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# USING UGANDA AS A MODEL FOR REGULATING ACCESS TO AND BENEFIT-SHARING OF BIOLOGICAL RESOURCES AND TRADITIONAL KNOWLEDGE IN THE UNITED REPUBLIC OF TANZANIA

Christina Morgan\*

## ABSTRACT

*Exploitation of biological resources and corresponding traditional knowledge in African countries is prevalent. While the Nagoya Protocol requires Contracting Parties, including Uganda and the United Republic of Tanzania, to regulate access to and benefit-sharing of biological resources and traditional knowledge, the sectoral mechanisms in place in the United Republic of Tanzania do not comply with the Nagoya Protocol's requirements and should be supplemented by a standalone legal mechanism that regulates access and benefit-sharing. Because the African Model Legislation does not fully comply with the access and benefit-sharing requirements of the Nagoya Protocol, implementing a standalone legal mechanism based on this model is inadequate. However, Uganda's access and benefit-sharing regulations comply with the Nagoya Protocol in two important ways the African Model Legislation does not. This Note advocates for the government of the United Republic of Tanzania to implement national regulations based on Uganda's access and benefit-sharing regulations, rather than the African Model Legislation, in order to comply with the requirements of the Nagoya Protocol.*

## I. INTRODUCTION

For over 20,000 years, the San people have lived in a region of southern Africa that includes Botswana, Namibia, South Africa, and Angola.<sup>1</sup> Groups of the San people traditionally have eaten parts of the hoodia plant as an appetite suppressant while on hunting trips in the Kalahari Desert.<sup>2</sup> In 1995, the South African Council for Scientific and Industrial Research (SACSIR) filed a patent application for use of the appetite-suppressing components of the hoodia plant, and, in 1998, SACSIR licensed the patent to a United Kingdom corporation, Phytopharm, which began developing those components for future sale as a weight-loss product.<sup>3</sup> Neither SAC-

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\* J.D. 2022, The George Washington University Law School; B.S. 2016, The University of Michigan.

1. DANIEL F. ROBINSON, CONFRONTING BIOPIRACY: CHALLENGES, CASES AND INTERNATIONAL DEBATES 61 (2010).

2. *Id.*

3. *Id.*

SIR nor Phytopharm obtained informed consent from the San people prior to accessing and using components of the hoodia plant, nor did they establish a system for sharing with the San people the monetary benefits arising from such use.<sup>4</sup>

This patenting of the hoodia plant components illustrates the global struggle surrounding the world's biological resources and corresponding traditional knowledge. The term "biological resources" includes "genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity."<sup>5</sup> The variability of these resources, also known as "biological diversity,"<sup>6</sup> is important to the development of pharmaceuticals and also serves as the basis for natural and directed evolution in plant species, which is necessary for sustainable agricultural production and food supplies.<sup>7</sup> In order to ensure conservation and sustainable use of biological resources, regulated access as well as fair and equitable "benefit-sharing"—the sharing of benefits arising from the use, application, and commercialization of biological resources with the community providing such resources<sup>8</sup>—is essential. This is particularly true in African nations, including Uganda and the United Republic of Tanzania, as local and global populations depend greatly on these nations' respective biological resources and traditional knowledge.<sup>9</sup> While there is no universal definition of "traditional knowledge," the term is widely understood as:

[k]nowledge developed over time; [t]ransmitted from generation to generation; [t]ypically, transmitted orally; [t]ypically col-

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4. *Id.* at 61-62. Following criticism by international non-government organizations and indigenous organizations, in 2003, the South African Council for Scientific and Industrial Research (SACSIR) established a "San Hoodia Benefit-Sharing Trust," and, as recently as 2010, was making milestone payments. However, due to the publicity surrounding the hoodia plant, small companies began selling it as a supplement or drug without obtaining consent from or providing compensation to the San people. *Id.* at 62.

5. Convention on Biological Diversity, art. 2, *entered into force* Dec. 29, 1993, 1760 U.N.T.S. 79.

6. *Id.*

7. INT'L TECH. CONF. ON PLANT GENETIC RES., GLOBAL PLAN OF ACTION FOR THE CONSERVATION AND SUSTAINABLE UTILIZATION OF PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE AND THE LEIPZIG DECLARATION 7, <http://www.fao.org/3/aj631e/aj631e.pdf> [<https://perma.cc/U9RC-WM35>].

8. SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY, U.N. ENV'T PROGRAMME, NAGOYA PROTOCOL ON ACCESS TO GENETIC RESOURCES AND THE FAIR AND EQUITABLE SHARING OF BENEFITS ARISING FROM THEIR UTILIZATION TO THE CONVENTION ON BIOLOGICAL DIVERSITY: TEXT AND ANNEX art. 5, (2011), <https://www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf> [<https://perma.cc/RSY5-GQZV>] [hereinafter NAGOYA PROTOCOL].

9. See discussion *infra* Section II.B.1.

lectively held and owned; [t]ypically of a practical nature and relating to natural resources . . . ; [e]mbedded in customs, language, local practices and cultural heritage . . . ; [o]ften linked to, or taking the form of, stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language and agricultural practices.<sup>10</sup>

The United Republic of Tanzania has no standalone legal mechanism for regulating access to and benefit-sharing of biological resources and traditional knowledge.<sup>11</sup> In developing such a legal mechanism, the United Republic of Tanzania should model its national regulations after Uganda's access and benefit-sharing regulations. Part II of this Note surveys the various international treaties regarding access to and benefit-sharing of biological resources and traditional knowledge and highlights the Nagoya Protocol's access and benefit-sharing requirements. Part II also discusses the importance of biological resources to African nations and identifies instances of exploitation before examining the national efforts of Uganda and the United Republic of Tanzania to regulate access to and benefit-sharing of biological resources and traditional knowledge in compliance with the Nagoya Protocol. Part III analyzes the ways in which the United Republic of Tanzania's sectoral approach to protecting biological resources and traditional knowledge fails to satisfy the Nagoya Protocol's access and benefit-sharing mandates. Part III then identifies the ways in which a standalone legal mechanism based on the African Model Legislation would also fail to satisfy these mandates. Part III goes on to discuss how Uganda's access and benefit-sharing regulations comply with the Nagoya Protocol in two important ways a standalone legal mechanism based on the African Model Legislation would not. Following this analysis, Part III discusses agricultural similarities between Uganda and the United Republic of Tanzania and proposes that the United Republic of Tanzania develop national regulations based on Uganda's access and benefit-sharing regulations, rather than the African Model Legislation, in order to comply with the Nagoya Protocol.

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10. ROBINSON, *supra* note 1, at 18-19.

11. See discussion *infra* Section II.B.2.c.

## II. BACKGROUND

### A. *International Agreements Regarding Access to and Benefit-Sharing of Biological Resources*

Due to global dependence on biological resources, several international treaties attempt to conserve biological resources by regulating access to and benefit-sharing of such resources and corresponding traditional knowledge.

#### 1. Convention on Biological Diversity

The Convention on Biological Diversity (CBD) was the first international agreement related to biological diversity.<sup>12</sup> Perceiving a growing threat posed by human activities, the United Nations Environment Programme (UNEP)<sup>13</sup> convened the Ad Hoc Working Group of Technical and Legal Experts to develop an international legal mechanism to promote conservation and sustainable use of biological diversity.<sup>14</sup> A fundamental objective of the CBD, in addition to conservation and sustainable use, is “the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.”<sup>15</sup>

A number of the CBD's articles attempt to fulfill the objective of fair and equitable benefit-sharing.<sup>16</sup> The CBD recognizes the sovereignty of states' rights over their genetic resources, and accessing genetic resources requires the informed consent of the Contracting Party that provided such resources.<sup>17</sup> In addition, the CBD requires that each Contracting Party take measures to share, in a fair and equitable way, the benefits of research and commercial use of genetic resources with the Contracting Party that provided such resources.<sup>18</sup> With respect to local communities, the CBD requires each Contracting Party to “respect, preserve, and maintain knowledge, innovations and practices of indigenous and local communities” and “promote their wider application with the approval and involvement of the holder of such knowledge, innovations and

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12. See *History of the Convention*, CONVENTION ON BIOLOGICAL DIVERSITY, <https://www.cbd.int/history/> [<https://perma.cc/HQ9N-2YCN>].

13. The United Nations Environment Programme (UNEP) is the global authority that sets and promotes implementation of the global environmental agenda. *About UN Environment Programme*, U.N. ENV'T PROGRAMME, <https://www.unep.org/about-un-environment> [<https://perma.cc/RMY5-SRB6>].

14. *History of the Convention*, *supra* note 12.

15. Convention on Biological Diversity, *supra* note 5, art. 1.

16. See *id.*

17. *Id.* art. 15, ¶ 1.

18. *Id.* art. 15, ¶ 2.

practices.”<sup>19</sup> In addition, it requires each Contracting Party to “[p]rotect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements” and “[s]upport local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced.”<sup>20</sup> The CBD entered into force on December 29, 1993,<sup>21</sup> and has 196 Contracting Parties, including Uganda and the United Republic of Tanzania.<sup>22</sup>

## 2. Trade-Related Aspects of Intellectual Property Rights Agreement

The world’s trade system has developed to provide for the protection of biological diversity. Beginning in September 1986, the ministers of the General Agreement on Tariffs and Trade (GATT), which provides general rules for the world’s trade system,<sup>23</sup> launched the Uruguay Round negotiations to review existing GATT articles and extend the world’s trade system into new areas including intellectual property.<sup>24</sup> The resulting Trade-Related Aspects of Intellectual Property Rights Agreement (TRIPS Agreement)<sup>25</sup> expressly mandates that World Trade Organization (WTO)<sup>26</sup> members “provide for the protection of plant varieties” by (1) patents; (2) an effective *sui generis*, or special protection,<sup>27</sup>

19. *Id.* art. 8(j).

20. *Id.* art. 10(e), (d).

21. *History of the Convention*, *supra* note 12.

22. See *List of Parties*, CONVENTION ON BIOLOGICAL DIVERSITY, <https://www.cbd.int/information/parties.shtml> [<https://perma.cc/5R3V-E6SQ>].

23. *The GATT Years: From Havana to Marrakesh*, WORLD TRADE ORG., [https://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/fact4\\_e.htm](https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact4_e.htm) [<https://perma.cc/UM2G-5QM>].

24. *The Uruguay Round*, WORLD TRADE ORG., [https://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/fact5\\_e.htm](https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact5_e.htm) [<https://perma.cc/7V66-WVML>].

25. The Uruguay Round negotiations culminated in the Marrakesh Agreement Establishing the World Trade Organization (Marrakesh Agreement). See *id.* Annex 1C of the Marrakesh Agreement contains the TRIPS Agreement. *Agreement on Trade-Related Aspects of Intellectual Property Rights (Unamended)*, WORLD TRADE ORG., [https://www.wto.org/english/docs\\_e/legal\\_e/27-trips\\_01\\_e.htm](https://www.wto.org/english/docs_e/legal_e/27-trips_01_e.htm) [<https://perma.cc/J4CW-EQ45>].

26. The World Trade Organization (WTO) is a global organization that operates a global system of trade rules, acts as a forum for negotiating trade agreements, and settles trade disputes between members. *The WTO*, WORLD TRADE ORG., [https://www.wto.org/english/thewto\\_e/thewto\\_e.htm](https://www.wto.org/english/thewto_e/thewto_e.htm) [<https://perma.cc/AKV8-WWTF>].

27. *Proceedings of the Workshop for Developing Principles for Sui Generis, National Policies and Legislation for Intellectual [sic] Property Protection that Emphasise Community, Farmers and Breeders Rights*, FOOD & AGRIC. ORG. OF THE U.N. 1, 21 (2000), [http://www.fao.org/fileadmin/templates/esw/esw\\_new/documents/Links/Publications\\_Zimbabwe/6\\_Proceedings\\_Nyanga.pdf](http://www.fao.org/fileadmin/templates/esw/esw_new/documents/Links/Publications_Zimbabwe/6_Proceedings_Nyanga.pdf) [<https://perma.cc/K6LV-HJG9>] [hereinafter *Nyanga Proceedings*].

system; or (3) any combination of the two.<sup>28</sup> As of 2016, there were 164 WTO member States, including Uganda and the United Republic of Tanzania, bound by the TRIPS Agreement.<sup>29</sup>

### 3. International Treaty on Plant and Genetic Resources for Food and Agriculture

The International Treaty on Plant and Genetic Resources for Food and Agriculture (International Treaty) was developed to provide specifically for conservation and sustainable use of genetic resources for food and agriculture (GRFAs).<sup>30</sup> An important innovation of the International Treaty is the Multilateral System.<sup>31</sup> The Multilateral System provides those within the ratifying nations with access to 64 listed GRFAs<sup>32</sup> “solely for the purpose of utilization and conservation for research, breeding and training for food and agriculture.”<sup>33</sup> The International Treaty provides for fair and equitable benefit-sharing of GRFAs accessed through the Multilateral System. Specifically, it states the “benefits arising from the use, including commercial, of [GRFAs] under the Multilateral System shall be shared fairly and equitably” through any of four mechanisms: (1) “the exchange of information;” (2) “access to and transfer of technology;” (3) “capacity-building;” and (4) “the sharing of the benefits arising from commercialization.”<sup>34</sup> The International Treaty entered into force on June 29, 2004<sup>35</sup> and has 148 Contracting Parties, including Uganda and the United Republic of Tanzania.<sup>36</sup>

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28. Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Agreement on Trade-Related Aspects of Intellectual Property Rights art. 27, Apr. 15, 1994, 1869 U.N.T.S. 3.

29. *Members and Observers*, WORLD TRADE ORG., [https://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/org6\\_e.htm](https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm) [<https://perma.cc/T52D-XG7W>].

30. *Commission on Genetic Resources for Food and Agriculture – History*, FOOD & AGRIC. ORG. OF THE U.N., <http://www.fao.org/cgrfa/overview/history/en/> [<https://perma.cc/U9UA-68A4>].

31. See International Treaty on Plant Genetic Resources for Food and Agriculture art. 10, Nov. 3, 2001, 2400 U.N.T.S. 303 [hereinafter International Treaty].

32. The GRFAs included in the Multilateral System are listed in Annex I of the International Treaty. *Id.* at Annex I.

33. *Id.* art. 12.

34. *Id.* art. 13.

35. *International Treaty on Plant Genetic Resources for Food and Agriculture – About Us*, FOOD & AGRIC. ORG. OF THE U.N., <http://www.fao.org/plant-treaty/overview/en/> [<https://perma.cc/2UKY-L3L9>].

36. *International Treaty on Plant Genetic Resources for Food and Agriculture – List of Contracting Parties*, FOOD & AGRIC. ORG. OF THE U.N., <http://www.fao.org/plant-treaty/countries/membership/en/> [<https://perma.cc/7QB8-K99W>].

#### 4. Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (Nagoya Protocol) was adopted to implement the access to and benefit-sharing provisions of the CBD.<sup>37</sup> It strengthens requirements for access to and benefit-sharing of genetic resources and traditional knowledge and further refines the CBD's requirement that Contracting Parties promote the involvement of holders of traditional knowledge in the utilization of such knowledge.<sup>38</sup>

First, the Nagoya Protocol strengthens requirements for access to genetic resources and traditional knowledge. Specifically, the Nagoya Protocol requires each Contracting Party to take measures aimed at "ensuring that the prior informed consent or approval and involvement of indigenous and local communities is obtained for access to genetic resources."<sup>39</sup> In addition, the Nagoya Protocol requires each Contracting Party to take measures aimed at "ensuring that traditional knowledge associated with genetic resources that is held by indigenous and local communities is accessed with the prior and informed consent or approval and involvement of these indigenous and local communities, and that mutually agreed terms have been established."<sup>40</sup>

Second, the Nagoya Protocol strengthens requirements for benefit-sharing of genetic resources and traditional knowledge. Specifically, the Nagoya Protocol requires each Contracting Party to implement laws or policies aimed at "ensuring the benefits arising from the utilization of genetic resources that are held by indigenous and local communities . . . are shared in a fair and equitable way with the communities concerned," and specifies that the benefits may be monetary and non-monetary.<sup>41</sup> Further, the Nagoya Protocol identifies three mechanisms for ensuring protection of fair and equitable benefit-sharing of traditional knowledge and requires Contracting Parties to support their development.<sup>42</sup> These mechanisms include: (1) community protocols for access to and benefit-sharing of traditional knowledge; (2) minimum

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37. NAGOYA PROTOCOL, *supra* note 8, at 1.

38. *See* Convention on Biological Diversity, *supra* note 5, art. 8(j).

39. NAGOYA PROTOCOL, *supra* note 8, art. 6.

40. *Id.* art. 7.

41. *Id.* art. 5.

42. *Id.* art. 12.



requirements for mutually agreed upon terms related to benefit-sharing of traditional knowledge; and (3) model contractual clauses related to benefit-sharing of traditional knowledge.<sup>43</sup> The Nagoya Protocol entered into force on October 12, 2014, and has 132 Contracting Parties, including Uganda and the United Republic of Tanzania.<sup>44</sup>

B. *Africa's Biological Resources and Legal Mechanisms for Regulating Access and Benefit-Sharing*

African nations and the world at large depend on Africa's biological resources, but exploitation of these resources is common.<sup>45</sup> There are various legal mechanisms for regulating access to and benefit-sharing of Africa's biological resources and corresponding traditional knowledge. For example, the Organization for African Unity (OAU)<sup>46</sup> has developed a model for standalone access and benefit-sharing legislation;<sup>47</sup> Uganda has developed standalone access and benefit-sharing regulations;<sup>48</sup> and the United Republic of Tanzania implicitly addresses access and benefit-sharing in its sectoral laws and policies.<sup>49</sup>

1. Africa's Biological Resources

Agricultural activities are vital to the economies of African nations, including those of Uganda and the United Republic of Tanzania. In 2019, agricultural jobs provided approximately 50 percent of total employment in Africa, employing over 223 million people.<sup>50</sup> In Uganda, agricultural jobs provided approximately

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43. *Id.*

44. *Parties to the Nagoya Protocol*, CONVENTION ON BIOLOGICAL DIVERSITY, <https://www.cbd.int/abs/nagoya-protocol/signatories/> [<https://perma.cc/QN4R-UUF6>].

45. See discussion *infra* Part II.B.1.

46. The Organization for African Unity (OAU) was succeeded by the African Union in 2002. *About the African Union*, AFRICAN UNION, <https://au.int/en/overview> [<https://perma.cc/LF4C-UU5P>].

47. ORG. OF AFRICAN UNITY, AFRICAN MODEL LEGISLATION FOR THE PROTECTION OF THE RIGHTS OF LOCAL COMMUNITIES, FARMERS AND BREEDERS, AND FOR THE REGULATION OF ACCESS TO BIOLOGICAL RESOURCES 2 (2000), <https://www.wipo.int/edocs/lexdocs/laws/en/oau/oau001en.pdf> [<https://perma.cc/LQ7W-LSLE>] [hereinafter OAU MODEL LAW].

48. The National Environment (Access to Genetic and Benefit Sharing) Regulations 2005, SI 30/2005 (Uganda) [hereinafter Uganda ABS Regulations].

49. See THE UNITED REPUBLIC OF TANZ. VICE PRESIDENT'S OFFICE, DIV. OF ENV'T, NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN 2015-2020 55-64 (2015), <https://www.cbd.int/doc/world/tz/tz-nbsap-v2-en.pdf> [<https://perma.cc/BR7Z-R46U>].

50. FOOD & AGRIC. ORG. OF THE U.N., WORLD FOOD AND AGRICULTURE - STATISTICAL YEARBOOK 2020 105, 110 (2020), <http://www.fao.org/documents/card/en/c/cb1329en> [<https://perma.cc/3BFA-NRMF>].

72.7 percent of total employment, employing almost 12 million people.<sup>51</sup> In the United Republic of Tanzania, agricultural jobs provided approximately 65.3 percent of total employment, employing over 17 million people.<sup>52</sup> In addition, in 2018, the value added of agriculture, forestry, and fishing in Africa was just under 397 billion U.S. dollars, or 15.8 percent of Africa's total GDP.<sup>53</sup> In Uganda, the value added was 6.5 billion U.S. dollars, or 22.2 percent of Uganda's GDP.<sup>54</sup> In the United Republic of Tanzania, the value added was 15.1 billion U.S. dollars, or 25.5 percent of Tanzania's total GDP.<sup>55</sup>

Africa's agricultural activities are important to more than its own nations' economies. African nations are a primary source of the world's diversity for a number of major agricultural crops, including coffee, cottonseed oil, cowpeas, melons, millets, olives, palm oil, peas, rice, sesame, sorghum, watermelons, and yams.<sup>56</sup> In addition, while urbanization and industrialization have led to modernization in a number of scientific fields, those fields rely heavily on the availability and traditional knowledge of biological resources.<sup>57</sup> For example, a 2005 review found that "60% of the anticancer drugs and 75% of the anti-infectious disease drugs approved [by the National Institutes of Health] from 1981-2002 could be traced to natural origins."<sup>58</sup>

Despite widespread reliance on Africa's biological resources, areas of Africa have fallen victim to biopiracy. There are several definitions of "biopiracy," but the Action Group on Erosion, Technology and Concentration (ETC Group)<sup>59</sup> provides a useful one:

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51. *Id.* at 109, 114.

52. *Id.*

53. *Id.* at 70, 75.

54. *Id.* at 74, 79.

55. *Id.*

56. See COLIN K. KHOURY ET AL., THE INT'L TREATY ON PLANT GENETIC RES. FOR FOOD AND AGRIC., ESTIMATION OF COUNTRIES' INTERDEPENDENCE IN PLANT GENETIC RESOURCES PROVISIONING NATIONAL FOOD SUPPLIES AND PRODUCTION SYSTEMS 8 (2015), <http://www.fao.org/3/bq533e/bq533e.pdf> [<https://perma.cc/EMB4-GLPV>].

57. Noah Zerbe, *Biodiversity, Ownership, and Indigenous Knowledge: Exploring Legal Frameworks for Community, Farmers, and Intellectual Property Rights in Africa*, 53 *ECOLOGICAL ECON.* 493, 494 (2005).

58. Ranjan Gupta et al., *Nature's Medicines: Traditional Knowledge and Intellectual Property Management. Case Studies from the National Institutes of Health (NIH), USA*, 2 *CURRENT DRUG DISCOVERY TECH.* 203, 204 (2005) (citing David J. Newman et al., *Natural Products as Sources of New Drugs over the Period 1981-2002*, 66 *J. NAT. PRODS.* 1022, 1022 (2003)).

59. Previously called Rural Advancement Foundation International (RAFI), the Action Group on Erosion, Technology and Concentration (ETC Group) is a Canada-based non-governmental organization typically credited with coining the term "biopiracy." ROBINSON, *supra* note 1, at 14.

“Biopiracy refers to the appropriation of the knowledge and genetic resources of farming and indigenous communities by individuals or institutions who seek exclusive monopoly control (patents or intellectual property) over these resources and knowledge.”<sup>60</sup>

In addition to unauthorized and uncompensated use of components of the hoodia plant by SACSIR and Phytopharm, examples of biopiracy in Africa include American corporation Eli Lilly’s use of Madagascar’s rosy periwinkle plant in the development of two pharmaceutical drugs, one to treat Hodgkin’s disease and the other to treat leukemia.<sup>61</sup> Sales of each drug topped 100 million U.S. dollars annually in the years around 2000, but Eli Lilly never compensated the people of Madagascar for use of the rosy periwinkle plant.<sup>62</sup> Another example involves two species of the plant genus *Pelargonium*, which is native to southern Africa.<sup>63</sup> These plants were traditionally used by the Zulu, Xhosa, Basuto, and Mfengi in the treatment of a variety of ailments, including tuberculosis.<sup>64</sup> In 1897, an Englishman diagnosed with tuberculosis traveled to South Africa where he heard that a Zulu traditional doctor had expertise in treating tuberculosis with local herbs.<sup>65</sup> The doctor administered “concoctions made from the roots of the *Pelargonium* plants,” and the Englishman recovered.<sup>66</sup> The Englishman returned to England and began to make and sell a similar concoction.<sup>67</sup> Today, the Schwabe Group based in Germany uses the *Pelargonium* plants in manufacturing two homeopathic remedies, one sold in Germany as a therapy for infections and the other sold in the United States as a remedy to “shorten the duration and reduce the severity of sore throats, sinus and bronchial infections.”<sup>68</sup> The Schwabe Group has a South African partner, Perceval, which supplies raw materials harvested from its plantations and purchased from local harvesters by way of a middleman.<sup>69</sup> The local harvest-

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60. *Id.* at 18.

61. Noah Zerbe, *Contested Ownership: TRIPs, CBD, and Implications for Southern African Biodiversity*, 1 PERSP. ON GLOB. DEV. & TECH. 294, 313 (2002).

62. *Id.*

63. MARCELIN TONYE MAHOP, *INTELLECTUAL PROPERTY, COMMUNITY RIGHTS AND HUMAN RIGHTS: THE BIOLOGICAL AND GENETIC RESOURCES OF DEVELOPING COUNTRIES* 93 (2010).

64. *Id.*

65. *Id.*

66. *Id.*

67. *Id.*

68. *Id.* at 94–95.

69. *Id.* at 95.

ers receive between 0.42 and 2.09 U.S. dollars per kilogram of dried roots, while the middlemen receive approximately 139 U.S. dollars per kilogram of dried roots.<sup>70</sup> In addition, the harvesting methods “do not allow regrowth of the plants,” which caused the South African government to “issue a moratorium over wild harvesting of the plants.”<sup>71</sup> These instances of biopiracy illustrate the importance of compliance with the Nagoya’s Protocol’s access and benefit-sharing requirements, particularly in African countries.

2. Legal Mechanisms for Regulating Access to and Benefit-Sharing of Biological Resources
  - a. Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources

In an attempt to comply with the TRIPS Agreement’s mandate to provide for the protection of plant varieties by patents or a *sui generis* system while protecting the rights of local communities and meeting benefit-sharing objectives, the OAU developed a model law, The Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources (African Model Legislation), upon which African nations could base national *sui generis* systems for protecting biological resources.<sup>72</sup> Under the African Model Legislation, access to biological resources and traditional knowledge of local communities requires prior informed consent of the national entity authorized to oversee implementation of the legislation and concerned local communities.<sup>73</sup> Concerned local communities can refuse to grant prior informed consent to the access to biological resources and traditional knowledge if such access would be “detrimental to the integrity of their natural or cultural heritage.”<sup>74</sup> In addition, access requires a permit, granted through a signed written agreement between the relevant national entity, the concerned local communities, and the collector.<sup>75</sup> The African Model Legislation also prohibits patents on life forms and biological processes and, thus, prevents any collector from applying for

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70. *Id.*

71. *Id.*

72. See Zerbe, *supra* note 57, at 494–95.

73. OAU MODEL LAW, *supra* note 47, at 5.

74. *Id.* at 10.

75. *Id.* at 6.

such a patent.<sup>76</sup> Finally, the African Model Legislation provides monetary benefit-sharing requirements. Specifically, the access permit is subject to payment of a fee, and concerned local communities are entitled to at least fifty percent of the earnings generated by use in a production process of collected biological resources, knowledge, or technologies.<sup>77</sup> While it recognizes this entitlement, the African Model Legislation does not provide a mechanism for ensuring its fulfillment.<sup>78</sup>

Following development of the African Model Legislation, states in the Southern African Development Community (SADC)<sup>79</sup> developed the Guidelines on *sui generis* Policy and Legislation on Community, Farmers and Breeders Rights to provide further guidance for African nations using the African Model Legislation as a model for developing national *sui generis* systems for protecting genetic resources.<sup>80</sup> First, the guidelines recognize that national legislation needs to elaborate on the African Model Legislation's elements of providing and receiving access and benefit-sharing and suggests measures to be employed by receiving parties to ensure prior informed consent.<sup>81</sup> Second, the guidelines recognize that any national legislation should provide for inclusion of more of the following elements in access and benefit-sharing arrangements: (1) "providing monetary benefits through fees for shipment of samples;" (2) "reporting on results of future research involving the genetic resources royalties on profits from future products;" (3) "providing technology transfer, training or agreeing to joint research to the providing institutions;" (4) "agreeing to cite or acknowledge sources of genetic resources that . . . contribute to research findings, including products and inventions;" and (5) "providing benefits to local communities."<sup>82</sup> Finally, the guidelines propose a "Community Biodiversity Register" to "identify [local] communities through documentation of their ecological, demo-

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76. *Id.* at 7.

77. *Id.* at 8, 10.

78. *See generally* OAU MODEL LAW, *supra* note 47 (discussing ensuring the right to benefits absent an enforcement mechanism).

79. The Southern African Development Community (SADC) is an inter-governmental organization that strives to achieve development, economic growth, peace, and security to the peoples of southern Africa. *SADC Overview*, SOUTHERN AFR. DEV. COMMUNITY, <https://www.sadc.int/about-sadc/overview/> [<https://perma.cc/Q2DZ-M69E>].

80. *See Nyanga Proceedings*, *supra* note 27, at v.

81. *See id.* § 4.4.2.

82. *Id.* § 4.4.4.

graphic [and] micro-territorial boundaries, cultural resources and social systems.”<sup>83</sup>

The guidelines conclude by articulating four possible approaches for developing national *sui generis* systems for the protection of genetic resources.<sup>84</sup> The experimental approach involves enacting “less comprehensive but more flexible” legislation as soon as possible while looking to enact more comprehensive legislation in the future.<sup>85</sup> This approach was adopted by the Philippines when the president issued an Executive Order regulating access to genetic resources in 1995.<sup>86</sup> The sectoral law amendment approach involves amending “existing sectoral laws on, for example, wildlife and national parks, forestry and fisheries” to include provisions on access to and benefit-sharing of genetic resources.<sup>87</sup> This approach was adopted by Nigeria, which worked to amend its law on national parks.<sup>88</sup> The gradualist approach involves enacting a general law or policy followed by more detailed legislation.<sup>89</sup> Finally, the contractual agreements approach involves reliance on “individual contracts between providers and collectors through ad hoc state supervision and monitoring.”<sup>90</sup>

b. Uganda’s National Environment (Access to Genetic Resources and Benefit Sharing) Regulations

Uganda has adopted what could be termed the “gradualist approach.”<sup>91</sup> In 1995, the government of Uganda adopted the National Environment Act.<sup>92</sup> The Act serves as Uganda’s general environmental management law and establishes the National Environmental Management Authority (the Authority).<sup>93</sup> In 2005, the Authority issued National Environment (Access to Genetic Resources and Benefit Sharing) Regulations to provide specifically for access to and benefit-sharing of genetic resources in Uganda.<sup>94</sup> The regulations do not apply to (1) the exchange of genetic resources among members of a local community for their own con-

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83. *Id.* § 4.5.2.

84. *See id.* § 4.8.1.

85. *Id.* § 4.8.1.1.

86. *Id.*

87. *Id.* § 4.8.1.2.

88. *Id.*

89. *Id.* § 4.8.1.3.

90. *Id.* § 4.8.1.4.

91. *See* discussion *supra* Section II.B.2.a.

92. The National Environmental Act (1995) Cap. 153 (Uganda).

93. *Id.* § 4.

94. Uganda ABS Regulations, *supra* note 48.

sumption; (2) the exchange of genetic resources “certified to be purely for food or other consumptive purposes;” (3) “the transit of genetic resources through Uganda;” (4) “access to genetic resources derived from plant breeders;” (5) “human genetic resources;” and (6) approved, non-commercial research activities “intended for educational purposes by Ugandan institutions.”<sup>95</sup>

Part III of the Act regulates access to genetic resources. The regulations define “access” as the “obtaining, possessing and using of genetic resources, their derivative products, and intangible components for purposes of research, bio-prospecting conservation, industrial application or commercial use.”<sup>96</sup> It further provides that “[n]o person shall access genetic resources from any part of Uganda unless that person has” (1) “obtained a written prior informed consent form and entered into an accessory agreement with the lead agency, local community or owner;” (2) “carried out an environmental impact assessment . . . where required;” (3) “entered into a materials transfer agreement;” and (4) “obtained an access permit from the competent authority.”<sup>97</sup>

Part IV of the Act regulates benefit-sharing of genetic resources. It lays out a number of requirements for the material transfer agreement, including provision: (1) that the collector will “not apply for a patent or other intellectual property right over the genetic resources without the consent, in writing, of the competent authority;” (2) that the collector will “pay any required fee to the government and the concerned private owners or local communities for their contribution in the generation and conservation of the genetic resources to which access is sought;” (3) that the collector will “provide for the manner of sharing of benefits arising from intellectual property rights accruing from genetic resources;” and (4) for “the participation of the citizens of Uganda for institutions located in Uganda, in research, development, management and utilization of the genetic resources accessed at all stages of access.”<sup>98</sup> The regulations go on to specifically require that “[t]he benefits accruing from the collection, modification and use of genetic resources shall be shared in accordance with the principle of fairness and equity, and on mutually agreed terms” and lists a number of benefits, monetary and non-monetary, that may be

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95. *Id.* art. 4.

96. *Id.* art. 2.

97. *Id.* art. 10.

98. *Id.* art. 15.

shared under a materials transfer agreement, including the following:

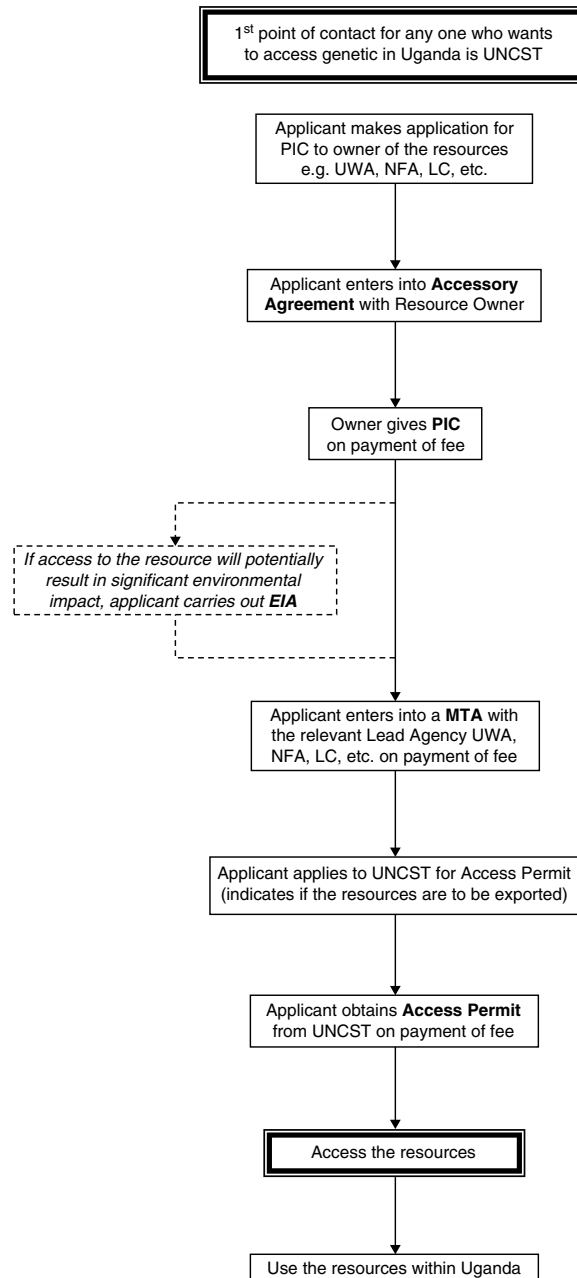
(a) participation by Ugandan citizens and institutions in scientific research and other activities involving access to genetic resources; (b) sharing of access fees and royalties, research funds, license fees and other special fees that support conservation of biodiversity; (c) payment of salaries, where mutually agreed; (d) collaboration in education and training related to genetic resources; (e) transfer of knowledge and technology under favourable terms and, in particular, knowledge that makes use of genetic resources, including biotechnology, or knowledge that is relevant to the conservation and sustainable use of biological diversity; (f) access to scientific information such as biological inventories and taxonomic studies; (g) contributions to the development of the local community; (h) benefits relating to food security; and (i) joint ownership of patents and other relevant forms of intellectual property rights.<sup>99</sup>

In 2007, the Authority issued the Guidelines for Accessing Genetic Resources and Benefit Sharing in Uganda, which provide more specific guidance on the procedures for accessing Uganda's biological resources, including prior informed consent, an accessory agreement, and a material transfer agreement, and provide the following depiction of the process:

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99. *Id.* art. 20.



FIGURE 1.<sup>100</sup>

100. NAT'L ENV'T MGMT. AUTH., MINISTRY OF WATER AND ENV'T, GUIDELINES FOR ACCESSING GENETIC RESOURCES AND BENEFIT SHARING IN UGANDA, FIRST EDITION JUNE 2007

The guidelines also provide further guidance regarding access to traditional knowledge, stating that “Uganda [recognizes] and protects the rights of local communities and indigenous populations to benefit from their traditional knowledge collectively, and to receive compensation for the conservation of genetic resources, by means of payment in money, goods, services, intellectual property rights, or other mechanisms.”<sup>101</sup> The guidelines mandate “application of the principle of [prior informed consent] to the rights of indigenous peoples and other local communities” and prescribe that “[h]olders of traditional knowledge have the right to be asked and to be informed about requests” for access to their knowledge “and to extend or refuse their approval for such access.”<sup>102</sup> Finally, the guidelines mandate that holders of traditional knowledge “be actively included in the negotiations of benefits on the basis of a full disclosure of potential benefits and risks arising from the use of the resources.”<sup>103</sup>

### c. The United Republic of Tanzania’s Laws and Policies

The United Republic of Tanzania, on the other hand, has employed a seemingly “sectoral approach.”<sup>104</sup> The United Republic of Tanzania has no standalone legal mechanism regarding access to and benefit-sharing of biological resources.<sup>105</sup> Rather, a number of sectoral laws and policies impliedly protect biological diversity.<sup>106</sup> For example, the National Land Policy, issued in 1995, aims “to protect land resources from degradation for sustainable development,” while the National Forestry Policy, issued in 1998, endeavors to “enhance ecosystem conservation and management by ensuring ecosystem stability through conservation of forest diversity.”<sup>107</sup> The National Agriculture Policy, issued in 2013, attempts to address challenges to development of the agricultural sector, including disease, erosion, and bio-fuel production, while the National Food Security Policy, issued in 1996, expresses concern over matters, such as pests, diseases, and flood and drought

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13 (2007) (Uganda), <https://www.wipo.int/edocs/lexdocs/laws/en/ug/ug021en.pdf> [<https://perma.cc/8SVT-8D4R>].

101. *Id.* art. 3.5.

102. *Id.*

103. *Id.*

104. *See* discussion *supra* Section II.B.2.a.

105. THE UNITED REPUBLIC OF TANZ. VICE PRESIDENT’S OFF., DIV. OF ENV’T, *supra* note 49, at 55.

106. *Id.* at 55–64.

107. *Id.* at 56.

caused by climate change, all of which impact biological diversity.<sup>108</sup> The Plant Protection Act of 1997 aims, in part, to “ensure sustainable plant and environmental protection” and “regulate export and imports of plants and plant products and ensure the fulfillment of international commitments,”<sup>109</sup> while the main objectives of the Forest Act of 2002 include “ensur[ing] ecosystem stability through conservation of forest biodiversity” and “enhanc[ing] the contribution of the forest sector to the sustainable development of Tanzania and the conservation and management of natural resources for the benefit of present and future generations.”<sup>110</sup>

In addition to a National Environmental Management Council to “oversee environmental management issues,”<sup>111</sup> the United Republic of Tanzania’s government includes a Division of Environment within the Vice President of the United Republic of Tanzania’s Office.<sup>112</sup> The Division of Environment is comprised of three sections: (1) Biodiversity Conservation Section; (2) Environmental Management of Pollution Section; and (3) Environmental Assessment and Climate Change Management Section.<sup>113</sup> The Biodiversity Conservation Section’s primary mandate is to “[d]evelop, monitor, evaluate and reviews policies, Acts, regulations, guidelines, programmes and strategies which are related to biodiversity conservation, bio safety and sustainable utilization.”<sup>114</sup> In 2015, the Division of the Environment issued a National Biodiversity Strategy and Action Plan (NBSAP) for 2015-2020.<sup>115</sup> One of the strategic goals of the NBSAP is to “enhance the benefits to all from biodiversity and ecosystem services.”<sup>116</sup> Under this goal, the Division of Environment set a national target that “[b]y 2020, [f]air and [e]quitable [b]enefit [s]haring arising from utilization of biodiversity resources is in force and operational, consistent with national and international legislation.”<sup>117</sup> Reaching this target, the NBSAP claims, requires ratification of the Nagoya Protocol as well

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108. *Id.* at 57-58.

109. *Id.* at 63.

110. *Id.*

111. *Background*, UNITED REPUBLIC OF TANZ. NAT’L ENV’T MGMT. COUNCIL, <https://www.nemc.or.tz/pages/background> [<https://perma.cc/P76D-CZRH>].

112. *See Environment Division*, THE UNITED REPUBLIC OF TANZ. VICE PRESIDENT’S OFF., <https://www.vpo.go.tz/pages/environment-division> [<https://perma.cc/942D-YTSE>].

113. *Id.*

114. *Id.*

115. THE UNITED REPUBLIC OF TANZ. VICE PRESIDENT’S OFF., DIV. OF ENV’T, *supra* note 49.

116. *Id.* at 79.

117. *Id.* at 80.

as “establishment, implementation and enforcement of legislation, policy, guidelines and a communication strategy for Access and Benefit Sharing (ABS), and the development and implementation of the national ABS framework and protocols.”<sup>118</sup> However, Tanzania has not implemented legislation, policy, or guidelines specifically addressing access to and benefit-sharing of biological resources.<sup>119</sup>

### III. ANALYSIS

While the United Republic of Tanzania has ratified the Nagoya Protocol,<sup>120</sup> its current sectoral approach to protecting biological diversity fails to satisfy the Nagoya’s access and benefit-sharing mandates and should be supplemented by a standalone legal mechanism for access and benefit-sharing regulation.<sup>121</sup> The African Model Legislation provides a model standalone legal mechanism, but it too fails to satisfy all the Nagoya Protocol’s access and benefit-sharing requirements, rendering a standalone legal mechanism modeled after the African Model Legislation inadequate.<sup>122</sup> Given the similarities between Uganda and the United Republic of Tanzania, the United Republic of Tanzania should model its standalone legal mechanism after Uganda’s access and benefit-sharing regulations, which comply with the Nagoya Protocol in two important ways the African Model Legislation does not.<sup>123</sup>

#### A. *The United Republic of Tanzania Should Adopt a Standalone Legal Mechanism to Meet the Access and Benefit-Sharing Mandates of the Nagoya Protocol*

The United Republic of Tanzania’s sectoral approach to protecting biological diversity fails to satisfy several access and benefit-sharing mandates of the Nagoya Protocol. First, the Nagoya Protocol mandates the implementation of laws or policies aimed at fair and equitable benefit-sharing of genetic resources with the local community holding such genetic resources, specifies that the benefits may be monetary and non-monetary, and provides three possible mechanisms for ensuring fair and equitable benefit-sharing.<sup>124</sup>

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118. *Id.* at 80-81.

119. *See id.*

120. *See* discussion *supra* Section II.A.4.

121. *See* discussion *infra* Section III.A.

122. *See* discussion *infra* Section III.B.

123. *See* discussion *infra* Section III.C.

124. *See* discussion *supra* Section II.A.4; NAGOYA PROTOCOL, *supra* note 8, arts. 5, 12.

While the United Republic of Tanzania's sectoral laws and policies—including the National Land Policy, the National Forestry Policy, the National Agriculture Policy, the National Food Security Policy, the Plant Protection Act of 1997, and the Forest Act of 2002—imply conservation of biological diversity, none is designed to ensure fair and equitable benefit-sharing of biological resources.<sup>125</sup> Second, the Nagoya Protocol requires measures for ensuring genetic resources and traditional knowledge are accessed with prior informed consent of the local community holding such genetic resources and traditional knowledge.<sup>126</sup> Because the United Republic of Tanzania's sectoral laws and policies imply conservation of biological diversity, but do not regulate access to biological resources and traditional knowledge, they provide no measures for ensuring informed consent prior to such access.<sup>127</sup> Rather than relying on its sectoral laws and policies, the United Republic of Tanzania should adopt a standalone legal mechanism that explicitly regulates access to and benefit-sharing of biological resources in order to satisfy the Nagoya Protocol's access and benefit-sharing mandates.

The United Republic's own Division of Environment acknowledged the need for such a standalone legal mechanism in its 2015-2020 National Biodiversity Strategy and Action Plan,<sup>128</sup> and the Republic is uniquely positioned to adopt such a standalone legal mechanism. The Biodiversity Conservation Section within the Vice President of the United Republic of Tanzania's Office was provided with an explicit mandate to “[d]evelop, monitor, evaluate and reviews policies, Acts, regulations, guidelines, programmes and strategies which are related to biodiversity conservation, bio safety and sustainable utilization.”<sup>129</sup> Development of a standalone legal mechanism for regulating access to and benefit-sharing of biological resources falls squarely within this mandate.

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125. See discussion *supra* Section II.B.2.c.; see generally THE UNITED REPUBLIC OF TANZ. VICE PRESIDENT'S OFF., DIV. OF ENV'T, *supra* note 49 (discussing the United Republic of Tanzania's sectoral laws and policies).

126. See discussion *supra* Section II.A.4.; NAGOYA PROTOCOL, *supra* note 8, arts. 6-7.

127. See discussion *supra* Section II.B.2.c.; see generally THE UNITED REPUBLIC OF TANZ. VICE PRESIDENT'S OFF., DIV. OF ENV'T, *supra* note 49 (discussing the United Republic of Tanzania's sectoral laws and policies).

128. See discussion *supra* Section II.B.2.c.; see THE UNITED REPUBLIC OF TANZ. VICE PRESIDENT'S OFF., DIV. OF ENV'T, *supra* note 49, at 80.

129. See discussion *supra* Section II.B.2.c.; *Environment Division*, *supra* note 112.

B. *A Standalone Legal Mechanism Modeled After the African Model Legislation Would Not Satisfy the Access and Benefit-Sharing Mandates of the Nagoya Protocol*

While the African Model Legislation provides a model standalone legal mechanism for regulating access to and benefit-sharing of biological resources, scholars have identified important ways in which the African Model Legislation fails to satisfy the Nagoya Protocol's access and benefit-sharing requirements. First, the Nagoya Protocol mandates the implementation of laws or policies to ensure the fair and equitable sharing of benefits arising from utilization of local communities' biological resources.<sup>130</sup> While the Nagoya Protocol recognizes that these benefits may be monetary or non-monetary,<sup>131</sup> the Model African Legislation addresses only monetary benefits.<sup>132</sup> Second, the Nagoya Protocol identifies mechanisms for ensuring protection of local communities' biological resources and traditional knowledge, including community protocols for accessing traditional knowledge and sharing the benefits of utilization of that knowledge, minimum requirements for mutually agreed terms regarding the sharing of such benefits, and model contractual clauses for the sharing of such benefits.<sup>133</sup> Although the African Model Legislation provides significant protections of community rights, it provides no mechanism through which local communities can ensure that access to and benefit-sharing of genetic resources respects the rights of local communities.<sup>134</sup>

C. *Uganda's Standalone Regulations Satisfy Two Access and Benefit-Sharing Mandates of the Nagoya Protocol Not Met by the African Model Legislation*

Uganda's Environmental Management and Co-ordination (Conservation of Biological Diversity and Resources, Access to Genetic

130. See discussion *supra* Section II.A.4.; NAGOYA PROTOCOL, *supra* note 8, art. 5.

131. See discussion *supra* Section II.A.4.; NAGOYA PROTOCOL, *supra* note 8, art. 5.

132. See discussion *supra* Section II.B.2.a.; OAU MODEL LAW, *supra* note 47, at 8, 10; PETER MUNYI ET AL., AFR. UNION COMM'N: DEP'T OF HUMAN RES, SCI. AND TECH., A GAP ANALYSIS REPORT ON THE AFRICAN MODEL LAW ON THE PROTECTION OF THE RIGHTS OF LOCAL COMMUNITIES, FARMERS AND BREEDERS, AND FOR THE REGULATION OF ACCESS TO BIOLOGICAL RESOURCES 52 (2012), [http://archive.abs-biotrade.info/uploads/media/GAP\\_Analysis\\_and\\_Revision\\_African\\_Model\\_Law\\_FINAL\\_2902.pdf](http://archive.abs-biotrade.info/uploads/media/GAP_Analysis_and_Revision_African_Model_Law_FINAL_2902.pdf) [<https://perma.cc/3H34-GVPZ>].

133. See discussion *supra* Section II.A.4.; NAGOYA PROTOCOL, *supra* note 8, art. 12.

134. See discussion *supra* Section II.B.2.a.; see generally OAU MODEL LAW, *supra* note 47 (discussing ensuring the right to benefits absent an enforcement mechanism); MUNYI ET AL., *supra* note 132, at 53.

Resources and Benefit Sharing) Regulations comply with two of the Nagoya Protocol's access and benefit-sharing mandates that the African Model Legislation does not: (1) provision for the fair and equitable sharing of monetary and non-monetary benefits, and (2) development of a mechanism for ensuring protection of local communities' biological resources and traditional knowledge. First, while the African Model Legislation provides only for fair and equitable sharing of monetary benefits arising from utilization of local communities' biological resources,<sup>135</sup> Uganda's regulations provide for fair and equitable sharing of monetary and non-monetary benefits.<sup>136</sup> Uganda's regulations require that a materials transfer agreement provide for sharing of monetary benefits—such as access fees, license fees, and royalties—as “benefits” that must be shared fairly and equitably.<sup>137</sup> However, the regulations also require that a materials transfer agreement provide for sharing of non-monetary benefits. Non-monetary benefits include participation in research; “collaboration in education and training;” “transfer of knowledge and technology;” “contributions to the development of local community;” “benefits relating to food security;” and joint ownership of intellectual property rights.<sup>138</sup>

Second, while the African Model Legislation specifies no mechanism through which local communities can ensure that access to and benefit-sharing of genetic resources respects the rights of local communities,<sup>139</sup> Uganda's regulations provide such a mechanism.<sup>140</sup> Under Uganda's regulations, any person who seeks access to Uganda's genetic resources must follow a multi-step process.<sup>141</sup> Initially, the accessing party must enter into an accessory agreement with the lead agency or local community.<sup>142</sup> Next, the accessing party must obtain written prior informed consent from the lead agency or local community.<sup>143</sup> Then, the accessing party must carry out an environmental impact assessment “where access to

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135. See discussion *supra* Section II.B.2.a.; OAU MODEL LAW, *supra* note 47, at 2; MUNYI ET AL., *supra* note 132, at 54.

136. See discussion *supra* Section II.B.2.b.; Uganda ABS Regulations, *supra* note 48, art. 20.

137. Uganda ABS Regulations, *supra* note 48, art. 20.

138. *Id.*

139. See discussion *supra* Section II.B.2.a.; see generally OAU MODEL LAW, *supra* note 47 (discussing ensuring the right to benefits, absent of information on a mechanism); MUNYI ET AL., *supra* note 132, at 53.

140. See discussion *supra* Section II.B.2.b.; Uganda ABS Regulations, *supra* note 48.

141. Uganda ABS Regulations, *supra* note 48, art. 10.

142. *Id.* art. 12.

143. *Id.* art. 10.

genetic resources is likely to have a significant impact on the environment.”<sup>144</sup> Following this, the accessing party must enter into a materials transfer agreement with the lead agency.<sup>145</sup> The materials transfer agreement must protect the rights of local communities in several ways: it must require the accessing party to (1) inform the competent agency and local community of “all findings from the research and development on the genetic resources,” (2) “not transfer genetic resources to a third party without the [written consent] of the competent authority,” (3) “not apply for a patent or other intellectual property right over the genetic resources without the [written consent] of the competent authority,” and (4) provide for the participation of the citizens or institutions of Uganda “in research, development, management and utilization of the genetic resources accessed.”<sup>146</sup> Finally, the accessing party must apply and submit fees for an access permit from the competent authority.<sup>147</sup>

While Uganda’s regulations satisfy two of the access and benefit-sharing mandates of the Nagoya Protocol not met by the African Model Legislation, there are two areas where the African Model Legislation may provide stronger regulation. However, this does not negate the fact that Uganda’s regulations provide a much stronger mechanism overall for regulating access to and benefit-sharing of biological resources. Specifically, while the African Model Legislation prevents any accessing party from applying for a patent on life forms and biological processes,<sup>148</sup> and Uganda’s regulations do not, Uganda’s regulations do provide that the accessing party cannot apply for intellectual property rights over the genetic resources without the written consent of the competent authority and requires a materials transfer agreement to include joint ownership of intellectual property rights.<sup>149</sup> Similarly, while the African Model Legislation permits local communities to reject prior informed consent if such access would be “detrimental to the integrity of their natural or cultural heritage,”<sup>150</sup> and Uganda’s regulations do not, Uganda’s regulations do require an environmental

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144. *Id.* arts. 10, 16.

145. *Id.* art. 10.

146. *Id.* art. 15.

147. *Id.* art. 10.

148. See discussion *supra* Section II.B.2.a.; OAU MODEL LAW, *supra* note 47, at 7.

149. See discussion *supra* Section II.B.2.b.; Uganda ABS Regulations, *supra* note 48, arts. 15, 20.

150. See discussion *supra* Section II.B.2.a.; OAU MODEL LAW, *supra* note 47, at 10.



impact assessment “where access to genetic resources is likely to have a significant impact on the environment.”<sup>151</sup>

D. *The United Republic of Tanzania Should Model Its Standalone Legal Mechanism After Uganda’s Access and Benefit-Sharing Regulations*

The United Republic of Tanzania depends greatly on its biological resources. Its dependence rivals that of Uganda, with agriculture, forestry and fishing adding 25.5 percent—more than Uganda’s 22.2 percent—of the total GDP in 2018.<sup>152</sup> In addition, agricultural jobs in the United Republic of Tanzania provided approximately 65.3 percent—similar to Uganda’s 72.7 percent—of total employment in 2019.<sup>153</sup> Yet, unlike Uganda, the United Republic of Tanzania has no standalone legal mechanism for regulating access to and benefit-sharing of biological resources.

In developing its standalone legal mechanism, the United Republic of Tanzania should model its regulations after those of Uganda. Such regulations, unlike those modeled after the African Model Legislation, would provide for the relevant national entity or local community to share in non-monetary benefits<sup>154</sup> in addition to the monetary benefits provided for in the African Model Legislation.<sup>155</sup> This satisfies the Nagoya Protocol’s mandate to provide for the fair and equitable sharing of monetary and non-monetary benefits of utilization of genetic resources.<sup>156</sup> In addition, such regulations, unlike those modeled after African Model Legislation, would provide a specific mechanism through which local communities can ensure that access to and benefit-sharing of genetic resources respects their rights,<sup>157</sup> satisfying the Nagoya Protocol’s mandate to support development of mechanisms for ensuring fair and equitable sharing of local communities’ traditional knowledge.<sup>158</sup>

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151. See discussion *supra* Section II.B.2.b.; Uganda ABS Regulations, *supra* note 48, arts. 10, 16.

152. See discussion *supra* Section II.B.1.; FOOD & AGRIC. ORG. OF THE U.N., *supra* note 50, at 79.

153. See discussion *supra* Section II.B.1.; FOOD & AGRIC. ORG. OF THE U.N., *supra* note 50, at 114.

154. Uganda ABS Regulations, *supra* note 48, art. 20.

155. See OAU MODEL LAW, *supra* note 47, at 8, 10.

156. NAGOYA PROTOCOL, *supra* note 8, art. 5.

157. See Uganda ABS Regulations, *supra* note 48, art. 10.

158. NAGOYA PROTOCOL, *supra* note 8, art. 12.

## IV. CONCLUSION

While Africa's biological resources are integral to the local and global communities, exploitation of these resources threatens their conservation and sustainable use. It is vital for African nations to enact comprehensive legal mechanisms regulating access to and benefit-sharing of their biological resources. While the United Republic of Tanzania has ratified the Nagoya Protocol, which provides several access and benefit-sharing requirements, its sectoral approach does not satisfy such requirements and should be supplemented by a standalone legal mechanism. The African Model Legislation fails to comply with the access and benefit-sharing mandates of the Nagoya Protocol, but Uganda's regulations fill two of these gaps by providing for fair and equitable sharing of non-monetary in addition to monetary benefits and by specifying a mechanism through which local communities can ensure that access to and benefit-sharing of biological resources respects their rights. By modeling its standalone mechanism after Uganda's regulations, rather than the African Model Legislation, the United Republic of Tanzania can ensure better compliance with the Nagoya Protocol's access and benefit-sharing requirements.

There are two additional gaps between the African Model Legislation and the Nagoya Protocol not filled by Uganda's access and benefit-sharing regulations. First, scholars have noted that while the Nagoya Protocol acknowledges the need for Contracting Parties to cooperate in order to implement the objectives of the Protocol where the same biological resources or traditional knowledge are found within the territory or communities of more than one Contracting Party, the African Model Legislation is silent on this issue.<sup>159</sup> Second, while the Nagoya Protocol requires Contracting Parties to "[c]reate conditions to promote and encourage research," "[p]ay due regard to cases of present or imminent emergencies," and "[c]onsider the importance of [GRFAs] and their special role for food security" when developing access and benefit-sharing legislation,<sup>160</sup> scholars have noted that the African Model Legislation does not address the promotion of research, emergency situations, or the Multilateral System established by the International Treaty, which was adopted to address the special role of GRFAs for food security.<sup>161</sup> Filling such gaps may require analy-

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159. MUNYI ET AL., *supra* note 132, at 53.

160. NAGOYA PROTOCOL, *supra* note 8, art. 8.

161. MUNYI ET AL., *supra* note 132, at 54.

sis of additional national legal mechanisms in place in the nations of Africa and beyond.