

# Access and Benefit Sharing of Biodiversity for Empowering Local Communities; Case Studies in Selected Countries

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**Abstract.** The purpose of this study is to analyse the practices of access and benefit sharing from the utilisation of biodiversity for empowering local people and communities in accordance with the Convention on Biodiversity (CBD). The focus of this study is to analyse whether access permits and equitable benefit sharing agreements in practices are capable of empowering the economy of local communities. This study is based on normative legal research by using primary and secondary legal resources. While analysis conducted for this study is by using statute, conceptual and case approaches. The cases used for this study are *Kani* Case from India, *Kava* Case from Pacific Island Nations, and *Hoodia* Case in South Africa. This study found that it is not only access permits needed to utilise biodiversity, including biological resources which can be used as a legal basis for benefit sharing arrangement between the local communities and the user of biodiversity, but also recognition of local people's knowledge of biodiversity. This benefit sharing arrangement which has been developed from those case studies provides a significant contribution to support the economy of local communities, even before the existence of the CBD. Accordingly, these case studies can be used as best practices for Indonesia on recognising the traditional knowledge of local communities, establishing access permit and benefit sharing agreements.

**Keywords:** *Access and Benefit Sharing, Biodiversity, Traditional Knowledge, Empowering Local Communities, Indonesia.*

## Introduction

Throughout history, indigenous and local communities around the world have used biodiversity and traditional knowledge (TK) related to it for daily food, nutrients, and medicines. The function of biodiversity including genetic resources as traditional medicines, particularly in the biodiversity rich developing countries has been well recognised by the international community. Some of them have been documented nationally, through data bases, but some of them are not documented yet (Glossary of the Key Terms Related To Intellectual Property and Genetic Resources, Traditional Knowledge and Traditional Cultural Expressions, 2018). In this fourth industrial revolution, biodiversity still plays a significant role in the global economy, known as bio-economy, in which the knowledge-based production and utilisation of biological resources and processes considered as the main sources to provide goods and services in sustainable ways (İşcan, 2019).

The development of life science industries also uses biodiversity and TK derived from indigenous and local communities as a raw material to develop new varieties of plants, new invention of medicines, cosmetics and other important products (Garcia, 2007). These indigenous and local communities have preserved biodiversity from generation to generation over thousands of years, but they usually do not receive any benefit for such inventions and innovations. This practice is regarded as unfair as it disregards the role and contribution of local people in preserving and conserving biodiversity; while biotechnology industries received huge profit from such inventions and secure it through patent and license.

The Convention on Biological Diversity (CBD) recognised the role of TK, innovation and practices of indigenous and local communities in both conservation and sustainable use of biodiversity. The CBD laid the legal foundation for national governments to provide regulation to share benefit in a fair and equitable way (De Jonge, 2011) from the utilisation of genetic resources (Article 1). The Nagoya Protocol has also agreed by the Parties of CBD to implement principles on access and benefit sharing (ABS). After the CBD entered into force, many national governments provided legal frameworks on ABS from the utilisation of biodiversity derived from their territories. However, until now, Indonesia does not have any legal framework on ABS although this country has already ratified CBD more than (25) twenty five years ago.

This study explores three important cases on ABS and the recognition of local people's TK from selected countries, these are *Kani* Case from India and *Hoodia* case from South Africa representing ABS arrangement, while the *Kava* Case from the Pacific Island Nations represents recognition of local people's knowledge. The reason for choosing the *Kani* Case is because this case is very unique and extraordinary, it existed prior to CBD entering into force, in which the ABS arrangement was fully supported by the government, Non-Governmental Organisations



(NGO) and local people. This ABS arrangement is not legally binding, but is adhered to and effective. While in the *Hoodia* Case, the ABS arrangement is more advanced and complicated as it consists of more than two Agreements, many stakeholders and intermediary involvement. It was effective and enforceable, although the use of TK by the community for other commercial use is prohibited. Then, the *Kava* Case is also very interesting because no ABS arrangement is available, only recognition of local people's knowledge, but it can be used as a commitment to provide benefit to local people.

The contribution of this study is that, ABS arrangement is not the only legal mechanism for empowering local communities, the recognition of local community's knowledge can also be used as a justification for empowering the economy of local communities. Accordingly, the focus of this study is to analyse (2) two models of ABS agreements and one model of the recognition of local people's knowledge, and how those models are capable of empowering the economy of local communities through the 3 cases above.

### ***Kani* Case in India**

*Kani* is one of the indigenous tribes in the Kerala State of India. This tribe has a tradition of using forest plants derived from their area for medicines. Specifically the *arogyapacha* (local name) plant, known scientifically as *Trichopus zeylanicus* spp. *Trivancoricus* (*Trichopadaceae*) in which its fruit is eaten by the *Kani* Tribe to resist fatigue, reduce stress, and boost stamina (Gupta, 2004). From the oral practices undertaken from generation to generation, *arogyapacha* is known to have efficacy as a drug.

Based on information from the *Kani* Tribe, in 1987, even before the existence of the CBD, the Kerala Government through the Tropical Botanic Garden and Research Institute (TBGRI) developed a medical herb derived from the *arogyapacha* known as *Jeevani* (Chaturvedi, 2007). Then, TBGRI obtained a process patent for *Jeevani* and licensed it to Arya Vaidya Pharmacy Ltd (AVP), the biggest herbal company in India for 7 (seven) years with a licensing fee of US \$ 50,000, plus 2% royalty for 10 years starting from the time of commercial production (Gupta, 2004).

At that time, TBGRI proposed the idea of sharing royalty and license fees obtained from AVP to provide recognition for the contribution of the *Kani* community. Although then, there was no national law or policy in India which insisted on benefit sharing between indigenous people and institutions involved in the use of traditional community knowledge (Bijoy, 2007). In 1997 the Government established the Kerala *Kani* Samudaya Welfare Trust (KKS WT) to represent the *Kani* community and to promote a unique and extraordinary benefit sharing scheme in India. Interestingly, the license agreement between TBGRI and AVP is governed by Indian Civil Law, but it is not legally binding.

Based on the agreement, TBGRI provides 50% of the licensing fees and 50% royalties obtained from AVP to local communities. In 1999, the amount received by KKS WT was \$12,500. The money was transferred to the KKS WT with the agreement that only the interest earned from that amount of money would be used for the welfare of the *Kani* Tribe. TBGRI has also trained a number of families from the tribe to plant *arogyapacha* around their homes in the forest. In the first year of planting, each family received US \$180 for the sale of *arogyapacha* leaves, but then the Kerala Forest Department (KFD) stopped planting the plants. Furthermore, the KKS WT representing more than 700 families, began providing work for the *Kani* Tribe as cultivators and plant processors, while on the other hand ensuring that harvesting techniques continued sustainably (Bijoy, 2007).

Additionally, KKS WT has also provided insurance for pregnant women and helps in the case of an accident in the poor community. After the planting of *arogyapacha* plants was approved again by the (KFD), the *Kani* Tribe received regular income due to the sustainable use of natural resources from the forests they live in. This strengthens the role of community in the conservation of natural resources for the interests of both individual and the wider communities. Interestingly, the Agreement between TBGRI and the *Kani* Tribe stimulated discussion among the tribe itself on the value inherent in their traditional knowledge. This case shows that access and benefit sharing arrangements provide significant financial and non-financial benefits in the form of capacity building, health insurance, and sustainable use of natural resources. Thus, it empowers economy and capacity of local communities.

### ***Kava* Case in the Pacific Island Nations**

Stakeholder theory explains that a company operates not only in the interests of the company but also must pay attention to the interests of stakeholders, the company's operations or activities must also provide value for stakeholders. According to this theory the company's sustainability and success depends on the company's ability to balance the interests of diverse stakeholders. When the company is able to meet the interests of stakeholders, it will get support for the company's sustainability. From the point of view of stakeholder theory, CSR disclosure is considered as a way of meeting the diverse information needs of stakeholders (Freeman, 1984 in Muttakin & Subramaniam, 2015).

According to Resource Dependent Theory, the company will face a changing external environment, on the other hand the company has a dependency on external resources, so the company needs to consider ways to meet those needs. According to Pfeffer and Salancik (1978) the board of directors and commissioners has a role in providing these resources by becoming a mediator between the external environment and the company. The existence of the board of

directors and commissioners can reflect environmental needs so as to reduce environmental uncertainty.

### ***Kava* Case in the Pacific Island Nations**

*Kava*, with the scientific name *Piper Methysticum* (*Piperaceae*) is a type of drink from some Pacific Island countries which is usually served for social gatherings, religious ceremonies and rituals. The cultivation and utilisation of *Kava* is regarded as the most important traditional knowledge (TK) and culture of Pacific Island's people. The Pacific Island's farmers have planted more than 118 cultivars of *Kava* for more than 3000 years to be used as a drug to cure the problem of nervousness, urinary, asthma, coughing, abdominal pain, and headache because *Kava* enhances peace of mind, sharpens feelings and relaxation (Henne et al., 2003). Although no standardised preparation of *Kava* is used as traditional medicines, no negative effects have been noted. Some studies found that *Kava* has sedatives and medicinal properties, and accordingly Westerners have interest in research and commercialisation of this plant. Therefore *Kava*-based medicines can be found in international markets outside Pacific Island countries, particularly in the US and Europe (Henne et al., 2003).

Interestingly, there is no ABS Agreement between traditional *Kava* growers and the Company, but there is recognition of the role of local communities in conserving *Kava* as local biological resources from generation to generation. This recognition enables *Kava* growers (local people) to earn big income for planting it, as *Kava* includes ten best-selling herbs worldwide and demand for *Kava* has increased sharply. In 1997, the extract of *Kava* was sold from a processing company to the industry for US \$100 / kg, in 1998 the price increased to US 250-300 / kg. Furthermore, the market structure and marketing flow are in a position that benefits small farmers to get a fair share of the benefit of the final product. This also opens work places and income for local farmers. Therefore, international recognition of local biological resources and TK related to it is important (Dawkins, 2018) to provide financial benefit for local communities.

### ***Hoodia* Case in South Africa**

*Hoodia Gordonii* (*Asclepiadaceae*) is an indigenous plant which is commonly used by the *San* (Kalahari bush people) to suppress hunger and thirst. These people are from very poor and marginalised communities living in Anggola, Namibia, Bostwana, and South Africa. In 1995, the Council of Scientific and Industry Research (CSIR), one of the largest research institutions in Africa patented *Hoodia's* appetite suppressing element, known as P57 (Chennells, 2013). The *San* and CSIR established Memorandum of Understanding (MOU) to acknowledge that TK related to the use of *Hoodia* by humans is originated from the *San* community. Based on this MOU, the *San* and CSIR agreed to sign a Benefit Sharing Agreement in 2003. Under the

Agreement, if the commercialisation was successful, the potential income will be granted to the San Hoodia Benefit Sharing Trust (SHBS), an agency established by the CSIR and the South African San Council to improve the welfare of the San communities in Southern Africa. Both Parties also agreed to preserve biodiversity and CSIR agreed to provide better access to education as a basic need for a bioprospecting collaboration (Henne et al., 2003).

Earlier, in 1997, the CSIR was licensed to Phytopharm through Bioprospecting Agreement. The reason for the inclusion of this agreement is to provide a case study for developing future policy. Then, in 1998, Phytopharm signed an exclusive license agreement with Pfizer for the development and commercialisation of P57 internationally as an oral drug for obesity with a market value of more than US \$10 billion. Phytopharm received up to US \$32 million in royalties and milestone payments (Chennells, 2013). Under the Agreement, there are two stages of the procedure: Firstly, Pfizer and Phytopharm will give milestone payments and royalties to CSIR, if P57 is successfully commercialised, and from this the CSIR receives around \$10 million per year during the patent protection (Chennells, 2007). Secondly, the *San* community will get 8% of all milestone payments and 6% of all royalties earned by CSIR. However, in fact, the *San* community only receives a very small portion of less than 0.03% of the net proceeds from product sales. This is because payment of these milestones is subject to technically agreed performance targets for P57 during clinical development from 4 years, and sales-based royalties are not scheduled to begin before 2008 (Henne et al., 2003). The weakness of this procedure is that the *San* community did not receive benefit sharing directly from both companies. All benefit sharing is directed to the CSIR as an intermediary. Consequently, the *San* community depends on the CSIR negotiation strategy and the *San* cannot directly ask for money from the Companies. This agreement also explicitly prohibits the *San* Community from using their knowledge of *Hoodia* for other commercial uses (Amusan, 2017).

The benefit granted to the SHBS is US \$33,000. The *San* also received indirect benefits in the form the Medicinal Extraction Building and Botanical Supply Unit. Both buildings are the first of their type in the world (Henne et al., 2003). Interestingly, the beneficiaries of this agreement are dedicated to the *San* people who lived throughout Southeast Africa as a marginalised tribe. This strengthens the cross-border identification of the *San* community, and helps to increase the bargaining position of the *San* tribe in other countries, which are struggling to gain recognition from local governments (Amusan, 2017). The benefit sharing fund is then used to improve living standards of the *San* people in Southern African countries through the construction of health care facilities, infrastructure and social security. This agreement helps to recognise the *San* community as indigenous people in the African continent as a whole. After the inclusion of this agreement, commercial farmers in the Northern Province and Northern Cape conducted experiments to plant *Hoodia*, which provides benefits for sustainable use of resources and income for local communities (Vermeylen, 2007).



## Arrangement of Access and Benefit Sharing, and Recognition of TK in Indonesia

Indonesia is one of the most affluent countries in the world in biodiversity (Convention on Biological Diversity, n.d.), possessing extraordinary resources whether in form of actual biodiversity or TK related to it. However, research shows that much of the biodiversity related to TK in Indonesia has been pirated by other entities and then commercialised globally. This is known as bio-piracy (Greeners, 2019). The richness of biodiversity is still unable to provide significant benefit for *adat* and local communities which have conserved such biodiversity from generation to generation. This is because Indonesia does not have any specific legislation dealing with protection and management of biodiversity.

In the context of access, Indonesia has issued the Government Regulation No. 41 of 2006 regarding License for Foreigners to Do Research in Indonesia. This regulates all foreigners from taking samples and or, specimens of Research and Development (R&D) material outside Indonesian territory, without a Material Transfer Agreement (MTA), but biopiracy is still problem until now. In 2019 Indonesia issued a new Act Number 11 of 2019 on National System on Science and Technology. This Act also regulates the License for Foreign Researchers in Indonesia. In principle, foreigners cannot conduct research in Indonesia without a license from the national government. Transfer of biodiversity material, local specimens, social, cultural and local wisdom physically and digitally is regulated. If transfer of biodiversity is needed, it must be accompanied by a Material Transfer Agreement (MTA). The problem is that Indonesian government only regulates access, but does not take into account the need to establish benefit sharing arrangements as result of access. So far, there is no benefit sharing agreements that have been agreed by and between local communities or government and the users of biodiversity. This means that the regulation of access still does not provide any benefit to the empowerment of the economy and capacity building of local people.

In addition, the Indonesia's policy and system of the recognition of the role of local communities and TK is not well established yet. Accordingly, it is difficult for local people or local government to set up benefit sharing agreement with users of biodiversity. If the Indonesian government issued licenses for researchers to conduct research in Indonesia, or someone who utilises Indonesian biodiversity, and the result of that is for commercialisation, governments should create benefit sharing agreement as a consequence of granting access.

The above cases showed different models of access and benefit sharing, including recognition of local community knowledge which can be used as a model for Indonesia. Indonesia can learn from other countries such as India, South Africa and, Pacific Islands, and even before the existence of CBD (Convention on Biological Diversity, n.d.) Indonesia has already provided benefit sharing arrangements. This can be achieved if there a strong commitment from the government, supported by local communities and NGOs.



## **Conclusion**

This study is limited to 3 (three) case studies only that have the potential to be implemented in Indonesia because those countries case studies are similar to Indonesia's current interests of biodiversity. The 3 (three) case studies above show that ABS agreements provide valuable financial and non-financial benefits for empowering local communities and its people, and increasing the bargaining position of marginalised communities. The recognition of the role of local community's knowledge can also be used as a legal basis for benefit sharing arrangements. Therefore, the 3 case studies provide evidence of best practice for Indonesia to develop access and benefit sharing arrangements, to enable Indonesia to maximally utilise its biodiversity for the benefit of local communities.



## REFERENCES

- Amusan, L. (2017). Politics of biopiracy: An adventure into Hoodia/Xhoba patenting in Southern Africa. *African Journal of Traditional, Complementary and Alternative Medicines*, 14(1), 103–109.
- Bijoy, C. R. (2007). Access and benefit sharing from the indigenous peoples' perspective: The Tbgri-Kani model. *Law Env't & Dev. J.*, 3, 1.
- Chaturvedi, S. (2007). *Kani case, a report for gen benefit*. New Delhi, Research and Information System for Developing Countries.
- Chennells, R. (2007). San Hoodia case. A report for GenBenefit. *University of Central Lancashire, Available at: Wwww. Uclan. Ac. Uk/Genbenefit*.
- Chennells, R. (2013). Traditional knowledge and benefit sharing after the nagoya protocol: three cases from South Africa. *Law Env't & Dev. J.*, 9,(1), 163-170.
- Convention on Biological Diversity, C. (2008). *Indonesia- country profile; Biodiversity Facts – Status and Trends of Biodiversity, including benefits from biodiversity and ecosystem services*. <https://www.cbd.int/countries/profile/default.shtml?country=id>
- Dawkins, V. (2018). Combating biopiracy in Australia: Will a disclosure requirement in the Patents Act 1990 be more effective than the current regulations? *The Journal of World Intellectual Property*, 21(1–2), 15–31.
- De Jonge, B. (2011). What is fair and equitable benefit-sharing? *Journal of Agricultural and Environmental Ethics*, 24(2), 127–146.
- Garcia, J. (2007). Fighting biopiracy: The legislative protection of traditional knowledge. *Berkeley La Raza LJ*, 18, 5. 114-125. <https://doi.org/https://doi.org/10.15779/Z38M378>
- Greeners. (2019). *Biopiracy Masih Marak Terjadi, Pemerintah Belum Berpihak pada Konservasi Kehati, April 2019*. <https://www.greeners.co/berita/biopiracy-masih-marak-terjadi-pemerintah-belum-berpihak-pada-konservasi-kehati/>
- Gupta, A. K. (2004). *WIPO-UNEP study on the role of intellectual property rights in the sharing of benefits arising from the use of biological resources and associated traditional knowledge* (Vol. 769). WIPO.
- Henne, G., Liebig, K., Drews, A., & Plän, T. (2003). Access and benefit-sharing (ABS): An instrument for poverty alleviation. *Bonn: German Development Institute (GDI)*.



- İşcan, E. (2019). Strategies of sustainable bioeconomy in the industry 4.0 framework for inclusive and social prosperity. In *Bioeconomical Solutions and Investments in Sustainable City Development* (pp. 21–42). IGI Global.
- Muttakin, M. B., & Subramaniam, N. (2015). Firm ownership and board characteristics. *Sustainability Accounting, Management and Policy Journal*, 14(1), 255-160.
- Pfeffer, J., & Gerald, R. (1978). *Salancik. 1978. The external control of organizations: A resource dependence perspective*. New York: Harper & Row.
- Vermeulen, S. (2007). Contextualizing ‘fair’ and ‘equitable’: The San’s reflections on the Hoodia benefit-sharing agreement. *Local Environment*, 12(4), 423–436.