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Between hope and hype: Traditional knowledge(s) held by marginal communities

Rapti Siriwardane and Sarah Winands

Abstract

Traditional Knowledge (TK) systems have always been integral to the survival and adaptation of human societies. Yet, they enjoy a fairly recent recognition and popularization by scientists, the media, politicians, corporates and the wider public. In this paper we present a typology of key driving forces behind the popularization of TK held by marginal communities: an equality preference motive, a value motive, a compliance motive, a scarcity motive and a strategic motive. Secondly, through the use of a simple model, we discuss the hype's impact on marginal communities. Moreover, we critically assess the outcome of a number of policy instruments that intend, in part, to protect traditional knowledge bases of such communities. Our analysis primarily draws upon secondary literature; policy documents and case studies within economics, the social sciences, conservation biology and legal studies. We argue that whilst the public and institutional hype around TK may have resulted in its prioritization within international conventions and frameworks, its institutionalization may have adversely impacted marginalized communities, and in particular contexts, unintentionally led to the creation of "new" marginals. We purport that the traditional innovation incentive motive does not hold for protecting TK within a private property regime. Instead we identify a conservation incentive motive and a distribution motive that justify deriving policy instruments that focus on TK to protect marginal communities.

Key words: traditional knowledge; marginality; common property regime; social welfare; community participation

JEL classification: D6, D8, J15, O34, Z13

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List of Abbreviations and Acronyms

ABWC:	Alaskan Beluga Whale Committee
CBD:	Convention on Biological Diversity
CBRM:	Community-based Resources Management
IDS:	Institute of Development Studies, Sussex (UK)
IGC:	Intergovernmental Committee on Intellectual Property and Genetic Resources
IP:	Intellectual Property
IPRs:	Intellectual Property Rights
NIF:	National Innovations Foundation (India)
TK:	Traditional Knowledge
TKF:	Traditional Knowledge and Folklore
TFRK:	Traditional Forest Related Knowledge
UNCCD:	United Nations Convention to Combat Desertification
UNEP:	United Nations Environment Program
UNESCO:	United Nations Educational, Scientific and Cultural Organization
WIPO:	World Intellectual Property Organization

1 Introduction

The concept of Traditional Knowledge (TK) enjoys increasing popularity among politicians, scientists and the wider public. For centuries though, local communities have possessed unique forms of traditional knowledge, for example in the case of medicinal practices and healing lore. A pharmaceutical firm may however 'discover' a particular application and use it to develop professional analgesics, for instance. The same applies to bio- and agrotechnology and a number of other industries, which have the propensity to benefit by appropriating TK systems found anew by external entities or third parties. The story of knowledge traditionally held by local and indigenous communities perfectly mirrors the fate of the TK concept. Traditional knowledge forms and their associated customary practices governing processes of knowledge sharing and intergenerational transfer have existed in human societies since time immemorial. However, academics and other scientists, politicians, the media, NGOs, corporates and the wider public 'discovered' the concept (for themselves) fairly recently. We dedicate our paper to this recent recognition and popularization of TK.

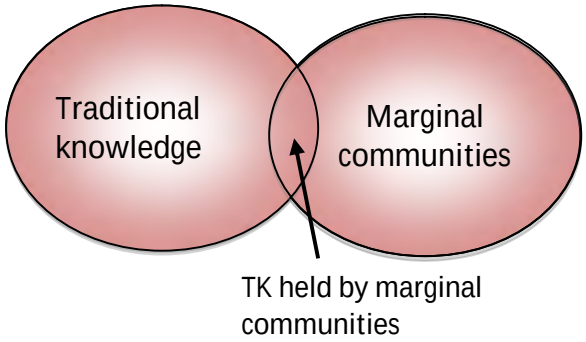
We favor using the term 'traditional knowledge' or TK as opposed to indigenous, folk or local knowledge given its existing popularity within the nomenclature of development research, policy-making and in the vocabularies of international protocols, where TK appears as both concept and buzzword. To this day, TK remains a highly contested notion[1]. Our contention with ongoing debates around the meanings, values and benefits of TK arises from the sheer degree of complexity underpinning these analyses. For conceptual clarity, we build our definition of TK by drawing upon the work of Nakashima and Roué (2002, p. 315) and Berkes (1993, p. 3). We conceptualize TK as a complex assemblage of knowledge, know-how, practices, values and meanings that guide societies in their daily interactions with the socio-natural world, which in turn continue to evolve through adaptive strategies in the face of socio-ecological change; these knowledge forms are usually context-specific, and may often (though not always), be transmitted inter-generationally.

Interlinkages between TK use and ownership and its relationship to community, household and individual marginalization are not clear-cut. As *Figure 1* illustrates, not all marginal communities may use or have access to the kind of TK practices that would be beneficial to them. Similarly, TK forms may be accessed, collectively used and owned by non-marginal local communities and other entities. Academic scholarship and policy analyses allude to the fact that TK (in its plurality), can be conceptualized as shared community resource, given its centrality to local livelihood securities and in providing the basis for material and bio-cultural survival and adaptation. In most cases, TK is governed by a common property regime and could be understood as a resource that exists and evolves endogenously within a community. Culturally embedded forms of knowledge are affected by a multiplicity of factors that may be external to a particular community in which it evolves. However, its trajectory and rapidity of change may still remain markedly site-specific and may arguably hold value as a commonsensical worldview that is specific to the everyday aspirations and practices of a specific social group. Moreover, TK apart from serving a practical purpose in everyday material life, also constitutes as both a social and cultural resource by playing a central role in community-based governance structures on which institutionalized behavior-in the form of rules, norms and taboos-are constantly reproduced and negotiated (cf. Ruddle 2001, p. 278).

Irrefutably however, not all aspects of TK–or what is packaged as being 'traditional'–are necessarily beneficial to local communities or to their immediate socio-ecological context (see Ruddle 2001; Briggs 2005). Furthermore, not all members of a particular community may enjoy equivalent rights of access or use to the same stock of knowledge (Gerke and Ehlert 2009, p. 2).

[1]The terms that are being used alternatively such as indigenous knowledge, folk science, and local knowledge contain their own problematic conceptual assumptions, with their notions of community, indigeniety, geographic scale, and meanings around what constitutes localness (cf. Robbins 2000; Dove 2006).

Figure 1: Traditional knowledge held by marginal communities



Source: own depiction

This paper is concerned first of all in unveiling the different narratives that continue to refashion TK as a buzzword and boundary concept (cf. Mollinga 2010). In drawing upon economic theories and in borrowing methods from narrative analysis[2] largely within the social sciences, we tease out some of the key driving forces, underlying motives that led to the popularity of TK. The second major focus lies on the impact of this TK popularization on marginal communities[3]. We are interested how western-centric popularization and its emergent practices around TK formalization and institutionalization influences different types of marginality. Furthermore, we dismantle the emotional-ideologically influenced demand to use privatization of TK as an instrument to protect marginal communities. We discuss three arguments for the protection of TK and marginal communities as well as potential policy instruments.

Our analysis primarily draws upon secondary literature; policy documents and case studies within economics, the social sciences, conservation biology and legal studies. This study primarily investigates the external forces that shape the popularization of TK, with little emphasis on states of marginality[4] that are *internally* created by formal and informal structures within communities of TK Commons themselves. For the latter the paucity of appropriate case-study material remains a challenge. Thus, a detailed analysis on the underlying local power structures that shape, reproduce and contest spaces of marginality goes beyond the scope of our study. Secondly, we do not provide a detailed analysis on how the formalization of TK impacts marginals along different scalar dimensions of the local, national, regional and international, which in turn has a bearing on how rights to access, use and benefit sharing are shaped and negotiated. Similarly, the study focuses on stocks of TK in a more general sense, and to the extent possible, acknowledges their immense internal diversity, which includes facets as disparate as medical custom to folk art, which in turn, are governed by distinct intellectual property regimes (Ragavan 2001, p. 6).

To the best of our knowledge, there is scant literature within the disciplines of economics, law, and environmental sciences and only very little within the social sciences (e.g. ethnographic research by Murray-Li 2005), that draw an *explicit* link between the use and ownership of traditional knowledge by local communities and its relevance to different types or states of marginality. With this study we provide a first analysis and pave the way for further interdisciplinary research on the conceptual linkages between forms of marginality, and the diverse processes of knowledge formalization.

[2] In this context, we have treated narratives as interpretive devices, focusing on the ways in which institutions, in particular, create and use stories to interpret their world (Lawler 2002)

[3] We use the terms 'marginal communities' and 'marginals' interchangeably.

[4] We draw on the definition of marginality as an involuntary position and condition of an individual or group at the margins of social, political, economic, ecological and biophysical systems, preventing them from access to resources, assets, services, restraining freedom of choice, preventing the development of capabilities, and eventually causing extreme poverty (Gatzweiler et.al, 2011). To derive a more understanding of different states around marginality, we will be considering the categories of social exclusion as well as what Hickey and Du Toit have termed as "adverse incorporation" (Hickey and Du Toit 2007, p. 4 f.).

The paper is organised as follows: In Section 2 we introduce the concept of TK and the nexus between TK and marginals. Next, in Section 3 we turn to the underlying motives that play a role in shaping the popularity of TK. In Section 4 we describe the implications of the 'hype' for marginal communities and the political debate. Finally, we conclude in Section 5.

2 The concept of traditional knowledge held by marginal communities

In this section we elucidate the origins of TK as a public good as well as a socio-politically embedded concept (Section 2.1). We argue that the formalisation process of TK use and ownership by marginals created three legacies, inter alia the notion or boundary concept of the TK Commons. We will discuss the nature of TK as a good, together with its potential governance regimes, one of which entails a common property regime (Section 2.2).

2.1 The genesis of the traditional knowledge concept

Diverse forms of knowledge have accompanied humankind over millennia of environmental change and cultural adaptation. As a number of scholars have argued, the societies that developed their TK forms did not wait for official recognition of their practices before forming their own socio-natural landscapes, through agro-ecological systems of food production, the domestication of plants and animals, and complex medicinal practices among others, which to this day, continue to play a major role in the global economy (Agrawal 1995; Nakashima and Roué 2002; Dove 2006). As Noyes (2010, p. 4) asserts, traditional knowledge and cultural forms come with their own unique natural histories, which should in the least be seen in terms of evolutionary "progress", but more as a complex set of lifeworlds that have undergone cyclical processes of adaptation with remarkable ingenuity and tenacity.

The study of what we perceive as TK today is hardly new in the face of early anthropological inquiry. In naming a few such as Claude Lévi-Strauss' seminal study *La pensée sauvage / The Savage Mind* (1962) together with William Allan's *The African Husbandman* (1965), the salience of indigenous (traditional) knowledge gradually took shape within social scientific imagination (cf. Briggs and Sharpe 2004). Yet arguably, these projects were themselves guided by the need to valorise folk knowledge beyond their narrow framing as survival strategies, and as systems that were equally sophisticated and comparable with western knowledge and science (cf. Briggs 2005). What we could see as constituting a body of 'legitimizing scholarship,' took on another and more political form, encompassed in the idea of TK as a suitable countervailing force to the top-down narratives of modernist, global development. For example, the Institute of Development Studies' (IDS, Sussex) first bulletin with its explicit reference to indigenous knowledge in 1979 bears testimony to this (ibid, p. 4).

There is little substantive literature tracing the evolution and entrance of the term 'traditional knowledge' into international commercial, environmental and development rhetoric. However, the (re)emergence of TK could be attributed to the 1992 UN Conference on Environment and Development (or the Rio Earth Summit). The seemingly exchangeable terms traditional and indigenous knowledge were first incorporated into the Convention on Biological Diversity[5] (CBD), together with Agenda 21 and the first global consensus on forests–the Statement of Forest Principles (Martello 2001, p. 122). Arguably, the Rio Summit was also instrumental in coining a raft of operational definitions and categories of traditional knowledge, for example the term 'traditional forest-related knowledge' (or TFRK), a concept that later gained renewed salience within property rights regimes. However, Rio left behind three legacies.

[5] United Nations (1992): Convention on Biological Diversity, 31 Int'l Leg. Mat. 818, Rio de Janeiro, 05.06.1992.

Firstly, there hardly existed a transnational consensus (or serious debate) on what could be defined as traditional or indigenous knowledge (Nakashima and Roué 2002). As a corollary, old catchphrases and buzzwords continue to confuse, polarize and draw attention away from more pressing debates on power asymmetries between TK-holders and their 'intermediaries' who may possess the power to define, translate and formalize these knowledge bases. The second legacy that Rio left is its notion of TK as a panacea that could be invoked to arrest the Eurocentric, authoritarian and de-politicizing currents of western science, global development and environmental practices (Escobar 1995; Ziai 2010). Ironically, however, if it were to be seen as a panacea that would solve the 'development impasse' of the 1980s, there was little political reference of TK, its relevance towards redressing power asymmetries and socio-political inequalities among the poor, vulnerable and the marginalized, in terms of who participates in decision-making and what it means to participate. Arguably, the politics of marginality was implicit in these early projects of TK formalization[6] and institutionalization, though it was by no means apolitical.

We now arrive at the third legacy of Rio – the conception of the TK Commons. The Rio Summit reaffirmed the nexus between traditional knowledge and marginal communities. The CBD demands in Art. 8j to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles (...)". The focus is neither solely on the traditional knowledge nor solely on the communities, but on their overlap (ref. *Figure 1*): traditional knowledge commons. We outline and clarify this essential concept in the next subsection.

2.2 The nexus between traditional knowledge and marginal communities

Traditional knowledge and marginal communities holding this knowledge are frequently subsumed under the term traditional knowledge commons and the communities' traditional knowledge is at times classified as a common property resource. In this subsection we outline the concept 'traditional knowledge commons'. To this end, we first clarify the difference between the nature of the good TK and property regimes it is governed by.

A common property resource, for instance, is a melange of the concepts of the nature of a good and its property regimes. Two parameters, exclusion and rivalry, classify goods on a continuous scale ranging from purely private to purely public goods. Exclusion refers to the possibility to prevent someone using a resource; rivalry expresses whether the use of the good by one user conflicts with the use of this good by someone else. TK is characterized by the properties 'difficult exclusion' and 'non rivalry'. TK can therefore economically be conceptualized as a *public good*–not a common pool good (as a common pool good has the property 'high rivalry'). In other words, the use of TK by one sub-group would not necessarily diminish its value, quality or quantity in the eyes of another. In contrast to public natural resource goods like the atmosphere, the use of knowledge is beneficial, rather than neutral, for the preservation of the public good. Machlup (1983, p. 641) depicts knowledge as information plus its application capability. Resource use, i.e. information application, contributes to knowledge survival, growth and improvement. The nature of TK is similar to public and scientific knowledge. Nevertheless they tend to be governed by different institutions.

Hess and Ostrom (2003, p. 119 ff.) stress the difference between the nature of a good and its property regime; a public good as any other type of good can be governed by different property regimes. A basic classification distinguishes between private property, common property and open access regimes. Open access to knowledge does not lead to a tragedy (of open access) as in the case of natural resources (Dutfield 1999, p. 4), because knowledge does not diminish with extensive use. However, knowledge can be under threat by non-use. Local communities that perceive themselves as knowledge custodians (e.g. Abrell 2010, p. 7) ensure the survival of knowledge–so that it eventually becomes traditional knowledge. The communities are tightly linked to TK. Therefore we refer to our

[6]By formalization, we refer to the interpretation, transmission and integration of TK into the formal knowledge base within a community institutional or policy context.

research object 'communities with traditional knowledge' as *traditional knowledge commons,* meaning, a community that governs TK under a common property regime.

Common property regimes consist of internal rights and duties. Access, withdrawal, management, exclusion and alienation rights (Schlager and Ostrom 1992) determine the community's internal governance structure of TK. We adapt the specification of the rights at the operational level defined by Schlager and Ostrom (1992) to apply to TK; access describes the right to be familiarized with a certain knowledge and withdrawal the right to obtain benefits from applying the knowledge. The analysis of different sets of rights is important to understand the incentives various community members have to preserve their TK and the impact a commercialization has for them. Members with rights at the operational level enjoy less power and influence in the community structured around TK than those with collective choice rights. It is important to note that community members might also be marginalized as a result of the internal governance structure of the TK Commons, particularly in cases where certain groups within a community might be excluded from knowledge access.

Private property regimes that govern knowledge often take the form of patents; this governing regime has become increasingly popular with technological and pharmaceutical knowledge. Other forms are trademarks, copyrights or plant variety rights (Swanson and Göschl 2000, p. 79). Patenting serves as a temporary private property solution to create incentives for invention and research. It is a policy instrument to facilitate the provision of a public good, i.e. to overcome the free-rider incentive. Patents move knowledge out of the public domain for a certain time span. Scientific knowledge remains a public good. After the end of the patent, the private property regime, it can be governed by a common property regime (e.g. generic medicals) or by open access.

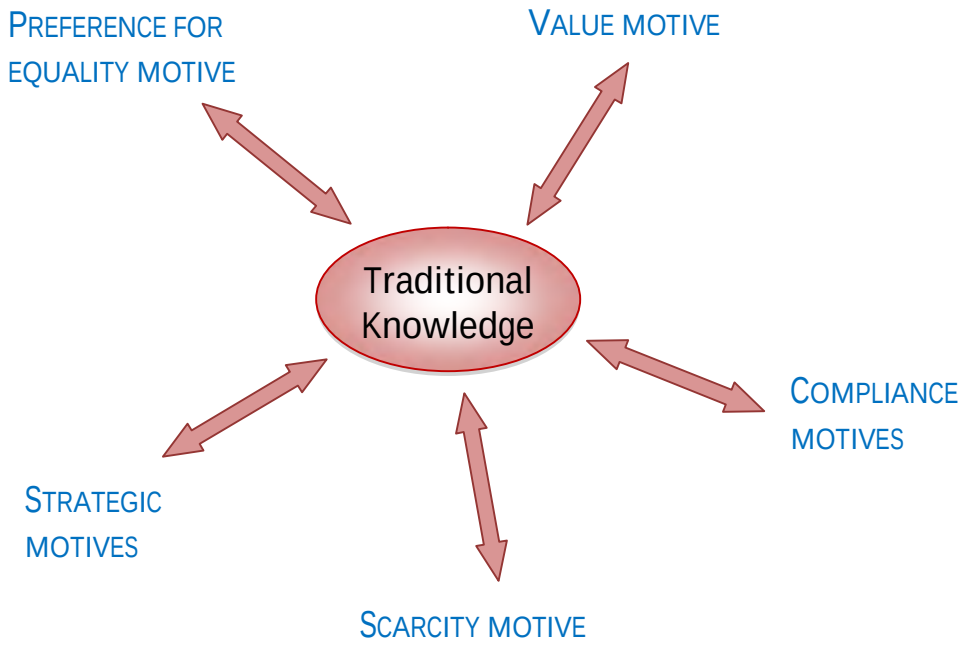
Intellectual property laws are a Euro-American institutional setting driven by an invention incentive motive, which remunerates new knowledge. TK cannot be patented on innovation grounds (Ragavan 2001, p. 22 f.). However, privatization could serve different ends with TK. As mentioned earlier, TK is threatened by non-use. Instruments could be designed to remunerate TK holders for their service as TK custodians.[7] This prospect is one of the aspirations that fuel the hype around traditional knowledge held by marginal communities to which we turn in the next section.

3 The hype around traditional knowledge held by marginal communities

In this section we address the popularity of the nexus between traditional knowledge and marginal communities. We present a number of driving forces or motives spurring scientific, commercial, and policy attention paid to TK ownership by marginals. Some attempts, within the social sciences at least, have sought to categorize (diverse forms of) TK, with a focus on understanding its *internal* characteristics, vis-à-vis its relationship to western scientific thought and practice (Agrawal 1995; Hoppers 2002). Therefore, some classificatory efforts could also be seen as a by-product of the seemingly uneasy tension on how best to situate TK in existing knowledge frames. In the way of an alternative, we present a complementary typology that outlines the ex-situ salience of TK as a resource that is in part, fashioned by institutional agendas and wider socio-political norms and processes. In other words, we are equally concerned with the (external) *re-invention* of TK and its impact on marginal communities. The factors we have identified are by no means exhaustive. We distinguish five motives (*Figure 2*): an equality preference motive (Section 3.1), a value motive (Section 3.2), a compliance motive (Section 3.3), a scarcity motive (Section 3.4), and a strategic motive (Section 3.5).

[7] It has to be seen though, whether privatization along the lines of western intellectual property regimes is adequate and compatible, particularly with reference to TK conservation (and in protecting marginalized communities).

Figure 2: Underlying driving motives shaping the popularization of TK



Source: own depiction

3.1 The preference for equality motive

One factor driving the popularity of TK held by marginal communities is a preference for equality by certain individuals. These individuals gain utility from a commitment to respect and to esteem (currently) marginal communities and their traditional knowledge. Empathy and altruism can influence individuals' decisions and acting; one can gain utility from moral satisfaction. The normative convictions of an individual influence her preference for the shaping of society. To analyse the preference for equality motive we take an external normative perspective and use concepts from welfare economics, which differ inter alia in their consideration of distributional aspects. Individuals' normative convictions drive the preference for different normative welfare concepts; individuals have a preference for how society or the government should maximise its social welfare. We analyse which welfare concepts nourish the hype around TK held by marginal communities. To this end we consider in how far different welfare concepts include preferences for equality driving such hype.

During the last decades and still today, the Utilitarian concept developed inter alia by Jeremy Bentham and John Stuart Mill enjoys widespread popularity – especially among economists and politicians. The Utilitarian concept uses a social welfare function to maximise a society's welfare. The relative distribution of utility between individuals is unimportant in this concept, only the total welfare matters: the social welfare function is the sum of the inhabitants' utility functions and individual utility is a function of individual consumption. The utility of a person is thus independent of the utility of another person, i.e. no externalities of utilities exist. The utilitarian welfare function reads:

$$W(C_{NM}, C_M) = U(C_{NM}) + U(C_M) ,$$

whereby W denotes welfare, U utility, C consumption, NM non-marginals, and M marginals. Note that the maximisation can result in a process of equalisation for some functional forms. For utility functions that exhibit diminishing marginal returns to, for example, consumption, the utilitarian welfare maximisation advises society to allocate resources first to the poor in order to maximise the sum of utilities, because the poor get a higher utility from one unit of consumption than the rich. As ex-

plained above, the Utilitarian concept does not, however, consider equality preferences as such. Individuals with such conviction would not choose a utilitarian concept to maximise social welfare.

Whereas the utilitarian approach analyses a society with the focus on the welfare outcome, deontology considers societal processes themselves. The deontological libertarian approach (e.g. Nozick 1974) takes a rights-based perspective. Maximising the basic rights of individuals maximises welfare:

$$max\ W(R)\ ,$$

where R is a vector of all basic rights which are identical for non-marginals and marginals: $R = R_1, \ldots, R_n$. Basic rights as defined by these libertarians are not equal to human rights. They are negative rights, e.g. no one has the right to harm you, or no one has the right to take away your income which you have rightly earned. The libertarian approach serves to explain the increased interest in and concern for marginals which are marginal because they are excluded from basic rights, but not for poor and other socio-economically vulnerable marginals. Libertarians consider a distribution to be just that is the outcome of a process in which everyone enjoyed the liberty of exchange. They advocate the free market as asset distributor within a society. One important implication for TK is that local communities have the right to require remuneration for sharing their knowledge (as they own it). Another implication is that the land and environment local communities live in belongs to them and cannot simply be 'expropriated'. Finally, the libertarian approach justifies redistribution to compensate for historic violation of property rights–this is highly relevant regarding the unequal land distribution which is frequently a result of aggressive invasion into their territory by western countries or the local elite–albeit generally, there is no scope for government redistribution policies.

Individuals adhering to the egalitarian concept of John Rawls[8] give particular consideration to marginal communities. Rawls's concept is motivated by social contract theory. If individuals take decisions on asset allocation within a society under the famous 'veil of ignorance', the shaping of society will definitely be driven by a preference for equality–inter alia of marginals and non-marginals. Rawls claims that individuals would grant everyone the same basic liberties that do not interfere with another person's liberties (Rawls 1971, p. 60). Individuals will furthermore want to *maxi*mise the *mini*mum utility belonging to some person or group in society. Rawls's *maximin* concept can be expressed by a welfare function. It can be considered as a very special case of the utilitarian welfare function: In the case of infinitely risk averse individuals and insecurity concerning the initial distribution of resources, the utilitarian welfare function converges to Rawls's welfare function:

$$W(C_{NM}, C_M) = min\ (U(C_{NM}), U(C_M)).$$

Rawls's welfare function states that only an increase in utility of the least off individual, in our case of marginals $U(C_M)$, will increase social welfare (Rawls 1971, p. 303). A conviction of individuals that one should decide upon the shaping of society under a veil of ignorance will drive their concern about marginal–potentially create a hype around them.

Interestingly, Stark et al. (2011) find that "when individuals care also about trailing behind others in the income hierarchy (exhibit a concern for relative deprivation), the maximization of a social welfare function that sums up the individuals' utilities (with these utilities incorporating the said concern) mandates income equalization". This implies that individuals which favour an egalitarian social welfare function will also drive a utilitarian welfare maximisation that correctly depicts their utilities–e.g. in a society applying standard utilitarian welfare maximisation out of custom–to an egalitarian solution, and in our case to a concern for marginals.

3.2 The value motive

People increasingly recognize the value of TK held by marginal communities and aspire to reape considerable benefits from its commercialization. For instance the United Nations' Convention on Biolog-

[8]Some egalitarian scholars critique Rawls for focusing on basic social goods. They argue for a broader concept of equality, e.g. equality of opportunity (John Roemer) and equality of real freedoms (Amartya Sen).

ical Diversity (CBD) and its later documents pay particular consideration to TK associated with biological resources (CBD 1992, Article 8j). Numerous initiatives and most prominently the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC) of the World Intellectual Property Organization (WIPO) and the Nagoya Protocol[9] to the CBD from 2010 aim to initiate a fair and equitable process of access and benefit sharing of assumed valuable indigenous and local communities' TK that increases mutual welfare.

Background to this effort is the realization–or possibly merely the hope–that TK is in itself valuable. The overall value of TK is difficult to estimate. Economic research differentiates between two main types of values: use values and non-use values (e.g. Perman et al. 2003, p. 402). The estimation of non-use values is most challenging and requires (perfect) information about the individuals' preferences for TK. Those preferences are difficult to elicit; current valuation concepts using Willingness-To-Pay and Willingness-To-Accept measure very rough values. Determining use values is easier; often the market price is a sufficient approximation of the use value. TK, however, is sparsely valued (directly) over the market. The occidental intellectual property institutions largely concentrate on market-based intellectual property rights that are not easily compatible with TK and thus few market values for TK exist. However, scholars try to find ways to reconcile the two institutional systems (e.g. Downes 2000). The National Innovations Foundation (NIF) India filed 469 patents on behalf of innovators of grassroots innovations, which largely build on TK, in India and the United States (Gupta 2011). Bioprospecting[10] contracts between pharmaceutical, biotechnology, or other interested companies and local communities define remuneration for the use of TK. Both monetary benefits such as royalties and non-monetary benefits like education, joint research and development or research facilities (which also have a monetary value) value the TK. In the famous Hoodia case the indigenous community San from the southern part of Africa successfully fought for a six percent royalty rate from all pharmaceutical product sales developed out of their knowledge on the use of the Hoodia plant (Wynberg 2004). Since the Nagoya Protocol, agreements on TK are an essential part of Access and Benefit Sharing (ABS) contracts as defined under the CBD (CBD 2010; Kamau et al. 2010, p. 252). Several local communities have established their own bio-cultural protocols to formalize the commercialization of their TK (Abrell 2010, p. 6 ff.). Most of these contracts are however under disclosure and, although they show the fact that TK has a use value, they do not reveal the exact figure. Some products are known to be derived from TK although there has never been an agreement signed and the owners of this knowledge have never participated in the benefits. According to Posey (1990, p. 15), who draws on data from the Fundaqao Brasileira de Plantas Medicinais, "the annual world market value for medicines derived from medicinal plants discovered from indigenous peoples is US$43 billion". TK is also valuable for development cooperation agencies and environmental organizations; many include TK in their project portfolios (eg. Kassam 2002; Dove 2006). Market valuation only captures part of the use value individuals obtain from TK, i.e. the use that is exchanged via markets. TK is one of those assets which largely operate outside the formal market, especially in indigenous and local communities. Holders of TK benefit from their TK in almost every sphere of their life: from mere survival and adaptation, to leisure and community belonging (Noyes 2010, p. 2).

Individuals value TK not only because they obtain use from it today, but also because they themselves will obtain use from it in the future (indirect use value = option value). The option value covers the insurance value of TK; it is closely related to the individual's risk aversion. Individuals with a high-risk aversion–and this may be particular true of marginals vulnerable to external shocks–value TK as an insurance, which increases the potential to cope or adapt to unexpected events, more. High option values for TK reduce the individuals' discount rate. They are willing to invest in the perseverance of TK and are reluctant to alter the existing TK commons. Individuals from developed countries are as likely to have high option values as are members of the community holding TK or individuals from the community's country. TK provides a valuable knowledge pool for high tech products. It inspired the

[9] United Nations (2010): Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits from their Utilization tot he Convention on Biological Diversity, Nagoya, 29.10.2010.

[10] Bioprospecting involves searching for, collecting, and deriving genetic material from biological resources that can be used in commercialized pharmaceutical, agricultural, industrial, or chemical processing end products.

research for numerous pharmaceutical products, such as the already mentioned appetite suppressant (Wynberg 2004) or Eli Lilly's medicine for childhood leukemia originating from Vinca Rosea used by locals in Madagascar (Rubin 1994, p. 27). Farnsworth et al. (1985, p. 967) identified that the plant used for a pharmaceutical has a similar use in traditional medicine for 74 % of their examined 119 pharmaceuticals.

Non-use values are more intangible. Economists disaggregate non-use values into bequest values and existence values. The former exists whenever individuals want to conserve TK for their offspring for use or as an insurance, although they themselves do not profit from it. If individuals value the pure existence of TK although they or their offspring will never have the chance to use it, they assign an existence value to TK.

3.3 The compliance motives

We now turn to considering the hype around TK in relation to its value as a s*ocio-political* resource. We look at what we call the 'compliance' motive that in part, served to popularize TK, at least within international governance regimes. Arguably the political value behind formalizing TK lay in its promise of serving as a leveraging tool to discipline (perceivably unfavorable) policies of nation states. This notion, in particular, is implicitly articulated within frameworks of international environmental governance regimes that appeared since Rio.

Since the late 80s and 90s, the 'fines and fences' approach to biodiversity conservation came under increasing scrutiny, not least of all among global environmental governance actors who were once the very proponents of top-down approaches to protected area management (cf. McCarthy 2006). Whilst some of the earliest concepts around Community-based Natural Resource Management (CBRM) and co-management were taking shape, rights-based approaches to social development were being articulated around the same time. Thus, formalizing TK as a new conservation instrument lay in the recognition that biodiversity-dense places were also the living spaces of indigenous and land-based marginals, and that different aspects of TK shows promise of addressing socio-environmental complexities, in ways that modern science and technology did not (Dudgeon and Berkes 2003, p.86). By virtue of what was packaged as their (sustainable) dependence on the local natural resource base, notions around custodianship and stewardship came into vogue. The mantra maintained that in order to protect marginal biodiversity under threat, it was necessary to protect the belief systems of marginal communities whose very survival seemed dependent on the existence and continuity of a healthy local natural resource base.

However, within a post-Rio context, the possibility of upholding, legitimizing and maintaining 'sustainable' TK practices were in part dependent on the degree to which socio-political structures of nation-state were in themselves inclusive. Thus, upon closer reading of international environmental protocols as well as developmental policy documents that were forged during Rio and after, a strong thematic connection could be seen between the duty of states to safeguard TK and concomitantly to protect its own natural resources and ecosystems. For example, Agenda 21 (1992), Section 26.3 maintains that: "Governments should aim to recognize the values, traditional knowledge and resource management practices of indigenous people with a view to promoting sustainable development." In a similar vein, Forest Principles (1992), Principle 5, unambiguously draws attention to "national forest policies" and their imperative to "recognize, support the identity, culture and rights of indigenous people, their communities, and other communities of forest dwellers." At face value, these clauses strengthen the imperative of the nation state to enact ecologically sound and sustainable resource management policies. Implicitly however, the formalization of TK can be seen as a means by keeping contentious local and national policies in checks and balances, vis-à-vis by upholding TK's existential value and by legitimizing its use by marginalized communities and thereby bolstering their bargaining power within the realpolitik of a nation state. Thus, this compliance rationale is more relevant within the context of national policymaking, through which underlying moralities

and rationalities of individual state initiatives are measured against the rules and norms ascribed by global governance regimes.

Arguably however, the formalization practices of TK and the processes in which they are translated into local contexts can be highly politicized, in part because they contain the legacies of complex historical conflicts between communities, colonizing powers and modern nation-states. Furthermore, as Martello (2001, p. 130) concurs, much remains to be said about the 'hollowness' underlying the institutional formalization of TK within the global spaces of conventions, governance institutions and their international protocols in which "rights and traditional knowledge belong in separate places." Therefore, one is said to exist as an empty notion without the other.

3.4 The scarcity motive

A second socio-political rationale that, in part, drives the hype behind TK is embedded in its framing as a scarce resource. This notion is closely interlinked with the use and option values of preserving TK, given its foreseeable benefit in the future. However, we expose the problems of the scarcity rationale given its inherent danger of framing TK as a supposedly relatively homogenous, static and pristine entity, given its perceived rarity and its threat of disappearance as a result of 'modern' change and transition. Interestingly, the vocabulary used by institutions stressing on the necessity to 'archive' TK, bears a striking similarity to narratives around the conservation of biological diversity. The United Nations Convention to Combat Desertification (UNCCD 1994)[11] details the necessity to save "locally-situated" knowledge forms from disappearance and suggests mechanisms to achieve this goal. In this context, TK takes on the identity of a resource that needs to be protected, most of all from the globalizing, commercialist dangers of market forces. In part, this preservationist narrative can be glimpsed in the in Article 18 (2) which stipulates that: "Parties shall…promote, use, and make inventories of relevant traditional knowledge, know-how and practices and their use…disseminate such information; protect such technology, knowledge, know-how and practices and ensure that local populations benefit from commercial uses…facilitate as appropriate, the adaptation of such technology…to wider use and integrate them with modern technology, as appropriate." Several arguments can be drawn from this excerpt.

Firstly, it raises a number of problems by drawing attention to the politics behind the ex-situ preservation of TK in often centralized and bureaucratically organized databases (Agrawal 1995). The implicit notion of immortalizing (appropriate) forms of TK often tends to not merely compartmentalize different practices, but may also inadvertently place them within a particular historic and contextual time-freeze. Simpson (2001) recounts how 19th century traditional fishing practices among the Nanuvut, for example, were codified by Euro-Canadian researchers and officials, which allowed First Nations communities little bargaining power in understanding how relatively low-impact nevertheless newer technologies could be accepted and legalized.

The second implication behind scarcity rationales lies in the paradox of having to 'scale-up' TK practices, and thus de-linking them from their local contexts. As Martello (2001, p. 125) argues, it bears the implicit assumption that TK could be made portable and universal in a way that western science is. In other words, the scaling up of TK practices and know-how seems akin to modern technology transfers. This notion runs counter to the conceptualization of TK Commons as custodians of their own knowledge, As Martello (2001, p. 125) asserts: "how will the rights, beliefs and customs of TK holders be protected if such knowledge is to be [made] portable?" In other words, issues with respect to the 'scaling up' of TK should at best be cast with a critical eye, as attempts to transfer their codified practices may have very real material and political implications on the communities in which they were first seen to have evolved.

[11] United Nations (1994): United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa. Nairobi: UNEP.

Thirdly, a number of scholars have argued that western scientific discourses have, in part, been maintained by the construction of crisis narratives (Hoppers 2002; Briggs and Sharpe 2004). Arguably, discourses that draw distinctions between bad versus sound and policy-led versus evidence-based science span almost every socio-ecological arena – from climatology and soil science, to forestry and water management for example. It could therefore be argued that the importance of TK could be seen within a similar context: a context in which it has been invoked as a scarce resource – by virtue of its recognition a panacea that holds promise of countervailing exclusionary state policies, top-down development practices and unsustainable forms of resource use and management, among a litany of others. Yet, it is this very notion of scarcity (intrinsically bound to notions of 'traditionality'), which in part, spurs the hype behind the formalization of TK, and leaves it equally vulnerable.

Finally, one of the firmest testimonies to the scarcity motive is reflected in the World Intellectual Property Organization's (WIPO) distinction between "defensive protection" and "positive protection"[12]. Largely as an effort to revise its own patent-systems, WIPO supports nation-states and communities in documenting knowledge forms and in developing their own TK databases that may be, "used as evidence of prior art to defeat a claim to a patent on such TK." Ironically, this fact could also metaphorically be read as an attempt to put hens in charge of foxes. In other words, the relative scarcity and elusiveness of such forms of knowledge need to be codified, or at least documented, in order to prove its prior existence via online toolkits and procedures that some communities in remote parts of Africa, the Amazon or Southeast Asia may have scant access to. Interestingly then, the more obscure a particular form of TK is, the more vulnerable it seems to be to acts of misappropriation, depending on "who gets there first."

3.5 Strategic motives

Since Rio, TK has been increasingly 'mainstreamed' as a generic biodiversity conservation and development tool (cf. Briggs 2005). Whilst a vast corpus of literature exists on the adverse effects that mainstreaming and institutionalizing TK has had, there has been less of a focus on the institutional processes that underbelly the popularization of TK. We draw on the notion of TK as a strategic resource (cf. Gerke and Ehlert 2009). In adapting this concept to institutional settings, arguably knowledge encounters too can be perceived as being strategically motivated.

Normatively, TK has often been declared as a means of enriching policy processes – and also as a means of redressing the failure of top-down formal development strategies through the "inclusion of local voices and priorities, and promises of empowerment through the ownership of the [development] process…" (Briggs and Sharpe 2004, p. 6). Today, it would not be very difficult to witness the inclusion of TK and its variations in developmental and environmental planning agendas, such as including it in water management, agro-ecological farming, community dispute settlement, fisheries and forestry co-management among others. Many have drawn parallels between development projects that 'enlist' community participation in order legitimize certain organizational or policy agendas in a broader sense (cf. Cooke and Kothari 2001), and the enthusiasm to integrate TK – however loosely – into development practice and scientific planning templates. However, it would be oversimplistic to argue that the hype behind TK, in part, could be attributed to its perceived ability to fulfill narrow institutional self-interests. Yet, mainstream development practices often advocate for the value of TK as an effective and cost-efficient platform to build strategic partnerships with local communities. In this context, we could see TK as an instrument in facilitating what Robert Putnam and others would call bridging social capital. It is here that TK's value as a boundary concept for trans-disciplinary work could be seen in pulling together scientific communities and local "communities of practice" (Gerke and Ehlert 2009, p. 6).

Nonetheless, one could question the extent to which these 'processes of inclusion' allow communities, particularly marginals, to define their own priorities and shape decision-making trajectories. For

[12] Refer to WIPO's website: www.wipo.int/tk/en/tk/

example, a World Bank Paper entitled 'Indigenous Knowledge for Development: Opportunities and Challenges' frames TK an under-utilized resource in combating poverty. It conceives TK (through its specific reference to indigenous knowledge) as "a significant *resource*, which could contribute to the increased efficiency, effectiveness and sustainability of the development process" (Gorjestani 2001, p. 1). Here, the efficiency rationale is very much entwined with the notion of TK as a strategic (social) capital, which in turn helps bridge or to draw connections between organizational development agendas and its ability to address the wellbeing of marginals. Interestingly, much of the Bank's literature comprises elaborate listings of different TK use-values in contexts that shape poverty. However, very little is shared on the operational processes concerning the identification and interpretation of TK practices through which they can be translated into "effective development practice"–a catchphrase often invoked in the World Bank's literature.

It may seem, however, that these strategic linkages happen through a one-way dynamic of institutions that are able to selectively 'extract' those aspects of TK that that seem to be in keeping with organizational agendas. The extent to which these brokered partnerships and these institutional encounters inclusively foster real knowledge exchange and sharing is under scrutiny. Furthermore, critics have questioned the sectoral division of such organizations and working groups that rely on intermediaries to translate TK into portable coherent packages which their expert-led epistemic communities may easily interpret and re-frame. Martello (2001, p. 197), for example, draws attention to the UNCCD's Ad Hoc Panel on Traditional Knowledge citing that its dual mission of engendering local participation whilst guaranteeing organizational efficiency meant bringing in "knowledgeable local actors" which hardly went beyond a roistering process. Whilst there is little critical scholarship to date charting how TK formalization practices have included marginals in decision-making or problem-solving within narrow development frames, the spaces in which this 'sharing' happens, and the practices that shape them, are telling of the underlying power dynamics at play.

In sum, the five driving motives we have identified (*Figure 2*) are not mutually exclusive and neither are they exhaustive. At first glance, they may seem relatively disparate. However, the driving forces identified bear important implications to the popularity underlying TK: They will influence whether its promises remain a hype or a sustained commitment to protecting marginal communities – or at best, in strengthening the capacity of marginals to advance their wellbeing. If individuals have a preference for equality, they will opt for an egalitarian concept to maximize social welfare. In case individuals assign high use, option and existence values to TK, it enjoys a good chance of being preserved. Given these conditions, policy instruments focusing on TK are promising to protect marginal communities. Socio-politically driven motives identified serve to sustain the commitment of TK if it fulfills some of its implicit promises namely those of policy compliance and forging strategic partnerships with local communities in an effort to improve the efficiency and effectiveness of development agendas.

4 The implications of the hype

In this section we address the implications of the hype around TK held by marginal communities: First we discuss how an increasing attention paid to TK by politicians, scientists and the wider public effects marginal communities (Section 4.1). We acknowledge that the impact varies for different communities with our typology that includes four categories of TK-holders. Subsequently, we address the implications of the hype for the political debate. In Section 4.2 we critically assess the emotional-ideologically influenced demand to use privatization of TK as an instrument to protect marginal communities. Here, we discuss three arguments for the protection of TK and marginal communities as well as potential instruments.

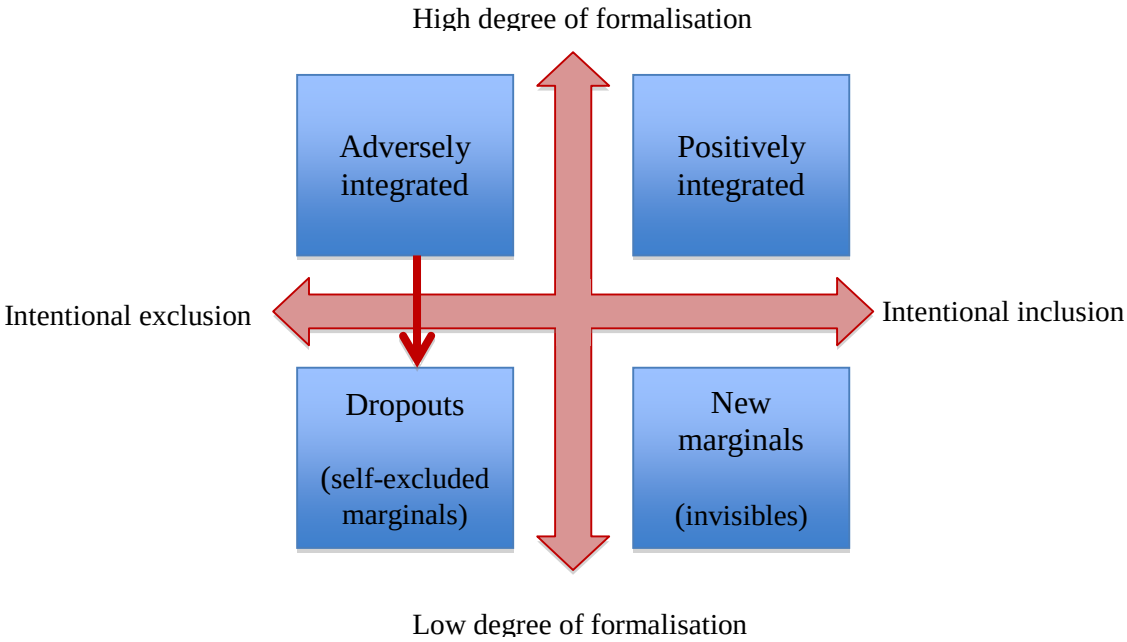
4.1 The impact on heterogeneous marginal communities

Voluminous literature within the social sciences, as well as within environmental and legal studies among others, draws ample attention to the fact that traditional, indigenous and local communities have stood to lose out–to varying degrees–during instances in which their bio-cultural knowledge systems were seemingly institutionalized (Dudgeon and Berkes 2003; Rimmer 2003). However, much of these analyses reveal little of how the integration of TK within diverse scientific, bureaucratic, commercial, environmental and developmental paradigms have created spaces of social inclusion and exclusion, enfranchised or dispossessed local communities during these processes of encounter.

Firstly, it is important to identify that local communities possessing TK are immensely heterogeneous themselves. Therefore, we do not focus much on who stands to lose or gain from the formalization of TK, but we are more interested in understanding how these encounters are determined by a complex set of interrelated factors which in turn impact the positions of marginality that communities occupy. These factors may include the *form and extent of the TK formalization process*, the geographic *scale* in which they are seen to unfold, and the degree to which local communities wish to *participate* or on the other hand, *voluntarily exclude* themselves. In tracing the different institutional notions around TK, which run through the case-study material studied, we present four spaces that TK-holders viz. local communities may occupy as a result of the formalization process of their knowledge systems.

These categories are merely abstractions, and should serve as heuristic constructs to help understand how the integration of TK simultaneously includes as much as it excludes, dispossesses as much as it enfranchises communities. Our typology, which we illustrate with *Figure 3*, includes four categories of marginal TK-holders: those who have been positively integrated, those adversely integrated (to varying degrees during its formalization), those who have voluntarily chosen to leave the system (i.e. "drop-outs"), and lastly, those who have no claim to possessing 'traditional knowledge' within the narrow scope of the definitional term that is adopted. We see this last category as entailing a set of 'new' marginals that TK formalization processes may unintentionally create.

Figure 3: The spaces of marginality in relation to TK formalization processes and the willingness of communities to participate



Source: own depiction

TK holders we see as being *positively integrated* may derive diverse benefits in their institutional partnerships and contractual agreements. These may vary markedly due to the extent to which these communities hold bargaining power in defining what counts as knowledge, how their worldviews are to be interpreted and the extent of their decision-making capacities, together with their ability to conjointly determine the outcomes of such collaborations. Relatively convincing success stories can be drawn from literature on community-based natural resource management (CBRM) and co-management arrangements, though a vast number of them do also fail. For example, the Alaskan Beluga Whale Committee (ABWC) entailed a co-management group formed in the wake of the Bowhead Whaling Moratorium crisis of 1977, and comprised native hunters drawn from over 40 Beluga whale-hunting villages together with fisheries scientists (Fernandez-Gimenez et al. 2006). The success of this partnership could, in part, be attributed to the trans-disciplinary synthesis of Inuit TK practices and know-how in monitoring Beluga populations, which required the fluidity of researcher roles: Inuit hunters often accompanied scientists during aerial surveys, and scientists were seen to actively help hunters in the work of processing post-harvest catch to obtain tissue samples (ibid, p. 312). Whilst a detailed explanation of what is seen to work in such partnerships goes beyond the scope of this analysis, it could however be inferred that neither western science nor TK was given an epistemic privilege during the participatory process. A further example is the bio-cultural protocol drafted by healers from the Bushbuckridge area in South Africa (see Section 4.2). In the bio-cultural protocol the healers clearly define access regulations for their knowledge and thereby retain the power and ownership over their knowledge, i.e. they succeeded in governing their TK under their common property regime–while simultaneously interacting with the outside world.

Our second category comprises those who are *adversely integrated*[13] into systems of TK formalization. The question of scale matters in this context, as most TK partnerships that succeed often do so in localized contexts. The spaces in which TK formalization processes fail largely happen within the regimes of Intellectual Property Rights (IPRs). Whilst we have drawn attention to the inability of contemporary IPRs in protecting TK-holders, their very ownership structures around the concept of 'legal personality' serve to exclude marginal communities. Firstly, many are seen to lack the requisite legal or juridical personality on the basis of which they can hold IPRs. Secondly, many of these communities lack the financial power to register and service IPRs, particularly with respect to the costly patenting process. Furthermore, most high profile IP infringement cases happen across borders, within global networks that are far beyond the reach of many local communities (Oguamanam 2004, p. 142ff.). In this context, we see marginal communities as being integrated into formal TK systems, however, the degree of agency that they have in stipulating their own benefit-sharing expectations determine how disadvantageous their position would be. Thus, their position in a global IPR regime for example, could be characterized as a form of negative integration.

The third category entails a sub-set of marginal communities that intentionally opt or *drop out* of TK formalization processes. They may have once encompassed a sub-set of the second category, in which institutional encounters were seen to fail them. This position could be characterized by low levels of TK formalization/institutionalization, as in the case of the Canadian First Nations communities that Simpson (2001) writes of. She argues that with decades of selective inclusion, appropriation and misinterpretation of TK in an effort to integrate these worldviews into western-scientific rationalities through numerous environmental impact assessments and participatory action research exercises, a number of local communities have instead, put up barriers to entry. The Nunavut, for example, require outsiders to obtain a license before they are allowed to enter, whilst another Inuit community was seen to be initiating a moratorium on research altogether (ibid, p. 140 ff.). Whilst we could term their position as one of voluntary peripheralization, these communities do not necessarily see themselves as "marginal" due to their considerable degree of agency to determine when and how they want to see themselves integrated. At times this may lead to bottom-up cultural revitaliza-

[13]This category would be very similar to Hickey and Du Toit's conception of "adverse incorporation" (2007, p. 4 f.) drawing on the work of Geof Wood, that describes differential forms of integration into state, market and civil society spheres which in turn create adverse conditions for communities which were, otherwise still marginalized or more so.

tions of hybrid customary and 'new' practices (for example, in the case of Rotionohshonni of the Kanawake) by virtue of the fact that they were able to occupy spaces in the periphery (ibid, p. 143 ff.). As bell hooks (1990, p. 342 ff.) writes "marginality is much more than a site of deprivation, [it is also the opposite]: a site of resistance," offering communities the possibility of access to other points of reference that the 'center' has denied them.

The fourth and last category comprises *new marginals*, which the institutional hype behind TK is seen to create. These communities may often be lacking in the *claim* to possess traditional, 'indigenous' or local knowledge practices by virtue of the way in which TK is narrowly defined or conceived. The possibility of being positively integrated into TK institutional clusters tends to be bleak, although they may be likely to benefit from such partnerships. For example, the Indian federations of highland Ecuador were seen to move away from 'purist' traditional practices. They did this by embracing the use of Green Revolution technologies as "a part of a strategy they still conceive as being 'indigenous' because of its overall objective to sustain a material base that would offset out-migration, a problem perceived as a far more serious threat to their indigenous identity than any incorporation of new technology" (Bebbington 1993, p. 274). In this context, institutional meanings around 'traditionality' may run the risk of excluding valuable knowledge systems developed by local farmers for instance as "situated agents" who are equally experimental in their local practices (ibid, p. 286).[14]

In sum, the track record of TK formalization processes – and the benefits that its institutional hype is seen to yield, is indubitably a mixed one. It is important that we closely consider the occupation of 'traditional' spaces, knowledge practices and the ways in which they change over time. The hype behind TK formalization occupies popular, economic and political spaces: it is imagined as a public good and common pool resource, whilst at the same time a strategic one by virtue of its ability to be appropriated and politicized.

4.2 Debates on Intellectual Property Rights for Traditional Knowledge

Economic and political debates contributed to and are fuelled themselves by the popularity of TK held by marginals. The channel is largely the motif of TK as a *resource* in a multiplicity of ways in these domains. If TK was arguably the most important knowledge base of the poor and marginal, the normative argument would maintain that protecting TK would implicitly protect marginal communities. Indeed, the demand for creating intellectual property rights for traditional knowledge is already on the table (e.g. Downes 2000). While TK is perceived as an anchorage for policy instruments to protect marginal communities, the problem lies in narrowly placing the focus on IPRs. The threat is that the 'hype' carries the proponents of IPRs for TK away on an emotional-ideological path that is not based on sound arguments and ultimately misses its goal. The Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC), founded by the World Intellectual Property Organization (WIPO) in 2001, adopts a more differentiated consideration of the issue (WIPO 2005).

We take a similar stance and, in the following, will discuss three potential arguments for a change in the property regime of TK. We start with the traditional *innovation incentive argument* that drives IPRs such as patents. IPRs privatize new knowledge for a certain time-span to remunerate the investments made in knowledge generation (see Section 2.2). IPRs are necessary in cases where the share of individually appropriable benefits from the generated public good knowledge is lower than the investment costs. In such cases knowledge innovations would not take place without IPRs. Ideally, IPRs should only move knowledge out of the public domain as long as it takes to internalize

[14]Furthermore, this categorisation created 'new' ideological differences between Chimborazo Indians of Ecuador. One camp was more in favour of low-input farming and rejected 'modern' agri-technologies, which they saw as being linked to western capitalism. The other camp comprised "developmentalist" federations that endorsed and promoted agricultural extension and input supply programs. Whilst these ideological differences proved to be stark, one is left questioning the kind of alternatives which poor and marginalised communities had at their disposal if they were to survive on TK practices alone (cf. Bebbington 1993).

enough positive externalities to pay off the investment costs. It is obvious that this innovation incentive argument does not hold for the privatization of TK. TK is already there, it does not need to be invented. Besides, IPRs are only effective if this institution is culturally embedded and or legally enforced (Swanson and Göschl 2000, p. 80).

There exists a different incentive argument though, a *conservation incentive argument*. If TK is of value for individuals and societies, the beneficiaries have an interest in its conservation. The IGC (WIPO 2005, p. 7) discusses this conservation need: "Either through acculturation or diffusion, many traditional practices and associated beliefs and knowledge have been irretrievably lost. Thus, a primary need is to preserve the knowledge that is held by elders and communities throughout the world." Public action to conserve TK, however, might fail due to high transaction costs and a strong free rider incentive. The benefits local communities generate as custodians of TK take the form of positive externalities for non-community members. An internalization of these externalities, which levels off conservation costs, would–as with the innovation incentive discussed above–suffice to secure TK conservation. In this context, Sarr and Swanson (2011, p. 3) call for a harmonization of legal systems which is able to achieve TK conservation and prevent costly litigations.

This conservation incentive argument is, in essence, an *efficiency argument* and spans not only the use value but also the potential use value in the future, the option value. The option value essential is the insurance value (ref. Section 3.2). The efficiency argument compares the potential opportunity costs of TK loss with the costs of securing its continued existence. If the cost-benefit analysis concludes that the maintenance costs of TK are lower than its use value plus insurance value, TK should be conserved:

$$\text{Cost} \leq \text{Use Value} + \text{Option Value}.$$

Although this conservation incentive argument has similarities to the innovation incentive argument, important differences exist with regard to the nature of the costs which are used in the cost-benefit analysis, i.e. the costs which ultimately determine whether conservation is efficient. Conservation costs have a hybrid nature. They do not just include monetary costs, but also involve tremendous transaction costs. The customer does not have perfect information on the value of the knowledge, on the internal community structure and thereby on the incentives community members have to cooperate, and on how a transfer will translate into TK conservation. An important multi-layered Principal-Agent Problem has to be overcome in order to initiate such conservation measure and ensure its efficiency.

In case the efficiency argument is not sufficient to implement a TK conservation measure, i.e. if the cost-benefit analysis is negative, a *distribution argument* might still demand and justify the protection of TK. In case individuals have preferences for equality, they would opt for egalitarian social welfare maximization. Considering Rawls's welfare function:

$$W(C_{NM}, C_M) = \min (U(C_{NM}), U(C_M)),$$

social welfare only increases if the utility of marginal communities $U(C_M)$ is increased. Therefore, realizing some form of transfers increases social welfare. The distribution argument alone suffices to justify transfers for marginal communities in the absence of an efficiency argument, if equality preferences are strong. If the efficiency argument does not provide enough justification for TK protection, a transfer that focuses on TK could be justified by the sum of the two arguments. For the distribution argument any transfer is adequate, including one focusing on TK. It has to be noted, however, that a transfer focusing on TK does not reach all marginal communities. It is only targeted at the positively or adversely integrated. Thereby such transfer fulfills the efficiency argument but only partly the distribution argument as the dropouts and new marginals are not reached. This does not cause a dilemma, however, because in case society has the conviction that the transfer should also reach these marginal communities, the equality preference is strong enough for the distribution argument to justify a transfer not focused on TK.

Having discussed three potential arguments for securing the existence of TK and of marginal communities, we now consider potential policy instruments used for protection. First, we examine how TK could be protected (by a change in property regime). We already stated that a temporary change in the property regime of TK from a common property regime to a private property regime is not appropriate. Integration of TK in IPRs systems are one cause of negative integration. Yet, "IP-related protection" is crucial (WIPO 2005, p. 11). The ICG (ibid, p. 12) distinguishes between "positive protection" and "negative protection". The former addresses the standard idea of knowledge protection. The latter tries to prevent illegal use of TK, e.g. by including special assessments in the patent process to check whether a product or method applied for patenting involves TK. Staying with the positive protection approach, others have argued in favor of 'de-globalising' contemporary international property regimes, and of developing *sui generis* mechanisms that are nested in local knowledge-protection protocols (Rimmer 2003; Oguamanam 2004). Common property regimes have proven to be a suitable property regime; they secured TK over generations. However, a property regime has to be acknowledged also by non-community members. Until recently, communities holding TK have been largely shielded from the outside world. The increasing connection between these two worlds endangers the functioning of the common property regime. An important measure therefore is already the universal recognition of local communities as TK custodians. This is a major aim of the work of WIPO's IGC; and for TK on biological resources the CBD has taken this step in Article 8(j) (CBD 1992). The interpretation of this article by traditional healers from the Bushbuckridge area in South Africa supports this reasoning: They "did not want to interpret Article 8(j) as providing them with a title deed over their knowledge since they already saw themselves as its custodians. They instead interpreted it as guaranteeing a right to ensure that their knowledge would be used in accordance with their customary laws." (Abrell 2010, p. 7). Article 8(j) has to be implemented jointly with the local communities and trans-disciplinary research is required on how to include TK in the Access-and-Benefit-Sharing mechanism of the CBD. Several communities have drafted bio-cultural protocols, which could be a starting point[15]. The communities define the access conditions to their TK based on their communities internal laws and practices in these protocols (Abrell 2010, p. 7).

Secondly, we briefly want to discuss transfers that are not related to TK. An unconditional transfer is justifiable, if we start from the distribution argument. The underlying assumption here is that a monetary transfer directly contributes to increasing $U(C_M)$, the marginal communities' utility, and thereby social welfare. This direct link has to be questioned however. Local and indigenous communities often derive their utility from non-consumption goods (cf. Nakashima and Roué 2002); but even if we take utility as a function of consumption, marginal communities might live in remote areas where access to consumption goods is not given or goods of their consumption preference might not be sold over the market. Another, possibly superior option might be to secure the rights over the land on which marginal communities live. By protecting their land the communities have the possibility to continue their way of life (which often indirectly results in TK conservation). Securing land rights could possibly be one way of avoiding the condition of adverse integration as it may partially help to safeguard the material base on which marginals depend. A number of countries have made limited attempts at safeguarding local community land rights; the Philippines are the first of its cohort to legislate an Indigenous People's Rights Act (1997), which recognizes and makes explicit reference to "community property" (Ragavan 2001, p. 52). However, this option is best suited to land-based communities; hence it is less likely to positively impact seasonal migrants, seafaring and other nomadic communities. Still, it should remain the communities' decision whether they want to be positively integrated or whether they wish to drop out of the TK formalization processes altogether.

5 Conclusion

This study started an interdisciplinary dialogue on marginal communities that are often invoked as custodians of TK. To our best knowledge so far diverse literature stretching across the social sciences,

[15]However, they pose the problem that the negotiation sovereignty lies with nation states rather than local communities.

legal studies and economics on TK held by marginals has been scant. In drawing upon a cross-disciplinary exchange, this study attempts to lend some degree of clarity to the driving motives of the recent popularization of TK held by marginal communities, and how this process impacted marginals, together with some insight into political debates around IPRs for TK.

We argued that although TK has existed as a resource since historic times, it was only recently formalized, and that these institutional processes helped reinforce its recognition and popularity. We intimated that the concept of TK Commons is correctly understood as TK governed by a common property regime, whereas TK is a *public good* by nature. TK is by no means static; knowledge bases continually evolve and are socio-spatially and temporally contingent. In the same vein, marginal communities that draw upon TK are by no means homogenous or 'traditional' in a purist sense.

In unpicking the occidental 'hype' around TK, we teased out five underlying motives that may drive and sustain the popularity of TK: an equality preference motive, a value motive, a compliance motive, a scarcity motive, and a strategic motive. In the second part of our analysis, we proceeded to critically examine the implications of TK's popularity (with particular reference to its formalisation) for heterogeneous marginal communities. Our typology includes four categories of TK-holders: those who have been positively integrated, those adversely integrated, those who have voluntarily chosen to leave the system, and lastly, those who have no claim to possessing 'traditional knowledge' – the 'new marginals'. We argue that in order to understand how the formalization of TK impacts the marginality of local communities, it is essential to consider how tightly or loosely bound communities are to these institutional systems, and the extent to which they choose to voluntarily include or exclude themselves from these processes.

We argue that the 'hype' around TK held by marginals can be beneficial for these marginal communities if it is driven by an equality preference motive. Utility in form of moral satisfaction provides an incentive to respect and to esteem marginal communities and their traditional knowledge. However, in some contexts the popularization of TK–however long or short-lived it may be–comes at a price: marginals themselves may lose the power to define how they wish to use and protect their own knowledge bases. Thus, we see the popularization behind TK ownership by marginals–as a double-edged sword, one that precariously rests between hope and hype. Instrumental motives driving the advocacy of TK may also yield unintentional adverse effects by essentializing these knowledge forms as timeless, monolithic and unchanging. We went as far as stating that the institutionalization of TK has the propensity of creating new spaces of marginality by virtue of the fact that it may exclude certain communities.

Finally, we addressed the demand for privatizing TK. We derived arguments for a protection of TK and marginal communities: the traditional innovation incentive argument (which does not hold), a conservation incentive argument that is essentially an efficiency argument, and a distribution argument. Based on these arguments we discussed the relevance of several policy instruments. As TK has been successfully governed by common property regimes over decades, recognition of and maintaining this governance form seems more promising than creating a private property regime. We share the opinion of the IGC (WIPO 2005, p. 16) that "no single template or comprehensive 'one-size-fits-all' solution is likely to suit all the national priorities and legal environments, let alone the needs of traditional communities in all countries". If the distribution argument is most important, a policy instrument should not focus on TK to protect marginal communities as it leaves out the 'dropouts' and 'new marginals'. Instead, unconditional transfers or securing land rights are potential instruments.

While we have focused much on the precincts of international protocols, it must be acknowledged that several declarations, to varying degrees, were spearheaded by local and indigenous peoples' movements themselves, starting from the Kari-Oca Declaration (1992) and the Indigenous Peoples' Earth Charter (1992) together with the Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples in 1993 (Ragavan 2001, p. 42). She further proceeds to argue that the origination of parallel Declarations shows a clear tendency for local and indigenous people to move

away from more mainstream regimes supported by WIPO and UNESCO for example, in what is phrased as constituting a "slow evolution of strength from beggars to bargainers" (ibid, p. 41). Arguably however, the 'new' marginals are those who have no recourse to alternative mechanisms, and have often had to fall back on contextual interpretations and the rulings dealt by state and federal judiciaries[16], particularly when respective IPRs have proven somewhat unsuccessful in resolving issues.

It has yet to be seen, whether widespread attention paid to marginal communities possessing TK is in vogue only in the short-term–as *hype*–or would prove to be of long-term importance in terms of yielding tangible benefits to the communities from which they are drawn. Further research should aim at intensifying this interdisciplinary research and attempt to also include the worldviews and wellbeing aspirations of marginal communities themselves. It is also likely that considering the formalization of TK and its impacts on marginal communities along different administrative scalar dimensions of the local, national, regional and international will add substantial new insights to the findings of this study.

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[16] For example, in *Foster v. Montford* (1976), the Supreme Court of the Northern Territory of Australia prohibited the publication of an anthropological volume entitled *Nomads of the Australian Desert*. Although no confidentiality agreement was made, the court ruled that the publication of sacred clan knowledge would potentially compromise the culture of the group, also concluding that it would amount to a breach of confidence (Ragavan 2001, p. 47).

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