Chapter 1

INTRODUCTION

1.1. Background and Theoretical Literature

Jhum is a type of shifting cultivation practiced in North-East India. Shifting cultivation has many diverse characteristics giving rise to diversity in its definition. Pelzer (1978) argues that a key distinguishing feature of shifting cultivation is rotation of fields, as opposed to rotation of crops we observe in 'orthodox' agriculture. In the process, one particular plot of land is used for short periods of cropping (one to three years) followed by relatively longer fallow periods. The clearing of field by slash and burn is also a key feature of this form of cultivation, earning it the name 'slash and burn cultivation' in various parts of the world. Conklin (1957) described shifting cultivation as any agricultural system in which fields are cleared by burning and are cropped discontinuously. Broadly speaking, these systems are typically presented as involving the cutting of a section of a forest, burning of the cut plant material, planting of a variety of crops, harvesting and then moving on to cut a new patch of forest (Thrupp et al. 1997). It is noteworthy that burning and discontinuous cropping by shifting of the plot are two key morphological criteria, which have been identified by scholars as the most significant and useful elements to analyse shifting cultivation.

There is a general agreement that the relationship between the cultivation period and the fallow period is essential to explore while defining shifting cultivation. It was probably for this reason that the 1982 FAO/University of Ibadan Workshop on 'Shifting Cultivation and Extension' recommended "the adoption of an operational definition of shifting cultivation to refer to a system in which relatively short periods of continuing cultivation are followed by relatively long periods of fallow" (Lanly 1985). Although this definition may be considered somewhat imprecise, it captures the very nature of shifting cultivation well.

In the modern science driven policy discourse in India, Jhum has often been discounted as a non-scientific, primitive, and environmentally hazardous agricultural practice. However, Jhum has survived the savagery of time despite being one of the
most ancient forms of agriculture. The present study intends to locate this survival
ability of Jhum in its innovation dynamics.

The terms innovation is, however, made to correlate with modern industrial
economies. Schumpeter (1980 [1936]) describes it as first attempt to commercialise a
new product, process, use of raw material, organisation or market. None of these
features is readily observed in traditional non-market societies where Jhum is
practiced. Innovation is also conceived as an application of advancement in the body
of fundamental scientific knowledge. Such a definition makes it difficult to use the
term in the context of traditional non-market societies as well, where no documented
body of 'fundamental scientific knowledge' exists. To our advantage, however, later
research has broaden the horizon of innovation by trying to locate it in the larger
socio-economic milieu (Hanney 1980; Jamison 1989). For it's not only the economic,
but also the social aspects which shape the discourses on innovation (Basalla 1988).
Over the time, the modern discourses on philosophy of technology have added more
nuances and meanings to the words - technology and innovation. In one such
'consensus definition', technology is understood as the “systematic application of
scientific or other knowledge to practical task” (Galbraith 1967: chapter 2). This
definition arguably incorporates social organisations and value systems in the
discourse on innovation. Alternatively, technology is also defined as “any
systematised practical knowledge...which enhances the capacity of a society to
produce goods and services” or “the application of scientific or other knowledge to
practical tasks...that involve people, organisations, living things, and machines”. The
concept of technology thus has broader dimensions to make it applicable in non-
market, traditional societies.

Recent studies on institution and culture, similarly, intends to analyse technology and
innovation in a broader framework, by relating the pace and shape of these activities
with institutional framework, and cultural ethos (North 1990; Denzau and North 1994;
Ellul 1954; Hofstede 1980). Factors like social norms, conventions, belief system thus
influence the design and dimensions of innovative activities. Thus, a proper

1 Even in modern industrial societies, many solutions to practical problems were found out without
much knowledge about the fundamental science of those days. See Dusek (2006: 34) for detail.
2 As quoted in Dusek (2006: 35), emphasis ours.
3 See Dusek (2006: 35) for detail, emphasis ours.
4 See Dusek (2006: 35) for detail.
understanding of innovation dynamics has to incorporate the underlying knowledge system, cultural-institutional values in the analysis of changing nature of techniques used in a society.

1.2. Motivation

We draw our motivation to study the innovation dynamics in Jhum cultivation from two stylised facts. First, while Jhum is projected as a pre-modern, environmentally hazardous practice associated with 'primitive' societies, recent studies in the field of ecological science points out that the techniques used in this agricultural practice are, in many contexts, environmentally more efficient than modern agricultural practices. Moreover, secondly, Jhum is one of the oldest form of agriculture and has survived the changes in environment and ecology to sustain itself as a viable mode of agricultural practice. This reflects substantial adaptive ability of this practice, which, arguably, has helped it thwart the challenges posed by many environmental and/or demographic changes over time.

1.3. Objective

Researchers, especially in ecological sciences, have discussed about regional diversity in the practice of Jhum cultivation in the North-Eastern States in India (Ramakrishnan 2001; Darlong 2004). This regional diversity in product range and processes of cultivation can be regarded as indications of innovative capacities of these communities. There is, however, very little attempt to study the nature and dynamics of innovative behaviour of these communities. The current study attempts to understand the innovation dynamics by understanding the nature and pattern of innovations that these societies may have undertaken, as well as by analysing the institutions that have shaped their innovative behaviour. We have focused on shifting (Jhum) cultivators of Nagaland. To this end, we have the following broad hypotheses to offer:

---

5 Tiwari (2003) being perhaps the only exception. However, this study approaches the issue of innovation from an ecological science perspective.
1. Although not supported by modern doctrines of agricultural practices, *Jhum* cultivation in Nagaland is embedded in local, culture specific indigenous system of knowledge.

2. *Jhum* is an evolving system of agriculture, whose trajectory in Nagaland has been shaped by recurrent innovations and adaptations with changing environment.

3. Various local institutional norms in Nagaland have importantly shaped the nature and pattern of local innovation in *Jhum*. These norms have also been instrumental in shaping the responses of the communities towards the various governmental schemes introduced to replace *Jhum*.

### 1.4. Chapterisation

The thesis is organised in the following way: The next chapter (chapter 2) presents an overview of shifting cultivation. The main objective of this chapter is to understand the various aspects of this age-old agricultural practice in different parts of the world. This discussion would help us determine the key driving forces behind its sustenance and dynamism over a period of few thousand years. We derive our research questions on the basis of this discussion. Chapter 3 discusses our sample, method of data collection and type of information’s obtained during our field visits. Chapters 4, 5 and 6 present our findings pertaining to the three broad hypotheses mentioned above. The main objective of chapter 4 is to analyse the knowledge system embedded in *Jhum* cultivation in Nagaland. We analyse our primary level information drawing upon the discourses on modern and indigenous systems of scientific knowledge and their relationships. Chapter 5 analyses the nature, pattern, and dimensions of innovative activities in the societies of shifting cultivators in Nagaland. We draw upon the economic and sociological approaches to innovation and diffusion to analyse these issues. Chapter 6 analyses their institutional framework, attempting to understand the roles these institutions have played in shaping the pattern, nature, and dimensions of innovative activities in these societies. The analysis of this chapter is based on the conceptual framework of institutional economics and cultural theories on innovation. Finally, chapter 7 draws the main conclusions of the study.