# Questions related to indigenous cultures and diffusion of innovations: introductory observations

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### 1 Introduction

The relationship between indigenous communities and diffusion of innovations has traditionally been analysed in the fields of development communication, anthropology, social change and cultural studies. However, the emergence of new technologies such as computers, the internet, e-mail, interactive multimedia systems and digital telecommunications has dramatically altered the methods through which innovations are diffused in indigenous and traditional societies, in particular innovations relating to

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agricultural and land preservation practices. There is significant research on how new technologies are impacting indigenous people and their cultures but the evidence is still disputed. For example, while there is some evidence that indigenous people have successfully adopted new technologies to serve their needs, there is evidence equally suggesting that new technologies, if introduced improperly, can harm indigenous cultures (see Obijiofor, 2006).

The papers presented in this special edition seek to explore and to understand the processes, problems and opportunities associated with the adoption or non-adoption of innovations in indigenous communities and how the knowledge gained will assist indigenous community leaders, policy makers and development agencies to focus on the most practical strategies of development with the most useful innovations. In essence, this edition is designed to contribute to theoretical and practical knowledge of indigenous cultures and how innovations are diffused in those communities, especially as they relate to developments in the agricultural sector, use of new Information and Communication Technologies (ICTs), governance and ecological issues and the intellectual property rights of indigenous peoples. In this regard, the papers published in this edition seek to establish broader and more global perspectives on indigenous cultures and diffusion of innovations.

Indigenous peoples in various parts of the world constitute a minority. The term indigenous peoples has no universal, standard or fixed definition. A contemporary working definition of 'indigenous peoples' (available on Wikipedia, 2005) has criteria, which would seek to include

"cultural groups (and their descendants) who have an historical continuity or association with a given region, or parts of a region and who formerly or currently inhabit the region either:

- before its subsequent colonisation or annexation; or
- alongside other cultural groups during the formation of a nation-state; or
- independently or largely isolated from the influence of the claimed governance by a nation-state; and who furthermore
- have maintained at least in part their distinct linguistic, cultural and social/ organizational characteristics, and in doing so remain differentiated in some degree from the surrounding populations and dominant culture of the nation-state".

To the above, a criterion is usually added also to include:

• peoples who are self-identified as indigenous, and those recognised as such by other groups'.

In sum, from South America to North America, from Europe to Oceania (Australia and New Zealand), indigenous people share a common characteristic – they are geographically isolated, economically disadvantaged and socially marginalised. In various disciplines, research investigations have been initiated to explore ways to empower indigenous people to improve the socio-economic and cultural conditions in their communities.

It has often been argued that, without the successful adoption and implementation of new communication technologies in the developing world, future generations in those societies will further lag behind. There are compelling arguments for assuming that new

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technologies hold the key to socio-economic development of indigenous communities. For instance, new technology advocates a point to how the West experienced the impact of industrial technology and found it to be an indispensable tool of development. The belief then was that if industrial technology aided the socio-economic growth and development of Western nations, it should also propel socio-economic growth in developing communities.

In the decades of the 1960s and 1970s, the mass media were regarded as the principal agents of social change and development in human societies. In this regard, messages from the mass media were believed to have direct automatic impact on the audience as soon as the messages were received. In the era of new ICTs, researchers are yet to reach a consensus on the direct relationship between adoption of new technologies and socio-economic development (for an overview, see Hemer and Tufte, 2005; Schech and Haggis, 2000).

Despite the overwhelming support given to the dominant perspective of development communication in the 1950s, 1960s and the early 1970s, the major epistemological basis of the perspective has been questioned because of its inability to address the problems of indigenous communities and poverty within those communities. For example, in the 1960s, if a country failed to record an appreciable rate of economic growth, the fault was often traced to the failure of technology to produce instant development rather than to the 'characteristics of systems of institutional relations'. Rogers (1976, p.223), regarded as the grandfather of the diffusion of innovations theory, argued that

"Until the 1970s, development thinking implied that traditional institutions would have to be entirely replaced by their modern counterparts. Belatedly, it was recognised that these traditional forms could contribute directly to development".

In spite of the abundance of literature on diffusion of innovations in developed and developing countries (the core text remains Rogers, 1983), the theory has been criticised by communication and social science researchers for being too linear, for being too ethnocentric and for prescribing western-based innovation diffusion processes to the rest of the developing world. One of the earliest criticisms levelled against the theory was that it assumed that what was applicable in western developed economies would also apply in general terms in the developing countries. It was also argued that the diffusion theory was propounded on the basis of the stages of information flow which were derived from agricultural experiments conducted in the USA in particular and from the characteristics and value orientations of farmers in western developed economies in general. It is in this context that proponents of the theory were accused of ignoring the underlying traditional and socio-cultural factors that determine whether new ideas disseminated through the mass media or through foreign change agents (the 'experts') would be accepted in rural communities of developing societies (for more detailed overviews, see Leeuwis and Van den Ban, 2004; Servaes, 2001, 2003).

Adil Saleh raises a number of these issues in his contribution, because as he argues

"this model includes significant deficits that need to be treated appropriately. Diffusion of innovation or of knowledge, when applied in an indigenous context, should not necessarily confuse existing structures and the systems, however, it should support their improvement and modification and initialize their sociopolitical role. Organizations themselves should be targeted by diffusion, instead of creating a social pressure by modernizing individuals and ignoring their systems. There is no evidence until now, however, that people

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who benefited from diffusion contributed to an organizational modification. In contrast, most studies confirm that diffusion of innovation as introduced in many developing countries has led to empowerment of higher socioeconomic groups at the expense of lower and middle groups. This will also be the case in the diffusion of knowledge, since the higher socioeconomic groups do have good chances in the educational system and they could contribute better than other groups in intellectual fields".

As research evidence has demonstrated, the processes of innovation diffusion in western societies differ markedly from the stages of diffusion of new ideas in traditional communities and in the rural areas of developing countries. In essence, opinion leaders in one cause or idea in a typical western society do not necessarily share same characteristics or level of influence with opinion leaders in the rural villages of developing countries. To put it in the context of an African proverb, what is good for the goose in a western country may not necessarily be good for another goose in a developing country. At the centre of these disparities are differences in communication channels, differences in patterns of communication, differences in social values, differences in the level of economic development, differences in belief systems and differences between the west and the developing countries in terms of the core values of individualism and group dynamics, among others. As some researchers have pointed out, diffusion research conducted in the west have tended to explore individual characteristics of innovation adopters and the influence of the mainstream news media in the diffusion process. In this context, early research on diffusion of innovations assumed that the factors that influence the decision to adopt or not to adopt innovations are generalisable to all human societies. However, such research overlooked the defining characteristic of traditional societies - the influence of group dynamics on social conduct.

The diffusion of innovations research has also been criticised for propagating the assumption that people who embrace new ideas also will always gain from the new ideas. Previous research in the discipline area tended to ignore the possibility that people to whom new ideas were introduced could respond negatively to such ideas (further explored in McKee et al. (2000).

Indigenous Knowledge (IK), Traditional Knowledge (TK) or local knowledge generally refer to enduring long-standing traditions and practices of certain regional, indigenous or local communities. TK encompasses the wisdom, knowledge and teachings in these communities. In many cases, IK has been orally passed for generations from person to person and from community to community. Some forms of TK are expressed through stories, legends, folklore, rituals, songs and even laws.

This paper by Paul Bino and K. Sankaran explores the role of IK and biodiversity as positive growth leveraging factors. In trying to do this they examine how the growth of Fast Moving Consumer Goods (FMCGs) may adversely affect regional knowledge systems and biodiversity. While the discussion is confined to FMCGs, it may have applications to other non-durable goods too.

Through a simple model they show the approach towards conceptual modelling of the trade-off between non-IK embedded solutions and IK-based solutions. In trying to link this contribution with future work, they suggest that there is a need for a more proactive policy to specify indigenous product standards and disclosure norms. There is also a need to come up with alternative business models to tap the IK systems and the creation of incentives for biodiversity conservation and local knowledge preservation.

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Recently, various communities throughout the world have turned to intellectual property laws to preserve, protect and promote their traditional IK. Only a few nations offer explicit *sui generis* protection for TK. However, a number of countries are still undecided as to whether law should give TK deference (for more details, see Thomas and Servaes, 2006).

The above general observations and statements are further explored and detailed by way of historical accounts and case studies. Yongxiang Li and Bryan Tilt discuss the transformation in China's agricultural sector from collective to private production, resulting in marked improvements in quality of life for most rural citizens. However, economic development in the countryside has been highly uneven, with China's eastern coastal areas prospering more quickly and to a greater degree than its interior hinterland. The problem of uneven development is particularly acute in China's southwestern region, with its arid land, rugged topography and high concentration of ethnic minority populations. Based on recent ethnographic research, the authors discuss the innovative governance strategies used by a state-owned sugar mill in a rural township in Xinping Yi-Dai Autonomous County, Yunnan Province, in order to survive within a changing economic environment. These strategies include: selecting which farmers are allowed to provide inputs to the mill, delaying payment to farmers for their inputs and ultimately, the privatisation of the mill. Li and Tilt argue that, despite economic liberalisation, the state - particularly at the local level - still plays a key role in mediating between farmers and the marketplace.

C.K. Sankat, K.F. Pun and C.B. Motilal point at technological change, competition and globalisation as the drivers for a restructuring of agro-business research and development processes and strategies in the Caribbean region. The generation of new knowledge through science and the use of that knowledge for development have been recognised as essential steps in the pursuit of economic growth. They argue that technology transfer provides the viable means needed to meet the challenges of better and improved agricultural products. They further discuss the potential benefits of technology transfer to agriculture and the infrastructural requirements for the support of innovation in developing countries with particular reference to Trinidad and Tobago in the Caribbean. A collaborative framework for innovation and technology transfer is explained. It stresses the need to build partnerships among stakeholders (i.e. agro-firms, government, knowledge institutions, etc.) and identify main processes involved to assure the sustainability of the agricultural environment. Technology transfer is not simply copying the technologies passively from the advanced nations, but is an active and creative process of adaptation rather than of adoption that recognises the indigenous capabilities needed to suit local conditions.

This paper by Syed Aiman Raza is an attempt to describe the diversity and dynamism of social and agricultural practices in a traditional mountain production system in one of the tribal Buddhist communities of Indian Western Himalaya. The research uses ethnographic data gathered from a little-known village, Jangi, where farmers are described and interpreted in the context of their risk-mediating roles in their agropastoral activities. Several examples of local innovation and change, all of which point to a highly dynamic and adaptive production system, are analysed. This paper contributes to a growing body of literature on resource use planning, management and sustainable development, also indicating that people are changing in response to the forces of globalisation, while maintaining their ecological knowledge.

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Susan Crate takes us to a rural community in northeastern Russia, which is left without the state farm agricultural infrastructure that fed and employed them during the Communist decades. Most of the people adapted innovation to create new forms that combined pre-Soviet subsistence practices with contemporary modes. She explores one group's innovation, 'cows-and-kin'. This cows-and-kin innovation is based on household-level cow keeping with interdependence of kin households. In addition to describing this post-Soviet community-level innovation, the paper also explores relevant issues about the capacity for continued innovation such as, the future of the cows-and-kin innovation, considering that many youth are out-migrating from the rural villages; how the cows-and-kin innovation is affected by the forces of globalisation and modernity and how the cows-and-kin innovation faces the challenges posed by rapid climate change.

Maria Udén and Avri Doria use the case of an internet connectivity project, the Sámi Network Connectivity, in northern Sweden as a means to investigate the impulses which designing a network for a semi nomadic population which gives to network design and to policy making. They perceive the diffusion of innovations as something, which affects not only the culture of technology users but also that of technology producers. By doing so they adopt Manuel Castells' argument that the cultural heritage imprinted in the ICT sector's technical design and social organisation has developed as a result of interaction between large, hierarchical institutions on the one hand and the radical thinking of the 1960s on the other. That's how they explain the conceptual congruence between internet experts and the user community in their case study. We suggest that due to discourses that surrounded senior ICT professionals during their youth, there is a preparation for a nomadic scenario within the ICT sector as such. This is an important finding as the introduction and successful harnessing of new ICTs in indigenous communities has often been described as one way to uplift the socio-economic conditions of indigenous people. Consequently, new technologies have been widely perceived as a tool to kick-start ailing economies and, most importantly, to assist disadvantaged social groups to 'catch up' with the rest of the world, especially those groups who were lost out of the mainstream of development.

Let's hope that the contributions in this special issue on indigenous cultures and the diffusion of innovation have raised some questions and warnings in this regard. Indigenous cultures possess often a unique body of traditional and local knowledge, which is worth preserving and investigating to initiate and develop sustainable alternatives to the forces of globalisation and cultural homogenisation. Subsequently, as argued by all authors in this volume, indigenous cultures and knowledge warrant recognition, sensitivity and respect.

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