

## Forests and Water in Northern Thailand

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### INTRODUCTION

*Everyone knows that forest is the source of water for all people who live on Thai soil. We do not have any other source of water in Thailand ... [the forest] provides for underground water storage, making the ground moist as a benefit for all people... The result of cutting forest is the destruction of the water source of the Thai people. (Royal Forest Department/Suan Pa Sirikit, 1998, my translation)*

*The community knows that these areas of forest apart from naturally storing water also protect springs by preventing them from drying out, somewhat similar to the way skin protects capillaries in the body. As such, many communities maintain the forests in areas where there are springs—referring to these community forests as nam sap or pa nam jam or pa nam phud—by way of various regulations under the control of people within the communities themselves. (Royal Forest Department, 1998, my translation)*

*Thung Kao Hang is a village...in the upper part of the Li watershed, an important source of water for the fertile rice growing areas downstream. ...Efforts to exert more control over local resources began only after the richly forested areas around the village had been mostly destroyed by logging and shifting cultivators and the villagers began to experience severe water shortages. (Wittayapak and Dearden, 1999)*

*Villagers manage each type of forest differently. For example, they don't farm in the Ker Ner Meu forest. As this type of forest is a water source surrounded by large trees that are characteristically cool and dense, if rice was planted here it would produce little; alternatively if the forest was cleared the streams and creeks would dry up or be reduced in size and number. Thus, the villagers look after these kinds of forests as water sources within a community preserve. ... It is forbidden to cut down any trees in the protected community forest. This is to protect it as a water source for production and for use and consumption by the community. (Northern Development Foundation, 1999, my translation)*

*A simple lifestyle, using minimal resources, having just enough to eat and being at one with nature, leaves the forest, soil and water, surrounding the village, abundant and fertile. Vast humid forests bring rain. Some of the water from the rain washes fertilizer from decomposed leaves down into the fields, paddies and orchards. The rest is absorbed by the forest and slowly released for the community to use all year, forming streams and creeks that flow unhindered into rivers. (Northern Development Foundation, 1996, my translation)*

***The catchment is under high forest cover and the soil is covered by grass, bark and litter... This watershed functions like a sponge, absorbing water during the rainy season and with a long period of seepage into stream during the rest of the dry season. (International Board for Soil Research and Management, 1997)***

In northern Thailand there is considerable disagreement about the best strategies for the management of upland forests, but there appears to be broad agreement on the importance of forests in maintaining the hydrological health of local and national river systems. Official and alternative accounts—often replete with images of mountain streams tumbling down verdant hillsides—commonly state that watershed forests are the key to securing downstream water supplies. At the same time, water shortages experienced by upland and lowland irrigators are regularly attributed to forest loss in upstream catchment areas—as the forest “sponge” is destroyed the ability of catchments to store and steadily release water is compromised. As the above quotations indicate, this particular relationship between forests and water supply has become an accepted part of the knowledge and aesthetic of northern Thai landscapes.

However, despite the importance of these issues for resource management and agricultural development, relatively few attempts have been made to critically examine the hydrological perspectives that lie behind such claims. There are some notable exceptions (McKinnon, 1989; Alford, 1992; Thangtham, 1994; Enters, 1995; Vincent et al., 1995; Forsyth, 1996) but these appear to have had relatively little impact on public debate, perhaps too readily dismissed as inappropriately “Western” or “technical” perspectives on the Thai environment. Recently, conferences and seminars in Thailand<sup>1</sup> have focussed some attention on international research on the hydrological properties of forest but, once again, the challenges posed by this research are not readily taken up in policy forums or in analyses of social and environmental processes in the forested uplands.

It is primarily because popular views about the relationship between forest and water are so influential in public discourse and policy formulation that I believe further attempts to open up some debate are called for. In this paper my primary aim is to present an accessible, but scientifically informed, account of forests, deforestation and water supply in northern Thailand that challenges the conventional wisdom contained in the passages quoted above. Ongoing discussion of these issues—outside hydrological circles—is crucially important because the *biophysical* claims about forest and water have important *political* implications in that they motivate a divergent range of regulatory practices that seek to define appropriate livelihoods for farmers in upland areas. I discuss the politics of upland livelihoods in more detail elsewhere (Walker 2001; Walker forthcoming) and in this paper my aim is to scrutinise and challenge the shared *hydrological* assumptions which contribute to official *and* alternative visions of upland futures. My emphasis on “standard” hydrological science should not

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<sup>1</sup>For example, Environmental Services and Land Use Change: Bridging the Gap Between Policy and Research in Southeast Asia, International Centre for Research in Agroforestry, Chiang Mai, 31 May-2 June 1999 and International Symposium on Watershed Management. Highland and Lowland in the Protected Area Regime: Towards New Principles and Practices, Chiang Mai University, 23-26 March 2001. See Forsyth (1999 and 2001).