

Sharing the Benefits of Commercialisation of Traditional Knowledge: What are the Key Success Factors?

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Introduction

Traditional knowledge is a significant contributor to the global knowledge base. Traditional knowledge can be defined as beliefs, practices and knowledge of the traditional community.¹ Predominantly, this knowledge is non-documented know-how, techniques, practices and innovation² which is produced through local institutions to solve local problems, manage resources and deal with uncertainties in the environment as well as social interactions.³ Traditional knowledge is often synonymously used with the term indigenous knowledge. However, indigenous knowledge is generally viewed as a subset of traditional knowledge⁴, which is possessed and used by indigenous communities. “Traditional knowledge system” has been an integral and popular source of value to natural resource management, agriculture, health care and farming.

In recent times, corporations have shown interest in traditional knowledge, especially in traditional medicine. Industries such as pharmaceutical, biotechnology and chemical as well as research institutes throughout the world are increasing their engagement with owners of traditional knowledge in pursuit of commercially exploitable opportunities. Any knowledge that translates into wealth-creation processes is a target for exploitation by commercial interests. Interestingly, over the past 20 years, traditional knowledge has taken centre stage in the discourse of sustainable socio-economic development and poverty alleviation in developing countries.^{5,6,7} Varied actors and agencies are coming together for the recombination or integration of this knowledge base for the protection and commercialisation of traditional knowledge. The hidden potential of the traditional knowledge base is also increasingly seen as a valuable asset with which to derive sustainable solutions in situations of socio-ecological crisis. Various actors from Western science and traditional knowledge systems are collectively harnessing innovation and practices derived from traditional knowledge for commercial and non-commercial purposes.

Philosophical Differences between Traditional Knowledge and Western Science

The conveyance of traditional knowledge to the commercial plane is fraught with many moral, legal and cultural impediments. In addition, the integration of a traditional knowledge system with Western science is not an easy task as many scientists and senior government officials view

traditional knowledge as scientifically unreliable.⁸ This is, in part, due to the tacit nature of traditional knowledge that makes it difficult for scientists and government officials to articulate traditional knowledge. This is demonstrated in a survey of major scholarly works by Agarwal,⁹ who identified three major claims on the presumed basis for traditional knowledge. These are:

- Substantive grounds – due to differences in the subject matter and characteristics of traditional and Western knowledge.
- Methodological and epistemological grounds – due to the different methods that the two forms of knowledge employ to investigate reality.
- Contextual grounds – as a result of traditional knowledge being more deeply rooted in its environment.

The contextual nature of traditional knowledge creates tensions for sharing it at a global scale. Thus, the confluence of traditional knowledge with Western and technical research will be successful only when the wider socio-cultural context of traditional knowledge is accepted by the Western science fraternity.¹⁰ Gupta is of the view that researchers frequently portray traditional knowledge systems as very different and at times in opposition to Western knowledge systems.¹¹ He believes that nothing could be further from the truth, because the appropriation of traditional medicine for scientific purposes proves that traditional people qualify as scientists.¹¹

To address these tensions, World Bank's Indigenous Knowledge for Development Program and UNESCO's Best Practices on Indigenous Knowledge are facilitating a global network for traditional knowledge exchange.¹² Obviously, the transition of traditional knowledge to the commercial realm is a challenging one. Globalisation and technological advancements have promoted the proliferation of the idea of commercialisation practices and innovations associated with traditional knowledge. These two advancements may provide market reach for traditional knowledge and help conserve it but it could also lead to exploitation of the communities by not sharing the benefits with the community, knowledge holders and the innovators.¹³ In view of these embedded risks and opportunities, it is imperative to protect the interest of the local community, resources and their way of life. It is with this aim that various international treaties such as The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs) and the *Convention on Biological Diversity* (CBD) outline regulations for the protection, conservation and dissemination of genetic resources and traditional knowledge to use these resources.¹⁴

Intellectual Property Protection Issues

Intellectual property rights (IPR) in the case of traditional knowledge and resources are not easily defensible because property and resources are non-rival and non-excludable.¹⁵ There are shortfalls and gaps in IPR in addressing traditional knowledge systems and, therefore, IP laws fail to offer adequate protection for the traditional knowledge system.¹⁶ Additionally, the access and use of traditional knowledge and associated innovation can at times be controversial as it can be interpreted from three different viewpoints – the public domain, moral rights and appropriation position.¹⁷ For example, Condorcet's scientific realism view of knowledge is that it is objective, social, public property and utilitarian in nature. In contrast, Diderot, Locke and Young's view of knowledge is that it is subjective, private property and is the natural right of an individual.¹⁸

These inherent differences challenge the determination of IPR, benefit-sharing norms and access and use of traditional knowledge. Recognising these vulnerabilities, the Indian government has taken substantive institutional measures to guard the traditional knowledge base as well as its genetic resources. These measures were proactive and have been applauded around

the world. A notable example of these measures is the setting up of the Traditional Knowledge Digital Library in 2001 to protect and document traditional medicinal treatment and prevent wrongful granting of patents (e.g. in the US for Neem and Turmeric). The Traditional Knowledge Digital Library promotes the objectives of the Nagoya protocol relating to the protection of codified traditional knowledge systems such as Ayurveda. The Nagoya Protocol is an international agreement adopted by the Conference of the Parties to the Convention on Biological Diversity (CBD) in 2010 in Nagoya, Japan. The objective of this Protocol is the fair and equitable sharing of the benefits arising from access and utilisation of genetic resources.¹⁹

Many other initiatives have been undertaken by non-governmental agencies and global development agencies to relentlessly facilitate the documentation, ethical mobilisation of traditional knowledge and innovation for socio-economic development. For instance, the Honey Bee Network (HBN) in India has in the last two decades documented more than 100,000 ideas, innovations and traditional knowledge practices.²⁰ Likewise, a team of Ayurvedic experts, patent examiners and IT professionals have transcribed approximately 36,000 formulations pertaining to Ayurveda.²¹ Such institutional mechanisms are important for developing countries. In the case of India, the national system of innovation embodies these institutions for the diffusion and protection of the traditional knowledge, innovation and practices. India took the initiative in introducing benefit-sharing arrangements six years prior to the CBD.²² It is evident through these initiatives that, at the national level, institutional mechanisms shape the path of growth. The case of India is significant in the traditional knowledge space because of the variety of proactive measures taken to protect and ethically disseminate traditional knowledge, practices and innovation for commercial purposes.

The Concept of Benefit-sharing

India became the first country to attempt to provide an equitable share of the benefits of commercialisation to traditional knowledge holders and innovators through a benefit-sharing scheme between the Tropical Botanic Garden and Research Institute (TBGRI) and the Kani tribal people of Kerala state.²² The Kani people share the benefits of the licensing fee and royalties on the sale of the drug Jeevani derived from the *Aryogapacha* plant.^{22, 34} The *TBGRI-Kani* case became unique and

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received world-wide acclamation for benefit-sharing arrangements. It is worth noting that when this benefit-sharing arrangement of the TBGRI-Kani came into existence, there was no legal regime in India governing benefit-sharing and protection of traditional knowledge. To disburse the benefits to the Kani people, a trust (Kerala Kani Samudaya Kshema Trust) formed²² This Trust received a licence fee and royalties which were then used for the benefit of the Kani tribe.^{22,34}

The United Nations Development Programme has praised this model of benefit sharing which acknowledges traditional knowledge holders as fair and equitable.³⁴ Subsequently, however, the TBGRI-Kani model has come under criticism for its shortcomings and has been labelled as unsustainable.²³ The problems arose within a year of the benefit-sharing arrangements. Disputes over raw material and ownership of the resources emerged. The land where the Aryogapacha plant grew belonged to the Forest Department and so the Kani tribe did not hold the title to traditional land. The Forest Department prevented the tribe from harvesting the plant for commercial purposes and this left the Kani tribe betrayed and helpless.^{22,23,34} There are deep seated socio-economic issues here; not just in that the Kani were deprived of the raw materials but also the lack of rights to derive economic benefits from their traditional land.

Surprisingly, the TBGRI had not only failed to apply for an extension of patents (product and process) when these expired in 2008 but had never applied to trade mark Jeevani. To exacerbate the problem, the identities of who should benefit in the Kani tribe was disputed creating a divide among this tribal community.²² Interestingly, one of the Kani tribe members pursuing research on Aryogapacha maintains that the TBGRI-Kani benefit-sharing is not a model but just a learning experience because no proper consultation was carried out with the tribe.²³ These issues highlight the limitations of the TBGRI-Kani benefit-sharing model. Most importantly, this case illustrates the interplay of collective rights, as evident from the common good approach and individual rights, as evident from the intellectual property regime. Although this predates the CBD, it still holds significance in the study of commercialisation of traditional knowledge.

In 2003, India set up the National Biodiversity Authority under the powers granted by the *Biological Diversity Act 2002*. This Authority is able to grant approvals for access to biological resources

and associated traditional knowledge. However, the Act does not confer rights or recognise benefit-sharing schemes. In the recent Conference of Parties on CBD held in India, concerns were raised about the absence of strong institutional mechanism for benefit-sharing and how the genetic resources of the country are at risk as the regulations are favouring commercial interests by overlooking the rights of community.²⁴ Although India took a lead in legitimising traditional knowledge through the documentation, registration and ethical sharing of the benefits, it has yet to learn from some of the failures and take longer term strategic actions with the involvement of indigenous people and other stakeholders.

The case of TBGRI-Kani benefit-sharing was akin to a clean slate approach and being a pioneer in this space was bound to have legal shortcomings. However, it has brought forward key building blocks that can help to re-conceptualise benefit-sharing in a holistic manner. Fundamentally, benefit-sharing is the exchange mechanism between those who grant access to a particular resource and those who provide compensation or rewards for its utilisation.²⁵ Under the CBD, benefit-sharing rights accrue from all forms of traditional knowledge and traditional cultural expressions. This is an important acknowledgement because traditional knowledge and practices can be a source of livelihood for traditional people, an integral part of their way of life and traditional knowledge may help in the conservation of biodiversity. Thus, it bestows a moral obligation on the receiver and the user to acknowledge the provider. This acknowledgement needs to be in a fair and equitable manner.

Article 8(j) of the CBD states that:

Each contracting Party shall, as far as possible and as appropriate, subject to national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices.

In other words, the approval and involvement of knowledge holders in the process of a further and wider use of traditional knowledge practice

and innovation is required. In addition, each contracting party involved in the wider application and diffusion of traditional knowledge should respect and share the benefits equitably with the traditional knowledge holders. Another requirement, [Article 15.7], is that legislative, administrative and policy measures be put in place to ensure fair and equitable sharing of benefits arising from research and development as well as those arising from the commercial utilisation of genetic resources. Such sharing will be on mutually agreed terms. In this context, it is worth noting that the UN Declaration on the Rights of Indigenous Peoples states that

Indigenous peoples have the right to maintain, control, protect and develop their cultural, heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their IP over such cultural heritage, traditional knowledge and traditional cultural expressions.²⁶

Overall, the main objectives of traditional knowledge protection in the UN Declaration and the CBD relate to the acknowledgement, prior approval, mutual consent, conservation, sustainable use and sharing of the benefits from the utilisation of genetic resources. The CBD does not explicitly elicit the requirement for consent or participation of indigenous people in access to resources or in the use of indigenous knowledge and technologies by others.²⁷ It can be inferred that the indigenous community is the custodian and can seek protection under the UN Declaration; however, it is silent on aspects of compensation and entitlements for sharing the traditional knowledge base. This gives rise to ethical concerns relating to the access, piracy, misappropriation of the resources and rights of the Indigenous community. Normal economic and regulative contractual agreements as benefit-sharing mechanisms overlook the basic tenets of fairness, equity, justice and conservation of biodiversity. The *TBGRI-Kani* case preceded the CBD and, by virtue of this fact, it will not be an ideal model for assessing the merits and demerits from a legal perspective. However, this case signifies the importance of institutional intervention in benefit

sharing and opens up the vistas of benefit sharing arrangements from the perspective of economic and moral rights.

Re-visiting the Notion of Benefit-sharing

The notion of benefit-sharing is complex as multiple stakeholders are involved in the value-diffusion of traditional knowledge and innovation. Benefit-sharing is seen as a “pseudo-legal concept designed to compensate marginalised communities and indigenous people for their intellectual contributions to bio-prospecting large and wealthy public or private organisations.²⁸ Benefit-sharing models based on the economic model of incentivisation are inherently flawed by not taking into consideration cultural, ethical and long term views that are central to the traditional knowledge system.^{29, 30} Thus, it is important to re-invent benefits accruing out of traditional/indigenous knowledge systems with a view of achieving equity that accommodates the rationalities of traditional knowledge.

Traditional knowledge is seen as connected to sacredness of life and the reciprocal relationship to maintain all creations³¹ It has a symbiotic relationship with the beliefs, habit and customs of communities.³² Accordingly, traditional knowledge-based products have a cultural value³³ whilst Western philosophy is based on an individual-based rights system and the commodification of natural resources.³⁴ This reveals the inherent flaw in the notion and application of benefit-sharing which overlooks the cultural, ethical and long-term aspects which are core to a traditional knowledge system.

The divergence in views between the two knowledge systems becomes a hurdle to constructing an acceptable benefit-sharing scheme. What is seen as equitable from a Western legal and economic viewpoint may be construed as inequitable from the viewpoint of traditional knowledge. The success of benefit-sharing depends on the bargaining capability of the community members and their ability to dictate the transaction. Additionally, varied motivations and perspectives drive this complex objective of equitable benefit-sharing³⁵ which is a good persuasive ideal notion that has failed in practice.³⁶ All these inherent paradoxes not only make rhetoric of benefit-sharing challenging, but also make the commercialisation and diffusion of traditional knowledge a volatile issue.

The case of India illustrates the economic incentives that led to the misappropriation of traditional knowledge, exploitation and marginalisation of the

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traditional knowledge holders and their resources and bio-piracy. Though India sets a respectable example in the mobilisation and protection of traditional knowledge and innovation, it is still at high risk of bio-piracy³⁷ and exploitation of tribal communities. Thus, benefit-sharing arrangements must embed legal, economic and moral rights for these arrangements to be sustainable. Overall, the benefit-sharing mechanisms are shaped through developmental policies, economic, cultural, legal and ethical aspects.

Understanding culture and traditional knowledge systems, and hand-holding community for legal, finance and market aspects is very important. From legal, sociology and management literature it is obvious that key success factors that influence the benefit sharing are: moral; economic; justice; culture;³⁸ value;³⁹ and bargaining power.^{30, 34} The benefit-sharing mechanism can sustain and function smoothly only through capacity building initiatives and good governance structures.⁴⁰ Additionally, the models for structuring rights over traditional knowledge such as public domain model, commercial use model, trust model, ownership model can be useful as inputs into a benefit-sharing scheme; perhaps as an amalgam of different philosophies that drive each model.

Figure 1 below conceptualises this idea by displaying the key factors that need to be taken into consideration:

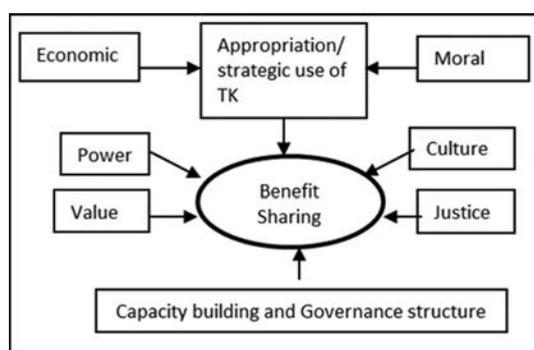


Figure 1: Factors influencing equitable knowledge sharing mechanism (compiled by the authors)

The commercialisation of traditional knowledge starts with scouting for traditional knowledge, validation, value addition, product and enterprise development, intellectual property rights protection, licensing and diffusion of the knowledge/innovation. Each of these activities is carried out by varied agencies which network with the knowledge holders, innovators and among themselves and support the traditional knowledge diffusion.

Figure 2 below depicts these dependencies among the stakeholders for the diffusion and commercialisation of traditional knowledge. It also shows the dependencies that need to be considered in benefit sharing arrangements between traditional knowledge holders, innovators, scientists, development agencies and private companies.

If the *TBGRI-Kani* case were mapped to Figure 2, the TBGRI would fall in the “science” circle where scientists not only validated the medicinal properties of the Arogyapacha plant but further developed the knowledge for the commercial purposes. In this case, Arya Vaidya Pharmacy (AVP) carried out the finance and marketing function. As TBGRI-Kani is an early case of benefit-sharing, the role of developmental agencies is absent. Each entity’s role can overlap based on the nature of cooperative arrangements. For instance, the development institute can scout, provide market reach and carry out research and development to add value to traditional knowledge.

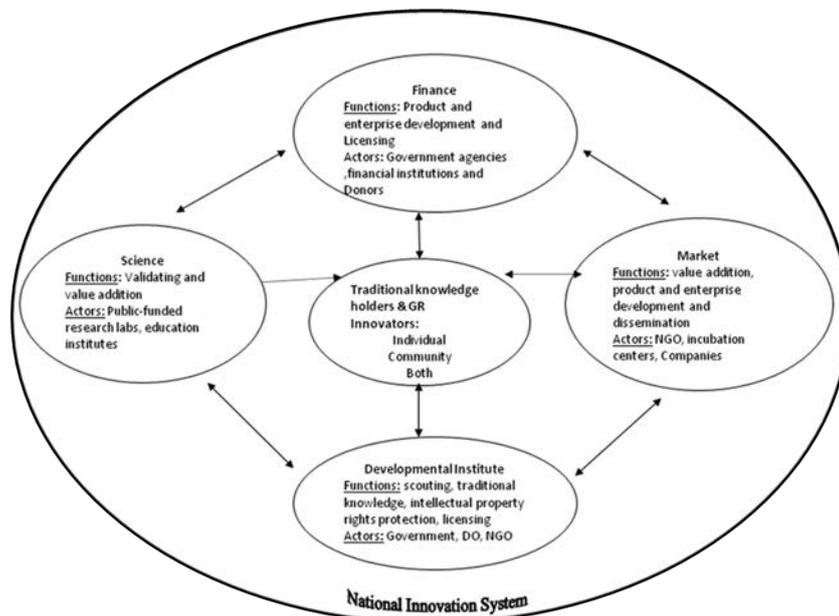


Figure 2: Role of stakeholders in the diffusion and commercialisation of traditional knowledge (compiled by the authors)

Given the above complexities, a sui generis approach may be necessary to create a fairer model for benefit-sharing.⁴¹ Such an approach would need to accommodate the fundamental differences in the worldviews, roles and objectives of the different stakeholders. The success of any benefit-sharing scheme will in the end depend on how these fundamental differences are viewed, accepted and accommodated in benefit-sharing schemes.

Conclusion

The term “fair and equitable benefit-sharing” is not defined in any international treaty. Fair and equitable benefit-sharing is not a matter of ethical distribution of benefits. Two important pre-conditions must be satisfied in a fair and equitable benefit sharing mechanism. The first relates to the socio-political power differences between stakeholders in the benefit-sharing negotiations, and the second to traditional communities’ fundamental differences in worldviews and conceptions of benefit sharing compared to those of Western notions.

To address the socio-political differences, traditional communities will need assistance in increasing their knowledge of Western systems, negotiation skills and access to legal services. Government, as an important stakeholder, needs to invest in the traditional communities. Benefits from

traditional knowledge can be a source of economic contribution to a nation and so it pays to invest in these communities. However, supra-national organisations also need to play a role in ensuring that there are universal rules to protect the human rights of traditional/indigenous knowledge holders.

Close scrutiny of the complex relationships between all stakeholders (see Figure 2) is required to facilitate a fair and equitable outcome for traditional knowledge holders. National governments have an important role to play in this respect.

To address the fundamental differences in the worldviews, the starting point is to recognise that stakeholders may have completely different understandings of primary concepts such as intellectual property protection. Indeed, there may be a total lack of understanding of primary concepts on the part of traditional knowledge holders. If traditional knowledge holders are not comfortable with the application of intellectual property rights to their traditional knowledge or products derived from them, then it may be appropriate to consider other forms of protection to accommodate their beliefs and to show respect.

Ultimately, it is up to all stakeholders to come to an agreement on terms and conditions for a fair and equitable benefit-sharing scheme. Crucially, both developed and developing countries have a major responsibility and role to play in making the sharing of benefits from traditional knowledge fair and equitable.

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