



## 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 utilization of biodiversity for empowering local people and communities in accordance with the Convention on Biodiversity (CBD). The focus of this study is to analyze whether access permit and equitable benefit sharing agreements in practices 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 permit to utilize 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 knowledge over its biodiversity. This benefit sharing arrangement which have been developed from those case studies provide 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 recognizing 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.

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### 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 well recognized by 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 utilization of biological resources and processes considered as the main sources to provide goods and services in sustainable ways (İşcan, 2019; Akkaya, 2019; Armijos-Bravo, 2019; Aydin, 2019; Akkaya, 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 disregard 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) recognized 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 utilization 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 provide legal framework on ABS from the utilization of biodiversity derived from their territories. However, until now, Indonesia does not have any legal frame work 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 recognition of local people's TK from selected countries, that are Kani Case from India and Hoodia case from South Africa representing ABS arrangement, while Kava Case from the Pacific Island Nations representing recognition of local people's knowledge. The reason for choosing Kani Case is because this case is very unique and extraordinary, it existed prior to CBD entered into force, in which the ABS arrangement was fully supported by government, Non-Governmental Organization (NGO) and local people. This ABS arrangement is not legally binding, but is adhered to and effective. While in Hoodia Case, the ABS arrangement is more advanced and complicated as consists of more than two Agreements, many stakeholders and intermediary involved. It was effective and enforceable although the use of TK by the community for other commercial use is prohibited. Then, Kava Case is also very interesting because no ABS arrangement 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 community, the recognition of local community's knowledge can also be used as a justification for empowering the economy of local community. Accordingly, the focus of this study is to analyze (2) two model of ABS agreements and one model of the recognition of local people's knowledge, and how those models capable of empowering the economy of local communities through 3 cases above.

### **Kani Case in India**

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

Based on information from Kani Tribe, in 1987, even before the existence of the CBD, the Kerala Government through Tropical Botanic Garden and Research Institute (TBGRI) developed a medical herb derived from the arogyapacha known as Jeevani (Chaturvedi, 2007). Then, TBGRI obtained process 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 licensing fee of US \$ 50,000 plus 2% royalty for 10 years starting from the time of commercial production (Gupta, 2004).

Then, TBGRI proposed the idea of sharing royalty and license fees obtained from AVP to provide recognition for the contribution of the Kani community. Although at that time, there was no national law and policy in India which insists benefit sharing between indigenous people and institutions involved in the use of traditional community knowledge (Bijoy, 2007). Then, in 1997, the Government established 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, License Agreement between TBGRI and AVP are governed by Indian Civil Law, but it is not legally binding.

Based on the Agreement, TBGRI provides 50% 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. Then 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 sustainable (Bijoy, 2007).

Furthermore, KKS WT has also provided insurance for pregnant women and helps in the case of an accident in 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 lived 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 arrangement provides 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 scientific name called Piper Methysticum (Piperaceae) is type of drink from some Pacific Island countries which usually served for social gathering, religious ceremonies and rituals. The cultivation and utilization 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 nervous, urinary, asthma, coughing, abdominal pain, and headache because Kava able to make peace of mind, sharpen feelings and relax (Henne et al., 2003). Although no standardized preparation of Kava used as traditional medicines, no negative effects are informed. Some studies found that Kava has sedatives and medicinal properties, and accordingly Westerners has interested in research and commercialization of this plant. This made Kava-based medicines can be found in international market outside Pacific Island countries, particularly in the US and Europe (Henne et al., 2003).

Interestingly, there is no ABS Agreement has been agreed 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 made Kava growers (local people) earn big income for planting it as Kava includes ten best-selling herbs worldwide and demand for Kava has increased sharply. In 1997, extract of Kava was sold from 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. It also opens work place 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 community.

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

Hoodia Gordonii (Asclepiadaceae) is indigenous plant which commonly used by the San (Kalahari bushman), very poor and marginalized communities living in Anggola, Namibia, Bostwana, and South Africa for food and drink to hold hunger and thirst. 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 by the San. Based on this MOU, the San and CSIR agreed to sign a Benefit Sharing Agreement in 2003. Under the Agreement, if the commercialization is success, 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 shall provide better access to education as a basic for bioprospecting collaboration (Henne et al., 2003).

Earlier, in 1997, CSIR licensed to Phytopharm through Bioprospecting Agreement. The reason for the conclusion 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 commercialization 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 royalty and milestone payments (Chennells, 2013). Under the Agreement, there are two stages of the procedure that are: Firstly, Pfizer and Phytopharm will give milestone payment and royalties to CSIR, if P57 successfully commercialized, and from this the CSIR will 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 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 money to the Companies. This Agreement also explicitly prohibits 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 of Medicinal Extraction Building and Botanical Supply Unit. Both buildings are the first of its 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 marginalized tribe. This strengthens the cross-border identification of San community, and helps to increase bargaining position of the San tribe in other countries, which are struggling to gain recognition from local governments (Amusan, 2017). The benefit sharing fund then used to improve living standard of San people in Southern African countries through the construction of health care facilities, infrastructure and social security. This Agreement helps to recognize the San community as indigenous people in the African continent as a whole. After the conclusion of this Agreement, commercial farmers in the Northern Province and Northern Cape conducted experiments to plant Hoodia. It provides benefit 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 based whether in form of actual biodiversity or TK related to it. However, the fact showed that many of biodiversity related to TK in Indonesia has been pirated by other entities and then commercialized globally, 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, in which all foreigners cannot take sample and or, specimens of Research and Development (R&D) material outside Indonesian territory without Material Transfer Agreement (MTA), but biopiracy is still problem until now. Then, 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 principles, foreigners cannot conduct researchers in Indonesia without License from national government. Transfer of biodiversity material, local specimen, social, cultural and local wisdom physically and digitally. If transfer of biodiversity is needed, shall be accompanied by Material Transfer Agreement (MTA). The problem is that Indonesian government only regulates access, but does not take account the need to establish benefit sharing arrangement 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 user of biodiversity. It 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 related to it is not well established yet. Accordingly, it is uneasy for local people or local government to sets up benefit sharing agreement with the user of biodiversity. If Indonesia government issued license for researchers to conduct research in Indonesia, or someone who utilize Indonesia's biodiversity and the result of that is for commercialization, government shall create benefit sharing agreement as a consequence of granting access.

The above cases showed different model of access and benefit sharing, including recognition of local community knowledge which can be used as a model for Indonesia. Indonesia shall learn from other country like India, South Africa and, Pacific Islands, even before the existence of CBD (Convention on Biological Diversity, n.d.), this country has already provides benefit sharing arrangement. 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 are potential to be implemented in Indonesia considering those countries have more and less similar to Indonesia's current interests of biodiversity. The 3 (three) case studies above shows that ABS agreements provides valuable financial and non-financial benefit for empowering local communities and its people, and increasing bargaining position of marginalized communities. The recognition of the role of local community's knowledge can also be used as a legal basis for benefit sharing arrangement. Therefore, those 3 case studies provides a best practice

for Indonesia to develop access and benefit sharing arrangements so that enables this country to maximally utilized 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.
- Akkaya, B. (2019). The Relationship between Primary School Teachers' Organizational Citizenship Behaviors and Counter-productive Work Behaviors. *Eurasian Journal of Educational Research*, 84, 1-28.
- Armijos-Bravo, G. (2019). Inequidades socioeconómicas en el uso de cuidados paliativos en Europa. *Cuadernos de Economía*, 42(118).
- Aydın, İ. S. (2019). Improvement of preservice Turkish teachers' perceived writing self-efficacy beliefs. *Educational Sciences: Theory & Practice*, 19(1).
- Bijoy, C. R. (2007). Access and Benefit Sharing from the Indigenous Peoples' Perspective: The Tbgrri-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: [www.Uclan.Ac.Uk/Genbenefit](http://www.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, 163.
- Convention on Biological Diversity, C. (n.d.). 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. <https://doi.org/https://doi.org/10.15779/Z38M378>
- Glossary of the Key Terms Related to Intellectual Property and Genetic Resources, Traditional Knowledge and Traditional Cultural Expressions, (2018).
- 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*.
- 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.