

# SURVEY OF FUTURE JUST BIODIVERSITY LAWS & POLICIES

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*About the World Future Council (WFC)*

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The World Future Council brings the interests of future generations to the centre of policy making. The Council consists of up to 50 respected personalities from all five continents. They come from governments, parliaments, the arts, civil society, science and the business world. The Council addresses challenges to our common future and provides decision makers with effective policy solutions. In-depth research underpins advocacy work for international agreements, regional policy frameworks and national lawmaking. In close collaboration with civil society actors, parliamentarians, governments, business and international organisations we identify and spread "best policies" around the globe. The World Future Council is registered as a charitable foundation in Hamburg, Germany, where its head office is located. Additionally, we have staff working in Brussels, London, Washington D.C. and Johannesburg.

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*About the Centre for International Sustainable Development Law (CISDL))*

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The mission of the CISDL is to promote sustainable societies and the protection of ecosystems by advancing the understanding, development and implementation of international sustainable development law. The CISDL is an independent legal research centre that collaborates with the McGill University Faculty of Law and also works with a network of developing countries' faculties of law. The CISDL is engaged in six primary areas of sustainable development law research including: trade, investment and competition law; natural resources law; biodiversity and bio-safety law; climate change and vulnerability law; human rights and poverty eradication in sustainable development law; and health and hazards in sustainable development law. As a result of its ongoing legal scholarship and research, the CISDL publishes books, articles, working papers and legal brief in English, Spanish and French. The CISDL hosts academic workshops, dialogue sessions, legal expert panels, law courses and seminar series and conferences. It provides instructors, lectures and capacity building materials for developing country governments and international organizations in national and international law in the field of sustainable development, and works with countries to develop national laws to implement international treaties treaties in these areas.

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## LIST OF ACRONYMS

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|           |   |
|-----------|---|
| ABS       | Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization   |
| BL        | Biodiversity Law  |
| CBD       | Convention on Biological Diversity  |
| CITES     | The Convention on International Trade in Endangered Species of Wild Fauna and Flora   |
| CONAGEBIO | National Biodiversity Administration Committee  |
| COP       | Conference of the Parties   |
| CPB       | Cartagena Protocol on Biosafety to the Convention on Biological Diversity   |
| CMS       | Convention on Migratory Species   |
| EPBC      | The Environment Protection and Biodiversity Conservation  |
| FAO       | Food and Agriculture Organization of the United Nations   |
| GM        | Genetically modified  |
| GMO       | Genetically modified organism   |
| GBRMP     | Great Barrier Reef Marine Park  |
| GBRMPA    | Great Barrier Reef Marine Park Authority  |
| IFA       | Institute of Fishing and Aquaculture  |
| ILA       | International Law Association   |
| IPR       | Intellectual Property Rights  |
| ITPGRFA   | International Treaty on Plant Genetic Resources for Food and Agriculture  |
| LMO       | Living modified organism  |
| MAT       | Mutually Agreed Terms   |
| MEET      | Ministry of Environment, Energy and Telecommunications  |
| MRA       | Marine Resources Act  |
| MRAC      | Marine Resources Advisory Council   |
| NDA       | The Nature Diversity Act of Norway, referring to Act of 19 June 2009 No. 100 relating to the management of biological, geological and landscape diversity |
| NEPA      | The National Environment Protection Act, 2007   |
| NGOs      | Non Governmental Organizations  |
| PIC       | Prior Informed Consent  |
| RAP       | Great Barrier Reef Marine Park Representative Areas Programme   |
| REMA      | Rwanda Management Authority   |
| SADC      | South African Development Commission  |
| SANBI     | South African National Biodiversity Institute   |
| SEPL      | Socio-ecological production landscapes  |
| SINAC     | National System of Conservation Areas   |
| TAC       | Total Allowable Catch   |
| SPS       | Phytosanitary Protection Service  |
| TK        | Traditional knowledge   |

# I. Introduction: Promoting Future Justice

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Today's world needs laws which support a just and sustainable world and protect future generations. The Future Policy Award of the World Future Council celebrates "policies to change the world" - those exemplary policies which support better living conditions for current and future generations. The award aims to raise global awareness of visionary policies and speed up policy action in the interests of present and future generations. The celebrated policies are chosen from those which rank highest against the World Future Council's Seven Principles for Future Just Lawmaking. Such policies should safeguard the rights of future generations and secure Future Justice.

The Future Policy Award is the first international award to celebrate policies rather than people. Each year the World Future Council chooses one topic on which policy progress is particularly urgent. In 2010, the Award celebrated the International Year of Biodiversity by recognizing national and regional laws and policies that protect, monitor and regulate biodiversity, thus contributing to a more just and sustainable world. Nominations were received from WFC Councillors and international organizations that highlighted laws in Amazonas State, Argentina, Australia, Brazil, Costa Rica, Ecuador, Ethiopia, Japan, Namibia, Norway, the Philippines, Tuscany, and Venezuela. The Gold Award went to Costa Rica's *Biodiversity Law 1998* which represents a milestone of excellence in meeting the goals of the UN Convention on Biodiversity. The Silver Award went to Australia's *Great Barrier Reef Marine Park Act 1975 & Environment Protection and Biodiversity Conservation Act 1999*. Other laws commended included those of Norway, Japan, Namibia and Bhutan. In 2011, the Future Policy Gold Award went to Rwanda's National Forest Policy, adopted in 2004.

Future Justice is about putting the values that are essential to our survival at the heart of every law, and every policy. Helpful in doing so are the seven principles for sustainable development law presented at the 2002 Johannesburg World Summit on Sustainable Development. The World Future Council (WFC) and Centre for International Sustainable Development Law (CISDL) use these principles as the basis for their research and in the evaluation of different laws and policies. This paper surveys the world's best national biodiversity laws and sectoral policies and highlights exceptional provisions as examples of Future Justice in law. This paper provides an analysis of five exemplary biodiversity laws where key measures that implement these principles of justice are highlighted. Subsequently, it highlights successful sectoral policies on biodiversity and some of the reasons behind their successes.

## II. Survey of World's Best Biodiversity Laws

### A. Comprehensive Biodiversity Laws

#### 1. *Costa Rica's Biodiversity Law*

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Costa Rica now lies third in the Global Environmental Performance Index<sup>1</sup> in part because of the success of its *Biodiversity Law 1998*<sup>2</sup> (BL). An earlier paper commissioned by the WFC came to a number of conclusions as to why the BL is novel and visionary.<sup>3</sup> The BL creates a legal framework in line with the principles and themes outlined in the CBD, beginning by setting one of its goals as promoting the conservation and sustainable use of biodiversity and ensuring the fair and equitable sharing of benefits derived there from.<sup>4</sup> The law aims to respond to this goal in an integrated and inter-related manner. This includes recognising the inherent value of nature, generally applicable principles of law, objectives, and criteria for applying the law.<sup>5</sup> It covers both the concept of tangible elements of biodiversity, as defined by the CBD, and intangible elements such as individual or collective knowledge, innovation and practices. It puts into effect sustainable development principles, like the precautionary principle. Other elements include the expansion of the pre-existing payment for environmental services program. The law also establishes a participatory system by creating regional councils in each conservation area, integrated by five elected members of different sectors from that geographical area. It establishes regulations regarding access to genetic resources and incorporates principles such as cultural denial, and recognizes different systems of intellectual property, e.g. farmers' rights and *sui generis* community intellectual rights. For this reason, the law prevents non-genetically modified plants, animals and microorganisms from being patented or made subject to intellectual property rights (IPR).

The law's objective is the conservation of biodiversity and the sustainable use of biological resources as well as the equitable distribution of the benefits and derived costs of the use of its elements. The legal framework has the following guiding elements:

- ⇒ Equity in access and in the distribution of benefits derived from the use of the elements (genetic and biochemical) of biodiversity,
- ⇒ Respect for human rights, especially the rights of groups that are marginalized because of their culture or socio-economic condition,
- ⇒ Sustainable use of biodiversity, in order to respect the development options of future generations,
- ⇒ Biosecurity in the broadest sense, including technological, environmental, alimentary and sanitary aspects, and
- ⇒ Democracy as a guarantee of greater citizen participation in decision-making.<sup>6</sup>

To undertake the administration of the law, it establishes an administrative body within the Ministry of Environment, Energy and Telecommunications (MEET) to oversee both the National System of Conservation Areas (SINAC) and National Biodiversity Administration Committee (CONAGEBIO).<sup>7</sup> Overall duties of SINAC and CONAGEBIO include the administration of national wild protected areas,<sup>8</sup> ensure environmental safety,<sup>9</sup> the conservation and the sustainable use of the ecosystems and species,<sup>10</sup> the regulations on access to genetic resources,<sup>11</sup> intellectual property rights,<sup>12</sup> education and public awareness and research and transfer of technology,<sup>13</sup> environmental impact assessment,<sup>14</sup> incentives<sup>15</sup> and administrative procedures and sanctions.<sup>16</sup> CONAGEBIO is a national independent commission which oversees and formulates policies on access to genetic and biochemical elements and protection of associated knowledge, as well as coordinating these policies

with the relevant institutions. It also formulates and coordinates the policy for access to elements of biodiversity and associated knowledge, ensuring a suitable transfer of science and technology and the distribution of benefits. As a multi-stakeholder organization, it consists of governmental bodies such as the MEET (which oversees it); the Ministries of Foreign Trade, Health and Agriculture; the Institute of Fishing and Aquaculture (IFA); the National Commission of University Presidents; Indigenous and farmers' organizations; the National Union of Chambers; the Costa Rican Federation for the Conservation of the Environment (FECON), which represents NGOs, and the Director of National System of Conservation Areas.<sup>17</sup>

### *Biosafety*

The Biodiversity Law establishes provisions regarding genetically modified organisms in chapter III under the title "Guarantees of Environmental Safety". It establishes that to avoid present and future damage to human, animal or plant health, or to the integrity of ecosystems, regulations establish mechanisms and procedures for access to elements of biodiversity for the purposes of research, development, production, application, release or the introduction of exotic or genetically modified organisms into the environment. The state is required to avoid all risk or danger which threatens the permanence of ecosystems and should also prevent, reduce or repair environmental damage that threatens life or deteriorates its quality. The civil liability of title holders or people responsible for the management of GMOs and any damage caused is set out in the *Organic Law of the Environment*,<sup>18</sup> the *Civil Code*<sup>19</sup> and other applicable laws. Criminal responsibility is set out in the existing legal regulations.

Any person who proposes to use GMOs created inside or outside Costa Rica in the agricultural sector for import, export, experimentation, research, transport, release into the environment, reproduction or commercialization must obtain prior permission from the Phytosanitary Protection Service (SPS). All natural or legal persons, domestic or foreign, that carry out genetic manipulation must register with the Technical Office of CONAGEBIO.

Any person can participate in the permitting process, give observations and submit documents in writing. They can also request the repeal or revision of any permit granted. The Technical Office can, Based on technical, scientific or security grounds, modify or repeal any permit granted. In the face of imminent harm, emergencies or failure to comply with official requirements, the Technical Office can seize, confiscate, destroy or return the GMOs.

### *Access and Benefit Sharing*

The *Biodiversity Law* applies to elements of biodiversity under State sovereignty, and processes and activities carried out under State jurisdiction or control. Article 6 establishes that the biochemical and genetic properties of the elements of wild or domesticated biodiversity are part of the public domain. The State regulates the exploration, research, bioprospecting, and use of elements of biodiversity, as well as the use of all genetic and biochemical resources, through access standards established in Chapter V of the Law. All research or bioprospecting programs on the genetic or biochemical material of biodiversity that are carried out in Costa Rican territory require an access permit, unless they fall into one of the exceptions provided by Article 4 of the Law.<sup>20</sup>

These exceptions include access to human genetic resources, the non-profit exchange of genetic and biochemical resources and the traditional associated knowledge resulting from the traditional practices of indigenous peoples and local communities, and research by public universities (the University of Costa Rica has established its own control and regulations relating to non-profit research on elements of biodiversity). All other sectors, including the pharmaceutical, agricultural, crop protection, biotechnology, ornamental, and herbal industries, which use the genetic properties of biodiversity are subject to the Law and must follow the access procedures.

The definitions of access and bioprospecting in the Law restrict its scope to genetic resources in public or private lands, terrestrial or marine environments, under *ex situ* or *in situ* conditions, and indigenous territories. The rules of indigenous people should be taken into account for access in their traditional territories, as should their *sui generis* community intellectual rights. 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 is set out in two chapters of the Law. The competent body that grants access in the first place is the Technical Office of CONAGEBIO. CONAGEBIO is entrusted with preparing access and benefit-sharing policies and can revoke the rulings of the Technical Office on access issues. The main duty of the Technical Office is to process, reject, and monitoring applications to access biodiversity, and coordinate with the Conservation Areas, the private sector, indigenous peoples, and peasant communities on actions that relate to access. It is responsible for organizing and updating a register of access applications to the components of biodiversity, *ex situ* collections, and the natural and legal persons who work on genetic manipulations. The Technical Office must also collect and update regulations related to the fulfillment of treaties and guidelines on biodiversity issues.

Chapter V defines the requirements and procedures to access genetic and biochemical components and the protection of the associated knowledge. CONAGEBIO is expected to act as the mandatory consultative body for all application procedures for the protection of intellectual rights related to biodiversity. The Law regulates the basic requirements for access, which include prior informed consent (PIC), benefit-sharing, the protection of associated knowledge, and the way in which the activities will contribute to conservation. Chapter V also establishes the legal procedures to be followed, the Registry of access rights, and the protection of confidential information.

The Law also regulates the terms of access permits including their limitations and characteristics, the information required in a permit application, the authorization of agreements with individuals seeking access to genetic and biochemical components by the Technical Office, and the possibility of agreements with universities and other duly registered centers. It stipulates that, in addition to the payment of administrative expenses, up to 10 percent of the royalties must go to the Conservation Area, private owner, or indigenous territory. The Technical Office must always be consulted in processes where IPRs are granted for components of biodiversity, and its decision on these matters is binding.<sup>21</sup> Lastly, the BL establishes the grounds for the protection of traditional, indigenous and community knowledge and for the establishment of a participatory process for the determination and registration of these *sui generis* intellectual community rights. This is supported by a system of fines for illegal access<sup>22</sup> and a framework for sanctions.

### *Analysis and lessons learned*

The Costa Rican experience provides some of the most relevant examples of achievements and obstacles in regulating access to genetic resources, intellectual property, and traditional knowledge. The BL was selected for further analysis largely because of its contribution to the development of Costa Rica's capacities in conserving biodiversity. The biodiversity prospecting program contributes several million U.S. dollars in income and makes important contributions to technology, capacity-training, equipment, the National System of Conservation Areas, and more importantly, to the creation of national capacities and negotiation capacities. Although this last aspect stands out as the most important in relation to acquired benefits, it is important to point out that ecological tourism contributes around \$700 USD million per year, making bioprospecting's return seem relatively small with respect to the amount of money obtained.

The ABS regulations of some countries have demonstrated how this type of focus can result in the lack of compliance with the objectives of the CBD. In this respect, some regulations to date have



concentrated more on controlling than on promoting access. These types of laws evoke high transaction costs and complicated bureaucratic procedures that lead to hindering the access applications, without which it is not possible to speak about benefit sharing. The BL has created the necessary legal guarantees, and an ABS regime that is sufficiently flexible and transparent.

Unfortunately, in most of the countries the evolution of legal regulations on access to genetic resources has been separated from the definition of national policies on conservation and sustainable use of biological diversity. As a result, the contribution of monetary as well as non-monetary benefits barely touches upon the conservation process. The BL has established a connection between ABS and conservation. The regulations on access are based on the idea of conserving biological diversity, its sustainable use and the fair distribution of its benefits. The law also demonstrates a concern for equity by establishing the equitable sharing of benefits as a fundamental principle. The law calls for both equitable treatment of Indigenous Peoples and the design and implementation of a *sui generis* system for the protection of TK. Poverty eradication is not mentioned *per se*, but in principle benefits accruing from the different ABS initiatives could serve this purpose. However, to date the implementation of the ABS provisions of the BL has created few benefits for small farmers and indigenous peoples. Most benefits are in the form of creation of technological capabilities, research results and associated information and monetary benefits.

In regards to broader benefits for biodiversity, some of the lessons learned include:

- ⇒ The BL is one of the most comprehensive laws aiming at the full implementation of the CBD. The BL addresses most of the relevant provisions of the CBD allowing the country to develop further regulations and instruments for the implementation of the general and sometimes conditional provisions of the Convention.
- ⇒ The BL provides a balance between conservation, sustainable use and fair and equitable sharing of benefits arising from the utilization of genetic and biochemical resources. These three objectives are clearly linked in the text of the BL.
- ⇒ Equity, protection or rights of indigenous peoples and local communities and participation in the decision making process (including the right to participate and over their knowledge) are features presented throughout the BL.
- ⇒ Expanded and progressive interpretation of several CBD provisions, such as the inclusion of biochemicals in the ABS scope and the inclusion of exotic/invasive species in the biosafety framework.
- ⇒ Incentives and technology transfer provision are incorporated in the Law.
- ⇒ The BL introduces a set of guiding principles and objectives for interpretation and implementation, including the precautionary approach, conservation, and sustainable use.
- ⇒ Strong institutional development was put in place to secure the conservation, sustainable use of biodiversity as well as the fair and equitable benefit sharing.
- ⇒ Awareness raising and education have a considerable importance and weight in the BL design.

## ***2. Norway's Biodiversity Law***

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### *Biodiversity*

The *Act relating to the management of biological, geological and landscape diversity (Nature Diversity Act)*<sup>23</sup> (NDA) of 2009 is the primary legislation for protecting biodiversity in Norway and is meant to implement the Convention on Biological Diversity in a holistic way. Its established purpose is “to protect biological, geological and landscape diversity and ecological processes through conservation and sustainable use, and in such a way that the environment provides a basis for human activity, culture, health and well-being, now and in the future, including a basis for Sami culture”.<sup>24</sup> This is a very comprehensive goal and exposes the main driving factors behind the law.

The NDA has more precise definitions than the CBD. It defines ‘biological diversity’ broadly as “ecosystem and species variability and intra-species genetic variability, and the ecological relationships between ecosystem components” and defines ‘biological, geological and landscape diversity’ in an exclusive manner: “all diversity that is not largely a result of human interference”.<sup>25</sup> It also defines a ‘habitat type’ as a homogeneous environment including all plant and animal life and environmental factors that operate there, or special types of natural features such as ponds, habitat islands, and special types of geological features<sup>26</sup> and an ‘area with specific ecological functions’ as one that fulfils an ecological function for a species, such as a spawning, nursery or larval drift area, migration route, feeding, moulting or overwintering area, display ground or mating area, breeding area, overwintering area or habitat, the delimitation of which may change over time.<sup>27</sup>

Chapter II contains general provisions on sustainable use, including management objectives to maintain the diversity of the habitat types and ecosystems; management objectives for species, a general duty of care, principles for official decision making, both science and traditional knowledge as a basis 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 including indigenous (Sami) ones. All sectors must apply these principles as guidelines when exercising public authority. Decisions shall state how the principles have been applied in an assessment.

Chapter III governs the harvesting and removal of wildlife from the environment and regulations to be adopted on issues such as the protection of Priority Species and trade in endangered species.<sup>28</sup> Chapter IV provides for the regulation of alien organisms, deeming that as a rule the import and release of alien species is subject to a permit. A permit may not be granted if there is reason to believe that the release will have substantial adverse impacts on biological diversity.

Pursuant to Chapter V, the government can establish different types of protected areas, including Selected Habitat Types. Special attention shall be paid to the importance of protecting a diversity of habitats and species, keeping major ecosystems intact and maintaining landscapes that are of historical and cultural value.<sup>29</sup> Proposals for protected areas shall be made available for public comment, and the Sami Parliament shall be consulted if Sami interests would be affected.<sup>30</sup>

Norway takes a cross-sectoral approach to the governance of biodiversity conservation and use, requiring each ministry to monitor biodiversity, be aware of the environmental impact of activities within its sphere of responsibility, and work together cooperatively.<sup>31</sup>

### *Biosafety*

As mentioned above, the NDA regulates the import and release of alien species, but the production and use of GMOs in Norway is subject to the *Gene Technology Act*.<sup>32</sup> This Act establishes safety measures for their contained use and release into the environment. Some forms of contained use of GMOs, such as production, require government approval. Further regulations can be established for

notification or approval of contained uses and those which may require an environmental impact assessment.

The intentional release of GMOs into the environment requires approval from the competent authority. It may only be approved where there is no risk of adverse effects on health or the environment. In deciding whether to grant an application, considerable weight shall also be given to whether the deliberate release will be of benefit to society and is likely to promote sustainable development. Conditions related to the approval may also be laid down such as conditions related to labelling of the products. Parties responsible for the unauthorized escape of GMOs into the environment must take reasonable steps to avoid or mitigate damage or nuisance caused by the organisms.

### *Access and Benefit Sharing*<sup>33</sup>

Chapter VII of the *Nature Diversity Act* regulates access to genetic material. The Act defines genetic material as “genes or other hereditary material in any biological material that can be transferred to other organisms with or without the help of technology, except human genetic material.”<sup>34</sup> According to Chapter VII, “genetic material obtained from the natural environment is a common resource belonging to Norwegian society as whole and managed by the State.”<sup>35</sup> It is to be used for the benefit of the environment and human beings, both within Norway and worldwide, protecting the interests of indigenous peoples and local communities through appropriate benefit-sharing measures.<sup>36</sup>

Regulatory powers on the collection and utilization of biological material include permits. This includes regulations regarding the information that must be contained in the application, such as indigenous or local knowledge. Regulations may also provide for extra conditions, such as for the protection of landowners and indigenous peoples and for the accrual of benefits to the state.<sup>37</sup> The NDA restrains those who receive genetic material derived from a public collection from claiming intellectual property or other rights unless the material has been substantially modified. Violation of this rule can lead to legal action and it may be used as a defence against an IPR claim.<sup>38</sup> The NDA also deals with genetic material from other countries and introduces a highly innovative approach. The person that has control over the material is bound by the conditions that have been set for the consent and The Norwegian state may enforce the conditions by bringing legal action on behalf of the person that set them. It makes Norway the first country to enact a user measure that enforces the consent requirements and conditions of provider countries and countries of origin.<sup>39</sup>

Genetic material from another country that is utilized in Norway for research or commercial purposes must be accompanied by information regarding the provider country and evidence of any consent required by the national law of the provider country. When the provider country is not the country of origin of the genetic material (“the country in which the material was collected from *in situ* sources”), the country of origin (if known) must also be identified and the proponent must provide, if possible, evidence that any consent required by the country of origin for the collection the materials has been obtained. If genetic material used for research or commercial purposes is covered by the International Treaty, it shall be accompanied by evidence that the material has been acquired in accordance with the Treaty’s Standard Material Transfer Agreement.

The Nature Diversity Act contains an entirely new set of regulations on ABS concerning the extraction and exploitation of genetic material from animals, plants and microorganisms. It allows for the creation of regulations regarding benefit sharing, access permits and declarations on the use of traditional knowledge associated with genetic resources. A regulation is underway to regulate access to genetic material in Norway and the further utilization of this material.

Moreover, the NDA requires importers of genetic material from other countries to provide information on the origin of the material and the circumstances under which the material has been obtained. This is a key provision for enforcing global ABS rules in accordance with the provisions of the Convention on Biological Diversity and the Nagoya Protocol on ABS and thus a key aspect of any Future Just law.

Other legislation supports the provisions of the NDA. For example, the *Marine Resources Act*<sup>40</sup> includes a chapter on the conduct of marine bioprospecting. The *Patents Act* imports ABS considerations into the patent process by requiring a patent applicant to disclose the origin of biological material and traditional knowledge and obtain prior consent if required in the country of origin and the *Plant Variety Act* contains a similar provision.<sup>41</sup> Failure to disclose the information required in the Patents Act section 8b is subject to civil penalties (fines and/or imprisonment) in accordance with s. 166 of the General Civil Penal Code.

### *Analysis and lessons learned*

The *Nature Diversity Act* lays out a broad framework for sustainable, participatory and precautionary management of biodiversity. It promotes the principle of “integration and interrelationship” by connecting the protection of diversity with support for human well-being and recognizing the importance of historical and cultural landscapes in the preservation of diversity. This includes a variety of instruments including provisions on nature protection and sustainable use of diversity, such as Priority Species and Selected Habitat Types. These instruments reflect that nature is constantly changing, allowing the NDA’s administrators to use tools beyond rigid nature conservation (i.e. protected areas) to protect biodiversity.

The Act enables the authorities to give clear signals on which species and habitat types are most important to safeguard, among other things through the provisions relating to knowledge-based management. The Act improves coordination of efforts to safeguard biological, geological and landscape diversity, since sectors that put pressure on or utilise natural resources will be required to give weight to objectives and principles (e.g. the precautionary principle, assessment of cumulative environmental effects and the user-pays principle) and rules on selected habitat types in their management activities. The procedural rule in Chapter II section 7 stating that “decisions shall state how the principles have been applied in an assessment” makes the application of the principles in public decision-making transparent and in effect making it possible to control and check the development in each sector. Failure to comply with this duty can lead to the decision being invalid if there is reason to believe that the failure to comply has influenced the decision.

The *Gene Technology Act*, for its part, takes a precautionary approach to human health and Norway’s ecosystems (although it should be noted that the export of GMOs is not subject to the same requirements as is their release into the Norwegian environment).

Norway’s ABS measures address some of the major problems that exist with ABS today, notably monitoring of compliance with a provider country’s legal provisions and observance of those provisions in user countries. Non-compliance with legislative or contractual provisions imperils the ABS regime in its entirety. Provider countries need the ability to enforce their legal requirements abroad, and this ability largely depends upon mechanisms for access to justice and the existence of administrative or judicial remedies. Strong measures that support compliance with access conditions are necessary to maximise equity and fairness in ABS. It has been said that: “In effect, any international regime will require a cooperative effort between the providers and users of genetic resources and traditional knowledge and will require that both take actions to mutually support the common objectives of the CBD relating to fair and equitable benefit-sharing”.<sup>42</sup> Norway’s legislation is noteworthy in this regard, protecting both Norway’s interests and those of provider countries. Effective user measures help to build trust in the development of ABS relations by

resolving – at least to a certain degree – the costs and problems associated with access to justice in foreign countries in cases of non-compliance.

Generally speaking, the following can be said about Norway's biodiversity laws:

- ⇒ Norway's regime creates a framework in which sustainable use of genetic resources can be achieved through permitting requirements and information-gathering.
- ⇒ The Nature Diversity Act's rule against claiming IP rights and other rights in resources from public collections protects the public from unfair appropriations.
- ⇒ It also introduces an element of public participation because it empowers individuals to assert the public's rights in these resources.
- ⇒ The explicit recognition of genetic material as a common resource invites an approach to regulation and enforcement that enhances equity and human security both within Norway and beyond its borders.
- ⇒ Norway's ABS regime has the potential to further sustainability, equity, public participation and human security. Much depends on Norway's adoption of effective regulations.
- ⇒ Certificates of origin-source-legal provenance and disclosure of origin in IPR applications are recognized mechanisms for facilitating the enforcement of ABS regulations; Effective user measures help to build trust in the ABS relationship by solving the problem of access to justice in cases of non-compliance.

### ***3. Japan's Biodiversity Law***

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Nature conservation is a government priority in Japan and it is one of the three pillars of its Sustainable Society Concept launched in 2007. One recent example of this commitment is the Japan's Ministry of the Environment and the United Nations University Institute of Advanced Studies (UNU-IAS) jointly started the Satoyama Initiative, which promotes and conserves bio-cultural landscapes that have been shaped over the years by the interaction of people and with nature. The vision underlying the initiative is one of societies living in harmony with nature, made up of human communities where the maintenance and development of socio-economic activities (including agriculture and forestry) align with natural processes. *Satoyama* is driven by recognition that by managing and using biological resources sustainably and properly maintaining biodiversity, humans will enjoy a stable supply of various natural benefits well into the future. The initiative further aims to use both social and scientific disciplines to study how relationships between humans and nature should function in 'socio-ecological production landscapes' (SEPL).<sup>43</sup>

#### *Act on Biodiversity*

The *Basic Act on Biodiversity*<sup>44</sup> was adopted to guide the review of existing laws<sup>45</sup> and aims to promote the conservation and sustainable use of biodiversity, realize a society in harmony with nature, and clarify responsibilities of business, citizens and private bodies in addition to national and local governments. Its key principles are (a) preventive and adaptive approaches; (b) the importance of a long-term viewpoint and (c) the linkage with global warming measures. The Act requires national and regional governments to develop biodiversity strategies. Other elements include the promotion of biodiversity friendly business activities, prevention of damages from alien species, rational use of biodiversity, diversity of wildlife species, prevention of damages from alien species, prevention of global warming (by conserving forests, wetlands and grassland to fix CO<sub>2</sub>), promotion of science and technology, surveys and international coordination and cooperation.

This Act was established to put into practice the conservation and sustainable use of biodiversity and to clarify how conservation and utilization must be viewed from a long-term perspective. The

objectives of the law include: the conservation of regional biodiversity; the conservation of diversity of wildlife species; the prevention of damage by alien species; the promotion of appropriate use of national land and natural resources; the promotion of rational use of biological resources; the promotion of biodiversity-friendly business activities; the promotion of policies that contribute to prevention of global warming; coordination and cooperation among diversified actors and promotion of voluntary activities; Promotion of survey; Promotion of science and technology; improvement of public understanding; promotion of Environment Impact Assessment, pertaining to biodiversity at the stage of planning business plans; and ensuring international coordination and promotion of international cooperation.<sup>46</sup>

The Act also required the government to formulate a new national biodiversity strategy. The National Biodiversity Strategy of Japan is a national basic plan for the conservation of biodiversity and its sustainable use. It was first adopted in 1995, and was reviewed twice in 2002 and 2007. The requirement for a new policy led cabinet to adopt a very ambitious Biodiversity Strategy 2010<sup>47</sup> with a long term perspective (a 100 year centennial plan) as well as mid- and short-term targets (2020 and 2050) and priority issues to be addressed by around 2010. Its main objectives are:

- ⇒ Mainstreaming Biodiversity in daily life and promoting and supporting such measures at local level
- ⇒ Rebuilding a sound relationship between human beings and nature in local communities, including strengthening measures to conserve rare wild fauna and flora and promoting integrated measures of natural symbiosis, material-recycling, and a low carbon society
- ⇒ Securing linkages among forests, country sides, rivers and the sea and enhancing conservation and restoration of marine biodiversity
- ⇒ Taking actions with global perspective, including ensuring the success of CBD COP10, promotion of Satoyama Initiative, strengthening the scientific base for decision-making and the science-policy interface, introduction of an economic perspective, and assistance to developing nations

The Action Plan attached to the Strategy has roughly 720 measures and 35 numerical targets, as well as aiming for the widespread revision of biodiversity related legislation.

### *Biosafety*

Japan has implemented the Cartagena Protocol through the *Act on the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organisms*.<sup>48</sup> The Act's purpose is the precise and smooth implementation of the Cartagena Protocol, thereby contributing to the welfare of humankind and helping to assure healthy cultural lives for current and future generations, by devising measures to regulate the use of living modified organisms in order to further the conservation and sustainable use of biological diversity through international cooperation.<sup>49</sup> The Act is comprehensive in its scope vis-à-vis the Cartagena Protocol, first addressing measures to prevent adverse effects on biodiversity caused by the use of LMOs in Japan, export measures, on-site examinations, measures to enhance scientific knowledge, public consultations and penal sanctions. Article 3 of the Act allows for ministerial pronouncements on basic matters pertaining to biosafety, such as the implementation of measures to avoid adverse effects to biological diversity, which was done in the declaration *Basic Matters under the Provisions of Article 3 of the Cartagena Law*.<sup>50</sup> It is also accompanied by ordinances on containment measures, guidelines for assessment of adverse effects on biodiversity, and the *Regulations related to the Enforcement of the Cartagena Law*.<sup>51</sup>

### *Analysis and lessons learned*

The *Basic Act on Biodiversity* is exemplary for the following reasons:

- ⇒ It overrides all other inconsistent legislation and thus mainstreams biodiversity into all other policies.
- ⇒ It adopts a primarily preventive approach (prevention of chemical pollution, alien species, global warming) and a long-term viewpoint.
- ⇒ It implements the concept of *Satoyama*, or sustaining and restoring bio-cultural landscapes that exemplify the ideal of living fruitfully in harmony with nature.
- ⇒ The respective responsibilities of national and local businesses, citizens, and private bodies are clear.
- ⇒ The law integrates local efforts with those occurring through national and regional biodiversity strategies.
- ⇒ It promotes Environmental Impact Assessments on biodiversity
- ⇒ It promotes international co-operation and coordination.

Japan's approach to biosafety is also exemplary in that it implements the Cartagena Protocol in a holistic manner rather than by trying to adapt other laws to try and comply with its terms.

## ***4. Bhutan's Biodiversity Law***

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### *The Constitution*

Article 5 of Bhutan's Constitution<sup>52</sup> states that "Every Bhutanese is a trustee of the Kingdom's natural resources and environment for the benefit of the present and future generations and it is the fundamental duty of every citizen to contribute to the protection of the natural environment, conservation of the rich biodiversity of Bhutan and prevention of all forms of ecological degradation"; the objectives being to: protect, conserve and improve the pristine environment and safeguard the biodiversity of the country; prevent pollution and ecological degradation; secure ecologically balanced sustainable development while promoting justifiable economic and social development; ensure a safe and healthy environment; and maintain a minimum of sixty percent of Bhutan's total land under forest cover for all time. Article 5 also allows Parliament to enact environmental legislation to ensure sustainable use of natural resources and maintain equity between generations.

### *Biodiversity*

The *National Environment Protection Act, 2007*<sup>53</sup> (NEPA) is the governing framework for nature in Bhutan, which includes the conservation and sustainable use of biodiversity. The earlier *Biodiversity Act of Bhutan, 2003*<sup>54</sup> has a narrower focus, namely implementing the third objective of the CBD – Access and Benefit-Sharing – and associated matters such as traditional knowledge and intellectual property rights.

NEPA's objective is to establish a system for the sustainable use of natural resources, environmental conservation and equitable regulation of sustainable development.<sup>55</sup>

- ⇒ It lays out a set of environmental rights and duties that apply to the Bhutanese, including access to justice, access to information and participation in the policy-making process, as well

as a duty of environmental stewardship, wherein each citizen acts as environmental trustee for future generations.

⇒ It establishes an independent agency, the National Environment Commission, which oversees all environmental matters in the country including:

- prevention of environmental harm, including pollution, and protection of environmental quality;
- enforcement and implementation of policies, plans, etc. for environmental protection;
- oversight of the efforts to maintain forest cover on 60% of Bhutan's land mass;
- adoption of regulations and rules including standards for environmental quality, emission limits and products;
- making recommendations to Parliament to declare endangered species and national parks, wild life reserves, or protected forests
- establishment of regulatory controls over the import and use of LMOs.

### *Access and Benefit Sharing*

The *Biodiversity Act of Bhutan, 2003* is the governing law on ABS. The preamble recognizes, among others, 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 Act is a fairly comprehensive elaboration of the Convention's terms pertaining to ABS. This includes the promotion of technology transfer and capacity building, including scientific and technological capacity for conservation and sustainable use of biodiversity. It also recognizes and protects the traditional knowledge, innovations and practices of local communities associated with biodiversity and gives recognition and protection to farmer and breeder rights. It also provides legal recognition of varieties that are not protectable under existing patent and plant breeders' rights laws, thereby recognizing farmers' plant variety improvements and innovations and providing a means of sharing benefits derived from the use of farmers' or traditional varieties as breeding material for commercial purposes. Lastly, the Act promotes access to foreign sources of improved plant varieties for the use of Bhutanese farmers.

The Act applies to all genetic and biochemical resources including wild, domesticated and cultivated species of flora and fauna, both *in-* and *ex-situ*, found within Bhutan. The procedure and conditions of the Act extend to protected areas or government reserved forests, and encompass traditional knowledge, innovations and practices associated with biodiversity. A successful application for non-traditional use of traditional knowledge requires the permission of the TK owners. TK is defined as any knowledge that is or has been transmitted from generation to generation, any knowledge that is regarded as pertaining to a particular traditional group, clan and community of people in Bhutan, and/or knowledge that is collectively originated and held.

The Act does not encompass a number of activities. For example, the scope does not cover instances where biological material is used as a commodity for direct use or consumption, or for access, use and exchange of biological and genetic resources among local communities resulting from their traditional and customary practices. Access to human genetic resources is also excluded from regulation by the Act. It also does not encompass situations where the Competent Authority



determines whether access should be granted based on regulations implementing international multilateral systems for ABS, especially the *International Treaty on Plant Genetic Resources for Food and Agriculture* (ITPGRFA). Lastly, the Act does not apply to varieties for which patent protection is available, or the prevention of commercial exploitation, when necessary to protect public order or morality, including harm to the environment, the public interest or the traditional rights of farmers.

### *Gross National Happiness Index and Ecological Diversity*

In 2008 the Royal Government of Bhutan adopted the Gross National Happiness Index to reflect its values of wellbeing, set benchmarks and measure policy progress towards greater wellbeing.<sup>56</sup> The Index is composed of nine principles: Psychological Wellbeing, Time Use, Community Vitality, Culture, Health, Education, Ecological Diversity and Resilience, Living Standards and Governance. Indicators to measure ecological diversity include ecological degradation, knowledge and afforestation. Gross National Happiness can be used as an instrument of policy as it captures interconnections and interrelationships that can help achieve greater policy effectiveness.<sup>57</sup>

### *Analysis and lessons learned*

By adopting environmental provision into its constitution, Bhutan has shown great foresight and a high regard for its natural environment. Bhutan is the only country that encourages indigenous people to remain in national parks and provides them with basic facilities, as they are considered part of the natural environment. The biodiversity policy of Bhutan has helped to achieve a very high national forest cover and preserved rare species such as tigers and snow leopards. This continuation of a centuries-old focus on the preservation of the environment is also due to Bhutan's philosophy of living in harmony with nature.

Bhutan has placed environmental conservation at the centre of its development strategy.<sup>58</sup> About 70 percent of the country (corresponding to 3,249,000 hectares) is covered with forests. The size of the forest cover is stable and increased by 0.34 % per year between 2005 and 2010.<sup>59</sup> Bhutan is at the top of the list of countries with the highest proportion of land under protected areas. In total about 48.5 % of Bhutan's total land is under systems of protection; 39.6 % of the country's area is managed as protected areas and an additional 9 % has been declared to belong to biological corridors connecting the protected areas.<sup>60</sup> About 13 % of the forests (413,000 ha) are primary forests and 87 % of the forest area (2,833,000 ha) is covered with naturally regenerated forests. Planted forests cover an insignificant forest area (3000 hectares).

The establishment of a competent national body to oversee the implementation of and compliance with the entire law, and to contribute to its future development, will improve the coherence and effectiveness of natural resource management in Bhutan. It should have a sufficient level of power to enforce its decisions and make meaningful contributions to the development of the law. In addition, the law's clarity of scope and objectives will contribute to transparency and legal certainty. A set of relevant principles – including a detailed definition of the precautionary principle and the equal standing of environmental conservation with economic development – has also been established to assist with the interpretation and implementation of the law.

Bhutan's laws place a heavy emphasis on the public's role in sustaining biodiversity for future generations. The NEPA contains a set of rights and duties, along with an explicit commitment to intergenerational equity. Provided effective enforcement of principles such as polluter-pays, and *de facto* public access to the legal and political systems, the Law paves the way for a high level of public participation and for equitable management of biological and genetic resources. The introduction of incentives also encourages public participation in conservation efforts. Furthermore, both equity and the recognition of indigenous and local communities' rights are promoted through the establishment

of a TK protection system and the expanded scope of protection for traditional plant varieties created by farmers.

## ***5. South Africa's Biodiversity Laws***

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### *Biodiversity*

The objectives of South Africa's *National Environmental Management: Biodiversity Act, 2004*<sup>61</sup> (NEMBA) are the management and conservation of South Africa's biodiversity within the framework of the *National Environmental Management Act, 1998* (NEMA), the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources, and the establishment and operation of a South African National Biodiversity Institute (SANBI).

SANBI has a number of functions. The first is the monitoring of biodiversity in South Africa, particularly species listed as threatened, protected or invasive, as well as the impact of any GMOs released into the environment. It is also tasked with acting as an advisory and consultative body on biodiversity-related matters to government authorities and other biodiversity stakeholders. SANBI also manages the National Botanic Gardens of South Africa, and must establish and maintain *ex situ* collections of plants in national botanical gardens and in herbaria, and establish collections of animals and micro-organisms in appropriate enclosures. Additional duties include establishing facilities for horticulture display, environmental education, visitor amenities and research and collecting, generating, processing, coordinating and disseminating information about biodiversity and the sustainable use of indigenous biological resources. This involves establishing databases on biodiversity and its sustainable use as well as promoting research on indigenous biodiversity and the sustainable use of indigenous biological resources. It is also tasked with coordinating programmes for the rehabilitation of ecosystems and the prevention, control or eradication of listed invasive species. Lastly, SANBI is tasked with assisting the Minister of Environmental Affairs in exercising legislated powers pertaining to biodiversity, including advice on listed ecosystems, implementation of the Act and any international agreements, identification of bioregions and the contents of any bioregional plans, management and conservation of biological diversity, sustainable use of indigenous biological resources, and management of, and development in, national protected areas.

### *Biosafety*

South Africa was the first producer of GM crops in Africa and is currently the largest producer of such crops on the continent. Concerns regarding the commercial release of GMOs led South Africa to enact legislation regulating the development, importation and application of GMOs after the coming into force of the CBD but before the adoption of the Cartagena Protocol. The *Genetically Modified Organisms Act, 1997*<sup>62</sup> pre-dates the Cartagena Protocol but was modified in 2006 to reflect the requirements of the Cartagena Protocol<sup>63</sup> and amended regulations came into effect in February 2010.<sup>64</sup> The formal structures for the implementation of this act include an Executive Council, which reviews applications for GMO work, a scientific advisory committee, the South African Committee for Genetic Experimentation (SAGENE), a registrar to administer the GMO Act and an inspectorate to monitor its functioning.

### *Access and Benefit-Sharing*

The legal framework for ABS in South Africa is the *National Environmental Management: Biodiversity Act 2004*. Chapter 6 of the Act, entitled "Bioprospecting, Access and Benefit-Sharing", sets out the particulars of the ABS regime in South Africa. More specifically, Chapter 6 is meant to regulate

bioprospecting of genetic resources and to ensure that the benefits arising from the commercialization of traditional uses or knowledge of indigenous biological resources are equitably shared with persons or communities practicing these traditional uses or possessing the knowledge.

As such, the law's primary purposes are to regulate bioprospecting involving indigenous biological resources, regulate the export of indigenous biological resources for the purposes of bioprospecting or any other kind of research, and to provide for a fair and equitable sharing among stakeholders in benefits arising from bioprospecting involving indigenous biological resources.<sup>65</sup> Genetic material of human origin, exotic animals/plants or other organisms other than those that have been altered with material from indigenous species, and indigenous biological resources listed in terms of the ITPGRFA are all excluded from the scope of the regulation.

Pursuant to section 77 of the Bill, bioprospectors must have entered into a benefit-sharing agreement in order to use traditional knowledge and the agreement must include certain information. Section 76 requires individuals to have a permit in order to engage in bioprospecting. The law thus mandates that before the application for a permit will be considered the applicant must disclose all information concerning the proposed bioprospecting and the resources that will be used for that purpose. A permit will only be issued if the applicant and the stakeholder have entered into both 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, and the Minister has approved these agreements. If the stakeholder has provided knowledge that will be used for the proposed bioprospecting then the applicant and the stakeholder must enter into a benefit-sharing agreement and the agreement must be approved by the Minister before a permit will be granted.

For indigenous biological resources, the applicant and 'stakeholder'<sup>66</sup> must have a Material Transfer Agreement and 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 they are on an equal footing, or may be required by the Minister to ensure the arrangement is fair and equitable.<sup>67</sup> Permits are necessary in order to engage in bioprospecting involving any indigenous biological resources or to 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: the parties to the agreement, the manner in which and the extent to which the resources are to be used or exploited for bioprospecting, the manner in which and the extent to which the stakeholder will share in any benefits that may arise, and provision for a regular review of the agreement. Similarly, the law identifies elements that must be included in Material Transfer Agreements.

### *Analysis and lessons learned*

South Africa has had success in reversing the negative pressures on biodiversity through the implementation of its *National Environmental Management: Biodiversity Act, 2004* within the framework of the the *National Environmental Management Act, 1998*. By nesting biodiversity within the broader environmental legal framework, a greater degree of certainty can be established in the relationship between overlapping laws and policies. The implementation of Access and Benefit-Sharing provisions within the law is comprehensive and has been used to some effect in challenging cases of patenting of indigenous genetic resources and traditional knowledge because of lack of benefit sharing agreements and consent of stakeholders. The independent regulation of GMOs is not an effective way to address the innate interrelationship between biodiversity and biosafety and the integration of considerations necessary for future justice and sustainability.

## B. Sectoral Policies

### ***1. Australia's Great Barrier Marine Park Act and Environment and Biodiversity Conservation Act***<sup>68</sup>

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#### *Legal framework and context*

Australia has a well developed legal mechanism to guide the creation and management of marine protected areas at the Commonwealth and State level: the *Environment Protection and Biodiversity Conservation Act, 1999*<sup>69</sup> (EPBCA). The EPBCA applies to the protection of marine areas generally, in part addressing the Great Barrier Reef Marine Park ("the marine park") which is specifically subject to the *Great Barrier Reef Marine Park Act*<sup>70</sup> (GBRMPA) of 1975. The GBRMPA protected area is the world largest reef system, with 70 distinct habitat types, 400 species of corals, over 30 species of whale, dolphin and porpoises, over 120 species of shark, stingray and skate, 9 species of seahorses and 17 species of sea snake. The GBRMPA is a legislative exemplar in the field of marine management and conservation and was most recently reviewed in 2006 to ensure consistency with EPBCA.

#### *Object, purpose, institutions, legal principles*

The GBRMP Act aims to provide the highest level of protection to the marine ecosystems contained within the marine park, while still allowing for sustainable use by such industries as commercial fisheries, recreational fishing and tourism. The subjects of the law are specifically all users of the GBRMPA, but also all Australians and the wider global community who are intent on conserving the Great Barrier Reef for the benefit of current and future generations. The EPBCA helps to regulate any actions that have, will have or are likely to have, a significant adverse effect on matters of national environmental significance in general, including but not limited to the Great Barrier Reef Marine Park.

The GBRMPA provides for an institutional and regulatory framework establishing the Great Barrier Reef Marine Park and the Great Barrier Reef Marine Park Authority, a national authority responsible for the management of the Marine Park, as well as providing a framework for planning and management of the marine park, including through zoning plans, plans of management and a system of permissions. The GBRMPA also prohibits mining operations, including exploration and exploitation in the region unless authorized by permit for research or investigation relevant to the conservation of the marine park, requires compulsory pilotage for certain ships in prescribed areas of the GBR Region and provide for regulations, environmental management charges, and enforcement.

Under the new rules the marine park users have a duty to take reasonable steps to prevent or minimize environmental harm. Furthermore, inspectors can issue fines for a broader range of minor breaches. Civil rather than criminal penalties can be sought, although seeking criminal penalties is still an option. Penalties have been adjusted to better fit the offence, so that small offences carry lower penalties, while serious offences carry higher maximum penalties. Where there is a risk to the marine park environment, the GBRMPA will be empowered to order the activity be stopped to avoid, reduce or eliminate the risk. Being unaware of the marine park, of its zones, of location within the marine park, and of the restrictions on marine park uses is not an excuse under the law, unless it is an honest and reasonable mistake.

## *Analysis and lessons learned*

The GBRMP Act 1975 was ground breaking legislation in providing for ‘reasonable use’ to co-exist with conservation, pioneering the idea of a ‘multiple-use’ park, so that reasonable use by people can coexist beside conservation efforts. With regard to the impacts, it can be emphasized that the current zoning plan it employs is outstanding, and is probably the most advanced in the world in terms of the data (biophysical, economic, social) that was used to create the most satisfactory outcome for all stakeholders while keeping conservation levels beyond satisfactory. The rezoning process has already had a number of positive impacts, including increased coral trout numbers, a marked reduction in outbreaks of crown-of-thorns starfish and a minimum of 20% of predicted biomass of all species laying within highly protected zones.

So far as the issue of enforceability is concerned, the activities in the marine park were already tightly controlled, and the legislative changes make the more comprehensive investigation powers of the EPBC Act also available for the purposes of the GBRMP Act, so that a single investigation system applies to the marine park.

In view of transferability of the legal framework towards other legal systems, many parts of the acts are quite specific to the Great Barrier Reef itself. Nevertheless, many concepts, such as the concept of a ‘multiple use’ park, have been transferred to other similar situations. Also, despite the obvious scale difference, there are many lessons learnt during the rezoning process that have been used, and continue to be adapted for use, elsewhere in the world (e.g. the eleven biophysical planning principles used to guide the RAP). Also, many standards and principles of the EPBC Act are exemplary including the prohibition of exploitative resource use such as logging and mineral extraction in protected areas, principles of inter generational equity integration of both long-term and short-term economic, environmental, social and equitable considerations, the precautionary principle, the principle of community engagement, recognising and promoting the role for indigenous people in the conservation and ecologically sustainable use of biodiversity.

## ***2. Namibia’s Marine Resources Act<sup>71</sup>***

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### *The legal framework and the context*

Upon independence in 1990, Namibia inherited heavily overfished stocks due to excessive exploitation practices from foreign fleets and no sustainable fishing in place. This prompted the government to regulate the industry to ensure that Namibia’s living marine resources were not driven into extinction, and subsequently utilized on a sustainable basis as required by Article 95 (1) of the Constitution. Today, Namibia has one of the most productive Exclusive Economic Zone fishing grounds in the world, and fishing is the third-largest sector of the Namibian economy, behind agriculture and mining. As such, policy development and implementation can be said to be a proven success in terms of 1) the conservation of marine resources 2) the development of national fishing industry which creates jobs, provides food as well as training and research, and 3) empowering previously disadvantaged groups.

### *Object, purpose, institutions, legal principles*

The Marine Resources Act (MRA) No. 27 of 2000<sup>72</sup> intends to provide for the conservation of the marine ecosystems and the responsible utilization, conservation, protection and promotion of marine resources on a sustainable basis, whilst at the same time building an economy which creates jobs for

Namibians and empowers the previously disadvantaged. The law is addressed to all fishermen, foreign fleets, individual citizens and tourists.

Namibia has adopted a right-based approach to address the prevention of overfishing. Accordingly, the fishing subsidies schemes are not adopted in order to ensure that trade distortion due to overcapitalization does not take place.

In the institutional context, the Minister of Fisheries and Marine Resources is the main implementing body. It is supported by the Marine Resources Advisory Council (MRAC), which is composed of experts representing other ministries, the industry trade unions and research institutions. In addition, there is the Namibia Maritime Fisheries Institute responsible for training, and the National Marine Information and Research Centre. MRA provides comprehensive powers for the competent implementing body to take measures on:

- ⇒ Place and time of harvesting operations;
- ⇒ Quantities of harvestable resources;
- ⇒ Fishing methods and gears (no driftnets, no formation trawling, no beam trawling, mesh size limits to protect juveniles);
- ⇒ Designating marines reserves;
- ⇒ Fixing total allowable catches (TACs) for specific fish species based on best scientific evidence;
- ⇒ Grid selectivity device;
- ⇒ Minimum fish size to be landed;
- ⇒ Closure of areas.

In the regulatory area, the fishing activity is subject to two types of licences, namely one for harvesting and one for the vessel. They are issued to individual and corporations, including foreigners and can be rejected if the biological sustainability of a resource is threatened. However, due to the policy of 'Namibianization' (or 'Africanisation') only agreements with the South African Development Commission (SADC) have been signed, entitling companies to receive a licence.

Direct government revenues generated for the fisheries sector include quota fees: the Marines Resources Fund levy (a levy on all landed species used to fund research and training), a bycatch levy (bycatch must be landed, discarding is prohibited) with charge rates per tonne set on a species basis, and license fees for vessels.

In the law enforcement context, a strict monitoring, control and surveillance system has been set up, consisting of on board observers, sea, air and shore patrols, monitoring of landings in the two ports and reports on movements and catch by vessels. Namibia is presently installing a satellite-based vessel monitoring system.

### *Analysis and lessons learned*

As an post-independence African country still in the midst of establishing and implementing a comprehensive policy framework for biodiversity, Namibia has been able to successfully build a national fishing industry and at the same time, ensure sustainability by using TAC schemes and moratoria for endangered species. In 2009, TACs were set for eight species. 20 species exist in the specific geographical situation and moratoria on fishing exist for overexploited species which need to recover.

Regarding the biodiversity conservation and restoration, it should be emphasized that most fish stocks have recovered except in some cases (sardines). Today, more than 20 commercially important species are landed. Bycatch is reduced to a minimum as well as illegal fishing: the country has a history of strict prosecution of foreign vessels that are fishing illegally in the Namibian Exclusive Economic Zone. In addition, Namibia has created the Benguela Marine Park for protecting important bird species and marine species. Furthermore, there is strict Environmental Impact Assessment for the drilling of oil, gas and diamonds.

MRA has tackled also the poverty eradication, food security, health and education. The Ministry of Fisheries and Marine Resources estimated total employment in the fishing sector to be around 14.000 in 2003. Fish is made available at reduced prices for disadvantaged groups and the government supports actively local fish consumption, although the traditional diet is meat based. From licenses that are transferred from communities to companies, companies create trusts and provide grants for education and clinics.

So far as the question of transferability is concerned, at least two issues remain salient. Firstly, the rights-based *vs* subsidies approach is applicable to many other regions. Specifically wealthy nations with high fishery subsidies encourage ever bigger fishing fleets chasing ever fewer fish, with little attempt made to allow the fish populations to recover. Many management measures (TACs, quotas, closed areas, gear restrictions, levies on by-catches) and strict enforcement measures, such as those enacted in Namibia, are applicable in many countries as well. Secondly, as regarding the top-down approach for managing large-scale fisheries, as with the example of Namibia, this might be suitable in relation to small-scale fisheries. In other countries with different geography, a ban on bottom trawling should be added in a marine act.

### ***3. Rwanda's National Forest Policy***

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#### *The legal framework and context*

Rwanda lies at the heart of the Albertine Rift eco-region which is one of Africa's most biologically diverse regions, home to some 10.3 percent of the earth's mammal species and 40 percent of the continent's mammal species (402 species). Rwanda has three national parks; the Akagera National Park, the Nyungwe National Park and the Volcanoes National Park, all of them being transboundary.<sup>73</sup>

Natural forest cover in Rwanda rapidly and dramatically declined by 65% in the 40 years after 1960. This decrease was partially fuelled by the genocide, state collapse and breakdown of law-and order in 1994 which led to a sky-rocketing demand for wood to reconstruct the country. The general population in Rwanda heavily depends on forest services, as forests help prevent land degradation and provide watershed protection, thus making agriculture viable. In Rwanda the population's well-being is very closely linked to the state of the country's ecosystem. A majority of the Rwandan population works in agriculture and over 96 % of them use wood as a major source of domestic energy. High population density and growth rates have led to over-harvesting, triggering land degradation and with it food insecurity, aggravation of poverty as well as loss of wildlife habitat and plant species. This situation had worsened because of an insufficient number of forest technicians, infrequent forest projects and an increased population which led to the newly defined national forestry policy in 2004.<sup>74</sup> President Paul Kagame has instigated and been the main driver of both the National Forest Policy of 2004.

### *Object, purpose, institutions, legal principles*

The overall aims of the 2004 policy are to make forestry one of the bedrocks of the economy and of the national ecological balance by providing a comprehensive legal framework.<sup>75</sup> The target of the policy are public institutions and society, the private sector, women and youth associations, the general public and the different forestry institutions.<sup>76</sup> The focus of the policy is to increase the forest cover and provide as a result environmental services for the population. Alongside the Vision 2020 initiative and the Poverty Reduction Strategy Paper of 2002, this policy set the goal of ensuring that Rwanda's forest cover is well managed and increased to 30 % of the country's total land area by 2020.

The specific objectives of the policy cover the increase, diversification, improvement and management of forestry resources. Additionally, other related activities are in the focus of the policy, such as: the improvement of forestry extension and education; adding value on wood and non timber forest products; development of forestry and agroforestry research; saving woods; capacity-building for the forestry institutions; assessments of the contribution of goods and services of the forestry sector to the national economy; strengthening of sub-regional and international cooperation in forestry; and integration of gender-related challenges and roles within forestry management.<sup>77</sup>

Methods include national forest planting weeks, afforestation and reforestation programmes which are funded by a National Forest Fund, agroforestry, saving wood through the use of alternative forms of energy, sustainable harvest of non timber products, awareness raising among the population and integrating forest management and agro-forestry into the school curriculum. The decision-making process has included a broad spectrum of interests including public institutions, civil society, private operators, youth and women's association while a National Forestry Authority has been established to oversee the implementation. The new policy highlights measures to fight poverty and improve livelihoods as a major goal of all strategies and actions in the forest sector. It also supports the wise use of forest biodiversity, including species diversification, promotes innovative financing mechanisms such as eco-taxes, service licenses and payment for environmental services to ensure sustainable sources of operational funds, and implements integrated conservation and development programmes among local communities.

In addition to the strategies listed above, several guiding principles are given, including:

1. Reduction of the negative ecological impacts of man-made forests to a minimum. Therefore trees such as *Eucalyptus spp* with high water needs should not be utilized in large-scale reforestation, and tree planting in marshlands/humid zones must stop.
2. The development of agroforestry will be emphasized and fodder trees, fertilizing species and fruit trees significantly increased on farms.
3. Fragile ecological zones will gain special care from research on species appropriate to dry climates and those capable of improving ecological conditions, a prohibition of resettlement on steep mountains/hills with high risks of landslides and special forestry programmes in severely deforested areas.
4. All stakeholders must be associated in the decision-making process including public institutions, civil society, private operators and youth and women's associations.
5. The current system of 'public forest management contracts' with private entrepreneurs will continue to gradually delegate power for the management of public forests to private managers.
6. Any forest, regardless of the ownership, shall always be considered of common interest.



7. Indigenous plant species which are on the verge of extinction require protection. This is especially the case for plant species used as raw material for local traditional medicines.<sup>78</sup>

### *Analysis and lessons learned*

The policy has achieved a significant national increase in forest cover, despite a rising population, one of very few countries in Africa with net forest growth. The policy received input from many different stakeholders including NGOs and other civil society members during its creation. According to Dr. Rose Mukankomeje, the Director General of the Rwanda Management Authority (REMA), monitoring was weak at the beginning of the National Forest Policy 2004, which is why the National Forestry Agency was created with a board of directors with stronger powers. In addition, the revision of the National Forest Policy 2004 was carried out to address issues such as Rwanda's high dependence on imported industrially processed forest products.<sup>79</sup> The revised National Forest Policy 2010 takes these issues into account.

With regards to transferability, Rwanda's National Forestry Policy serves as a good model for other African countries. Although Rwanda is the most populated country in Africa and where demand for space is high, it is the most afforested country on the continent. These policies could also be a model for countries with special topographic or climatic conditions as Rwanda has adapted its legislation to include different ecological zones, covering high mountains as well as semi-arid zones using different trees which are adapted to varying conditions.

## ***4. Tuscany: Law for the Protection and Promotion of Heritage of Local Breeds and Varieties of Interest to Farming, Animal Husbandry and Forestry***<sup>80</sup>

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### *The legal framework and the context*

Tuscany has been at the forefront of promoting organic farming and safeguarding its regional agricultural genetic heritage, including through GMO-free areas and related biosafety measures. Civil society and government partnerships in Tuscany have built a network consisting of regional and local governments, public and private entities and movements on sustainable, biodiverse and GMO free food systems.

The policy's forerunner, *Regional Law No. 50/1997* "Protection of the autochthonous genetic resources" had principally scientific aims in recording local breeds and varieties. *Regional Law No. 53 of 2000* laid down further provisions regarding GMOs in order to prevent harmful effects to human health and to the environment that may arise from the cultivation, production and consumption of GMOs. Notably, Tuscany banned the cultivation and production of GMOs species and required foodstuffs containing GMOs to be labelled.<sup>81</sup> Supply of products containing GMOs was prohibited in regional schools and hospitals and the Regional Council was required to develop food educational programmes and promote information campaigns.<sup>82</sup> The Regional Agency for the Development of the Agricultural and Forestry Sector (ARSIA) is entrusted with surveillance functions and the Law establishes penalties to be applied in case of infringement.<sup>83</sup>

*Regional Law No. 64/2004* integrated the scientific aims of the previous law with economic and social goals. Within the network it is possible to exchange limited quantities of propagation material and to market limited quantities of seeds not currently commercialised.

### *Object, purpose, institutions, legal principles*

Seed biodiversity is seen as necessary for the survival of species and the safeguarding of rural heritage. The protection of agricultural biodiversity in Tuscany takes an integrated view, taking economic, scientific and social, as well as environmental, concerns into account. More concretely the aim is to promote and protect local breeds and varieties, to promote the notion of farmers having access to and sharing local seeds, to protect rights of farmers and to valorise locally based agriculture. One of the main ideas behind this law is that of collective heritage, declaring that breeds and varieties should not be patented. The subjects of the law are small farmers, special “custodian” farmers, local community groups and individuals, citizens and consumers.

The first stage in protection is the identification of the resource (characterisation, on site-survey, assessment), then conservation (on farm and *ex situ*), then enhancement or promotion of the breeds and the guarantee of collective use of local breeds (local projects, branding, information). Measures to reach these goals include the establishment of germplasm banks, the nomination of “custodian” farmers, the development of grower networks, the promotion of a regional brand for marketing, community fora for engagement and the forging of research and development links.

The International Commission on the Future of Food and Agriculture was created in 2003 seeks to shape a new future of food in which small farmers’ livelihoods are economically and culturally vibrant and ecologically resilient.

#### *Analysis and lessons learned*

This law seeks to foster the notion that regional varieties and local knowledge are a collective right. The idea of collective ownership is not known in every European country, rather Italy and Spain are the main users of the concept and there are some remnants in France, Switzerland, Belgium and the Netherlands. In many other parts of the globe like Africa, the notion of collective rights still exists. Accordingly, the policy could be transferred into countries and regions with similar notions of collective ownership in the future, allowing small farmers to have more control in the conservation of particular “un-commercial” seeds and varieties and to share their knowledge and a limited amount of seeds and varieties. Although small farmers are marginalised in many areas by the rules of conventional food systems, this has been a tool of empowerment which helps them compete in the local and global marketplace.

Tuscany was a pioneer in introducing such a law and it has since been followed in other regions in Italy. It has resulted in an integrated and comprehensive system covering aspects ranging from research and development to conservation to marketing. Hundreds of breeds have been registered on the regional register and are being protected both *in-* and *ex-situ*. The law is a good example of how local and regional governments can take responsible and concerted action to protect seed diversity.

## Conclusions

The Convention on Biological Diversity and its Protocols provide a mandate for countries to develop laws and policies on the conservation and sustainable use of biodiversity, access and benefit sharing relating to genetic resources, the use of traditional knowledge relating to genetic resources, and biosafety. Countries have encountered some success and many obstacles in fully implementing its terms. This is mainly due to the complexity of implementing the Convention's terms in a clear and coherent fashion that functions alongside other existing laws and policies.

The cases included national, regional and sectoral approaches to implementation. The case studies identified a number of different approaches to the conservation of biodiversity, sustainable use of its components and ABS. Some countries, like Costa Rica, Japan, Norway and South Africa have adopted a comprehensive law that aims to address all three of the objectives of the CBD. Other countries, such as Bhutan, have a more fragmented approach that subsumes conservation and sustainable use into a broader environmental protection framework, addresses ABS in separate legislation, and provides a constitutional foundation for nature conservation. Australia, Namibia and Rwanda have found success through the implementation of biodiversity conservation and sustainable use through sectoral policies, while the Region of Tuscany has demonstrated how sub-national entities can also play an important, if not leading, role in the implementation of the terms of the CBD.

## ENDNOTES

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- <sup>1</sup> Environmental Performance Index 2010, Online: <http://epi.yale.edu/>.
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- <sup>3</sup> Jorge Cabrera Medaglia and Olivier Rukundo.
- <sup>4</sup> *Supra* 2, at Article 1.
- <sup>5</sup> *Ibid.* at Articles 8-11.
- <sup>6</sup> Solís Rivera, Vivienne; Madrigal Cordero, Patricia, *Costa Rica's biodiversity law: sharing the process*. *Journal of International Wildlife Law & Policy*, Volume 2, No. 2 (1999) pp. 259-265, p. 2. Online: <http://www.jiwlw.com/contents/CRarticle.PDF>.
- <sup>7</sup> *Supra* 2, at Article 13.
- <sup>8</sup> *Ibid.* at Articles 22 to 43.
- <sup>9</sup> *Ibid.* at Articles 44 to 48. Includes biosafety and exotic species.
- <sup>10</sup> *Ibid.* at Articles 49 to 61.
- <sup>11</sup> *Ibid.* at Articles 62 to 76.
- <sup>12</sup> *Ibid.* at Articles 77 to 85.
- <sup>13</sup> *Ibid.* at Articles 86 to 91.
- <sup>14</sup> *Ibid.* at Articles 92 to 97.
- <sup>15</sup> *Ibid.* at Articles 98 to 104.
- <sup>16</sup> *Ibid.* at Articles 105 to 113.
- <sup>17</sup> *Ibid.* at Article 15.
- <sup>18</sup> *Ley N° 7554 - Ley Orgánica del Ambiente*, Online: <http://www.ccad.ws/documentos/legislacion/CR/L-7554.pdf>.
- <sup>19</sup> *Código Civil De Costa Rica*, Online: [http://www.casadelosriscos.com/documentos/codigo\\_civil\\_costa\\_rica.pdf](http://www.casadelosriscos.com/documentos/codigo_civil_costa_rica.pdf).
- <sup>20</sup> *Costa Rica Biodiversity Law*, Articles 62 and 69.
- <sup>21</sup> However, this consultation process has been diminished by a regulation to the article 80, enacted as part of the implementation package of the CAFTA-DR Free Trade Agreement.
- <sup>22</sup> *Costa Rica Biodiversity Law*, Article 112.
- <sup>23</sup> Norway, *Act of 19 June 2009 No. 100 relating to the management of biological, geological and landscape diversity* (Nature Diversity Act).
- <sup>24</sup> Nature Diversity Act art. 1.
- <sup>25</sup> Section 3(c) and (i).
- <sup>26</sup> Section 3(j).
- <sup>27</sup> Section 3(r).
- <sup>28</sup> *Ibid.* at s. 22-24, 26.
- <sup>29</sup> *Ibid.* at s. 33.
- <sup>30</sup> *Ibid.* at s. 43.
- <sup>31</sup> See Norway's national report on the Implementation of the Convention on Biological Diversity, page 51 legal resources.
- <sup>32</sup> Act of 2 April 1993 No. 38 Relating to the Production and Use of Genetically Modified Organisms, etc. (*Gene Technology Act*) (1993, Norway). Online: < <http://www.regjeringen.no/en/doc/Laws/Acts/gene-technology-act.html?id=173031>>.
- <sup>33</sup> See Norway's national report on the Implementation of the Convention on Biological Diversity, page 51 legal resources. See also Nordic Ministerial Council 'declaration of 2003 concerning access and rights to genetic resources'.
- <sup>34</sup> Section 3.
- <sup>35</sup> Section 57.
- <sup>36</sup> Section 57.
- <sup>37</sup> S. 58.
- <sup>38</sup> S. 59.
- <sup>39</sup> S. 60.
- <sup>40</sup> *Act of 6 June 2008 no. 37 relating to the management of wild living marine resources (Marine Resources Act)* (2008, Norway). Online: Directorate of Fisheries, Norway < <http://www.fiskeridir.no/english/fisheries/regulations/acts/the-marine-resources-act>>.
- <sup>41</sup> Norway submission to WIPO.
- <sup>42</sup> Barber, Charles, et al., *User Measures: Options for Developing Measures in User Countries to Implement the Access and Benefit Sharing Provisions of the Convention on Biological Diversity*, UNU/IAS, Japan, 2003.
- <sup>43</sup> For more information, see the *Satoyama Initiative* Website at <http://satoyama-initiative.org>.
- <sup>44</sup> The Basic Act on Biodiversity 2008.
- <sup>45</sup> OECD, Environmental Performance Review: Japan 2010.
- <sup>46</sup> *Ibid.* at Article 3.

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- <sup>47</sup> “Cabinet Decision on the 4<sup>th</sup> National Biodiversity Strategy of Japan”, 30 April 2010. Online: Ministry of the Environment, Government of Japan < <http://www.env.go.jp/en/focus/100430.html>>.
- <sup>48</sup> Act on the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organisms (Act No. 97 of 2003), Online: <http://www.bch.biodic.go.jp/english/law.html>.
- <sup>49</sup> Ibid. at Article 1.
- <sup>50</sup> Online: [http://www.bch.biodic.go.jp/download/en\\_law/en\\_basic\\_matter.doc](http://www.bch.biodic.go.jp/download/en_law/en_basic_matter.doc).
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- <sup>52</sup> *The Constitution of the Kingdom of Bhutan*, 2008. Online: <http://www.constitution.bt>.
- <sup>53</sup> *National Environment Protection Act, 2007* (21 June 2007, Bhutan).
- <sup>54</sup> *Biodiversity Act of Bhutan, 2003* (2003, Bhutan).
- <sup>55</sup> NEPA, Art. 3.
- <sup>56</sup> Karma Ura, “Explanation of GNH Index”, 2008. Online: <http://grossnationalhappiness.com/gnhIndex/introductionGNH.aspx>.
- <sup>57</sup> Secretariat of the Convention on Biological Diversity, Biodiversity, Development and Poverty Alleviation, (Montreal, 2010); See also <http://www.grossnationalhappiness.com>.
- <sup>58</sup> Royal Government of Bhutan – National Environment Commission (2009). IV National Report to the Convention on Biological Biodiversity, pp. 41, 42. Online: <http://www.cbd.int/countries/?country=bt>.
- <sup>59</sup> UNDP, “Bhutan Energy, Environment & Disaster Management”. Online: <http://www.undp.org.bt/environment.htm>.
- <sup>60</sup> FAO, *Global Forest Resources Assessment 2010 – Main Report, FAO Forestry Paper 163* (FAO: Rome, 2010) at pp. 225, 230. Online: <http://www.fao.org/docrep/013/i1757e/i1757e00.htm>.
- <sup>61</sup> *National Environmental Management Biodiversity Act* [No. 10 of 2004] (7 June 2004, South Africa). Online: <http://www.info.gov.za/acts/2004/a10-04/index.html>.
- <sup>62</sup> *Genetically Modified Organisms Act* [No. 15 of 1997] (23 May 1997, South Africa). Online: South African Government Information < <http://www.info.gov.za/acts/1997/act15.htm>>.
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- <sup>64</sup> “Overview of GMO Regulatory Regime in South Africa” Online: <http://www.biosafetyafrica.org.za/index.php/Policy-Legislation-GMO-s/menu-id-100026.html>.
- <sup>65</sup> *National Environmental Management Biodiversity Act* at s. 80.
- <sup>66</sup> “stakeholder” means — (a) a person, an organ of state or a community contemplated in section 82(1)(a); or (b) an indigenous community contemplated in section 82(1)(b).
- <sup>67</sup> Section 82(4)(b) and (4)(c).
- <sup>68</sup> Australian Government - Great Barrier Reef Marine Park Authority, *Great Barrier Reef Outlook Report 2009*. Online: [http://www.gbrmpa.gov.au/corp\\_site/about\\_us/great\\_barrier\\_reef\\_outlook\\_report](http://www.gbrmpa.gov.au/corp_site/about_us/great_barrier_reef_outlook_report); Australian Government - Great Barrier Reef Marine Park Authority, *GBRMP Zoning Plan 2003*, Online: [http://www.gbrmpa.gov.au/data/assets/pdf\\_file/0015/3390/GBRMPA-zoning-plan-2003.pdf](http://www.gbrmpa.gov.au/data/assets/pdf_file/0015/3390/GBRMPA-zoning-plan-2003.pdf); Boer, Ben, Gruber, Stefan: *Legal Framework on Protected Areas: Australia*, Draft Case Study for the IUCN Environmental Law Centre (Bonn 2010); Hawke, Allan - *The Australian Environment Act: Report of the Independent review of the Environment Protection and Biodiversity Conservation Act, 1999* (Department of Environment, Water, Heritage and the Arts, October 2009), Online: <http://www.environment.gov.au/epbc/review/publications/pubs/final-report.pdf>.
- <sup>69</sup> *Environment Protection and Biodiversity Conservation Act* [Act No. 91 of 1999 as amended]. Online: <http://www.comlaw.gov.au/Details/C2010C00403>.
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- <sup>72</sup> *Marine Resource Act 2000* [Act 27 of 2000]. Online: <http://www.saflii.org/na/other/NAGovGaz/2000/205.pdf>.

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- <sup>73</sup> Rwanda Environment Management Authority and Ministry of Natural Resources (2009). *Republic of Rwanda: Fourth National Report to the Convention on Biological Diversity* at 7 and 15. Online: <http://www.cbd.int/doc/world/rw/rw-nr-04-en.pdf>.
- <sup>74</sup> Republic of Rwanda, Ministry of Lands, Environment, Forestry, Water and Mines, *National Forestry Policy* (2004) at 1; Republic of Rwanda, Ministry of Forestry and Mines, *National Forestry Policy* (2010) at 7.
- <sup>75</sup> Republic of Rwanda, Ministry of Lands, Environment, Forestry, Water and Mines. *National Forestry Policy* (2004) at 19.
- <sup>76</sup> *Ibid.* at 19 – 22.
- <sup>77</sup> *Ibid.* at 19 – 22.
- <sup>78</sup> *Ibid.*, pp. 16 – 18.
- <sup>79</sup> Republic of Rwanda, Ministry of Forestry and Mines, *National Forestry Policy* (2010) at 1.
- <sup>80</sup> This section is based on: Mammunccini, Maria Grazia, *Tuscan Region: The Regional law on protection and enhancement of local varieties*, 3rd International Conference on GMO Free Regions, Biodiversity and Rural Development, 2007; The International Commission on the Future of Food and Agriculture, *Manifesto on the Future of Food*, 2006. Online: [http://www.arsia.toscana.it/petizione/documents/cibo/cibo\\_ing.pdf](http://www.arsia.toscana.it/petizione/documents/cibo/cibo_ing.pdf); International Commission on the Future of Food and Agriculture, *Manifesto on the Future of Seeds*, 2006. Online: [http://www.arsia.toscana.it/petizione/documents/semi/futurosemi\\_eng.pdf](http://www.arsia.toscana.it/petizione/documents/semi/futurosemi_eng.pdf); Corrado A., *Lotte comuni e beni locali. Il controllo della biodiversità per l'autonomia contadina*, Atti del VI Convegno dei Sociologi dell'Ambiente, Palermo (forthcoming), 2008; Migliorini, Paola, *Development of Organic farming in protected areas of Tuscany*, International Federation of Organic Agriculture Movements, The 16<sup>th</sup> World Congress “Cultivate the Future” (Modena, 2008) Online: [http://www.ifoam.org/events/ifoam\\_conferences/owc/modules/abstracts\\_pdfs/migliorini\\_abs\\_OARWN.pdf](http://www.ifoam.org/events/ifoam_conferences/owc/modules/abstracts_pdfs/migliorini_abs_OARWN.pdf); GRAIN, *Whose harvest? The politics of organic seed certification* (January 2008). Online: <http://www.grain.org/article/entries/141-whose-harvest-the-politics-of-organic-seed-certification>.
- <sup>81</sup> Tuscany, Regional Act 53 of 2000 Arts. 2 and 3. Labeling requirements established by Council Regulation 1139/98/EC
- <sup>82</sup> *Ibid.* at Arts. 4 -5.
- <sup>83</sup> *Ibid.* at Art 6.