a draft Presidential Decree to overcome the challenges of the legal

framework that will establish a specific procedure to regularize accesses which occurred without prior authorization. Recently, number of permits granted particularly for non-commercial research; and also for commercial research or commercial research utilizing traditional knowledge is growing steadily.

2.1.2 Columbia

The state of Columbia has designated the Ministry of Environment as the only responsible authority for the protection and management of biological and genetic resources into and out of the country. Moreover, the Direction of Permits and Environmental Licenses was developed to act as the competent measure for the approval or rejection of ABS applications as well as for the signature of the ABS agreements. Therefore, the following steps for access to genetic resources are applied at Columbia:

1. Filing the application, which should follow these steps
 - Specify the genetic resources to be researched
 - Specify the access activities required
 - Specify the proposed geographical area
 - Identify the supplier of the biological and genetic resources
 - The state of the art regarding the genetic material and its application
 - The résumé of the lead scientist of the project
 - A copy of the research project.
 - If the research include access to traditional knowledge, then the application must identify the provider.
 - Identify a national institution as a research partner
2. Study the application for approval or rejection by the national authority
3. In case of approval, the access contract shall be signed.

The approval of an application is communicated through an administrative resolution and the process moves to a negotiation phase. What distinguish Columbia is that the entire process is public, although the state may grant confidentiality for information susceptible to unfair competition. The procedure is intended to guarantee transparency and to facilitate civil society participation.

2.1.3 Costa Rica

Costa Rica's Biodiversity Law specifically regulates the use and management of the components of biodiversity as well as the associated knowledge, benefit sharing and derived costs from this utilization. In addition, the State authorizes through this law the exploration, research, bioprospecting, and use of biodiversity components which constitute part of public domain, as well as the use of all genetic and biochemical resources.

According to law, all research or bioprospecting programs which will be performed by all sectors (pharmaceuticals, agriculture, crop protection, biotechnology, ornamental, herbal, etc.) on the genetic or biochemical material of biodiversity that are to be carried out in Costa Rican territory require an access permit, unless they fall into one of the exceptions which include:

1. Access to human genetic resources
2. The non-profit exchange of genetic and biochemical resources
3. The traditional associated knowledge resulting from the traditional practices of indigenous peoples and local communities
4. Research by public universities, which had established their own ABS controls and regulations for research that implies non-profit access to biodiversity.

The access regulations apply to genetic resources in public or private lands, terrestrial or marine environments, under ex situ or in situ conditions, and in indigenous territories. In addition, the rules of indigenous people should be taken into account for access in their territories as should their sui generis community intellectual rights. Similarly it is recognized that communities and indigenous peoples have the right to oppose access to their resources and associated knowledge for cultural, spiritual, economic or other reasons.

The access procedure was defined by the biodiversity law, where the National Biodiversity Administration Committee (NBAC) within the Ministry of Environment, Energy and Telecommunications is considered the competent body that grants access in the first place. The NBAC is entrusted to:

1. Process, reject, and audit applications to access biodiversity
2. Prepare ABS policies and can revoke the rulings on access issues
3. Coordinate with the Conservation Areas, the private sector, indigenous peoples, and farmer communities on actions that relate to access.
4. Organizing and updating a register of access applications to the components of biodiversity, ex situ collections, and of the natural and legal persons who work on genetic manipulations.
5. Collect and update regulations related to the fulfilment of treaties and guidelines on biodiversity issues

Most of the bioprospecting in the country has been conducted by a non-governmental, non-profit association and it has been declared of public good. This association held responsible to carry out specific national inventory activities and use of the biodiversity in the country's protected areas. Research is carried out in collaboration with investigation centers, universities and national and international private companies by means of investigation agreements that include key elements, such as:

1. Access: limited in time and quantity

2. Equity and compensation: research budget, Benefit sharing (royalties and milestone payments, etc.), Technology transfer and Training
3. Non-destructive activities
4. Up-front payment for conservation

2.1.4 Mexico

Several acts regulates and recognizes that the use of genetic resources in Mexico. The General Act distinguishes that the use of genetic resources is considered of public interest, which in consequence encouraged the State to regulate individual actions on behalf of the higher interests of society. This act state that scientific collection of biological resources (including genetic resources) for non-biotechnological purposes requires authorization by the Secretariat of Environment and Natural Resources, and the research results must be available to the public. If the resources are to be used for the purposes of biotechnology, then the authorization on the prior consent of the landowner where the resource is sought, and the benefits arising from the use of the resources must be shared with such owner.

The Wildlife General Act require a prior consent of the land owner when collecting activities are for scientific purposes. This regulation asks users to submit reports about their activities and to deposit samples of biological material in national research institutions. If the user changes his purpose from scientific to biotechnological applications, he must submit a new declaration stating the new purpose and setting the stage for new consent and benefit-sharing agreements.

The provisions of the Sustainable Forestry Development Act regulating collection for scientific, commercial and biotechnological purposes follow the access scheme in the General Act. The former adds a simplified procedure in case of collections done by the owner of the land or by public agencies. The novel element in this Act is that it recognizes the right of indigenous people over local varieties and related traditional knowledge. This regulation declares void any registration including patents that does not acknowledge the right of indigenous people to the ownership, knowledge and use of local varieties. If traditional knowledge is to be used, there must be recognition of the ownership on behalf of the communities, an access agreement and proof of prior informed consent.

Conflicts of land tenure and resource use in rural areas are important factors that have hindered the establishment and enforcement of an efficient ABS regime in Mexico. Due to uncertainty and distrust felt by some social sectors, bioprospecting activities have been difficult to carry out on some occasions. A clear and comprehensive regulation on ABS, taking into account the social problems in some areas of the country, could help to resolve the situation.

Finally, the Mexican Intellectual Property Right Law or the Plant Varieties Federal Law does not contain a disclosure of origin requirement.

2.1.5 Panamá

The National Environmental Authority is the competent body which was designated according to the General Environment Law. It is responsible to decree standards, regulate and control the access and use of biogenetic resources in general, with the exception of human species, respecting intellectual property rights. A decree was established aiming to regulate the access to genetic resources, and contains two issues of interest and these are:

1. It defines certificate of origin or provenance as "the legal recognition on the part of the National Environmental Authority of the origin or provenance of the genetic or biological resource whose genetic heredity makes up the genetic materials where processes or other products are derived."
2. Access contracts should include the obligation of the applicant to declare the origin and provenance of the genetic resources in all the publications or summaries that incorporate genetic or biological resource collected.

Panama has a Law on the "Special regimen of collective rights for indigenous communities" and its regulation. It was created for the protection of traditional knowledge, limited to indigenous communities and targeted fundamentally to folklore and other traditional cultural expressions. Intellectual property rights and indigenous community traditional knowledge on their creations such as dress, work instruments, drawings, designs, figures and graphics, among others, are regulated and protected. These also include cultural elements such as their music and dance. This protection is implemented through a registry system and through promotion and commercialization of their rights.

2.1.6 Peru

The Ministry of Environment has been designated as the national competent authority on ABS and it is responsible on the following:

1. Approves the national policy and the guidelines and standards for the management of the genetic resources.
2. Establishes the international strategy for the international negotiations in coordination with other bodies
3. Holds the register of the access contracts and national research entities.

However, the handle of the permitting process and the signature of the access contracts is the responsibility of the Administrative and Execution Authorities (agricultural, fisheries and protected areas authorities). In addition, any model for the Material Transfer Agreements must be approved by the Ministry. The

access contracts and the accessory contracts must include some provisions, among others:

1. Prohibition to claim property over the material per se or its derivatives
2. Obligation not to transfer the material without the authorization of the competent authority
3. Recognition of the origin of the material
4. Training and infrastructure
5. Information exchange
6. Technology transfer
7. Economic benefits
8. Research reports.

The Ministry of Agriculture and the National Institute for the Protection of Intellectual Property (INDECOPi) established a multidisciplinary working group to assess alternatives for implementing the ABS regimen in Peru. In addition, Peru ratified the Law on the Conservation and Sustainable Utilization of Genetic Resources, which addresses the Indigenous Peoples rights and scientific research in general terms, but it failed to contain detailed provisions regarding ABS.

The representative organizations of the indigenous peoples are the source of the Prior informed consent, which is considered the main condition to be fulfilled to obtain access to the collective traditional knowledge. It is also necessary in the cases of commercial and industrial applications to sign an agreement that ensures benefit sharing. The license must be in written form and registered with the National Institute for the Protection of Intellectual Property.

The Law provides three types of registers of collective traditional knowledge which are:

1. The National Public Register
2. The National Confidential Register
3. Local registers of collective knowledge.

A fund for the development of Indigenous peoples is created to compensate all the indigenous peoples for their contribution to the preservation of this knowledge paying into attention their rights over their knowledge whether in a register or not. In addition, the regulations recognize and protect the rights of the indigenous peoples to decide about their innovations, practices and knowledge associated to genetic resources, where the followings are excluded from the regulations:

1. The human genetic resources and its derivative products
2. The traditional and customary use of genetic resources for indigenous peoples and local communities
3. The species included in Annex I of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

4. The use of genetic resources for cultivation purposes within Peru
5. The activities which imply the economic use of non-timber natural resources to produce natural products (nutraceuticals and functional foods).

2.1.7 Venezuela

ABS in Venezuela is under the Biological Diversity Law, which state that all persons seeking access to genetic resources must follow the proper administrative procedure, which includes an application, a contract, a public resolution and a registration of the process. Some factors such as the conservation of endemic species, ecosystem preservation, and human health protection, inter alia, can justify limitations to access. The State commits itself to promote and protect the rights of indigenous peoples and local communities for their collective rights.

In 2001, a National Commission on ABS with advisory functions was established, and supported by the law which includes provisions that may act as a tracking mechanism, and these are:

1. The applicant must provide information about the results, and research conclusions to the Ministry of Environment.
2. Intellectual property rights will not be granted when samples have been acquired illegally or when they make use of the knowledge of indigenous and local communities.
3. The National Office of Biological Diversity will examine intellectual property rights granted outside the country, based on national genetic resources, with the purpose of claiming the corresponding royalties or the cancellation of the intellectual property rights (IPR).

In addition to the Biodiversity Law, there are two other pieces of legislation of relevance for traditional knowledge protection. These instruments address the rights to indigenous peoples in general not specifically to the protection of traditional knowledge or genetic resources provides for the recognition of indigenous rights over the traditional knowledge and its lands; the requirement of PIC; the requirement to provide benefit sharing; the limitations to apply for IPR on traditional knowledge; the voluntary register of intangible heritage, etc.

2.2 Eastern, Southern and South-East Asia

The following shall summaries the implementation of ABS measures in several Asian countries including Bhutan, China, India, Malaysia and Philippines.

2.2.1 Bhutan

The Biodiversity Act regulates three main issues which are the access to genetic resources and benefit sharing, the protection of traditional knowledge and the plant breeders (and farmers) rights. In addition, the act recognizes the value of biological and genetic resources in the development of products, compounds and substances that have medicinal, industrial and agricultural and related applications and the need to protect and encourage cultural diversity by giving due value to the knowledge, innovations and practices of local communities in Bhutan, including the fundamental principles that prior informed consent (PIC) and mutually agreed terms (MAT) for benefit sharing must be secured before access can take place. The objective of this law include:

1. Ensure national sovereignty over genetic resources in accordance with relevant National and International Law.
2. Ensure the conservation and sustainable use of the biochemical and genetic resources.
3. Promote the equitable sharing of benefits derived from the use of genetic resources.
4. Promote technology transfer and capacity building at the national and local levels, including the building of scientific and technological capacity relevant to the conservation and sustainable use of biological diversity.
5. Recognize and protect traditional knowledge, innovation and practices of local communities associated with biodiversity.
6. Regulate and facilitate the process by which collectors may legally obtain genetic resources.
7. Prevent illegal access to genetic and biochemical resources and associated traditional knowledge.
8. Recognize and protect the farmers' and breeder's rights.
9. Provide legal recognition of varieties which are not protectable under the internationally existing patent and/or plant breeder's rights laws and thereby recognize farmers' plant variety improvements and innovations and provide a means of sharing benefits derived from the use of farmers' or traditional varieties as breeding material for commercial purposes.

It is well-known that the scope of the Law is very expansive, covering all the genetic and biochemical resources including wild, domesticated and cultivated species of flora and fauna, both in-situ and ex-situ conditions found within the territory of Kingdom of Bhutan. Access covered by the Act shall be subject to the PIC of the Competent Authority of Bhutan, which represents national interests and the interests of the local communities harboring, cultivating, developing and maintaining the biological diversity concerned.

The applicant shall submit an application for access to the Authorized Agency. In the event the Authorized Agency is satisfied that the application for access complies with the requirement under the Act, such an application may be submitted to the Competent Authority to arrive at a decision to grant or refuse a

permit in accordance. Detailed information to be provided by the applicant is listed in the Act. All the information deemed confidential as per the Act, such as trade secrets or other forms of intellectual property rights, will be protected

The Competent Authority may grant access if one or more, when relevant, of the following minimum conditions for benefit sharing, which are to be included in the MTA or contract signed between the Competent Authority and the Applicant, are met. These conditions may also be considered in any MTA or contract signed between the applicant and any other relevant stakeholder:

1. Fee and upfront payments.
2. The sharing of the research results and relevant information.
3. Royalties
4. Milestone payments.
5. Recognition as a partner in intellectual property ownership of products derived from the supplied material.
6. Joint research activities.
7. Concessionary rates or free supply of commercial products derived from the resources provided.
8. Transfer of technologies.
9. Training and capacity building.
10. The acknowledgment of the origin of the genetic resources in any publication resulting from the research activities.
11. Donation of equipment to national institutions.
12. Other benefits, monetary or non-monetary.

Thus, a Certificate of Origin will be issued by the Competent Authority, which states that, the procedures and conditions for granting access to the applicant have been met. Offences, civil liability, criminal sanctions and the revocation of the permit in cases of non-compliance with the provisions of the Act or the terms of the permits are also provided in the act.

The act is protect the traditional knowledge through two means which are the condition to obtain the prior informed consent of the traditional owners of the traditional knowledge for use of traditional knowledge for a non-customary use (including conditions for benefit sharing) and the inventory of traditional knowledge to be carried out by the Authorized Agency in collaboration with the owners of the traditional knowledge. The Regulations shall set the terms and conditions for applicants for the access of the information inventoried.

2.2.2 China

The State Council spread the Measures for the Examination and Approval of Entry & Exit and the Foreign Cooperative Research on the Application of Genetic Resources of Livestock and Poultry (hereinafter referred to as "the Measures") in

accordance with the Animal Husbandry Law of the People's Republic of China. Article 8 of the Measures states that "any research cooperatively conducted in China with overseas entities or individuals that uses genetic resources of livestock and poultry, which are included in the List of Protected Genetic Resources of Livestock and Poultry, must:

1. Have clearly defined objectives and scopes, and definite time limits for cooperation
2. Be carried out in consistence with the protection and utilization plan of genetic resources of livestock and poultry
3. Have clear clauses on intellectual property ownership, and a reasonable program on benefit sharing of the research achievements
4. Constitute no threat to domestic genetic resources of livestock and poultry or ecological environment security
5. Have a reasonable benefit-sharing plan for countries concerned

In addition, the new Patent Law includes two new paragraphs directly related to the protection of genetic resources, namely:

1. Article 5 (2), which states that "no patent right shall be granted for any invention/creation that relies on genetic resources accessed or used in violation of the provisions of relevant laws or administrative regulations"
2. Article 26 (5), which states that "for inventions/creations that rely on genetic resources, the patent applicant shall disclose, in the application, the direct source and the original source of the genetic resources, and shall, in the case where the applicant fails to disclose the original source, provide a reason for such a failure".

Accordingly, specific provisions on these two paragraphs have been further set out in the revised Implementing Regulations under the Patent Law and the Guide on Patent Examination, respectively, to make the amendments operational.

2.2.3 India

The Biological Diversity Act of India primarily addresses the issues concerning access to genetic resources and associated traditional knowledge by foreign individuals, institutions and companies and the equitable benefit sharing. The Act provides for regulated access to biological and genetic resources by users for different purposes, including scientific research, commercial uses, bio-survey, bio-utilization, and conservation. Free access to biological resources was granted to some traditional physicians for any purpose other than commercial use in order to safeguard the interest of the local people and to allow research by Indians citizens within the country. The Act governs ABS through a three level systems which are:

1. The National Biodiversity Authority (NBA): it deals with matters relating to request for access to bio-resources and associated traditional knowledge

- by foreign individuals, institutions or companies and all the matters relating to the transfer of research results to any foreigner; imposition of terms and conditions to secure equitable benefit sharing, establish sovereign rights over bio-resources of India and approval for seeking any form of Intellectual property in or outside India for an invention based on research or information related to the biological resources and associated traditional knowledge obtained from India. The NBA is responsible to provide prior approval on access to biological resources and traditional knowledge to foreigners
2. The State Biodiversity Board (SBB): it deals with matters relating to access to bio-resources by Indians for commercial purposes. It is responsible to provide access permits to Indian citizens on the basis of prior intimation
 3. The Biodiversity Management Committees (BMC): it is responsible for conservation, sustainable use, and documentation of biodiversity. BMC shall be consulted by the NBA or the SBB on matters related to the use of biological resources and associated traditional knowledge within their jurisdiction.

In order to access to genetic resources; the following steps shall be followed:

1. Applicants seeking access are required to submit an application in Form.
2. Once the application is approved for access and agreement has to be signed by the applicant.
3. The NBA, through appropriate consultation mechanisms, approves the applications and communicates the decision to grant access within a period of 6 months.
4. The authority is required to grant access in the form of an agreement in written duly signed by the parties.
5. The NBA shall also communicate the reasons for the rejection and give reasonable opportunity for the applicant to appeal.
6. The NBA shall monitor the compliance with the conditions. It can also revoke the access approval on the basis of any complain or ex officio under certain conditions such as violation of the terms of the Act or the agreement may also recover damages if any. Restrictions on access are also set.

The Act provides for the establishment of biodiversity funds at different levels which money could be used for the conservation and development of biological resources and socio-economic development of areas where resources have been accessed. Benefits will be given directly to the individuals or groups or individuals in cases where the resources or knowledge are accessed directly through them. In addition, the Traditional Knowledge Digital Library which was developed by the Government of India aimed to create and maintain a digital database of traditional knowledge in public domain and make it available to patent offices all over the world so that examiners can be aware of prior art and novelty relating

to a particular medicinal plant. The information is provided in different languages to facilitate its use for the patent examiners, then preventing the mistaken granting of patents based on traditional knowledge of India.

2.2.4 Malaysia

A State Law which was developed in Sarawak and Sabah at Malaysia has led to the establishment of Sarawak and Sabah Biodiversity Centers. These centers are responsible to manage biodiversity in Malaysia. In order to receive a permit for the removal of plants or resources from the forest, the researchers will have to apply for a Use Permit under the forestry Act. Therefore, they have to submit a research proposal which the Forestry Department will study and examine, and if approved; then certain conditions, normally parallel with state interest will be attached. In certain cases there can be a joint expedition with department staff.

A Council was established in the State of Sabah, which regulates the collection of plant specimen for botanical purposes. Any collector who intends to obtain biological resources from the State will need to apply in writing to the Council for an access license. Collectors are required to lodge a good duplicate of any collections with the Forestry Department within 30 days. When the field work is finished the collector must submit a report listing the plants collected.

2.2.5 The Philippines

The Philippines is considered the first country to enforce the ABS law worldwide, where the law (Wildlife Act Law) has suggested guidelines and establish a regulatory framework for the prospecting of biological and genetic resources, their by-products and derivatives, for scientific and commercial purposes, and for other purposes. As part of the procedure to access genetic resources, the Applicant must have received prior informed consent (PIC), which could be obtained from the concerned indigenous cultural communities, local communities, management board or private individual or entity. During the process of obtaining the PIC; the concerned communities can negotiate benefit-sharing terms with the applicant

It is important to note minimum benefit-sharing requirements were set, which include:

1. Mandatory bioprospecting fees
2. Royalty payments
3. Up-front payments
4. Non-monetary benefits that may be agreed to by the users and providers.

Penalties for illegal bioprospecting was developed where unauthorized collection, hunting, and possession of wildlife is punishable with imprisonment of up to four (4) years and a fine of up to \$300,000P depending on the species illegally collected, hunted, or possessed.

Therefore, a researcher must enter into a Confirmation of Undertaking or Memorandum of Agreement (MOA) with the authorized entities or its authorized representative, where a free permit will be issued. The applicant must receive the free and prior informed consent of the indigenous peoples, or prior clearance of the concerned local government units (LGUs), the Protected Areas and Wildlife Bureau, private landowner and/or other relevant agencies or institutions where collection is to take place. If the applicant is not Filipino, it must collaborate with a Philippine institution. There are also certain minimum terms for the Confirmation or MOA including:

1. Spin-off technology is not to be developed from the results of scientific work
2. IPRs over the results are not to be applied for without the prior approval of the concerned agency
3. The proponent is to submit results and recommended action plans, where applicable
4. The user must submit annual progress reports covering the status of the procurement of PIC, progress of collection of samples, benefit sharing negotiations, and progress on payment of benefits or other provisions of the undertaking.
5. The progress report must also include certification of compliance with the proper procurement of PIC, of acceptance by the providers of benefits, and of compliance with the collection quota in the Bioprospecting Undertaking.

The Department of Foreign Affairs and the Department of Science and Technology can assist in overseas monitoring including monitoring inventions and commercialization in foreign countries. Finally, civil society is encouraged to participate in monitoring Bioprospecting Undertakings.

2.3 Western Asia & North Africa (Arab Region)

Regional cooperation is being undertaken through the Council of Arab Ministers Responsible for Environment (CAMRE). At its 23rd meeting in 2011, CAMRE decided to adopt the Report and Recommendations of the 12th Meeting of the Arab Working Group on Desertification and Biodiversity, which calls upon Arab countries to update their national biodiversity strategy and action plan in light of the Strategic Plan on Biodiversity 2011-2020 and to elaborate and develop national ABS laws on genetic resources and traditional knowledge associated with.

It is important to note that legislative development of ABS laws related to the ITPGRFA started earlier and ABS laws on PGRs could emerge soon. These efforts started under the auspice of the Arab Organization for Agricultural Development (AOAD), which developed number of model laws on the management of plant genetic resources for food and agriculture.

2.3.1 Egypt

It is considered the first Arab country that regulates access to its genetic resources and the traditional knowledge associated with, despite the absence of a dedicated ABS or biodiversity law. The Egyptian Intellectual Property Law establishes a benefit sharing regime in the context of Plant Variety Protection. This law obliges plant breeders to share the profits gained from using Egyptian genetic resources and the traditional knowledge associated with to breed new varieties with the interested party and according to regulations. In addition, it requires plant breeders to reveal the origin of genetic resources and the traditional knowledge associated with relied on to develop the new variety and makes plant variety protection contingent upon the genetic resource having been acquired legitimately under Egyptian law.

The National Programme for Plant Genetic Resources is considered the national competent authority which approve the development of new varieties by the plant breeders. The recognition of patentability of micro-organisms, non-biological and microbiological process for the production of plants and animals by the Egyptian Intellectual Property Law underlines the need to adopt a comprehensive ABS law.

2.3.2 Iraq

Due to political issues, the development of national policies and laws related to the ABS is still emerging. The Environmental Protection and Improvement Law comes with certain obligations to conserve biological diversity, without adopting CBD's principles and objectives on biodiversity conservation, sustainable use of biological diversity and the fair and equitable sharing of the benefits derived from genetic resources utilization. Furthermore, there is no reference to the CBD's principle of state sovereignty over genetic resources within their territory. For the end of adopting an ABS law, there is a need to review the Iraqi patents and Industrial Designs law on "Patent, Industrial Design, Undisclosed Information, Integrated Circuits and Plant Variety".

The law provides dual protection for new plant varieties either via patent or plant variety protection. It also recognizes that plant breeders have the right to register old plant varieties if they are first to register them and prevents farmers

from using varieties that are not clearly distinguishable from the protected varieties. Due to the shortcomings in Iraqi intellectual property law and the environmental challenges faced in the absence of a national biodiversity law, Iraq has applied for support from the Global Environment Facility (GEF) to develop ABS legal and institutional capacities. The Iraqi ministry of Agriculture as part of implementing the ITPGRFA is also reviewing a draft Memorandum of Understanding on plant genetic resources and related ABS issues.

2.3.3 Syria

In response to the country urgent need to promulgate national biodiversity policy and law, as well as to the invitation of the Council of Arab Ministers Responsible for Environment to benefit from the support provided by the Global Environment Facility (GEF), Syrian government applied for support to strengthening national capacities on ABS. It is worth mentioning that draft legislation on ABS for Plant Genetic Resources (PGR) as implementation to the ITPGRFA, has been developed by the Syrian Government supported by the United Nations Food and Agriculture Organization (FAO) in 2002. Furthermore, the Syrian draft legislation is in line with ITPGRFA and the Nagoya Protocol by distinguishing between in situ and ex situ conservation and different sector of biodiversity.

2.3.4 Morocco

To date, Morocco has developed its capacities toward the biodiversity clearing house mechanism (CHM) and ABS. Morocco subsequently prepared a study on the status of biological diversity, including the legal and regulatory framework and national capacity assessment. The primary result of this study indicates that there are no legal or administrative measures to govern access to Moroccan genetic resources. Despite not having ABS regulations, the country has experience with bioprospecting. Patents have been pursued for inventions based on the Argan tree since 1980. For example, Pierre Fabre holds three valid worldwide patents on their product Argane while Cogins S.A. has six patent applications and three active patents, and Ekomaat OOD has a valid Belgium patent.

Practical legal and biological challenges face the Moroccan Government since the Argan patent applications shown Morocco as the source country, questions on whether an ABS law should require benefit sharing from new or continuing uses. Identifying stakeholders also may be another challenge in developing ABS legislation in Morocco. Furthermore, a recent study indicates that although Argan oil has become the most expensive oil in the world and the standards of living of local peoples has improved, the unplanned exploitation of Argan trees poses a serious threat to the country's forest cover

2.4 Oceania

Two countries will be investigated in means of measures adopted on access to genetic resources, and these are Australia and New Zealand which are considered a well advanced countries in their legal and policy decisions on ABS.

2.4.1 Australia

The Natural Resource Management Ministerial Council, endorsed the Nationally Consistent Approach for Access to and Utilization of Australia's Native Genetic and Biochemical Resources (NCA). The NCA sets general principles that must be applied when developing or reviewing ABS systems established within Australian jurisdictions. These principles include certainty, transparency and accountability for facilitating bio-discovery; sustainable use of biological resources; and equitable sharing of benefits. Under Australia's Federal system, existing ownership rights to native biological resources depend on whether they are found in Commonwealth, State or Territory government lands or waters, indigenous lands (of which there are different types with different associated rights), freehold or leasehold lands.

Access to biological resources in Commonwealth areas is governed by the Environment Protection and Biodiversity Conservation Regulations (EPBC Regulations). Under the EPBC Regulations, those seeking access to genetic resources must apply to the Department of the Environment, Water, Heritage and the Arts (DEWHA) for a permit to access biological resources of native species for research and development of any genetic resources, or biochemical compounds, comprising or contained in the biological resource. Permits for access to biological resources are available for either commercial, potentially commercial or noncommercial purposes. If the biological resources are for commercial or potentially commercial uses, the permit will not be granted until the applicant has entered into a benefit-sharing agreement with the provider of the biological resources.

A prior informed consent of the indigenous owner or native title holder is requested for the regulations, where access is to genetic resources on indigenous people's land. A benefit sharing agreement must provide for reasonable benefit-sharing arrangements, including protection for and valuing of any indigenous people's knowledge to be used. A model contracts was developed as a guide to assist parties developing benefit-sharing agreements, where the Commonwealth is the access provider and where the Commonwealth is not the access provider.

Benefits are as determined by the parties to the contract, and can include contributions to conservation and scientific knowledge or any other agreed

benefit as well as any revenue generated by the commercialization of intellectual property related to the genetic resource where this is relevant. Applicants for permits for non-commercial purposes must provide a statutory declaration stating that the applicant does not intend nor allow the collection to be used for commercial purposes, will report on the results of the research, will offer a taxonomic duplicate of each sample to an Australian public institution that is a taxonomic repository, and will not carry out any research for commercial reasons. The Australian system has been developed as a transparent system, where users can browse a record of permits that have been issued and samples collected under those permits. Further, the EPBC Regulations also provide a mechanism to exempt existing regimes that are consistent with the EPBC Regulations' purpose to minimize duplication.

2.4.2 New Zealand

At present, no comprehensive national ABS regime is in place in New Zealand, and if an access to specimens on private land will be granted, then it will be subject to permission from the land owner with some species being protected under the Wildlife Act. In addition, no guidelines or policies on the usage of traditional knowledge in bioprospecting exists where the government should ensure that traditional knowledge can no longer be used for commercial or scientific purposes without consent or acknowledgement. Therefore, a set of recommendations were highlighted including:

1. Building an ABS regime centered around a Department of Conservation committee deciding on access to New Zealand's resources and assessing equitable sharing of benefits, taking into account indigenous people rights and concerns in the resources in question
2. Creating a committee from the indigenous people with a broad mandate to advise the Commissioner of Patents inter alia on whether inventions are derived from indigenous people knowledge
3. Facilitate greater involvement of indigenous people in formulating New Zealand's position for international treaty negotiation.

The vision of the regime is "that access to New Zealand's biological resources for bioprospecting is facilitated in a way that ensures the benefits derived are captured and shared, that social, cultural and environmental values are respected, and indigenous people traditional knowledge of biological resources is recognized and, where appropriate, protected".

2.5 Eastern, Western, Middle and Southern Africa (Sub-Saharan Africa)

Several African countries have begun to implement at least some general enabling provisions on ABS. The following shall summarize the efforts achieved in Ethiopia, Kenya, South Africa, Malawi, and Uganda.

2.5.1 Ethiopia

The Federal Government issued the Ethiopian ABS law entitled "A Proclamation to Provide for Access to Genetic Resources and Community Knowledge and Community Rights". This law aimed to ensure fair and equitable share of benefits arising out of the use of genetic resources and Community Knowledge for the country and its communities. Nonetheless, the law applies to genetic resources in-suit and ex-suit, but it does not apply to the customary use and exchange of genetic resources and community knowledge by and among Ethiopian Local communities, or the sale of produce of biological resources for direct consumption that do not involve the use of the genetic resource thereof.

In addition, the law draws a dissimilarity between genetic resources, which vests in the state, and associated "community knowledge", which is owned by the relevant community holding it. The Community knowledge is defined as the "knowledge, practices, innovations or technologies created or developed over generations by local communities on the conservation and use of genetic resources". The law specifically recognizes the right of local communities to:

1. Regulate the access to their community knowledge
2. Ensure communities absolute right to use their genetic resources and community knowledge
3. Ensure communities right to share from the benefit arising out of the utilization of their genetic resources and community knowledge.

2.5.2 Kenya

The Environment Management and Coordination Act is the framework legislation coordinating all environmental management activities in the country. It contains a number of the provisions either directly or indirectly bears on the access and utilization of genetic resources. According to this act; the National Environment Management Authority (NEMA) has the mandate to issue guidelines and prescribe measures for the sustainable management and utilization of genetic resources of Kenya for the benefit of the people of Kenya.

The Environmental Management and Coordination issued a regulation with the name of "Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing", which explicitly outlines a few activities and situations which do not fall within the regulatory domain of the law including:

1. The exchange of genetic resources, derivative products, or intangible components associated with them that are carried out by a local community among themselves and for their own consumption
2. Access to genetic resources derived from plant breeders as defined under plant breeding and plant varieties laws

3. Human genetic resources
4. Approved research activities intended for educational purposes within Kenyan academic and research institutions that are governed by relevant intellectual property laws.

Therefore, bio-prospectors are required to follow these steps to access genetic resources

1. Obtain a research clearance certificate
2. Obtain a prior informed consent from the community and/or property owners
3. Enter into a material transfer agreement that includes the sharing of monetary and non-monetary benefits.

Despite the availability of specific provisions on benefit sharing within the law, but several gaps exist including:

1. None of the provisions clearly articulate how benefits are to be distributed to local community.
2. The law is also quite unclear as to who the local communities are and what procedures will be followed to identify them as potential beneficiaries.
3. The language is ambiguous making it unclear if biological resources fall within the purview of the law.
4. Very limited detail to what the contents of PIC and MAT ought to be, though the law embodies concepts of MAT and PIC.
5. It does not specify the Competent Authorities or the kind of local communities that can grant PIC to applicants.
6. It does not specify clauses to be included in an agreement between provider and recipient.
7. It does not clearly articulate a demarcation between the statuses of commercial research versus non-commercial research. This potentially makes it difficult to delineate and calibrate distinctive enforcement mechanisms for commercial research and non-commercial research should a case of non-compliance arise.

2.5.3 Liberia

A mandate through the Environment Protection and Management Law was issued to the Environmental Protection Agency according to initiate legislative proposals, issue guidelines and prescribe measures for the sustainable management and utilization of genetic resources of Liberia for the benefit of the people of Liberia for access to genetic resources. In addition, the Environmental Protection Law stipulates specific measures regarding ABS and includes:

1. Fees will be charged for access to genetic resources by non-citizens or non-residents of Liberia

2. To ensure that prior informed consent of communities is obtained and is an essential component for any arrangement in bio-prospecting
3. To ensure effective equitable sharing of benefits, sustainable business mechanisms for the transfer of biotechnology
4. Protect indigenous property rights of District communities
5. Prohibit or restrict any trade or traffic in any component of biological diversity
6. To provide for fees payable in respect of accessing the resources and the export therefore
7. To provide guidelines for reviewing of genetic materials and patenting requirements for indigenous species
8. For the collection characterization, evaluation and documentation of plant genetic resources for food, agricultural and medicinal purposes
9. Any other matters that the Agency may consider necessary for the sound management of the genetic resources of Liberia.

In addition, general penalties for violations were specified according to the Environment Protection Law. The law has acknowledged that the rights of local communities over their biological resources, knowledge and technologies are of a collective nature, and therefore, are a priori rights which take precedence over rights based on individual interests.

2.5.4 South Africa

The ABS legal framework in South Africa is contained in the National Environmental Management Biodiversity Act, which aims to i) regulate bioprospecting involving indigenous biological resources; ii) regulate the export from the Republic of indigenous biological resources for the purposes of bioprospecting or any other kind of research; and iii) provide for a fair and equitable sharing by stakeholders in benefits arising from bioprospecting involving indigenous biological resources. However, exclusions were provided from the scope of this act and these are: i) genetic material of human origin; ii) all exotic animals, plants or other organisms other than those that have been altered with material from indigenous species; and iii) indigenous biological resources listed under the ITPGRFA.

The applicant must disclose all information concerning the proposed bioprospecting and the resources that will be used for that purpose before the application for a permit will be considered according to the law. In addition, issuance of the permit will happen if a material transfer agreement regulating the provision of or access to the resources and a benefit-sharing agreement that provides for sharing by the stakeholders in any future benefits that may be derived from the relevant bioprospecting has been entered into by the applicant and the stakeholder, and the Minister has approved these agreements. If the

stakeholder has provided knowledge that will be used for the proposed bioprospecting then a benefit sharing agreement must be entered into between the applicant and the stakeholder and approved by the Minister before a permit will be granted. For indigenous biological resources, a Material Transfer Agreement is required between the applicant and stakeholder, as well as a benefit-sharing agreement, prior to permit issuance.

For holders of knowledge, a benefit-sharing agreement is required. Ministerial approval of all benefit-sharing or material transfer agreements is required. Those issuing permits may also facilitate negotiations between the applicant and stakeholder to ensure these are on an equal stability, or may be required by the Minister to ensure the arrangement is fair and equitable. In that vein, permits are required to engage in bioprospecting involving any indigenous biological resources, or export any indigenous biological resources for bioprospecting or any other kind of research.

Furthermore, pursuant to the law, benefit-sharing agreements must include the following information

1. Name the parties to the agreement
2. Set out the manner in which and the extent to which the resources are to be used or exploited for bioprospecting
3. Set out the manner in which and the extent to which the stakeholder will share in any benefits that may arise
4. Provide for a regular review of the agreement Similarly, the law identifies certain elements that have to be included in Material Transfer Agreements which include:
 - Specify particulars of the provider and exporter or recipient of indigenous biological resources
 - Name type of resource to be provided
 - Identify the area or source from which the resources are to be collected, obtained or exported
 - Specify present potential uses
 - Specify conditions under which recipient may provide resources or their progeny to a third party
 - Is established into which all monies arising from benefit-sharing agreements and material transfer agreements and due to stakeholders must be paid and from which all payments to, or for the benefit of stakeholders must be paid.

Several acts has recognized the protection of indigenous genetic and biological resources including the Patents Amendment Act, the Biodiversity Act and the Intellectual Property Laws.

2.5.5 Malawi

National Research Council of Malawi (NRCM) is responsible for all guidelines for Access and Collection of Genetic Resources in Malawi. The guidelines aim to:

1. Ensure that research of genetic materials does not lead to loss of biodiversity
2. Ensure that exchange of genetic resources germplasm and commercialization of research results are done in such a way that Malawi benefits economically from whatever is exported
3. Encourage the establishment of gene banks and genetic gene banks (in-situ and ex-situ) and formation of strong linkages with the banks including the SADC gene bank
4. Ensure that research projects that involve exchange of genetic resources and germplasm are effected in a manner that encourages collaboration with foreign researchers
5. Ensure that expatriate researchers/collectors work closely with competent local researchers to safeguard Malawi's interests
6. Ensure that research projects on genetic resources are only those that are geared towards Malawi's socio-economic development and that their execution does not lead to fragmentation and duplication of research efforts.

The guidelines apply to foreign scientists and research institutions that plan to conduct research involving the collection of genetic resources. In addition, it applied to local scientists and research institutions that plan to collect and export genetic resources for analysis or as part of an exchange program with a foreign institution, scientists, and local scientists and research institutions that are funded by external sources on research projects involving the collection of Malawi's genetic resources. Lastly, it applied to Malawi government officials and ports of entry. Applicants can be students, academic or research institutions, non-profit institutions and commercial public and private institutions.

The application process include several steps and as follows

1. The application is submitted to the NRCM by the affiliating institution so a natural person cannot apply directly.
2. For local researchers, the guidelines only apply where the local research institutions plan to collect and export genetic resources for analysis or as part of an exchange with a foreign institution.
3. Each application by foreign researchers shall include evidence of affiliation to local and foreign academic or research institution.
4. A non-refundable fee must accompany each application and the fee varies depending on the origin of the institution (foreign or local) and its nature (academic or research, non-profit, or commercial).

The procedure of approval of research involves several institutions, where the certifying institutions, which are designated by the government are requested to control certain sectors of genetic resources, review research proposal prior to submission to NRCM. After approval by NRCM, these certifying institutions will be required to issue a certificate of collection to the applicant. Moreover, all foreign or local researchers wishing to export genetic resources need to obtain an export license from the Minister of Natural Resources and Environmental Affairs.

The guidelines also provide for the conclusion of Research and Material Transfer Agreements to define rights and obligations respectively between parties in the collection and use of the genetic resources. These agreements shall be provided by the NRCM or any of the certifying institutions and endorsed by the NRCM. Therefore, to access and export genetic resources, the applicant must enter into a research and material transfer agreement, an export license and a certificate. The guidelines finally contain few provisions on compliance.

2.5.6 Uganda

The National Environment (Access to genetic resources and benefit-sharing) Regulations were adopted to:

1. Prescribe the procedure for access to genetic resources for scientific research, commercial purposes, bioprospecting, conservation or industrial application.
2. Provide for the sharing of benefits derived from genetic resources
3. Promote the sustainable management and utilization of genetic resources, thereby contributing to the conservation of the biological resources of Uganda.

The regulations do not apply to certain situations, such as the exchange of genetic resources where the exchange is done by a local community among themselves and for their own consumption or where the exchange is certified to be only for food, the access to human genetic resources and the approved research activities intended for educational purposes.

The Uganda National Council for Science (UNCS) is designated as the National Competent Authority. Its functions include facilitating the negotiation and conclusion of all accessory and materials transfer agreements including the terms and conditions upon which access is to be granted and ensure that these agreements contain sufficient provisions on benefit-sharing. The UNCS must also ensure that representative samples and specimens of genetic resources collected are deposited in Uganda and that technology transfer and information exchange in relation to genetic resources is undertaken by the persons accessing the genetic resources.

To access to genetic resources, the applicant must have obtained a written PIC form, and entered into an accessory agreement with the lead agency, local community or owner, carried out an environmental impact assessment where required and enter into a materials transfer agreement. The applicant must also pay a fee. The nature of the person who can apply is undefined. It seems that a natural or legal person can apply and foreign applicants do not need a local collaborator. The regulations provide schedules for PIC, accessory agreement and materials transfer agreement. MTA must clearly state the rights and obligations of parties, guarantee the deposit of duplicates of all specimens of the genetic resources accessed and require the collector to provide for the manner of sharing of benefits arising from intellectual property rights accruing from genetic resources. It may also provide for the future application and use of genetic resources, including the sharing of benefits arising from the future application and use of genetic resources.

Moreover, the regulations require the benefits to be shared in accordance with the principle of fairness and equity, and on mutually agreed terms. The regulations give examples of benefits, including monetary and nonmonetary benefits. They also highlight that the PIC, accessory agreement and MTA do not entitle any person to access to genetic resources but are only to enable the applicant to proceed with the application for an access permit.

Applications must be submitted to the competent authority, which transfers them to the lead agencies, which are responsible for the management and regulation of access to genetic resources under these Regulations. A lead agency reviews the application and advises the competent authority, in writing, as to whether consent for access should be granted or not. In doing so, the lead agency shall ensure that the rights of local communities are protected, including verifying compliance with consent requirements and ensure that accessory agreements have been concluded between the applicant and all affected parties. Few provisions of the regulations are also dedicated to compliance. Indeed, where a collector has violated these regulations, the competent authority may revoke the access permit. Moreover, any person who breaches certain rules of the regulations (obligation of PIC, accessory agreement and MTA), commits an offence and may be liable to a fine or imprisonment and others sentences. Lastly, the permit holder must submit regular status reports to the competent authority and the lead agency on the research and development relating to the genetic resources concerned.

2.6 Europe

Very few European countries have adopted formal regulations on access to genetic resources. However, some EU countries, have introduced a requirement for the disclosure of origin of genetic resources in applications for intellectual

property rights, where the following shall provide more details from Belgium, Denmark, Germany, Sweden, Switzerland, Bulgaria, Croatia, Malta, Portugal, Norway, Spain and United Kingdom.

2.6.1 Belgium

Belgium has adopted national legislation to include disclosure of origin in the applications for patents where the subject matter of the application makes use of genetic resources in its development. The requirement state that patent applications must contain the geographic source of the plant or animal material, if known, that formed the basis for the development of the invention is a formal requirement that aims to contribute to transparency with regard to the geographic origin of the genetic source on which the invention is directly based.

The standard form for national patent applications provides for tick boxes that obliges the applicant to declare (Yes or No) whether use has been made of genetic resources. He further is invited to provide information on the geographical source or he can declare that he is not aware of it. This measure provides for a mere formality that does not put any burden on the work of the patent office, i.e. the patent office does not make a research to the geographic source of the material. The information is available for the public by means of inclusion of the application form in the public part of the patent file.

2.6.2 Denmark

The Danish requirements is provided in Danish Order on Patents and Supplementary Protection Certificates

2.6.3 Germany

The German Patent Code require a patent application for an invention which is based on plant or animal biological material should contain information on the geographical origin of such material if the origin is known to the applicant. This is without prejudice to the examination of patent applications and the validity of rights arising from the patents.

2.6.4 Sweden

There is a disclosure requirement in patent applications in Sweden. A patent application should include information on the geographical origin of said material if an invention relates to biological material from animals or plants. If the origin is not known this should be indicated. An absence of information regarding the origin of biological material provided is without prejudice to the processing of patent applications or the validity of rights arising from granted patents. This

demand is unsanctioned and does not affect the examining of patent applications or the validity of the rights conferred with a granted patent. There is no particular procedure at the Swedish Patent and Registration Office (e.g. a form) that is filled in by the applicant, or a notification sent to a provider of resources, for disclosure and compliance is not actively sought during examination of patent applications.

As a consequence no figures regarding the exact number of applications can be presented. All patent applications are published 18 months after the filing, thus enabling third party to search for e.g. biological material subject to benefit sharing agreements. It is stated in the government bill that the object of this regulation is to facilitate monitoring for compliance by countries providing genetic resources regulations and contracts regarding access to and sharing of benefits from genetic resources.

2.6.5 Switzerland

Switzerland amended its Patent Law to require patent applications for inventions directly based on genetic resources or related traditional knowledge to contain information on the source. The generic term "source" should be understood in its broadest sense, covering any type of provenance or origin. It includes national governments and their authorities; the geographical origin; the Multilateral System on ABS of the FAO International Treaty; the natural and legal persons: indigenous and local communities; ex situ collections; scientific publications and books; and databases.

Patent applicants must declare the "primary source" (in particular the country providing genetic resources, the International Treaty Multilateral System and Indigenous and local communities), if they have the information at hand, whereas a secondary source (in particular, ex situ collections, databases and scientific publications) may only be declared if the patent applicants have no information at hand about the primary source or where this determination can only be done with unjustifiable effort. The Act requires only the declaration of information readily available to the applicant. If the source is not known to either the applicant or the inventor, the applicant must confirm in writing.

Regarding international patent applications, the applicant must submit to the Swiss Federal Institute of Intellectual Property within 30 months from the filing date or the priority date a declaration of the source. This provision also applies with regard international applications which designate Switzerland. Not fulfilling this requirement can prevent the granting of the patent, if the defects are not corrected in a certain time, and an intentionally false declaration of the source may result in fines (up to 100,000 CHF) and the judge may order the publication of the ruling. This provision applies if the patent applicants intentionally declare

a) a source different to the one known to them; b) that the source is unknown to them, even though they have the necessary information at hand. Wrongful declaration of source is an offense to be prosecuted ex officio.

2.6.6 Bulgaria

Bulgaria's Biodiversity Law contains one of the clearest intention to regulate access to genetic resources. It establishes that "genetic resources may be provided for use to other States on the basis of advance agreement in writing on the terms and manner of sharing the benefits arising from such transfer under mutually advantageous terms" and, further, that the terms and a procedure for provision of access to genetic resources will be established by a regulation adopted by the Council of Ministers. According to this law, genetic resources may be provided for free where the resources are intended for non-commercial purposes such as scientific research, education, conservation of biological diversity, or public health.

2.6.7 Croatia

Croatia regulates access to genetic material in a general way in the Nature Protection Act, without any specific references to benefit sharing.

2.6.8 Malta

Malta has developed legislation dealing with ABS, the Flora, Fauna and Natural Habitats Protection Regulations which contains a section on Access to Genetic Resources. The regulations requires PIC, MAT and Benefit-sharing and providing some exclusions.

2.6.9 Portugal

Portugal has adopted a registration regime for the protection of indigenous plant material of current or potential interest to agrarian, agroforestry and landscape activities, although it excludes varieties protected by intellectual property rights. An application for registration may be filed by any entity representing the interests of the geographical area in which the local variety is most widely found or where the spontaneously occurring indigenous material displays the greatest genetic variability.

The entity is responsible for the in situ maintenance of the plant material. Once the specific plant material has been registered, it will be included in the National Directory of Registration of Plant Genetic Resources. Traditional knowledge may also be registered in order to prevent reproduction, commercial or industrial use. Accessing the germplasm of plant material and using plants or parts thereof for

industrial or biotechnological purposes requires prior authorization from the Technical Council of the Ministry of Agriculture, Rural Development and Fisheries on Agrarian Genetic Resources, Fisheries and Aquaculture. The entity owning the registration of the plant material has the right to be consulted prior to access, and to share in any benefits resulting from the use of the registered variety.

2.6.10 Norway

The Norway Nature Diversity Act contains a number of provisions relevant to ABS, including sustainable use, management objectives for maintaining the diversity of habitat types and ecosystems, management objectives for species, general duty of care, principles for official decision making, the knowledge base for decision making, the precautionary principle, the ecosystem approach, the users pay principle, environmentally sound techniques and methods of operation, and other important public interests interest.

The act declares that genetic material obtained from the natural environment is a common resource belonging to the Norwegian Society as whole and managed by the State. This resource shall be utilized to the greatest possible benefit of the environment and human beings in both a national and international context, also attaching importance to appropriate measures for sharing of the benefits arising out of the utilization of genetic material and in such a way as to safeguard the interest of indigenous peoples and local communities.

With regard to the removal of genetic material covered by the ITPGRFA, the standard conditions laid down under the agreement shall apply. The Act contains and spells out a highly innovative approach to genetic materials from other countries, making Norway the first country, among developed and developing countries, to enact this kind of user measure. The import for utilization in Norway of genetic material from a state that requires consent for collection or export of such material may only take place in accordance with such consent. The person that has control of the material is bound by the conditions that have been set for consent. The state may enforce the conditions by bringing legal action on behalf of the person that set them. When genetic material from another country is utilized in Norway for research or commercial purposes, it shall be accompanied by information regarding the country from which the genetic material has been received (provider country).

If national law in the provider country requires consent for the collection of biological material, it shall be accompanied by information to the effect that such consent has been obtained. If the provider country is a country other than the country of origin of the genetic material, the country of origin shall also be stated. The country of origin means the country in which the material was collected from in situ sources. If national law in the country of origin requires

consent for the collection of genetic material, information as to whether such consent has been obtained shall be provided. Regulations may also be issued prescribing that if utilization involves the use of traditional knowledge of local communities or indigenous peoples, the genetic material shall be accompanied by information to that effect. When genetic material covered by the ITPGRFA is utilized in Norway for research or commercial purposes, it shall be accompanied by information to the effect that the material has been acquired in accordance with the Standard Material Transfer Agreement established under the Treaty.

2.6.11 Spain

A Royal Decree contains a general article enabling the Country to further develop detailed ABS regulations to implement the CBD and the FAO International Treaty was established. This decree will lay down the terms and conditions for access including PIC and MAT.

2.6.12 United Kingdom

Research is underway to determine implementation options which may lead to a more coordinated approach, as specific legislation on ABS does not exist yet, and the existing rules are found in various areas of domestic law. Permission to access any genetic resources in the UK must be obtained from the owner of the resources (including those in ex-situ collections) and any holder of IPRs on the resources.

For the in-situ access, this includes the owner of the land upon which the resources are found. Collecting specimen is subject to the law of invade and specific plant and animals are legally protected from picking, uprooting, destruction, or sale under the Wildlife and Countryside Act. Licenses to obtain such resources for scientific or educational purpose can be requested from Natural England or the Countryside Council for Wales.

The UK strongly encourages the use of the voluntary Bonn Guidelines by its stakeholders, and a number of institutions have developed best practice documents on ABS based on the Bonn Guidelines. Further, it endorses the European Community initiative to the World Intellectual Property Organization which proposes to make disclosure of origin a formal condition of patentability.

Royal Botanic Garden (RBG) endorsed the "Principles on Access to Genetic Resources and Benefit-Sharing" developed by 28 botanic gardens and herbaria from 21 countries worldwide, in a project managed by Kew and funded by the Department for International Development. The voluntary principles, in line with the CBD and the Bonn Guidelines, provide the basis for ABS policies of individual institutions. Additionally, RBG has developed a "Policy on Access to Genetic

Resources and Benefit Sharing” and an “Access and Benefit-Sharing Bibliography.” Kew has also produced a Pilot Study on preparing national ABS strategies and it runs training modules on ABS practical implementation for the UK and international courses and workshops.

2.7 Northern America (Canada and USA)

Neither Canada nor the United States have implemented a comprehensive ABS system. Furthermore, the United States is a signatory but not a party to the CBD so it does not have the same international obligations on ABS. The following illustrate briefly the status at both countries.

2.7.1 Canada

Due to the absence of a national laws which govern the ABS, the jurisdiction was shared with provincial and territorial governments. A permitting system for research and collection in national parks was developed, while scientists and landowners, can develop their own contract for the collection of specimens directly.

A draft policy statement was released by the Government of Canada aiming to form and to develop the basis of ABS policies at the Federal, Provincial and Territorial levels but is not binding in any manner. However, there has still been no decision as to how Canada’s policy will be developed in response to the ABS measures, or whether a policy will be developed at all.

2.7.2 United States

The various federal and state departments and agencies as well as private landowners have the jurisdiction to manage and control issues related to the ABS due to the absence of legislations which govern the ABS in the USA. As an example, the U.S. Code of Federal Regulations prohibits taking of plants, fish, wildlife, rocks or minerals from a national park without a specimen collection permit. If any take will happen, then an application has to be sent through a centralized internet system for decision making by the individual park or parks where the proposed research will take place.

The applications are evaluated according to their favorable characteristics which entitles the contribution of the research to the understanding of park resources or provides for the sharing of information with park staff or the public or unfavorable characteristics, which depends on the activities if they will negatively affect the experiences of park visitors or that may have an adverse impact on the park’s resources. Despite this process, but the Code of Federal Regulations does not mention prior informed consent or the mutually agreed terms in the context

of collection permits but the "permit application process helps ensure that the permit applicant discloses the information required to enable the park to determine that the proposed research activities are consistent with the National Park Service regulations and policy.

Part Three: Proposed Institutional Setup

It is important to regulate the access to genetic resources especially that it provides essential services for human well-being such as pharmaceuticals, personal care and cosmetics, seed and crop protection, botanicals and horticulture. Therefore, the following setup was proposed to ensure an effective implementation of the Nagoya protocol in Jordan, and it will support the fulfillment of Jordan's obligations toward the international treaty. This setup is based on eight major steps and as follows:

1. Develop a legal instrument to support the implementation of the Protocol
2. Designate a National Focal Point (NFP) and a Competent National Authority (NCA)
3. Designate a National Committee to support NFP and\ or NCA
4. Activate the Access and Benefit-sharing Clearing-House Mechanism (ABSCH)
5. Identify the genetic resources providers
6. Identify the process of access to genetic resources including Prior Informed Consent, Mutually Agreed Terms and Permit issuance
7. Understand the genetic resources users
8. Identify checkpoints

The following provide further explanation regarding each steps mentioned above

3.1 Legal Instrument to Implement the Protocol

The ABS bylaw which will be developed in the context of this assignment will be considered as the legal measure to guide the fair and equitable benefit sharing of genetic resources in Jordan. It will aim to communicate organizational rules so internal disputes and conflict can be avoided.

The development of this bylaw will be in accordance to three main laws which are: i) the Environment Protection Law Number 6 for the year 2017, ii) the Agricultural law Number 13 of the year 2015 and the law of the Aqaba Special Economic Zone Authority Number 32 for the year 2000 (See Synthesis Report).

Several articles should be included within the text of the bylaw, including definition of terminologies that appear in the text of the bylaw, National Competent Authority and the committee (if approved), obligations of access to genetic resources, and what is excluded (such as human genetic resources, the species included in Annex I of the ITPGRFA, the non-profit exchange of genetic and biochemical resources, the traditional associated knowledge resulting from the traditional practices of indigenous peoples and local communities and research by public universities, which had established their own ABS controls and

regulations for research that implies non-profit access to biodiversity). Moreover, the bylaw will acknowledge the local communities rights to regulate the access to their community knowledge, genetic resources and rights to share from the benefit arising out of the utilization of their genetic resources and community knowledge

The objectives of this bylaw shall include but not limited to:

1. Ensure national control over genetic resources in accordance with relevant National and International Law.
2. Ensure the conservation and sustainable use of the biochemical and genetic resources.
3. Promote the equitable sharing of benefits derived from the use of genetic resources.
4. Promote technology transfer and capacity building at the national and local levels, including the building of scientific and technological capacity relevant to the conservation and sustainable use of biological diversity.
5. Recognize and protect traditional knowledge, innovation and practices of local communities associated with biodiversity.
6. Regulate and facilitate the process by which collectors may legally obtain genetic resources.
7. Prevent illegal access to genetic and biochemical resources and associated traditional knowledge.

After developing this bylaw, it will be provided to a legal consultant to provide his lawful insight on, and then it will be discussed with relevant stakeholders in order to obtain their feedback and comments. Once finalized, it shall be communicated to the Ministry of Environment for official approval and release.

3.2 Designate a National Focal Point (NFP) and Competent National Authority (CNA)

In compliance with the institutional obligation of the Protocol; Jordan's Government has assigned the Director of the Nature Protection Directorate at the Ministry of Environment as the ABS National Focal Point (NFP). The NFP is responsible to: i) liaise with the Secretariat and make available information on procedures for accessing genetic resources and ii) establishing mutually agreed terms, including information on competent national authorities, relevant indigenous and local communities and relevant stakeholders (Available online at: <https://absch.cbd.int/countries/JO>).

However, no Competent National Authority (CNA) have been designated so far, which implies either to designate the Nature Protection Directorate at the Ministry of Environment as the CNA or to assign several CNAs (according to

Article 13 of the protocol). The CNA role shall be responsible to perform the following responsibilities:

1. Create and operate a regulatory mechanism that will ensure effective protection of Community Intellectual Rights
2. Carry out the process of consultation and participation of local communities, in the identification of their rights according to the laws and bylaws of Jordan
3. Identify types of Community Intellectual Rights, and define the necessary procedures for their recognition
4. Approves the national policy, guidelines and standards for the management of the genetic resources.
5. Establishes the international strategy for the international negotiations in coordination with other bodies
6. Issue licenses for the exploitation and commercialization of biological resources, including conserved species, varieties or families, and community innovations, practices, knowledge and technologies
7. Communicate effectively with the National Biodiversity Committee of Jordan to ensure information exchange
8. Holds the register of the access contracts and national research entities.
9. Ensure that the minimum conditions for agreements with gene users are strictly observed and complied
10. Responsible for granting access or, as applicable, issuing written evidence that access requirements have been met and be responsible for advising on applicable procedures and requirements for obtaining prior informed consent (PIC) and entering into mutually agreed terms (MAT).
11. Recommend policies and laws on the sustainable use of biological resources (i.e. Community Intellectual Rights law)
12. Perform other functions as may be necessary for the effective implementation of this bylaw.

The NCA shall adopt general principles that might include certainty, transparency and accountability for facilitating bio-discovery; sustainable use of biological resources; and equitable sharing of benefits.

3.3 Designate a Committee to Support the CAN

It is recommended to establish or adopt an existing committee, which will be composed of governmental, non-governmental, private sector and other entities of relevance to support the process of approving access to genetic resources. It is highly recommended to capitalize on the existence of the National Biodiversity Committee of Jordan to act as the technical arm of the NCA in this regards. The responsibilities of this committee will include but not limited to:

1. Effective coordination with NCA and provide all necessary information which will facilitate their compliance to the articles of this bylaw

2. Provide NCA with the lists of threatened taxa, of the hotspots areas for conservation and threatened areas by loss of biological diversity
3. Monitor and evaluate at regular intervals, the implementation of this bylaw, to define challenges, progress and recommend way forward
4. Develop and recommend a mechanism to enable the identification and dissemination of information regarding threats to genetic resources
5. Develop and create proposal which will support the implementation of this bylaw
6. Perform other functions as may be necessary to implement this bylaw

A voting mechanism shall be established, and the committee members shall hold the right to vote in any cases that has to deal with access and benefits sharing of genetic resources. In addition, representatives from the local communities, tribal leader's and\ or landowners might be invited with a condition to hold the right to speak but not vote.

It's important to note that any committee to be established has to take into consideration the various genetic resources bases including public or private lands, terrestrial or marine environments, under ex situ or in situ conditions, and in local communities or tribal territories.

3.4 Activate the Access and Benefit-sharing Clearing-House Mechanism (ABSCH)

ABSCH is a platform for exchanging information on access and benefit-sharing, and is considered as a key tool to facilitate the implementation of the Nagoya Protocol by enhancing legal certainty, clarity, and transparency on procedures for access and for monitoring the utilization of genetic resources along the value chain, including through the internationally recognized certificate of compliance (IRCC). It offers opportunities for connecting providers and users of genetic resources and associated traditional knowledge.

Recently, the Ministry of Environment has established links to non-governmental, governmental, private sector and other institutions holding important databases or undertaking significant work on biological diversity through the CHM. These links has followed by a specialized capacity building program, and assigning a focal point from each entity. Each focal point was requested to contribute to the ABSCH database based on his\ her organization field of work and data availability.

Therefore, it is highly recommended to trigger this step, and initiate the process of registering and approving the national records of Jordan on the ABSCH. It is also recommended to establish a database for traditional knowledge related to using genetic and biological resources.

3.5 Identify the Genetic Resources Providers

Providers of genetic resources have the rights to control access to these resources found within their jurisdiction. Thus; it is important to support them to control access to their own genetic resources and traditional knowledge, ensure the compliance of users with all conditions set in mutual agreed terms (MAT) and assure that the entitled benefits arising from utilization are received in accordance with MAT

Therefore, it is important to compile a comprehensive list of all potential providers to genetic resources in Jordan. The database could be established under two main categories which are:

- Genetic resource which exists *in situ*: These include all resources that exists in its natural habitat such as (but not limited to) protected areas, special conservation areas, gardens, private lands, Hema areas...etc.
- Genetic resource which exists *ex situ*: It includes genetic resource that exists outside of its natural habitat such as the resources which were obtained from botanic garden(s), zoos, aquariums, seed banks, gene banks...etc.

3.5 Identify the Process of Access to Genetic Resources

A set of documentations shall be developed for any access to genetic resources. These includes

3.5.1 Application form

An application form shall be created and designed to provide the necessary authorization to access the genetic resources. The applicant (user) shall submit this application for consideration of approval by the NCA. The application could be send directly to the NCA if the applicant is a Jordanian entity or a person who is officially registered according to the Jordanian law. If the applicant is a foreign entity or person, then they must apply jointly with a Jordanian legal person or entity.

The application shall support any research on genetic resources for the purposes of pharmaceutical, agriculture, crop protection, biotechnology, ornamental, and herbal. The following items are recommended to be included in the form:

- Details on the provider(s) of the genetic resources
- Details on the user(s) of the genetic resources
- Details on the traditional knowledge (if the research contains traditional knowledge access from community, tribe, or land owners)

- Details on the national and\ or international institution which will perform the research.
- Details if a partner institution exists for the research to be conducted
- Details on the lead scientists to conduct the research (resume could be requested)
- Geographical area(s) of interest
- Specifications on the genetic resources to be researched
- Declaration on the origin of the genetic resources
- Details on the usage if it will be for commercial or non- commercial use. If it was indicated that genetic resources will be used commercially, then an agreement should be signed
- Specification on the access activities required
- Intellectual property rights ownership statements

This application might contain annexes that include

- A clear statement that no patent shall be granted for any invention\ creation that relies on genetic resources accessed or used in violation of the established by-law
- Copy of the research proposal, which specify the potential uses of genetic resources
- A CITES certificate indicating that the specimen was collected for research purposes, and in compliance to the convention guidelines

The NCA shall decide if the application form will be provided for free or after paying fees. It is recommended to issue this form for free for national institutions and\ or citizen, while collecting fees if a foreign entity is the applicant and depending on its type either academic, research, commercial...etc.

This application should be studied by the NCA and the ABS committee for approval or rejection. If the application was approved, then a letter will be circulated with the applicant. In case of rejection, then a letter shall be prepared illustrating the reason(s) of rejections and sent to the applicant.

If the research application contains traditional knowledge, then a Prior Informed Consent (PIC) should be obtained from the concerned local communities, tribes, management board or private individual or entity. During the process of obtaining the PIC; the concerned communities can negotiate benefit-sharing terms with the applicant and reach a Mutually Agreed Term (MAT). The PIC is needed to enable the community to make decision on the proposed project, be the keeper in managing the biological resources within areas of their own jurisdictions, and to understand the potential and effects of the project (social economy, biological resources) which will enable them to negotiate for benefit sharing.

The process of obtaining the PIC shall follow these steps:

1. Meeting with Community, tribe's leaders or landowners: the meeting shall be conducted by representatives of the NCA, committee and the applicant aiming to obtain permission from this group during the consultative meeting to conduct traditional knowledge documentation project in their territories.
2. Traditional Knowledge Documentation Workshop: several means of documentations might be used such as field notebook, digital recorder, cassette recorders and digital camera are carried out before hands-on field documentation and collection.
3. Permission from Community: an agreement shall be signed following the second step below (See 3.5.2)

It is important to note that a list of non-monetary benefits adapted from the CBD Bonn Guidelines could be derived including (Biber-Klemm et al, 2010):

- Sharing of research and development results
- Collaboration, cooperation and contribution in scientific research and development programs, particularly biotechnological research activities, where possible in the provider country
- Performing certain analytical parts of the research in the providing country to the extent that adequate equipment is available and the User has the necessary resources (funding, time) for such arrangement.
- Participation in product development
- Collaboration, cooperation and contribution in education and training
- Admittance to ex situ facilities of genetic resources and to databases
- Transfer to the provider of the genetic resources of knowledge and technology under fair and most favorable terms, including on concessional and preferential terms where agreed, in particular, knowledge and technology that make use of genetic resources, including biotechnology, or that are relevant to the conservation and sustainable utilization of biological diversity
- Strengthening capacities for technology transfer to user developing country Parties and to Parties that are countries with economies in transition and technology development in the country of origin that provides genetic resources. Also to facilitate abilities of indigenous and local communities to conserve and sustainably use their genetic resources
- Institutional capacity-building
- Human and material resources to strengthen the capacities for the administration and enforcement of access regulations
- Training related to genetic resources with the full participation of providing Parties, and where possible, in such Parties
- Access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies

- Contributions to the local economy
- Research directed towards priority needs, such as health and food security, taking into account domestic uses of genetic resources in provider countries
- Institutional and professional relationships that can arise from an access and benefit-sharing agreement and subsequent collaborative activities
- Food and livelihood security benefits
- Social recognition
- Joint ownership of relevant intellectual property rights.

The monetary benefits could vary from

- Access fees/fee per sample collected or otherwise acquired
- Up-front payments
- Milestone payments
- Payment of royalties
- License fees in case of commercialization
- Special fees to be paid to trust funds supporting conservation and sustainable use of biodiversity
- Salaries and preferential terms where mutually agreed
- Research funding
- Joint ventures
- Joint ownership of relevant intellectual property rights.

3.5.2 A Mutually Agreed Term (MAT) or a Contract

A contract or a MAT shall be developed upon the approval of the application and/or PIC. The aim of the contract is to define the distribution means of benefits arising from the commercialization of the genetic resources as well as the penalties of non-compliance. The contract might contain some paragraphs related to:

- Issuing authority and date of issuance
- Rights and obligations of parties
- The resources accessed
- The provider
- Benefit sharing provisions such as royalties, technology transfer, free license to products or process, and human capacity building measures
- The person or entity to whom prior informed consent was granted
- Rights and obligations
- Intellectual property rights
- Contract cancelation clauses
- Jurisdictions in Jordan for dispute settlements
- Recognition of the origin of the materials
- Economic benefits

- Penalties of non-compliance which include fines, imprisonment, confiscations of samples and products, suspension of the sale of products, closing down establishments, suspension or cancelation of the registry, patent rights, license or authorizations, prohibition of contracting with the public administration, and restriction of tax incentives.

If a bioprospecting research will be conducted by research centers, universities and national and international private companies within Jordan's protected areas, or a conserved area (i.e. special conservation area or a Hima); then an agreement has to be signed with the entity that is responsible for the management of protected areas or conserved area. The agreement has to contain measures for access, equity and compensation, non-destructive activities and up-front payment for conservation. In addition, the applicant must guarantee the deposit of duplicates of all specimens of the genetic resources accessed and require the collector to provide for the manner of sharing of benefits arising from intellectual property rights accruing from genetic resources. It may also provide for the future application and use of genetic resources, including the sharing of benefits arising from the future application and use of genetic resources.

3.5.3 Reporting System

A reporting system is also requested to ensure monitoring of compliance to the contract and national obligations. Users of genetic resources are requested to submit reports about their activities and to deposit samples of biological and genetic materials in national research institutions

3.6 Understand Users of Genetic Resources

Users of genetic resources are represented by local communities, academia, non-governmental organizations, research institutions, and the private sector. They are looking forward to access genetic resources and the associated traditional knowledge legally, and understand how to access it. According to ABSCH; three kind of users could exist and these are:

1. National Users
2. Registered users
3. Non-registered users

Therefore, the NCA shall categorize the users of their genetic resources under their jurisdiction according to the ABSCH. In addition, NCA shall inform users about their obligations with regard to traditional knowledge and genetic resources, and to encourage them to direct benefits arising from utilization of genetic resources to biodiversity conservation/sustainable use.

3.7 Identify Checkpoints

It is recommended to establish checkpoints to monitor and enhance transparency on the utilization of genetic resources. The designated checkpoints, are to collect or receive, as appropriate, relevant information related to:

1. Prior informed consent
2. The source of the genetic resource
3. The establishment of mutually agreed terms
4. The utilization of genetic resources, as appropriate.

Such information collected by the checkpoint needs to be made available to the relevant national authorities, and in particular the Party providing prior informed consent, as well as to the ABS Clearing House, as appropriate. In this way, checkpoints play a key role in the system for monitoring the utilization of genetic resources. Having information about checkpoints on the ABS Clearing-House can help provide certainty to users and providers of genetic resources on the institutional mechanisms put in place for monitoring the utilization of genetic resources

Examples of checkpoints within any countries are the organizations that provide patent and research funding agencies. They are responsible for submitting Checkpoint Communiques to the ABS Clearing-House with information about utilization of genetic resources from Parties that are reported according to provisions laid down in the user country legislation. Such reports will include identifiers of any Internationally Recognized Certificates of Compliance (IRCC) or permits so the provider country can know what is being utilized. Provider countries would receive alerts that a Communique about their genetic resource has been posted, and it would then be up to the provider to check compliance with PIC and MAT. Note that IRCCs are already being issued and most permits have a number associated with them.

3.8 Guidelines to facilitate the implementation of the Nagoya Protocol in Jordan

1. Raise awareness of decision makers about the importance of ABS
2. Secure political support, preferably from parliament or senates members, a senior figure who is prepared to act as a champion for supporting the Protocol
3. Strengthen the capacity of key stakeholders to understand and discuss the relevant issues
4. Develop and validate appropriate legislative and administrative measures,
5. Secure the necessary authorization (as required by national decision-making procedures)

6. Deposit the necessary paperwork related to the implementation of Nagoya protocol in Jordan
7. Agree on division of responsibility and lines of communication between stakeholders
8. Develop the bylaw and release it officially
9. Implement the institutional framework
10. Develop a clear mechanism to improve the gene bank and strengthen gene collection in Jordan

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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: Proposed Application Form

Application form for access to genetic resources and associated traditional knowledge

Part One: Applicant Details		
1.1	Full Name (If a company: provide the name as it appears in the registration document) Please attach relevant documents of authentication	
1.2	Permanent address:	
1.3	Address of the contact person including e mail address	
1.4	Phone Number: Additional phone number:	
1.5	Nature of business:	
1.6	Turnover in US\$:	
If a foreign entity will request the access, please provide the following information		
1.7	Partner organization from Jordan Provide the agreement or relevant documents	
1.8	Permanent address of partner organization	
1.9	Address of the contact person	
1.10	Phone Number: Additional phone number:	
1.11	Nature of partner organization in Jordan	
Part Two: Access to Genetic Resources		
2.1	Scientific and Common Name of biological resources to be accessed	
2.2	Plants or animals or parts thereof collected	
2.3	Geographical area(s) of interest (including GPS coordinates)	
2.4	Quantity of biological resources to be collected	
2.5	Time span in which the biological resources is proposed to be collected	
2.6	Name and number of person authorized by the company for making the selection	
2.7	Are you conducting this research for a commercial use If Yes, please provide expectations about the benefits (including economic) which might be derived from it	Yes No
2.8	Specific purpose of access	
2.9	Please define if risks may arise from the access	
Part Three: Traditional Knowledge		
3.1	Does your request include access to traditional knowledge If your answers is Yes, then answer the following questions	Yes No

3.2 Describe the local community(ies) of interest

3.3 Any identified individual / community holding the traditional knowledge:

3.4 Identify geographical area of interest (including GPS coordinates)

3.5 Description / nature of traditional knowledge (oral / documented):

The following are requested as a supporting documents to this application

1. Declaration of Origin of genetic resources
2. Relevant documents of authentication for the individuals and\ or company
3. Research proposal
4. Mutually Agreed Terms (In Case traditional Knowledge is used)
5. A clear statement that no patent shall be granted for any invention\ creation that relies on genetic resources accessed or used in violation of the established by-law
6. A CITES certificate (if the species will be shipped on-board)
7. A letter which define the economic and other benefits which will be derived from using genetic resources including an estimation of economic benefits, that would flow to Jordan
8. Any other information considered relevant

I am the undersigned, declare that

- I have read and understood the terms and conditions of ABS guidelines and I undertake to abide by relevant legal provisions applicable to genetic resource in Jordan.
- I undertake to obtain the approval of the National Competent Authority (NCA) before making any change in the stated purpose or access to genetic resources.
- I undertake to furnish/ share the relevant records and information with the NCA, as and when required
- I further declare that the Information provided in the form as well as all supporting documents are true and correct and I shall be liable for any incorrect/ wrong information and willful suppression of the facts

Name of the Authorized Representative Signature

Complete Address along with phone number and email address

Place

Date

Annex II: Proposed Mutually Agreed Terms

This proposed contract shall be used for any access request, noting that the second agreement form shall be signed if economic benefits will be derived

Agreement on Access and Benefit-sharing

Preamble

The objective of this Agreement is to define the Mutually Agreed Terms between its parties relating to access to and utilization of the Genetic Resources as well as the sharing of benefits resulting from their Utilization in accordance with the Nagoya Protocol bylaw of Jordan.

As the User seeks access to Traditional Knowledge Associated to Genetic Resources, he/she will conclude an ancillary agreement with the holder(s) of Associated Traditional Knowledge, according to Jordan's bylaw for access and benefits sharing.

Parties to the Agreement

The Agreement is entered into force in (Location) on (Date)

by and between

(Name and details of the Competent National Authority representative\ responsible for the implementation of the Agreement)

together hereinafter referred to as the "Provider", and

(Name and details of the responsible research institution representative for the implementation of the Agreement)

Together hereinafter referred to as the "User".

Article 1: Permeable of this contract

The permeable and text above is considered part of this contract, and it should be read with it as one unit

Article 2: Use of Terms in the Agreement

This Agreement uses the terms as defined in access and benefits sharing bylaw of Jordan.

Article 3: Prior Informed Consent

The Agreement is based on the approval (Prior Informed Consent) issued beforehand by the Provider to the User granting access to the Genetic Resources concerned. The document on approval (Prior Informed Consent) [and the supporting documents] are attached to this Agreement and is considered its integral part.

Article 4: Genetic Resources to be accessed

1. A list of the collected samples according to the researcher's field-notes is presented to the Provider based on the request of access form.
2. If the collected samples cannot be identified within the request of access form, their identification has to be shared with the Provider as soon as it is available.

Article 5: Utilization

5.1 The Genetic Resources shall be used for the following purposes: (INSERT allowed activities and/or uses).

5.2 Genetic Resources (and Associated Traditional Knowledge) may be utilized non-commercially, including for academic research and collections, and for training, teaching and education.

Article 6: Commercial Intent

If the Utilization of the Genetic Resources (and Associated Traditional Knowledge) changes from non-commercial research to research with a Commercial Intent, such change requires a new Prior Informed Consent in writing issued by the Provider. If this was declared in the request for access to genetic resources form, then the terms for the new Utilization shall be subject to a separate agreement (Mutually Agreed Terms) between the involved parties.

Article 7: Intellectual Property Rights

If the User wants to obtain Intellectual Property Rights on research results such act shall be treated as a Commercial Intent. An additional agreement (MAT) shall be negotiated in good faith of the present Agreement.

Article 8: Transfer of Genetic Resources (and Associated Traditional Knowledge) to Third Parties

The Genetic Resources (and their Associated Traditional Knowledge) may be transferred to Third Parties only after having obtained the written consent of the National Competent Authority. Exempted is a temporary transfer of the Genetic Resources to taxonomic specialists for scientific identification.

Article 9: Storage of Genetic Resources

The User is entitled to deposit the Genetic Resources in collections that are accessible without restrictions for research purposes such as herbaria and culture collections.

Article 10: Benefit-sharing

10.1 The following benefits arising from the utilization of the Genetic Resources (and/or Associated Traditional Knowledge) shall be shared fairly and equitably by the User.

- Acknowledgment of the source of Genetic Resources (and Associated Traditional Knowledge)
 - In case of publication or oral presentation of the research results, full acknowledgement shall be given to the source of the Genetic Resource.
 - In the case of Associated Traditional Knowledge, the research results published or presented orally will include full acknowledgement of the source, if so required by the Provider
- Sharing the results of the research
 - The National Competent Authority will receive a copy of all publications.
 - Research results will be communicated to involved stakeholders (e.g. communities, local communities) in an adequate manner and according to reasonable requirements of the National Competent Authority
 - Duplicate specimens will be shared with the repository in the provider country in accordance with good scientific practice.

10.2 In addition, the User agrees to share the following benefits:

Insert a detailed lists of benefits here or in an annex (**INSERT Annex XX**).

Article 11: Rights and Obligations of the National Competent Authority

1. The Provider is the responsible contact point for the User for the entire duration of the present Agreement.
2. The Provider has the obligation to facilitate access to the Genetic Resources. This includes the facilitation of the acquisition of other permits required in accordance with the relevant national or regional regulations in the provider country as well as facilitation of export permits.
3. The Provider has the right to request information on the state of the research from the User as agreed in this contract.
4. The Provider has the right to propose/request the application for intellectual property rights by the User. An ancillary agreement providing for the regulation of ownership, bearing of patent costs, income, and invention management will be negotiated.

Article 12: Rights and Obligations of the User

1. The User is entitled to administrative support and guidance from the Provider to facilitate the acquisition of all other permits required by the providing country.
2. The User shall commercialize Products generated through the utilization of the Genetic Resources (and Associated Traditional Knowledge) only in accordance with the conditions agreed upon in this Agreement.
3. The User shall take all reasonable precautions to prevent the Genetic Resources from coming into the possession of any Unauthorized Person.
4. The User shall inform the Provider about any unforeseen research results that are of potential commercial interest, prior to publication or other disclosure of this information.

As the research implies Associated Traditional Knowledge, the User shall respect any relevant law and regulations in the provider country. The User shall proceed according to the indications of the Provider as foreseen in Annex (**INSERT Annex XX**). He shall respect the customary law of the holders of the Associated Traditional Knowledge as listed in Annex (**INSERT XX**) and apply current ethical standards.

Article 13: Reporting

The User will deliver a written report in accordance with the Provider instructions as to its structure, information to be included, etc. upon his/her written request.

Article 14: Publication

If the Provider intends to pursue a potential commercialization of an unforeseen discovery, this is subject to negotiations between the Provider and the User according to Clauses of this contract. The Provider agrees not to hold up the User's research work unless concerns are concrete and justified in terms of well-defined proprietary interests.

Article 15: Duration and Termination of the Agreement

1. The present agreement is effective upon signature by both Parties and terminates upon completion of the research project with the provided Genetic Resources according to the project description (**Annex XX**) on (**INSERT Date**).
2. It may be terminated at any time by mutual agreement of the Parties.
3. If a Party to the present Agreement wants to terminate the Agreement prior to the completion of the project, the Party shall give written notice (**INSERT XX**) months in advance.

4. In the case of significant contract violations, both Parties shall have a right of termination for cause which shall be exercised within (INSERT XX) weeks from the notice of violation. Significant reasons includes (Insert XXX). The other side must be given a period of (Insert XXX) month[s] to comply with its contractual obligations.
5. Clauses (Insert XXX) shall survive termination of the present Agreement.

Article 16: Handling of the Genetic Resources after Termination of the Agreement

Upon termination of the Agreement, the remaining Genetic Resources will be returned to the Provider.

Article 17: Settlement of Disputes

17.1 The Parties agree to make attempts in good faith to negotiate the resolution of any disputes that may arise under this Agreement.

17.2 If the Parties are not able to resolve any dispute within a period of (XX) months, such dispute shall be resolved before the (Insert XXX) court law as the only competent body for resolving disputes arising under this Agreement and in accordance with (INSERT applicable law; jurisdiction, language).

Article 18: Other provisions

18.1 If any or more of the provisions of this Agreement become invalid or unenforceable in any respect, parties shall make a reasonable attempt to negotiate in good faith a provision which shall reflect the legal and economic substance of the invalid or unenforceable provision as closely as possible.

18.2 If the invalidity of a provision of this Agreement is not fundamental to its performance, the validity and enforceability of the remaining provisions shall not in any way be affected.

Proposed Agreement for the access of biological resources/ Traditional Knowledge /both

1. Contacts details				
PROVIDER Indicate if Individual , organization , National Competent Authority		User Indicate if Individual , company		
Name(s) of representative:		Name(s):		
Organization affiliation:		Individual / company :		
Address:		Nationality :		
Phone number:		Address:		
Fax:		Phone number:		
Email id :		Fax:		
		Email id :		
2. Type of genetic resource (GR) accessed (Plant/Animal/Microorganism/By-products):				
Specimen number	Plant/Animal/ Microorganism/ by-product	Part accessed & geog. location of access	Local name	Scientific name (mandatory)
3. The period /duration of access of genetic resource :				
a. If one time access, date of access: (dd/mm/yy.....); Quantity :				
b. If for a duration: From (dd/mm/yy) to (dd/mm/yy); Quantity :				
4. Will you access traditional knowledge relating to GR?		Yes	No	
If Yes provide details				
5. Will you access any other traditional knowledge not relating to GR?		Yes	No	
If Yes provide details				
6. Purpose of access (please provide details) of the GR and / or traditional knowledge (hereinafter together referred to as 'Accessed Resource') :				
Research		Commercial Use		Other
If Other, please specify				
7. Mode of payment for accessing "Accessed Resource"		Monetary	Non-Monetary	Others
a. For GR				
b. TK relating GR				
c. TK not relating to GR				
8. If the response to paragraph 7 above is "Monetary" please provide details:		Cash	Cheque	Contract
a. For GR				
b. TK relating GR				
c. TK not relating to GR				
If the response to question 7 above is not "Monetary", then please describe				

Terms and Conditions of the Agreement

- The Recipient agrees that all proprietary rights in the traditional knowledge vests with the Provider
- The Recipient shall maintain the conditions stipulated for the duration of the field work conducted. In the event of any changes, the Agreement shall be re-negotiated
- The Recipient shall pay the Provider for the said Accessed Resources as mentioned in paragraphs 7 and 8 above
- Publications if any, pertaining to the Accessed Resources or their use or application in any media including print or electronic shall be in the joint name of the Recipient and the Provider.
- The Recipient shall duly acknowledge the source of the biological resources as well as the traditional knowledge accessed in all publications related to the said Accessed Resources.
- The Recipient shall send copies of the publications and preliminary report related to the accessed resources used and its modifications to the National Competent Authority established under the access and benefits sharing bylaw of Jordan.
- The RECIPIENT shall take all necessary measures to ensure the respect, preservation, and maintenance of the knowledge, innovations, and practices of the Provider.
- The RECIPIENT shall likewise take all necessary measures to ensure compliance with all the applicable laws, rules, guidelines and regulations of both countries.
- In the event the Recipient fails to comply with any of the obligations set forth herein, the Agreement may be terminated by the Provider by giving certified notice for compliance within 30 days of receipt of the said notice failing which the Provider shall be at liberty to take legal action under applicable laws.

Dated this the date atplace

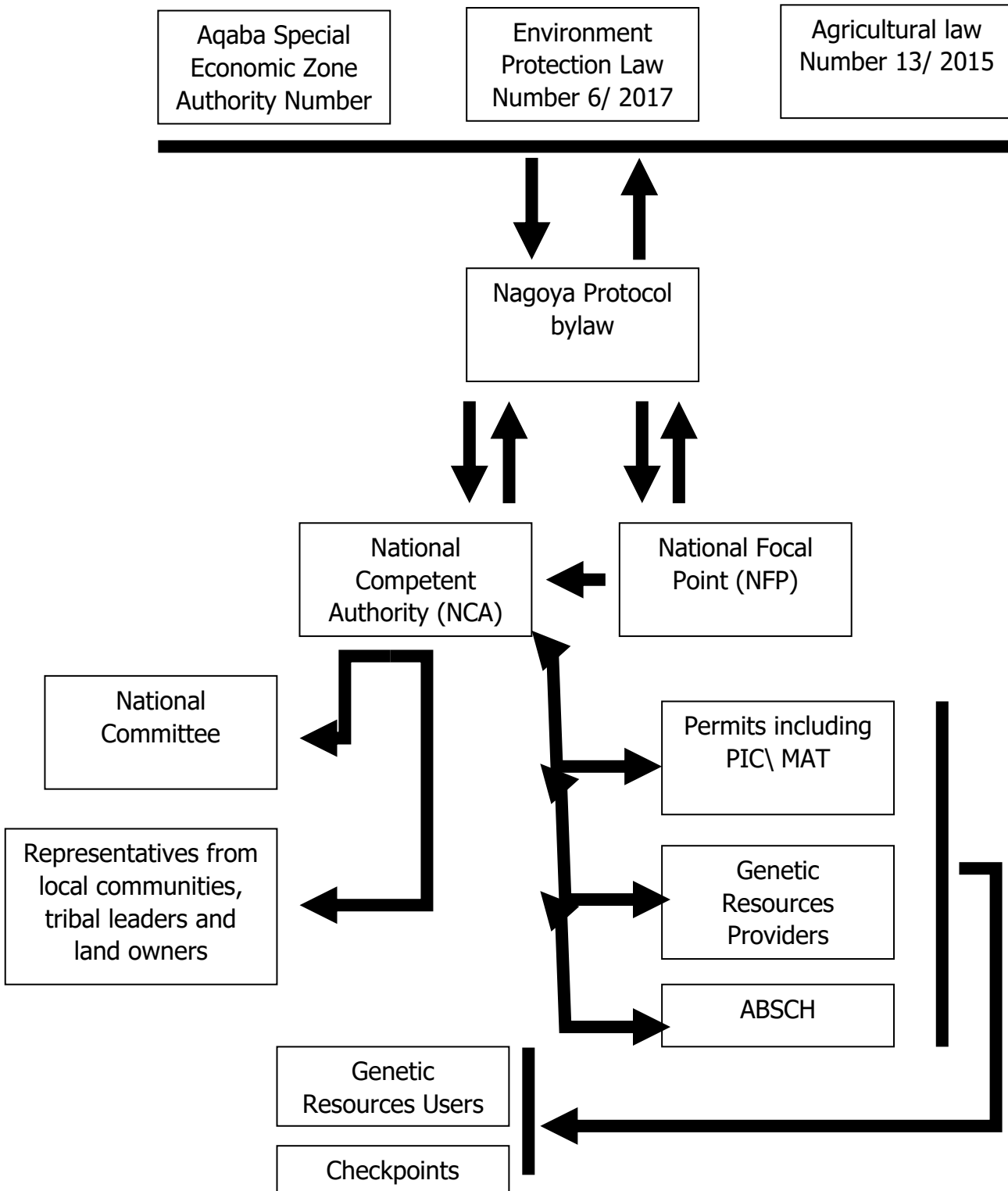
Provider

Recipient

Witness 1

Witness 2:

Annex III: Diagram showing the proposed institutional setup for implementing the Nagoya Protocol in Jordan



Annex IV: Proposed institutional setup for permit issuance

