Indigenous Knowledge: Learning and Sharing for the Humanitarian Industry

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1. Introduction

The discussion of the utility of indigenous knowledge cannot be separated from ideas of participatory development which followed post-development critiques of state-led development occurring from the 50s and 60s which was seen to have limited impact. These critiques argued that such interventions had limited positive impact as they failed to take into account the differences in ways of thinking between external organisations and the intended beneficiaries of their actions, resulting in the marginalisation of the very people they attempted to help (cf. Escobar 1992). In response, participatory development was established utilising a range of research methodologies, collectively called Participatory Rural Appraisal, which seek to allow beneficiaries to assess their own needs and desires in order for interventions to be 'bottom-up' (Chambers 1994). The span of these methodologies is huge and includes semi-structured interviews, livelihood analysis, well-being and wealth ranking, oral histories, seasonal calendars and group brainstorming, but to name a small number (ibid). The belief that indigenous knowledge is useful for development follows this same paradigm shift. Having earlier been seen by those early development actors as inefficient and inferior, advocacy for the use of indigenous knowledge represents the desire to move away from centrally designed development interventions to more populist forms of planning (Agrawal 1995a). Since this participatory turn, the recognition of the value of indigenous knowledge has been widespread among organisations concerned with intervention against economic, political and environmental shocks. It is within this context then that any discussion on indigenous knowledge must be located.

Today, while it is still widely agreed that humanitarian responses and preparation for crises should be more attentive to the contexts in which affected people live, this discourse has often not been met in practice. For these people, external humanitarian knowledge has often been either inaccessible or irrelevant, not having been adapted or recontextualised to suit their needs. Humanitarian organisations meanwhile have often failed to appreciate the ways in which affected people engage in crisis-related practices or the significances of why they engage in these practices. These problems have been exacerbated by poor information management, with barriers of language and culture affecting both organisational learning and knowledge sharing. The effect of this is that the people who are most affected by crises are often distanced from the decision-makers and the decision-making processes that inform how an intervention affecting them will be shaped.

To being addressing these issues, this paper provides a literature review on the topic of indigenous knowledge, attending to how learning and circulation can be effective, inclusive and equitable. The first section of this paper therefore critically engages with the key terms of 'indigeneity' and 'indigenous knowledge'. The proceeding sections of the paper offer both critical and pragmatic discussions on the subjects of learning and sharing. These are as follows: (1) its importance in the contemporary moment for the humanitarian sector; (2) the current relationship with exogenous practices in development; (3) how development organisations can support indigenous knowledge initiatives; and (4) how indigenous knowledges and their exogenous practice can be shared with other development stakeholders. This is then followed by explicitly restating the inherent challenges of the learning, exchange and circulation of this knowledge which emerge through these discussions. Taken together, these sections suggest that indigenous knowledge, when properly conceptualised and attending to differences in interests and power, can offer various indigenous peoples and development organisations more effective options for engaging in interventions, allowing for humanitarian practices to be made relevant through their recontextualisation. The paper is concluded with recommendations as to how this sensitivity can be enacted through organisational thought and practice, and suggestions for further study based on the paper's limitations.

2.1. Indigeneity

Under the UN Declaration of Rights of Indigenous Peoples, indigenous people have the collective right to self-determination and in turn the right to their own education, culture and law (UN General Assembly 2007). Official UN recognition of Indigenous status however is dependent upon recognition by the state that a group exists under. State recognition depends upon their own perception of indigeneity – which is contextually specific, often being dependent upon stereotypes of backwardness (Carrillo 1995; Kuper 2003; Tsing 2007; Clifford 1988) – and a willingness to allow this freedom within their jurisdiction. Claimants are required to consciously perform indigeneity in line with these specific cultural expectations in order to have their claims accepted (Graham & Penny 2014). Furthermore, indigenous peoples are often seen to be particularly priorities for development aid. Given these potential resources, indigenous status is not only claimed by marginalised people, but also by those who are already regionally dominant yet fear a loss of power (Gausset, Kendrick & Gibb 2011). While claims of some European nationalist groups to indigeneity (Evans 2012) may be viewed with suspicion, often there is little difference in the legitimacy of claims of both sets of people, being based upon degrees of cultural difference or historical occupancy (Gausset, Kendrick & Gibb 2011). Successful recognition of Indigenous status can lead to the consolidation of economic and political power, producing new forms of exclusion or fights over the membership of the indigenous group, as competition over new resources increases (Lanzano 2013; Painter-Thorne 2010).

As is the case with states, indigeneity is often defined by various actors in line with their own specific organisational assumptions and political interests. The World Bank for instance states that indigenous peoples can be identified as "social groups with a social and cultural identity distinct from the dominant society that makes vulnerability to being disadvantaged by the development process" (World Bank 1991: 1). Meanwhile, while noting that no definition is unproblematic, Survival International suggest that "for the most part the term 'indigenous peoples' is used today to describe a group which has had ultimate control of their lands taken by later arrivals; they are subject to the domination of others" (Survival

International n.d.). Thus while the former definition draws on economic aspect of marginalisation, the latter emphasises a political dimension. These organisational uses, in addition to those of states and claimants of indigeneity, suggest the definition of the term to be inherently problematic given its contingency upon underlying political interests.

Eyong suggests that "the cloudy atmosphere surrounding the definition of indigenous peoples also explains the variance in estimates of their [global] numbers" (2007: 121), citing estimates ranging from 300 to 500 million. His solution to these varied definitions is to look at the shared understandings that underpin them. These commonalities, he suggests, are having some prior existence to the colonial state, and a distinct linguistic, cultural, social and organisational tradition which differentiates them from dominant others in the region (ibid). From a humanitarian perspective however it seems less important to engage in processes of trying to tease out a universal or absolute definition of a term that is inherently political and risks excluding millions of people around the world in need of assistance but rather to focus on those who are in need, who stand in a marginalised relation with others.

Attempting to use alternative terms that might avoid these problems of reference, Lanzano details that some scholars have proposed alternatives such as 'traditional' or 'local' people (2013). Tradition, however, can be seen as no less political than that of 'indigenous', being part of the way that people imagine and construct the past as a means of justifying the present (Anderson 2006; Linnekin 1991). Furthermore, 'tradition' requires that people be in stasis, unable to undergo technological change or changes in their political and economic relations to others groups else they be judged to lose their distinctiveness from dominant others and in turn enter part of the poor mainstream (Asch & Wishart 2004). 'Local' meanwhile, can be seen as a means of producing exclusion, dividing people from notions of the global community (Appadurai 1995). This can be said to offer a parallel to neo-orientalism (Tuastad 2003), which is the modern symbolic domination of the orient by the occident, holding over them the power to conceptually other them through ethnocentric representations (Said 1978). In this way, these attempts to conceptually distinguish post-colonial subjects are invariably steeped in colonial power relations which reproduce hierarchies (Bryan 2009) but mask the relational aspect of this domination through attributing this inequality to a certain backwardness or being located in the wrong place. The concern for humanitarian organisations is supporting these people who are structurally marginalised through various means to the point that they require humanitarian assistance to deal with crises. Any attempt to define these people should take this as its starting point. Rather than attempting to engage in the politics of indigeneity or attempting to use other problematic terms, this study then uses the term *indigenous* heuristically as a means of conversing with the literature, referring to these marginalised people who are the subjects of humanitarian interventions.

2.2. Indigenous Knowledge

Following on from the discussion of indigeneity, 'indigenous knowledge' is subject to the same othering that people are, being assumed to have "several traits [which] distinguish IK broadly from other knowledge" (Sharma 2014: 129). Under this assumption "IK is unique to a particular society… [being] the basis for local decision-making in agriculture, health, natural resource management and other activities" (ibid). In this way such knowledge is depicted as relating to people's livelihoods which are located as being close to nature. In turn indigenous knowledge is spatially located by some as being close to nature. This

equation allows indigenous knowledge to be viewed by some authors as being relatively synonymous with the terms "indigenous technical knowledge, traditional environmental knowledge, rural knowledge, local knowledge and famers or pastoralists knowledge" (Langill 1999: 3). In this way the knowledges of different people are viewed by some (cf. Murphy & Steward 1956; Diamond 1998) as hierarchical, based on the ability to have power over nature (Leach and Davis 2012). As shall be seen later this often implicit location will have a large bearing on how development organisations have conceptualised and attempted to utilise indigenous knowledge.

As well as being spatially located, indigenous knowledge is often seen to be temporally located. Briggs for instance, suggests that indigenous knowledge has been represented as "static and timeless, somehow frozen in time" (2005: 108). In equating indigenous knowledge with rigid tradition, indigenous people are denied a sense of social development, seen synchronically as being without their own history (Wolf 1982). This again allows indigenous knowledge to be placed at the bottom end of a hierarchy, with their knowledge ranked alongside that of stone age or early agricultural societies. However, like all other peoples, the ideas of indigenous peoples in relation to the world are subject to, and can persist change. Moreover, they are involved in global processes of changing political and economic relationships. This assertion does not imply that the dynamics of globalisation, industrialization and urbanization do not bring about imposed and voluntary assimilation as people are brought into relationships with different systems of knowledge and different cultures (cf. Carrillo, 1995). The point is that despite common conceptions of globalisation being a wave of homogenisation, people around the world form their own relationships to changing global assemblages (Ong 2006).

In separating the knowledge of indigenous people from other forms of knowledge this localisation by place or time underpins assumptions that a dichotomy exists being their knowledge and 'scientific' knowledge (Agrawal 2009; for examples of this assumption see Mercer et al. 2010; and Gadgil, Berkes & Folke 1993). This logic often sees the latter being the domain of development and the state, with scientific knowledge attributed superior epistemological value despite often being dependent upon local ways of seeing and doing (Scott 1998; Mitchell 2002). This assumption of relatively incommensurable difference though is one that has been challenged. Following the work of those studying the production of scientific knowledge such as Latour (1987) and Haraway (1988), Turnbull, for instance, argues that scientific knowledge itself is 'local', being based upon "observations of a particular environment or at a particular site and produced by a specific group of people with specific practices and tools" (2009: 3). This, he argues, destabilizes the association of scientific knowledge as being universal and placeless (ibid). While there are differences in the many different forms of knowledge around the world, the separation into categories of 'science' and 'indigenous' constructs a false impression of homogeneity across them, given that under both there are disparate ways of knowing. Differences in the protection, systematising, and dissemination of these two categories of knowledge obscure the nature of division between them (Agrawal 1995b), producing and reproducing disjuncture and hierarchy.

When speaking of differences between systems of knowledge then we turn to differences in the context of location in which they are produced as opposed to a difference of essence. The knowledge of all contemporary actors is concurrently located in the present, being subject to their contextually dependent interpretation. In this way knowledge is

based in people's cultures, identities, institutions and value systems (Turnbull 2009) and cannot, without mediation and objectification, be separated from the relationships with the land, people and things that constitute a context. In this way knowledge is no more or less than an interpretation of such relationships. However, given that there is sharing, appropriation and imposition of ideas, people and things, it would be difficult for sole origin of the genealogy of any person's knowledge to be indigenous (in the sense of coming from that place uniquely). In such case, like in the problematising of indigenous people, the identification of indigenous knowledge is inherently problematic for a number of reasons; this, however, does not stop talk of the unique knowledge of a given group of marginalised people.

3. Importance

Following post-development critiques and the rise of participatory forms of development, the importance of local actors' views has been stressed. This has led to widespread suggestions over the past couple of decades or so of the need to account for and utilise indigenous knowledge (cf. Sillitoe 1998; Desta 2009; Nyong, Adesina & Osman Elasha 2007). Many authors both romanticise this knowledge and stress its distinctiveness *vis-à-vis* scientific knowledge (Briggs 2005). This early optimism has developed into some disappointment with the impact that indigenous knowledge has had upon interventions (Sillitoe & Marzano 2009). Theoretically, despite frequent misconceptualisation, such knowledge is highly important and following on from the previous section, this discussion will take as its starting point the context in which knowledge is produced.

Many who have stressed the importance of indigenous knowledge have limited the scope of their attention to indigenous technical knowledge associated with livelihood – relating to earlier discussions on how indigenous knowledge is perceived, but also perhaps because this is the most straightforward difference that can be seen and objectified. Lalonde, for instance, suggests that "the traditional practices of farmers, hunters, gatherers, fishermen, artisans are based on a dynamic and sophisticated understanding of their local surroundings" (1991: 4). These people and their practices, however, occur in particular intertwined contexts of cultural, spiritual, political and economic relationships that include the land, but are not limited to it. In these contexts, people, their ideas and activities are organised in accordance with particular emic values, producing a large body of knowledge that extends through all their relationships with other people, objects and the land. Given that values which occur in these contexts are often different, or even at odds with those of the state, research institutions and transnational organisations, this offers such actors a huge quantity of possible knowledge to learn. This knowledge promises potential mutual benefit for intervention actors and recipients, as the former learn how to adapt their practices to specific context of the later (Sillitoe & Marzano 2009).

Starting then with practices and technology, there is a wide body of repetitive literature on the usefulness of indigenous livelihood strategies. From this literature, two main arguments as to the importance of indigenous knowledge emerge, which relate to the familiarity that indigenous people have developed with their land. The first argument regarding this topic is that indigenous technological knowledge can be more efficient than western technological interventions (cf. Warren & Rajasekaran 1993; Grenier 1998). With the former having been able to develop their practices over time to a sufficient level they are able to "provide valuable leads for third parties in the development of useful products and processes, which can save modern industry time and money" (Twarog & Kapoor 2004: xviii) requiring lower cost materials and external expertise. The second argument is that having

depended on their local environment for long periods of time, indigenous people have learned how to be experts in conservation, so that future generations are able to survive with often scarce resources (cf. Gadgil, Berkes & Folke 1993; Dixon 2005). In this way their practices are deemed to be often more sustainable in that particular environment than those of external actors who lack experience of working with the land.

Implicit in the idea of working with the land, and stemming from the same issues associated with familiarity, is indigenous ways of knowing the land. As such, some more recent concerns with indigenous livelihood strategies have extended to environmental knowledge, be this in the relation to local plant flora (Donovan & Puri 2004; Kaschula, Twine & Scholes 2005), meteorology (Chang'a, Yanda & Ngana 2010; Ingram, Roncoli & Kirshen 2002), or disaster prediction (Dekens 2007; Campbell 2006). As mentioned above, people's perception of the environment however is not limited to economic activity. Even when the environment is imagined as part of livelihood strategies, this imaginary is not universal but culturally dependent, being made up of myth, religion and ceremony which extend through the individual's lifeworld (Ingold 2000). While contact with dominant others can fundamentally change the way in which natural resources (Tsing 2005) or crafted objects (Siep 1999) are imagined, it is important to understand how people perceive their relationships with the world and the rationales for practices in order to appreciate how to adapt intervention practices, or, how they might impact upon such relationships.

The appreciation of why people do what they do is furthered through an understanding of their values. This understanding can bring greater insight into what people want from development. To exemplify, in the minds of donors sustainable development has often been equated to higher long-term GDP (Eyong 2007), with this view being based upon the assumption of man being a rational economic decision maker utilising technological advances to increase productivity. Instead of materialist notions of sustainability however, indigenous people might have greater desire for sustaining cultural identities, (Groenfeldt 2003) retaining a spiritual relation to the environment, (Davis 2000) or even simply increasing their leisure time (Sahlins 1972) rather than engaging in a particular form of economic development. These desires stem from what is valued, and differences relate to differences in values. Some authors have suggested that such associations, with spirituality or culture for instance, allow indigenous knowledge to be holistic and by virtue of lacking these associations, scientific knowledge as being reductive (cf. Berkes and Berkes 2009). This characterisation however romanticises indigenous knowledge and in attempting to reverse the hierarchy with scientific knowledge, masks a difference in values between groups of people by reproducing an essentialised disjunction between the two.

One of the main benefits of attending to alternate value systems in intervention planning is the potential for avoiding the problems of top-down development. Rajasekaran argues that "neglecting indigenous knowledge undermines [people's] confidence in their own traditional knowledge, imposing outside expertise" (1993: 18) and fostering dependency upon others for technology or knowledge. Such neglect often occurs through the devaluing of such knowledge by outsiders who attempt to alter practices that they perceive as unproductive and backwards (Nygren 1999; McCabe 1990; Cavalcanti 2007). This feeds into those post-development critiques that see interventions as being mechanisms for reproducing hierarchy, marginalising those who have other ways of seeing and doing (cf. Escobar 1992; Ferguson 1990).

Despite the need to attend to indigenous knowledges and practices, they cannot, again, be romanticised to the point of considering them limitless (Kalland 2000; Agrawal 2002). Climate change, for instance, challenges the livelihoods of indigenous people as environmental conditions change rapidly, affecting natural resources around the world. Not only do such people become physically vulnerable due to the speed of degradation outpacing people's capacity to learn effective coping strategies (Salick & Byg 2007; Davis 2010) but their identities and right to self-determination are endangered as they are forced to migrate (Tsosie 2007; Biermann & Boas 2010). In this way, the expectation placed upon indigenous knowledge, or the unadapted knowledge of past generations, to be able to solve problems that are related to global inequalities can be too great. Such limitations warn against seeing indigenous knowledge as a silver bullet; attention to indigenous knowledge does not necessarily make complicated issues less complicated, perhaps only more illuminated.

4.1. Current Relationship with Exogenous Practices in Development

As mentioned in the introduction, attempts to utilise indigenous knowledge and adapt exogenous practices cannot be separated from ideas participatory development. Participatory development has been hugely fashionable, following on from early generations of top-down development projects. Since the turn of the millennium however, the notion of participation has come under scrutiny, prompting debate as to whether it is a mechanism of domination or democratisation (cf. Cooke & Kothari 2001; Hickey & Mohan 2004; Williams 2004). Furthermore, participation has been implicated with issues of brokerage, with partnerships often being equated to relationships of patronage or clientelism (de Wit & Berner 2009; Bierschenk, Chauveau & Olivier de Sardin 2002). Despite these criticisms, development interventions have retained their utilisation of more participatory approaches due to the desire to engage in more equitable practices. This popularity and subsequent questioning of indigenous knowledge can also be seen in the previous discussions.

Stemming in part from such engagements over the past decade or so, the development industry has increasingly recognised its dependence upon multiple forms of knowledges and their learning (Ferguson, Huysman & Soekijad 2010). As such, knowledge management, as a system of co-ordinating people or technology to facilitate and structure knowledge sharing, has becoming increasingly fashionable in the sector – as with other sectors (Hislop 2013). It is thus through this framework that indigenous knowledge has been recently engaged with as a means of informing intervention.

Powell argues that early attempts at such 'informational developments' have taken the approach of distinguishing between 'information' and 'knowledge' (2006). Under this equation a hierarchy is formed in which information is understood as being data that is given meaning and knowledge being an interpretation of this information (ibid). This conceptualisation is not necessarily wrong, he continues, but simplistic, privileging a particular abstracted understanding of knowledge that is not the universal around the world (ibid). In order to manage knowledge, it must first be learned by the management structure. This rational approach to learning then produces a codified knowledge object, which privileges that knowledge which already exists in a form that is abstracted from any context, as this allows for easier learning and categorisation (Ferguson, Huysman & Soekijad 2010). Under this approach to knowledge management, that knowledge which exists

socially becomes marginalised, being considered difficult to actively capture and share via electronic platforms (ibid). Unsurprisingly it is often indigenous knowledge that falls into this latter category.

Ineffective knowledge management, resulting in potential and actual marginalisation, has led to attempts to adopt a 'post-rational' approach to knowledge management (McFarlane 2006). This approach sees knowledge as being constructed through translations of social and material relations and practices. It seeks to carry out learning then through engaging in practices and building relations so as to be situate itself within the same processes of knowledge creation (ibid). Managing this knowledge is then carried out through the facilitation of networks, stimulating sharing through social participation, with this process being dubbed 'latent knowledge management' (Ferguson, Huysman & Soekijad 2010). Of course, one may see this as an extension of old participatory forms of research, characterised by participatory rural appraisal and participatory learning and action, and indeed recent attempts to engage in this type of learning have attempted to utilise these kinds of methods (cf. Ramisch 2014; Rushemuka, et al. 2014; Lwoga, Stilwel & Ngulube 2011; Robinson & Berkes 2011).

4.2. How Development Organisations Can Support IK Initiatives

In order to advocate for and assist those organisations wishing to cultivate indigenous knowledge, in 1998 the World Bank developed a framework for action. This framework was used to steer a partnership between information and technology initiatives in Africa working with indigenous knowledge, and has four pillars:

- Disseminating information:
    - Developing a database of IK practices, lessons learned, sources, partners, etc.
    - Identifying and testing instruments for capture and dissemination of IK.
    - Publishing selected cases in print and electronic format.
- Facilitating exchange of IK among developing country communities:
    - Helping build local capacity to share IK, especially among the local IK centres.
    - Identifying appropriate methods of capturing, disseminating IK among communities.
    - Facilitating a global network to exchange IK.
- Applying indigenous knowledge in the development process:
    - Raising awareness of the importance of IK among development partners.
    - Helping countries to prepare national policies in support of indigenous practices.
    - Integrating indigenous practices in programs/projects supported by partners.
- Building partnerships:
    - Learning from local communities and NGOs
    - Leveraging limited resources of partners to obtain greater impact on the ground.
    - Addressing the intellectual property rights issue of indigenous knowledge. (World Bank 1998a: 11)

While this led to the creation of a number of databases (cf. World Bank n.d.; Tanzania Development Gateway n.d.), popular support for them has since diminished due to a perceived lack of impact. In 2007 the World Bank's own database submitted it last entry and many others have followed suit. A recent resurgence of interest in knowledge management, following earlier 'mainstreaming' by the World Bank (1998b; Broad 2010), has led to a revival of attempts to 'capture' and manage indigenous knowledge - typically through ICT platforms – in order to 'conserve' it or apply it to similar contexts. As such some current authorship in the field of information/library science offers recommendations that

echo the World Bank's normative framework (cf. Lwoga 2009; Moahi 2012; Lodhi & Mikulecky 2010; Plockey 2014; Mtega et al. 2013; Barakabitze et al. 2015; Nakata et al. 2014).

This logic of database creation is often underpinned by an attempt to integrate indigenous knowledge with scientific knowledge through the 'scientization' of the former (Agrawal 2002). This process involves the identification of knowledge useful to development organisations; the abstraction of this knowledge from its context through external expert verification; and the attempt to generalise through cataloguing and circulation (ibid; Löfmarck & Lidskog 2017; for an example of this logic see UNESCO n.d.). This process corresponds to assumptions that taking indigenous knowledge seriously involves trying to share it widely. Proponents of this view however have tended to fall foul of those problems of locating indigenous knowledge in nature, with rationalist frameworks for knowledge management working predominantly with techno-environmental content (Ferguson, Huysman & Soekijad 2010; Löfmarck & Lidskog 2017).

In this way attempts to integrate indigenous knowledge have often been inattentive to issues of power and have resulted in the marginalisation of indigenous people (Ibañez 2014). Such marginalisation often occurs through the manipulation of indigenous technological practices, objectifying and removing them from their context to suit the value-dependent interests of development organisations as opposed to those indigenous people (Agrawal 2002; Briggs 2005; Briggs 2013; Briggs & Sharp 2004; Powell 2006). In this stripping of context to the 'bare content', indigenous knowledge is made to appear de-politicised (Ferguson 1990) being translated to support the politics of more powerful institutions (Scott 1998; Long 2004; Mosse 2005).

While translation of practice is always necessary to suit different institutional codes, (Mosse 2004) and it is naïve to assume that knowledge production does not require a process of mediation, this is not to say that translators, i.e. those involved in the learning process, should not be attentive to the power relations inherent in acts of translation, or the political consequences of them. If the desire is that this process should work towards making humanitarian engagement more relevant to those affected then any translations should explicitly 'repoliticise' knowledge, engaging in a reflexive process of cross-contextual negotiation of the different values and interests that belong to others (Pieterse 1998). What this may look like in practice then is shifting from focussing only on the content of indigenous knowledge to working collaboratively with indigenous people. In seeing how their contextualised knowledge might shape what *intervention* means to them, this move would allow for a greater relevance of external practice to be produced (Briggs 2013; Powell 2006).

As such, in addition to advocating the use of reflexive participatory learning development organisations can support initiatives by promoting a greater understanding of what indigenous knowledge actually is rather than allowing focus to be on producing decontextualized *know how*. In other words, if an initiative is concerned with taking indigenous knowledge seriously then it should engage with it as comprehensively as possible, taking into account knowledge of values and political interests of indigenous people, as well as how these might come into conflict with other organisations, including themselves.

4.3. How IK and its Exogenous Practice can be Shared with Other Development Stakeholders

The previous sections have underscored how translation is crucial to learning processes. This issue is at least as important in the discussion of sharing indigenous knowledge and that knowledge which it has adapted. As stated earlier, databases have been the predominant form through which information dissemination has been attempted, with organisations attempting to engineer better technological solutions to their problems (Van Den Hooff & Huysman 2009; Ferguson, Huysman & Soekijad 2010). While it has been suggested that circulating knowledge through oral recording, in addition to text, might allow learning to imitate indigenous oral styles, (Powell 2006) this does not avoid the problem of knowledge being objectified, and in turn de-contextualised, given that an abstracted knowledge object is still produced. A rational-database approach has been contrasted with a post-rational networked approach that allows knowledge sharing of social issues to occur more informally through conversation (Van Den Hooff & Huysman 2009; Ferguson, Huysman & Soekijad 2010; Huysman & Wulf 2006). In this way the tendency to objectify and reduce knowledge through its translation is lessoned as the produced knowledge exists through being emergent (Van Den Hooff & Huysman 2009) in social practices and relationships.

Such an approach however does not separate knowledge from power; instead it recognises the connection between the two and offers a potential space to negotiate the interests and values of those involved in the production of knowledge (Ferguson, Huysman & Soekijad 2010). A knowledge sharing network is deemed to have three dimensions:

> "*Structural*, the connections between actors – who and how can they be reached; *Relational*, assets created and leveraged through relationships: trust norms and sanctions, obligations and expectations, identity and identification; [and] *Cognitive*, resources providing shared representations, interpretations, and systems of meaning among parties – shared language, codes and narratives." (Van Den Hooff & Huysman 2009: 2)

It is through these dimensions that equity and inclusion must be negotiated in the translation of indigenous knowledge and knowledge of the adaptation of exogenous practices to those indigenous people. For instance, while virtual practice communities or other IT groups are championed among knowledge sharing authors, (cf. Ferguson 2016; Huysman & Wulf 2006; Majewski, Usoro & Khan 2011; Ferguson & Soekijad 2016) infrastructural capacities can limit the possibility of participation for indigenous communities given the 'digital divide'. While networks do allow more disparate individuals to personally share knowledge, they need to be able to communicate with each other and this often requires mediation in the form of brokers who can translate and/or represent knowledge. Furthermore, there is still the question of how different interests between actors can be at play in the knowledge production that occurs through sharing, which affects what aspects of shared knowledge are deemed valuable and what can be filtered. Given that relationships between different groups, the individuals that represent them, and the organisation with whom the knowledge is to be shared, may be unique to each context, such negotiations and the translations that they engender will be similarly idiosyncratic. Furthermore, translation is not something that occurs only at the interface (Long 2001) between a development organisation and an indigenous group but throughout a network in which all actors act instrumentally (Mosse 2005; Mosse & Lewis 2006). In this way the possibility of sharing knowledge equitably is highly dependent on a large range of varying factors and individuals, making recommendations of best practice problematic unless they take into

account the differences in values between disparate actors. In other words, 'best' means different things to different people.

The sharing of indigenous knowledge and that knowledge which it recontextualises is arguably more suited to networks than databases. In the former sharing process, learning occurs socially, whereas in the latter, learning is disconnected from knowledge brokers who should have greater understanding of the significances of their own translations. Knowledge objects do not necessarily attempt to purify values from content, however those objects which do not do so (such as many of those produced by social science) are complicated and not easily categorised for sharing in databases. Furthermore, learning through these complicated objects (if they were able to adequately arranged) would hinder the possibility of dialogue between learner and broker, limiting the chance of negotiating its interpretation. By contrast, networks allow greater possibility of negotiation over translations and are more suited to sharing complex knowledge.

5. Challenges of Learning, Exchange and Circulation

While the challenges of learning, exchange and circulation have been implicitly addressed in the previous sections, it is worth restating them here (as well as stating other ones that have been neglected) explicitly. These are as follows:

a. Conceptual

As alluded to in the previous sections, many of the problematic issues associated with organisational learning of indigenous knowledge stem from the starting point of different cultural contexts (Sillitoe 2010; Ramisch 2014; Long 2001). Particular conceptualisations of indigenous knowledges and their relation to other forms of knowledge are problematic. The division between 'indigenous' and 'scientific' implies homogeneity within these categories of knowledge, failing to do justice to both the plurality of forms of knowledge that people utilise within any setting, and the epistemological processes that accompany them (Agrawal X). This bisection reinforces the unequal global relations of power which exist between groups of people. Furthermore, it encourages a tendency to equate indigenous knowledge with technological or environmental knowledge, essentialising people in a hierarchical manner by virtue of their economic practices (i.e. hunter gatherering and post-industrial societies). The problem here is not the attribution of difference between people's knowledges when there is none, but that there is a failure to recognise the different political values that are inherent in forms of knowledge (Agrawal 2002) as well as the power relations that exist between them. The consequence of this for learning is that much indigenous knowledge – of people, practices and the perception of the environment for instance – is at best not recognised and at worst is discarded as useless by virtue of not corresponding to the values of learners.

b. Practical

While participatory approaches can be collaborative and allow for a relatively inclusive and equitable learning process, they have often been criticised as naïve. In the main this criticism has charged this knowledge construction with being shaped by existing power relations, serving to unintentionally exclude those marginalised in a group – often women – through only being exposed to dominant members of a group (Mosse 1994; Mosse 2005; Cooke & Kothari 2001). This issue is not necessarily one that can be easily addressed if an organisation desires access, as it may be conditional on not disrupting local politics. Local brokers offer the same problem. In this instance relatively elite stakeholders, for a variety of

reasons, may limit the ability of development practitioners to access or observe beneficiaries, co-ordinating villagers to 'perform' what is expected of development when monitoring experts visit (Bierschenk, Chauveau & Olivier de Sardin 2002). This again raises the questions of who is speaking for who, whether this engagement is inclusive or equitable and who organisations may be able to speak to if, for good reason, they are unwilling to challenge power structures (Mosse 2005).

c. Organisational Politics

While development organisations often have good intentions to engage in equitable partnerships, they also have to work in line with political realities (Mosse 2005). Engaging in more inclusive and equitable learning processes requires the build-up of trust which may take a long time (Lwoga, Ngulube & Stilwell 2010; Sillitoe 2010; Briggs 2013) and the impact of working in this way may be difficult to quantify through indicators, placing pressure upon workers (Merry 2011; Davis, Kingsbury & Merry 2012; Briggs 2013). Furthermore, while organisations may wish to explore what indigenous concepts of development look like, there can only be so much difference that they are able to work with given that "the common prioritisation of internal, and often headquarters-oriented, information and knowledge-management issues often distracts from exchanges with those immersed in the Southern realities that organisations aim to be changing" (Powell 2006: 528). As such the learning and sharing of indigenous knowledge is often limited to that knowledge which headquarters deem useful.

d. Circulation

The circulation of indigenous knowledge through electronic databases has tended to objectify and decontextualise it, stripping the knowledge of its inherent values (Agrawal 2002; Löfmarck & Lidskog 2017). While a networked, as opposed to a databased, approach to knowledge sharing allows for knowledge to be emergent, (Van Den Hooff & Huysman 2009) this process does not remove the relations of power and knowledge that result in marginalisation, but help to make them more visible. Negotiation and translations occur due to institutional interests and other differences associated with context specific values. It is through these negotiations of difference that equity and inclusivity, and the impact that these have upon the relevance of interventions, are dependent. This networked approach however is made more problematic by virtue of the differences between contexts. With each one being made up of its own unique values and relations with external brokers, this entails that the specificities of differences that are to be negotiated are often themselves different. As such, what was effective negotiation in one situation may not be so in another.

e. Compensation

Of further consideration in the question of equity, is how to involve indigenous people in economic relations that accompany the information flows which make up the patent filled world of the 'knowledge economy' (Powell and Snellman 2004). Nakata states that "Indigenous knowledge is increasingly discussed by all as a commodity, something of value, something that can be value-added, something that can be exchanged, traded, appropriated, preserved, something that can be excavated and mined" (2007: 185). The valuation that is given in discourse however has often not matched valuations that are produced in practice where indigenous knowledge is undervalued and appropriated by development organisations who monopolise the economic benefits of this knowledge (Brown 1998). In response it has been frequently argued that indigenous people should

have their knowledge protected under intellectual property rights (ibid). This issue is complicated by questions of whether rights should be individual or a collective; how external ideas of property relate to indigenous understanding of ownership; whether cultural knowledge should be afforded the same rights as other forms of knowledge; and how long a patent should exist for. [To expand: the notion of cultural property simplifies questions of sovereignty, respect and the precarious position of indigenous groups next to powerful others].

6. Recommendations, Limitations and Further Study

Attempts to learn and share indigenous knowledge should start from a point of greater conceptual understanding of this knowledge. The literature suggests this knowledge that is heterogeneous and located within specific assemblages of context, relationships, people and practices. This understanding allows organisations to properly appreciate that all knowledge (indigenous or not) is connected to values and interests which means that its production is inseparable from power. Attending to power then, rather than attempting to decontextualise knowledge, becomes the most important means of realising and retaining the most important benefit of indigenous knowledge. This benefit is that effective, inclusive and equitable learning and sharing of indigenous knowledge can allow for humanitarian practices to be made more accessible and relevant to crisis-affected people. This approach may be contrasted with the adaptation of indigenous knowledge to the needs of external organisations, which can serve to marginalise through failing to take into account their values. One way in which this attention is practiced is through the reflexive interrogation of organisational values and how they conflict with those of the indigenous people.

Processes of learning that follow on from this practice should be participatory, while attempting to avoid the naivety of assuming that politics is not a factor that affects the production of knowledge. In this way learning should be a negotiation of power, attempting to incorporate more marginalised sections of a group of people into the process. Following on from a proper conceptualisation of indigenous knowledge, learning should attend to the significances and justifications for practices as opposed to focussing on capturing only the technical knowledge that is easier to observe.

Sharing processes should avoid the temptation to archive knowledge in a generalised form through a database as this will objectify knowledge, increasing the likelihood of decontextualizing and translating this knowledge to serve the interests of the organisation as opposed to those partnered indigenous people, facilitating the marginalisation of the latter. A more effective means for sharing knowledge is through the establishment and maintenance of networks, which allow knowledge to exist as emergent in social practices and relationships. This aids, although by no means guarantees, the retention of indigenous values embedded in knowledge, enabling demonstration of how external practices have been adapted to them. What is important to remember though is that all knowledge is reproduced, in learning and sharing, through translating across relationships of power. These relationships can differ greatly across contexts and therefore best practices with regards to the learning and sharing of indigenous knowledge for the purpose of adapting exogenous practice will always be contextually-relative.

While this study can offer general advice on how knowledge production and sharing can be made more equitable and inclusive might be done, the literature does not seemingly

identify what kind of networks would be most effective at carrying out this sharing process. Relating to this then is the question of how an organisation may attempt to mediate disparate interests of partners who exist in a network either as part of the indigenous group or outside it. For instance, how does one gain access to marginalised people so as to include them in processes of learning and sharing, and how does an organisation encourage another to align its interests more radically with those of indigenous people? While it could be inferred that the answer to these questions is the development of effective political brokerage, this begs the question of what is effective and for whom. Future research in this area should treat this as its starting point.

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Appendix:

IK examples:

The following TEN case-studies provide insight into some of the lessons learned by development initiatives in Africa which sought to include the participation of local people.

These case studies are drawn primarily from examples provided by the International Labour Organization (ILO), The World Bank (WB), Indian and Northern Affairs Canada (INAC), and the United Nations Education, Scientific, and Cultural Organization (UNESCO).

Case study 1: (Indigenous Knowledge was used to improve NRM Development Projects in Niger)

This USAID-funded project brought together a team of entomologists and social scientists from Niger and the University of Minnesota to promote the exchange of indigenous knowledge on uses of neem products. Although the leaves and seeds of neem have been used for their insecticidal properties for years in India, traditional farmers in Niger had long observed the immunity of the neem tree to desert locust attack. Traditional farmers in Niger are now using neem products instead of dangerous and expensive imported chemicals.

Lessons learned from __Neem Bio-Pesticides in Niger__ case-study are it is possible:
1) to test "scientifically" the validity and cost-effectiveness of an indigenous technology and;
2) to transfer an indigenous technology from one region (India) to similar agro-ecosystems in another country.

Case study 2: (Soil Regeneration in Rwanda)

This project, funded by the German Agency for Technical Cooperation, has worked with and built upon local skills and knowledge to help reduce deforestation and soil erosion. The Nyabisindu project has also facilitated the development of new technologies that build upon traditional agricultural practices.

Although many Rwandans already knew of the agricultural benefits provided by mulches, animal and green manures, and various erosion control measures; traditional, extensive fallow systems have been gradually transformed into intensive farming systems in central and southern Rwanda. Techniques used include, hillside terracing, valley floor fishponds or raised gardens, composting, mulching, living crops and livestock.
Principles found useful in this case-study include:
1) Use adaptable technologies that build upon traditional practices;
2) Involve local farmers in the design, implementation, management, and evaluation of the programme; and,
3) Coordinate programs with existing governmental activities.

Case study 3: (Consequences of inadvertently ignoring local practices in Burkina Faso)

In Burkina Faso, government officials and forestry advisers selected a site described by project officials as "useless bushland". They proceeded to clear off the brush and trees in order to plant straight rows of exotic fuelwood species.

Neither the project designers nor the foresters had realized that this useless-looking brushland (fallow) was in reality, a part of a delicately balanced indigenous agro-forestry system. Local women depended on this land for a variety of important forest products such as, shea nuts used for cooking oil; various seeds and leaves used in nutritional sauces; grasses and barks for weaving and dyeing mats and baskets; leaves, pods and, and roots for home remedies; dead branches and sticks for cooking fuels; and fruits.
"Although various aspects of the indigenous systems are almost always strained and some may be dysfunctional, the rewards (e.g. benefits and shortfalls) of any given system already in place, will be used by local residents to measure the desirability of any new idea".

Case study 4: (Water harvesting technique in Burkina Faso & Mali)

Water is life for the diversity of indigenous societies living in the Sahel region, and accordingly, is at the centre of social, cultural, economic, animal and botanical activity. It is now evident that many previous water-harvesting development projects in the Sahel, have not been based on local, indigenous techniques. Techniques which have adapted to the local carrying capacity, have been used successfully for countless generations, by conserving and protecting the soil and water.

For example, Mossi farmers in Burkina Faso construct rock bunds and stone terraces. The Dogan of Mali construct a basin system in their fields which is effective in conserving rainfall. The Hausa in Niger's Ader Doutchi Maggia, use rocks bunds and construct small weirs using sticks, grain stalks, and earth to divert flood water over their fields. Farmers in the Yatenga region of Burkino Faso use a water harvesting technique called "zay". The zay conserve and slow down excess runoff by the use of rock bunds. This system is used by local farmers to help rehabilitate degraded, barren and crusted soils.

Case study 5: (Predicting droughts & weather related diseases in Tanzania)

Maasai alternate the use of their natural grassland according to seasons. This requires a timing decision on when and where to move next. They predict droughts as well as weather related diseases by watching the movements of celestial bodies in combination with observing the date of emergence of certain plant species (e.g. Ole Kitolya). Such "early warning signals" of an approaching environmental disaster are used to determine any preventive measures, prepare for mitigation and decide on the course of the community in using the natural resources. Similarly, estimates of animal fertility can be drawn from such forecasts with implication on stocking rates and density. This knowledge is little researched so far. Traditional expertise in astronomy and weather forecasting in combination with conventional agricultural meteorology could enhance local forecasts on harvests and food security.

Case study 6: (Land use system and emulation of natural vegetation)

The Washambaa of the Usambara Mountains in Tanzania developed a land use system emulating the climax vegetation of the deciduous natural forest, a multistore system integrating annuals and perennials on the same plot. The principles were transferred to Nyabisindu, Rwanda. Special multipurpose contour bunds with trees shrubs and grasses were added to the system and re-transferred to the Washambaa once dense population
and demand for firewood had depleted the soil cover. Emulation of natural vegetation is a valid approach to soil conservation; transferring and adding elements to address new problems adds value to the original land use system.

Case study 7:   (Complementary use of indigenous & veterinary medicine in Cameroon)

Modern veterinary sector is plagued by numerous constraints, including the erratic supply and prohibitive expense of veterinary drugs and supplies, poor communication facilities, and a shortage of manpower. The project promoted complementary use of indigenous and conventional veterinary medicine for sustainable livestock production, and the conservation of medicinal plant resources. Through interdisciplinary collaboration with governmental and non-governmental organizations, the project documented the indigenous treatment of various diseases and ailments of livestock. Diseases are now being treated using effective remedies that were used by local communities many years before the arrival of modern drugs. Because the practice builds on indigenous knowledge and practices, it enjoys a high rate of acceptance. Indigenous knowledge is being preserved in a continuing way. Farmers are empowered and encouraged to participate in development. There is increased awareness of the importance of environmental conservation.

Case study 8:   (Compiling a database of indigenous food plants in Kenya)

The National Museums of Kenya is compiling a database of indigenous food plants of Kenya, to compile agronomic, nutritional, cultural and market data on priority species; to promote the cultivation, consumption and marketing of these foods through field demonstrations, educational materials and the media. People were despising their traditional foods in favour of exotic foods. This was most common among the younger generation, who took pride in their 'modern' patterns of consumption. Poverty, famine, and malnutrition were common in rural areas despite the fact that local foods were readily available. Much local knowledge regarding the nutritional value and cultivation of local edible plants was being lost. Most people no longer knew, for example, when and where to collect seeds, etc. Having never been written down, the indigenous knowledge of the elderly was slipping away day-by-day. Several important species, or varieties of species, were on their way to extinction.

Indigenous knowledge was thus the starting point. Specialists in nutrition, ecology, and botany have had to base their research on it because there was simply not enough time, money or human resources to duplicate all of that knowledge. The scientific, economic, and socio-cultural significance of the indigenous knowledge becomes apparent as specialists and practitioners work with it. The practice is beneficial in several ways. It improves the local communities' living standards and health. It enhances the knowledge which extension workers put to daily use. It generates knowledge that is useful to NGOs seeking ways to alleviate poverty and improve public health. It generates scientific knowledge useful for the preservation of cultural and biological diversity. By raising the status of indigenous knowledge in the eyes of local communities, the practice not only helps to alleviate poverty but also increases people's respect for their own culture. There are some dangers. Commercial interests could result in a selection of species and varieties, and thus reduce the present diversity. Research exposes local knowledge to piracy.

Case study 9: (Integrating IK and "modern" technical knowledge & sharing good practices)

An integrated development program for pastoralists in Kenya, bringing together traditional (indigenous) knowledge and modern technical knowledge in training, handbooks for treatment of cattle diseases, also aims at bringing together indigenous knowledge from different ethnic groups, sharing indigenous knowledge and practices, and promoting pastoralism as a valid mode of production and way of life.

This project is based on disseminating indigenous knowledge. In all project activities, the Kenya Economic Pastoralist Development Association (KEPDA) brings together traditional and modern technical knowledge, through publications and networking, to promote understanding and awareness on key issues. Such an approach offers considerable potential for improving dry land productivity in a sustainable manner. In the past, traditional knowledge was considered largely a research topic, and technical knowledge was considered
as a replacement for primitive or outdated practices. This project aims to integrate these two information bases.

Case study 10: (Participatory development and action plan in Africa)

In Africa more than 80 per cent of the continent's population relies on plant and animal based medicine to meet its health care requirements. For the most part the plants and animals used in traditional medicine are collected from the wild, and in many cases, demand exceeds supply. As Africa's population grows, demand for traditional medicines will increase and pressure on natural resources will become greater than ever. Africa has a history of conserving bio-diversity in medicinal plants for at least two reasons: traditional practices surrounding their use reflect local knowledge and wisdom, and the plants are readily available and relatively cheap—being either easy to gather in the wild, or simple to cultivate. Herbalists have preserved traditional knowledge and practices of herbal medicine, often using it in combination with spiritual powers. Certain families keep their recipes secret. Plants continue to provide most of the rural population of Africa with ingredients for traditional medicines. Throughout the continent for many generations, small plots of land near the homesteads have been used as home gardens. Because these gardens serve a family's own needs, they contain a whole range of plants that provide food and medicine. They are used widely to prevent and treat common ailments, but their conservation also means that the indigenous knowledge associated with their unique properties and correct application will be preserved.

Through a combination of participatory research and development action involving local communities, project workers first learn about the local communities' own solutions for conserving medicinal plants and for putting them to safe and effective use for traditional health care. Appropriate incentives then provide further encouragement of community efforts to safeguard bio-diversity at the village level. Economic incentives include seed funds, the promotion of income-generating activities, and help with marketing. Social incentives include technical assistance and training, information and consciousness-raising related to conservation, the provision of equipment, and technical and scientific advice and assistance. Institutional incentives include guarantees of full property rights, and the establishment of local committees and associations for purposes of monitoring and planning.

The fact that income can be generated from medicinal plants and traditional medicines helps to sustain the practice of cultivating them. Recognition for the value of traditional medicine and medicinal plants will foster sustainable methods of propagation and cultivation. Traditional knowledge and practices pertaining to medicinal plants will be preserved as herbal medicines are increasingly used to complement other forms of community health care.