

Local Natural Resource Dependency in a Swedish Boreal Municipality Context

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Abstract

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Since every society depends on a society specific “natural resource field”, natural resource utilization within a society strongly influences socio-economic development. Natural and socio-economic sustainability originates in the local level, which in a Swedish context can be regarded as municipality level. Important natural resource users are local commercial activities, due to their central role in local socio-economy.

In this thesis the local natural resource dependent society is a Swedish boreal municipality. The hypothesis is that its natural resource dependency is deeply rooted in the local culture and still of crucial socio-economic importance, but that understanding regarding this must be improved. Thus local natural resource (LNR) dependency and its impacts on local commercial activities is quantified, characterised and displayed, and further discussed in a socio-economic context.

Data were collected among local commercial activities, represented by unique workplaces (UWps) within the municipality of Vilhelmina, through a telephone supported questionnaire. Half of the number of municipality UWps was addressed of which 46.5% responded. Results reveal that 80% of the UWps are highly LNR dependent. They offer engagement opportunities corresponding to 1 900 people and 40% of them are all-year, full-time engagements. Business establishment within Vilhelmina is associated with personal municipality connections or municipality qualities and geographical locations of all types of businesses is scattered across and outside of the municipality. Eighty per cent has been located within Vilhelmina for more than a decade and are likely to stay in business. Markets of UWps are mainly local. Cluster analysis identified LNR/LNR access dependency profiles, which show unique dependency patterns and differences in dominating business categories. Businesses, however, overlap profile boundaries and multiple businesses within UWps are reported in all profiles. Between profiles engagement opportunities per UWp vary from one to five.

Results imply strong connections between LNR dependent small businesses, people involved and local social, cultural and economical structures. It is thus believed that LNR/LNR access dependency and commercial activities are deeply rooted in boreal municipality culture. To facilitate local as well as general positive development results hence confirm the need to quantify and characterize the LNR/LNR access dependency within a boreal municipality.

Keywords: accessibility, ecological function, local government, rural resource community, small business, societal development, socio-economy, sustainability

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Papers I-II

The present thesis is based upon following papers, which will be referred to by their Roman numerals:

I. Thellbro, C. and Lidestav, G. Local Natural Assets Dependency, Commercial Activities, Establishment and Engagement in a Swedish Boreal Municipality. (Manuscript)

II. Thellbro, C. and Lidestav, G. Profiling Commercial Activities Based on Local Natural Resource Dependency in a Swedish Boreal Municipality. (Manuscript)

Research data

The present thesis and the papers included are based upon data from the following questionnaire, which will be referred to by its capital letter:

A. Thellbro, C. Your company – one part of the future in Vilhelmina municipality! (Translated from Swedish to English)

Introduction

Background summary, hypotheses, objectives and research design

Every society, regardless of geographic level, depends on a society specific 'natural resource field' (Hettne, 1980; Eriksson *et al.*, 1983). Structure and extent of such a field as well as access to the natural resources are, besides type and condition of nature, determined by for example cultural codes and property rights formed within and by a society (Månsson, 1993; Svedin, 1981). "Sustainable development" (Hägerhäll, 1988) is an overriding goal on different societal levels and a concept, which today includes both man and nature. Therefore, knowledge regarding the natural resource field and its utilisation is significant to any society and most certain to the local society, which can be seen as the primary level regarding natural resource utilisation and the base for sustainability from local to global level (Orr, 1995). Particularly suitable local societies, in the natural resource dependency perspective, are rural resource communities (*cf.* Reed, 2003), to which Swedish boreal municipalities belong.

Within a society there are different actors utilising the natural resource field. Commercial activities are, however, central due to their socio-economic impacts on individuals as well as on society (Bergqvist, 2004; Taylor, Bryan & Goodrich, 2004). Commercial activities are, conversely, not explicitly linked to natural resource utilisation and/or dependency in official statistics (*e.g.* Statistics Sweden, 2005), which provides data designed for, as an example, description and assessment of business activity on different societal levels.

'Socio-economic impacts' refers to social and economic impacts of products or service offerings, market interventions or other events on an economy as a whole and on companies, organizations and factors that influence how an intervention is likely to change a society. In specific cases it is necessary to identify the specific relevant socio-economic factors and to understand their status. Example of factors in the boreal municipality context are; prevailing economic conditions, the level of economic development, the relationship between government and judiciary, maturity and openness of markets, propensity for entrepreneurial activity and strength of tradition in terms of beliefs and behaviours¹ (*cf.* <http://en.wikipedia.org/wiki/Socio-economic>; 24-Apr-2006).

This brief background; comprising fundamentals that will be explicated and elaborated in the following sections, leads to the overall hypothesis in this thesis; the dependency on natural resources is vast but knowledge regarding extent and characteristics is limited on the local level. Conclusively there are significant questions to address regarding the extent and characteristics of commercial activity dependency on local natural resources (LNRs) and the access to them and, further, regarding the impacts this dependency imply on the local society.

¹ Examples of studies explicitly dealing with socio-economic impacts in boreal areas – from a forestry perspective – are Hyttinen & Solberg (1996) and Lindgren *et al.* (2000).

Based on the background outlined and these questions the overall objective of this thesis is to examine LNRs in terms of dependency within commercial activities from the viewpoint that natural resources only can be described in relation to a specific society (*cf.* Eriksson *et al.*, 1983 *p.* 21). The case study specific society in this thesis is a Swedish boreal municipality² since the municipality, from a Swedish society development³ perspective, is a suitable level and since the boreal municipality development through history is closely associated with natural resource utilisation.

The specific hypothesis in this thesis is that the ‘natural resource field’ of a boreal municipality, in terms of LNR dependency within commercial activities, is extensive and varied seen from a contemporary as well as a historic perspective. Further, the suggestion is that deeper knowledge regarding LNR dependency will reveal circumstances and characteristics significant in a society development context. The specific objectives of this thesis are therefore to describe and assess societal LNR and LNR access dependency within a boreal municipality by:

- Quantifying the extent of influence on local commercial activities and
- Characterizing and displaying societal dependency, by means of assessing dependency within local commercial activities.

The findings are then discussed in a socio-economic context, in terms of local government responsibilities and societal development in the boreal municipality.

Figure 1, below, presents a simplified representation of natural resources and their utilisation by human society. Elucidations and elaborations of terms and relationships presented in the diagram are found in the following section as natural resources and the access to them, as well as the societal and commercial activity context applied in this study, are introduced. The two papers incorporated into this thesis are then summarised by presenting a short introduction, followed by the material and methods, the results obtained and a final concluding discussion.

² The Boreal municipalities referred to in this thesis are municipalities in the interior of northern Sweden, within the circumpolar boreal forest. This area is the second most extensive terrestrial biome on earth (IBFRA, 1997) and natural resources such as forest, water for energy production and minerals have been determining factors in their establishment and development (*cf.* “rural resource community”; Reed, 2003). Geographically, these municipalities can be described as relatively large, and sparsely populated, areas with community centres that are surrounded by smaller villages in a sparse infrastructural network (Persson, 1998).

³ ‘Development’ is not easily defined, and it will have different meanings in different disciplines as well as in different situations (*cf.* <http://en.wikipedia.org/wiki/Development>; 26-Apr-2006). Further, ‘development’ can be both negative; ‘regress’, and positive; ‘progress’ (http://en.wikipedia.org/wiki/Social_development; 26-Apr-2006), even though the latter case often, as in this thesis, is the one sought after and aimed for. The concept can, however, according to Tykkyläinen (1998, *p.* 6), be summarised as; “the mobilisation and management of resources in order to create wealth in a community. It is linked to economic policy measures adopted by the authorities in a community or region.” This is a general definition, suitable for the use of the concept in this thesis.

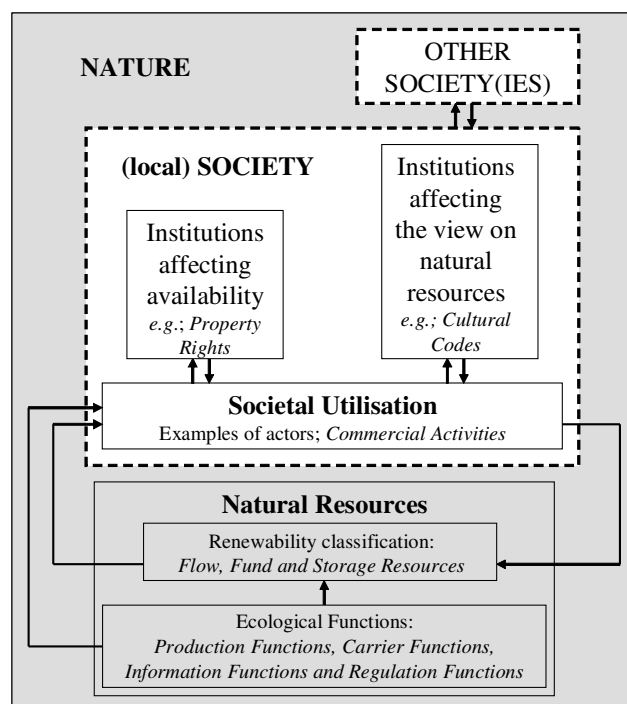


Figure 1. A simplified representation of natural resources and the societal utilisation of them.

Nature as resource

Natural resources can be defined independently of man and human needs⁴ (cf. Månsson, 1993; Svedin, 1981). This thesis asserts that maintenance and development of society is dependent on natural resources, and the access to them. This access can be crucial for physical and mental well being and the satisfaction of individuals, as well as that of entire societies in many ways. Infrastructural development and production systems are influenced by the accessibility to different kind of natural assets (cf. “natural capital”; Vennesland, 2004).

Defining natural resources

The conceptualisation of natural resources as definable only in relation to a specific society is rooted in the idea that every society has its own ‘natural resource field’ which consists of the natural resources, not only structures but also services, that are currently needed and therefore used (Hettne, 1980; Eriksson *et al.* 1983). Man gives natural substances and processes the characteristics of being natural resources (de Groot *et al.*, 2002). A general definition could be given that a natural

⁴ From for example separated biological, hydrological and geological perspectives or as ecosystem resources; single resources in complex natural systems where the quantity and quality of each resource can affect many other resources and, potentially, the health of the entire ecosystem (cf. Rudberg & Werner, 1980; Hjelm, 1980; Månsson, 1993).

resource is a phenomenon in nature that man can, individually or collectively, use as a mean to achieve a human goal (Allwood, 1981; Månsson, 1993). Theorists who support the society specific natural resource definition applied in this thesis emphasise the collective view. An example among these is Eriksson *et al.* (1983), who define three categories of natural resources:

- Identified but not used
- Identified and used
- Used but not identified

Nature produces both ‘goods’ and ‘services’ and it is the ‘services’ that are primarily used by human society without being identified. Identification generally does not occur until the function of the resource is no longer satisfying to mankind. The first and second categories, identified above, are separated by the “ability to use”, which is determined by socially defined criteria such as cultural, political, organisational and economic features. Equally important, but more difficult to evaluate, are ecological, social, medical and ethical criteria. Both availability of a material and an appropriate social structure are therefore required for a natural phenomenon to become a resource. Thus, something that is a natural resource in one society might not necessarily be a natural resource in another. There are various potential reasons why a resource may not be used in some cases. It could be due to an absence of the necessary technical skills or because of the presence of cultural codes or beliefs which determine if a physical structure, or ‘service’, in nature is a natural resource or not (Svedin, 1981). Political decisions and laws impose limitations on, and promote, the accessibility, and hence utilisation, of natural resources. Similarly, a natural resource may not necessarily remain a natural resource for all of the reasons outlined above (Månsson, 1993; Svedin, 1981).

Systematizing natural resources

The most common principles for classifying natural resources are based on their physical description, their enumeration (Naturresurs- och miljökommittén, 1983; Månsson, 1993) or on their ability to be replenished. ‘Renewable’ natural resources are those that can be replenished over a period of time that is comprehensible from a human planning perspective (Naturresurs- och miljökommittén, 1983; Holecheck, 2000).

From this perspective ‘flowing’, ‘fund’- and ‘storage’ resources are frequently used categories in the classification of natural resources⁵.

The classification described above can be enhanced by considering it in combination with the concept of ecological functions (Månsson, 1993; de Groot, 1992). The functions of nature are prerequisites for flowing, fund- and storage resources as well as they are being natural resources, both ‘goods’ and ‘services’, in their own right (Eriksson *et al.*, 1983; Hjelm, 1980). De Groot (1992) divided these functions into four categories.

- *Production functions*: Nature offers many different resources such as food, raw materials for industrial use, resources for energy production and genetic material.
- *Carrier functions*: Natural and semi-natural ecosystems offer suitable substrates, or media, for many human activities such as settlements, agriculture and recreation (*cf.* Rudberg & Werner, 1980).
- *Information functions*: Natural ecosystems contribute to the preservation of mental well-being by offering opportunities for reflection, spiritual enrichment, cognitive development and aesthetic experience. These are functions that are likely to be used, but which may not all be identified (Eriksson *et al.*, 1983).
- *Regulation functions*: This group of functions relates to the capacity of natural, and semi-natural, ecosystems to regulate essential ecological processes and life-sustaining systems. These, in turn, contribute to the preservation of a healthy environment by offering clean air, water and soil (*cf.* Hjelm, 1980). These functions are most likely “used but not identified” (Eriksson *et al.*, 1983).

The functions are defined as the capacity of natural processes and components to offer ‘goods’ and ‘services’ that could directly, or indirectly, satisfy human needs. Human needs consist, in this context, of physiological needs (such as the need for oxygen, water, food, physiological health and a healthy and clean environment) and psychological needs (such as the need for mental well-being). The latter group of needs is dependent on: opportunities for cognitive and spiritual development and recreation; the potential to develop social contacts and to reach a certain social status; and the need for a secure future for current and future generations. Some categories of natural resources can be difficult to relate to a limited geographical area. From a sustainability perspective, however, they are still considered to be of a “low” level, as an accumulation of small-scale land-use decisions can have a substantial impact on the ability of an ecosystem to provide their needs (de Groot, 1992).

⁵ The definition for each group of resources varies across the literature. However, the overall meaning remains the same. ‘Flowing resources’ are those natural resources that constantly flow, which man cannot govern but which are not unimpressionable. The ‘fund-resources’ are driven by the energy from the sun and are considered to be flowing resources, which man can govern for the purpose of extracting continuous flows, without exhausting the resource, as long as the extraction is performed in a suitable way; these resources can generate returns for an arbitrary period of time. The natural resources for which each extraction implies a physical decrease of the amount are the ‘storage resources’ (Naturresurs- och miljökommittén, 1983).

Regulating natural resources – property and accessibility

The opportunities to use natural resources are accompanied by property rights. Property rights are a system of economic and social policies and regulations, between governments and individuals and between individuals, which define their rights to use property (Furubotn & Pejovich, 1972). Historical perspectives of man's rights to nature have changed from relatively relaxed regulations to more restrict and private ones; this development is regarded as one of the central features of economic modernisation (MacPherson, 1978; Granér, 2005). Social and economic changes in society are the consequences of struggles between different interests in relation to control and resources (Westholm, 1992).

In the late nineteenth and early twentieth century land ownership in northern Sweden's inland and mountain areas was merely regarded as a strong right to use the land. Agricultural lands were relatively "privatised" as early as the seventeenth century, while the forests remained comparatively free outland resources until the mid-nineteenth century (Westholm, 1992)⁶. The utilisation of the forests was, however, intense due to mining, burn-beating *etc.* and there was a constant struggle between the crown and the people. During this period the foundations of the Swedish 'legal right of public access to private land' (*allmansrätten*); a guideline stating the freedom of right to use, while not disturbing or destroying it, was formulated (Westholm, 1992; Törnqvist, 1995; www.naturvardsverket/allmansratten; 13-Mar-2006). All "wilderness" or unused land was claimed by the crown.

From the middle of the nineteenth century, forest companies appeared as a new type of actor, and increased commercial utilisation of the forest began. The forests gained economic value, making the forests' vulnerability, and scarcity, more apparent and new arrangements for property rights were developed (Granér, 2005). During the 'delimitation process' (*avvittringen*), borders were drawn between private and state owned forest-land⁷.

More exclusive rights for the Sámi people, concerning hunting, fishing and freedom of movement were first acknowledged during the eighteenth century. Problems which arose later on, concerning reindeer winter pastures outside the designated mountain territory (in the delimitation process), were solved by what is now known as "prescription from time immemorial", which allows grazing on all of the land where the Sámi people have traditionally carried out their activities. The prescription is still found in the Reindeer Herding Act (*Rennäringslag* (1971:437)) even though such long-term activity is difficult to prove and it does not have strong legal protection (Bengtsson, 1987; Hahn, 2001; Stenman, 2001).

⁶ Through the "lappmarksplakatet" of 1673 the establishment of settlements was sanctioned in northern Swedish inland and mountain areas (Prawitz, 1967).

⁷ The 'delimitation process' refers to a redistribution of crown land to farmers which was done to secure a living for families, generate national yields from land and increase tax revenues. The process started in different times in different parts of Sweden. In the interior of northern Sweden, which was the last forest area to be redistributed, the process began in the latter half of the eighteenth century (Stenman, 1983).

In present day Sweden, the utilisation of land and natural resources depends on the way their accessibility is regulated through ownership, over-reaching legislation, various kinds of agreements, and historical and common rights to usage (Bengtsson, 1999). The increasing integration between political and economic structures has resulted in restrictions that diminish the owner's opportunities to control their property. Changes in ownership and property rights, however, still affect relationships between individuals, and between individuals and society, influence the general distribution of wealth and incomes, and thus affect the entire political and economic power structures of a society. Therefore, knowledge about changes in property rights has a role to play in understandings the forces that affect local development (Westholm, 1992; Granér, 2005).

The natural resource dependent society

Throughout history human societies can be compared and contrasted in terms of their utilisation of, and dependence on, nature and the cultural, social, political and economical organisations that concurrently evolve (Jungen, 1980). The predominant historical trend for human societies is to progress from an extensive use of natural resources, where the material production of the society is limited by the production capacity of nature, to a more intensive model where labour, economic assets and technology are used to increase natural production and to facilitate the utilisation of more "difficult to reach" natural resources (Hettne, 1980). The definition of a human society is dependent on its scale and the selected perspectives. This is because any human society can be regarded as being a part of another society or divided into multiple, and potentially different, types of societies, depending on the geographic scale and perspectives considered.

The local natural resource dependent society

In a contemporary societal development context, where ecological, economic, social and cultural sustainability is emphasised for both present and future generations (Hägerhäll, 1988), the local level is the most suitable to focus on. Man has links to physical places and many of the fundamental choices made by people are shaped by their place of birth and upbringing. Perceptions and preferences, for nature and natural resources, are frequently connected to the things that were familiar to people in their early years. Further, the problems concerning development and sustainability that are found in many places around the world are not, necessarily, global in nature. A global focus on situations and conditions abstracts them from the context in which they occur and distances models from the reality that they are intended to reflect. Many global problems are most likely to be solved by diverse local solutions (Orr, 1995).

‘Rural resource community’ is a term used to describe a human, natural resource-dependent, society that resides in a comparatively small geographic area⁸. In communities such as these people rely on the extraction and/or processing of natural resources for their livelihoods. These people have many common fundamental characteristics and concerns of life (Reed, 2003). The rural resource community concept, which includes territory as well as interest and attachment (Reed, 2003), can be applied to the boreal municipalities of Sweden. The municipalities identified can be further divided into smaller societal units. This thesis does not make further subdivisions because the municipalities have the primary societal responsibility in Sweden and they have a common history regarding natural resource dependency and its impact on the societal development, therefore they are the most appropriate local level unit for the purposes of this research (Holmgren, 1995).

The municipality as the primary governmental level in Sweden

The Swedish municipality, as discussed above, has a legally regulated and sector-based responsibility for the maintenance and development of the infrastructure within its geographic borders (Hjelmqvist, 1994)⁹. The fundamental regulations for municipality responsibilities are found in the Local Government Act (Kommunallag (1991:900)), where it is stated that the primary goal is the good of the municipality and its members.

Members of a municipality are those who are registered in the municipality (Kommunallag (1991:900)). According to the Swedish constitution (Kungörelse 1974:152 om beslutad ny regeringsform) municipalities are allowed to tax their members to finance the fulfilment of their obligations. Municipal activities are primarily financed through these revenue raising mechanisms, for example tax revenues, national redistribution and grants. To meet the primary goal of the Local Government Act it is also possible for the municipality to pursue commercial activities and to support local trade, industry and private entrepreneurs (Hjelmqvist, 1994).

Municipality responsibilities concerning education and care of children and the elderly are regulated by the School Act (Skollag (1997:1212)) and the Social Service Act (Socialtjänstlag (1980:620)). The Planning and Building Act (Plan-

⁸ “Rural” and “countryside” are terms often used in relation to more densely populated and, regarding infrastructure, well developed areas, but they exist merely since there are people who, by choice, are living in more sparsely populated areas. The understanding and definition of the terms are strongly related to what they mean to various people in different times and places, but even though the countryside in different places has developed in diverse directions the common objects are effects from urbanisation and global markets (Elands & Wiersum, 2001; Vennesland, 2004).

⁹ Public Administration in Sweden is organised at two levels, the national and the municipal. The local or primary municipalities are in turn organised into county council districts, which have the principal responsibility for health and medical services. The motivators for municipal authorities and activities include democracy, effectiveness and the possibility to consider local variations. The activities are still based on the cooperation with, and with directives from, the national government (Hjelmqvist, 1994).

och bygglag (1992:1769)) gives the municipalities a monopoly for planning land use and the Environmental Code (Miljöbalk (1998:808)) promotes sustainable development, both of these acts regulate the municipality's actions and guide the municipality in its' role as a supervising authority.¹⁰

The boreal municipality

The boreal municipalities developed during the nineteenth century as a result of a national strategy to colonise the northern inland of Sweden and to expand forestry and the wood-processing industries (Arpi, 1959). The process of colonisation improved access to the natural resources of the area and increased the volume of land available to the growing population. Both of these factors were fundamental to the process of national economic development at that time (Lisberg Jensen, 2002). The natural resources of the boreal forests were, however, crucial to the human settlements along the great river valleys in the northern inland of Sweden long before the evolution of the municipalities. Agricultural farming had been limited by the scarcity of suitable land and the harsh climate. Instead, the people diversified and developed multiple skills. They cooperated informally with one another and made use of the many different niches of the forests throughout the year, depending on supply and need. Wide social networks were established as a result of this interdependence and the great geographical distances that demanded long distance transportations of goods (Johansson, 1994; Johansson, 2000). These characteristics are still present in the economic, social and cultural structures of contemporary boreal municipalities (Westholm, 1992; Ekman, 2002).

The boreal municipalities started the twentieth century with increasing populations and an "unlimited" number of work opportunities within the natural resource extraction industries, namely: forestry, wood-processing, development of hydropower and mining (Sörlin, 1988). However, access to the raw material began to be constrained by the previous extraction of the highest quality resources and the increasing perception that manpower was inadequate for many purposes, too expensive and inefficient. Mechanised methods of extraction were introduced and increased levels of effectiveness within the primary industries, through modernisation, specialisation and scaling-up of production, resulted in unemployment, emigration and social, as well as economic, regeneration. The standard of living in Sweden, including the northern parts, is, however, among the highest in the world from an international perspective (*cf.* "WISP-index"; Estes, 2003) and the perspectives on the boreal municipalities as "producers" as opposed to "consumers" vary (Sörlin, 1988; Persson, 1998; Lisberg Jensen, 2002).

The extraction of natural resources is still a contributing factor to the economy of boreal municipalities. However, as employment in the primary industries has declined, the service sector has become increasingly economically important (Johannisson & Bång, 1992). Present day boreal municipalities, and other rural

¹⁰ The term 'sustainable development' is used to mean development that results in a good, healthy environment for present and future generations. This definition is based on the idea that man's right to use and change nature is tied to a responsibility for good management (Miljöbalk (1998:808)).

areas in Sweden, have a much more diversified economy and the public service sector is also a large employer¹¹. Small businesses, including small farms (*cf.* below) remain a vital part of the local economy of small rural societies, such as the boreal municipalities (Taylor, Bryan & Goodrich, 2004). The range of potential sources of employment facilitates the multiple livelihood tradition, which is an asset to the boreal municipalities in their transformation from an industrialised society to one based on knowledge and information (Westholm, 1996). Entrepreneurs are now combining a potentially diverse range of activities to occupy themselves, and their employees, throughout the year as well as fulfilling local needs (Glesbygdsverket, 2005).

A primary aim for the future survival and development of the boreal municipalities is to increase the actual, and potential, population. This is essential because it is the people who choose to live in an area that nurture the need to create work opportunities and maintain social services. In relation to the sparse population of “the countryside”, in Sweden, studies have shown that although work is a very important factor in people’s choice of the place to live, other local factors and features such as nature, space, quietude, family traditions and local culture play significant roles. Although the landscape is now used for lower levels of physical production, it still has an aesthetic value and uses (Ekman, 2002). It is traditional in boreal municipalities to combine one’s livelihood with multiple uses of the local natural resources, such as forest farming, berry picking, game hunting and fishing. These activities provide additional monetary and material income as well as leisure opportunities (Westholm, 1996). Similar trends are displayed in immigrant populations, although people with former connections to the area appear to almost disregard the work situation in their wish to move “back home” (Nordström & Mårtensson, 2001; Ericsson & Sjölander, 2003).

Small businesses and entrepreneurship

Small businesses account for approximately 95% of all commercial activities in boreal municipalities and in Sweden more generally (Glesbygdsverket 2005). These small businesses usually have less than 50 employees and many have none (sole trader businesses) or just one to five people employees (micro businesses) (Bergqvist, 2004; Glesbygdsverket, 2005). The small businesses are often operated by the owners, or the owner and other family members; about 20-30% of the owners are women (Lönnbring, 2003; Bergqvist, 2004). The businesses tend to play a dominant role in the financial affairs of the owner, who will be referred to as the entrepreneur, and their family. The expansion of the businesses results in a change and the liability of the owner are then usually converted to the liability of the business. In the long-term, small businesses can be expected to be stable in terms of both ownership and management. The entrepreneurs tend to have high levels of loyalty to their business and their community (Taylor, Bryan & Goodrich, 2004).

¹¹ The boreal municipalities, as they are defined here, are often referred to as “the countryside” and/or “rural”.

The entrepreneurship life mode

'Life mode analysis' (Højrup, 1983) has been shown to be a useful method for addressing the motives of small business entrepreneurs in starting and pursuing a commercial activity. The theory asserts that people live their everyday life in different cultures and socio-structural life modes with diverse accompanying preconditions. The life modes produce different opinions regarding good everyday life and how it can be achieved (Gillberg & Stenberg, 2002; Bergqvist, 2004). Business development is important for the welfare of societies since the economic resources are needed in order to offer (*inter alia*) work, education, health care and pensions to the inhabitants. For small businesses, and the so-called 'entrepreneurship life mode', the primary goal and a key attribute of the good life is independence and to be "one's own boss". Establishment and driving forces are thus said to be based on individual motives, education and experiences (Bergqvist, 2004; Arvidsson, 2005).

The degree of flexibility to adapt to market demands and flexibility towards employees is, according to life mode theory, also ruled by the "profit satisfaction rationality", as opposed to the profit-maximising rationality, underlying small businesses (Bergqvist, 2004).

Non-industrial private forest owners as farmers and small business entrepreneurs

Non-industrial private forest (NIPF) owners are a numerous and socially heterogeneous group of farming entrepreneurs (Ingemarsson, 2004; Wiersum *et al.*, 2005). Societal development has changed the economic and practical importance of private forest ownership. However, according to Törnqvist (1995) there are still defining features that unite the forest owner category:

- Solidarity between generations and a will to preserve rather than economic motives (*cf.* Lidestav & Nordfjell, 2005).
- Linkage between earning one's living and the forest farming activities; for example as a buffer in the household economy, a source of knowledge and a hobby.
- Actual as well as ideological feelings of independence. Forest ownership is strongly rooted in the local society, which gives opportunities to join the "countryside tradition" of multiple engagements, work exchange and informal economics.

As NIPF owners show many of the same basic conditions for their activities as other types of small business entrepreneurs the life mode theory can be applied to them in order to emphasise the roots of contemporary forest ownership in the socio-economic structures, and in the cultural expressions, of society (Törnqvist, 1995). For many "farming families", not solely forest farming families, additional employment, primarily within the public service sector, is an important adjunct as it provides additional and external income (Holmgren *et al.*, 2004; Arvidsson, 2005). The yearning for a solid identity, and the desire to experience freedom of action and independence, whether it actually exists or is merely experienced

through their forest/land ownership, however, remains the main priority (Törnqvist, 1995; Arvidsson, 2005).

Small business development

Business development must be nurtured locally, by the local government, and preferably by the local entrepreneurs. The involvement of the entrepreneurs is dependent on the state of the society and the shape and development of the local business structure. Measures to support and increase the establishment of new businesses need to be based on knowledge of the forces driving local business development (Johannisson & Bång, 1992; Glesbygdsverket, 2005). Individual motives, abilities and environmental demands may all contribute to the development of new businesses. The surroundings may also have both positive and negative impacts upon business development. For example, through local cultural “codes” they can offer desirable qualities and valuable, potentially crucial, social networks (Johannisson & Bång, 1992; Vennesland, 2004).

Summary of the papers

Based on a comprehensive definition of natural resource, a number of general rights to access local natural resources (LNRs) and a suitable definition of local commercial activities, dependency on LNR and access to LNR has been quantified, characterised and displayed in a local society context. The local society is represented by a Swedish boreal municipality (*cf.* Figure 1 above).

As statistical primary data regarding natural resource dependency within commercial activities were not available, a survey was carried out in a typical Swedish boreal municipality. The objective was to quantify, characterise and display the influences of dependency on LNRs and access to LNRs on commercial activities. Quantified extents and characterisations of dependency on LNRs and LNR access, within local commercial activities, local bonds, business stability and engagement¹² opportunities are accepted as indicators of the impact of LNRs on the local society. Quantification and characterisation of LNRs and LNR access dependencies were done in terms of numbers and percentages of survey respondents (representing LNR dependent commercial activities) related to responses regarding general respondent and commercial activity characteristics, localisation and location of commercial activities, engagements, business durability and business activity and market. To, further, display the LNRs and LNR access dependency, dependency profiles were sought among the commercial activities and supplementary survey responses (*cf.* above) were related to them.

Materials and methods

In order to describe and assess natural resource dependency in the boreal municipality of Vilhelmina (Figure 2) a survey among local commercial activities was carried out. Statistics Sweden's record of workplaces was used to define the target population and to obtain the necessary contact information. As local commercial activities, unique workplaces (UWps) with an address and/or an activity located within the municipality were considered. A representative 50 % of the identified UWps were contacted and invited to take part in the survey and a multiplier was used to obtain results referring to the entire target population (Paper I).

Data on LNR/LNR access dependency was collected by means of a questionnaire, supported by telephone interviews. Further, questions concerning activity/activities, establishment and geographical location(s), engagements, customers, future prospects *etc.* were also asked. The entire questionnaire is presented, in English, in appendix A. The frequency of responses was calculated to

¹² In this thesis 'employment' suggests official labour and a financial reward, while 'engagement' could indicate labour not registered in official statistics *i.e.* different types of volunteer workers, apprentices, black labour *etc.* as well. Hence 'engagement' is used since it is impossible to recognize and generalize the survey respondents' definitions of a worker in monetary and/or non-monetary terms (NE Multimedia Plus, 2000 and Paper I).

be 46.5% and based on workplace record information bias and uneven representations among the respondents were out ruled (Paper I).

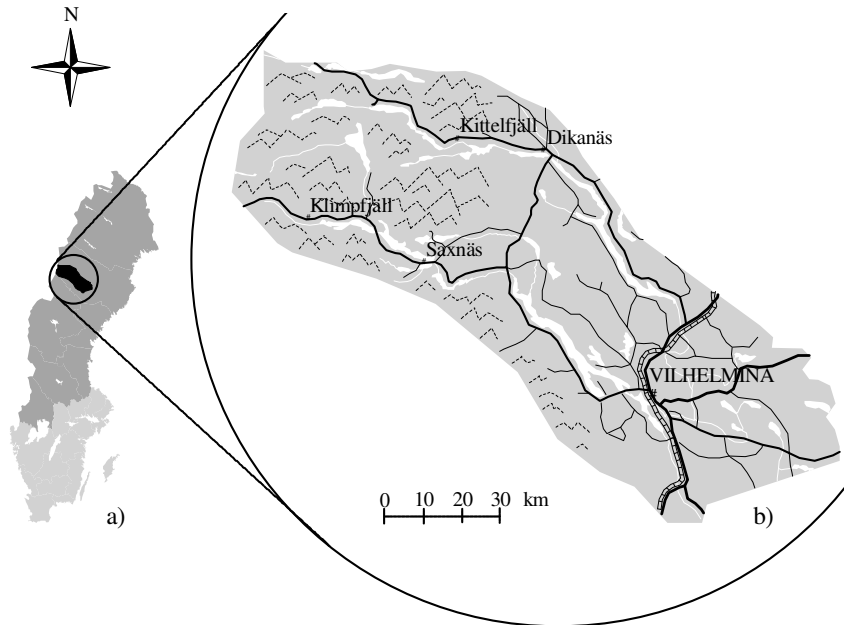


Figure 2. a) Boreal Sweden (cf. “the forest counties” i.e. “skogslänen”; Norrbotten, Västerbotten, Jämtland, Västernorrland, Gävleborg, Dalarna and Värmland; Willner, 2006) – indicated by the dark grey area – and Vilhelmina municipality – marked in black. b) Vilhelmina municipality with graphics indicating basic geographical features (lakes, watercourses and the extent of mountains in an otherwise mainly forested landscape) and infrastructure features (roads, railroad, the community centre and a few larger villages).

UWps

In Sweden, commercial activities with the same personal/organisational number can be located to more than one address as different workplaces. Therefore, the workplaces in Statistics Sweden’s workplace record used for sampling were initially aggregated based on the personal/organisational numbers to identify each single commercial activity (Glesbygdsverket, 2005; Paper I). UWps (unique workplaces) is the expression used to describe the result of this aggregation. UWps surveyed included all types of limited companies, all economic associations, trading companies, limited and unlimited partnerships, foundations, funds and private firms. UWps within state, municipality and County Council, non-profit associations, housing co-operatives, religious communities and estates of deceased people were excluded due to their structure and/or non-profit purposes being less suitable for the purpose of this study and the method applied (Paper I and II).

Business categories

During the survey roughly half of the respondents stated that their main activity was some sort of forest and/or agricultural farming (FAF) activity. Initially the FAF UWps were separated from the remaining ‘various’ UWps, in order to prevent possible overall heterogeneity being masked by potential homogeneities within the FAF category (Paper I). In the next step individual activity statements of the ‘various’ UWps were categorised in order to facilitate the identification and handling of more details regarding UWps activities. Firstly, closely related statements were grouped together in activity categories (roughly comparable to standard categorization; http://www.scb.se/Grupp/foretagsregistret/_Dokument/040115snisorteradeng.pdf; 26-Apr-2006), then closely related activity categories were pooled in business categories (inspired by local descriptions of local business structure; Vilhelmina 2000), one of which was the FAF UWps, consisting of the activity categories forestry and agriculture as an example (Paper II).

LNRs and LNR and LNR access dependency

Respondents were asked to state their LNR and/or LNR access dependency based on a list of LNRs (based on the idea of ‘ecological functions’; *cf.* above) and types of LNR access in the questionnaire in which all relevant natural phenomenon and land use types, as well as general types of access, in Vilhelmina were included. The relevancy is founded in municipality natural landscape and local business structure (Vilhelmina, 2000; Regional Forestry Board of Vilhelmina, 2002). The respondents were also given the opportunity to add any additional alternatives. The five main categories of LNRs/types of LNR access listed were; “*the landscape/appearance of the landscape*” (6 listed resources), “*untouched nature*” (12 listed resources), “*physical resources and the production or raw materials*” (8 listed resources), “*types of land/land use*” (16 listed resources) and “*rights to own and/or to use*” (6 listed forms of availability). (A complete presentation of LNR/types of LNR access listed is presented in appendix A.)

Most of the LNRs listed are linked to one or more ecological function (*cf.* de Groot, 1992). The ‘type of land/land use’ category may, however, be strongly associated with *carrier functions* and the ‘physical resources/production...’ category has an apparent link to the *production functions*. ‘Untouched nature’ may, as a more abstract resource category, be the most likely to offer *carrier functions* as well as special ‘production’ and ‘information functions’, which are difficult to identify elsewhere. ‘The landscape/appearance of the landscape’ is, by definition, associated with use of *information functions* but could, therefore, also be perceived as being able to “carry” activities based on the experience that it could offer. The *regulation functions* are not specifically addressed in the listed natural resources as their present day commercial utilisation is undertaken “without conscious thought”.

Local commercial activity context

A number of additional questions, which asked about both the enterprise and the respondent, were added in order to produce information supplementary to that concerning LNR and LNR access dependency. The questions about the

respondents addressed their reasons for becoming entrepreneurs, their age and their gender. The results were presented in Paper I. Additional questions concerning the UWps asked about the localisation of the main office, its activities, the reason for its establishment, how long it had been based within the municipality, its engagements, the main and secondary activities presented as business categories and activity categories (*cf.* above), the localisation of customers and any future prospects concerning its existence and development (Papers I and II). A copy of the question schedule can be found in Appendix A.

LNR and LNR access dependency profiles

In order to examine the utility of a LNR perspective on commercial activities in a local society, the LNR-dependent UWps were grouped together using a method designed for cluster analysis. The purpose of this process was to locate a number of different types of LNR and LNR access dependency profiles among the UWps, based on differences in frequencies regarding stated LNR and LNR access dependencies. The final number of clusters was based on the statistical information available and the results gained during the procedure (Paper II).

Results

Quantifying the extent of LNR and LNR access dependency

The number of LNR-dependent UWps within Vilhelmina was estimated to be 665, corresponding to 78% of the total number of local small businesses. Overall, 96% of their headquarters were located in Vilhelmina (Paper I). The LNR-dependent UWps were included in the description and assessment of LNR and LNR access dependencies among and characteristic features of boreal municipality small businesses. They were also evaluated as a small business population suitable for indicating the importance of LNRs to the local societies.

FAF businesses constituted 51% of the LNR-dependent businesses, the remaining 49% represented 'various' other types of businesses. The average ages of the entrepreneurs within these two groups was 55 years and 48 years, respectively, and approximately 25% of the owners, occasionally leaders, were women. The LNR-dependent UWps reported a total number of 1 922 engagement opportunities. Full-time, all-year engagements constituted 42% of these engagement opportunities, 31% were part-time, all-year engagements, while full-time and part-time seasonal engagements accounted for 11% and 16%, respectively. To place these figures in context there were approximately 7 400 inhabitants in Vilhelmina and the total municipality workforce was stated to be 3 950 people, of whom 2 950 were actually working (Papers I and II). Of the total number of stated engagement opportunities within LNR-dependent UWps 24 % were found within a ten kilometre radius of the community centre, 6% were found in the easternmost forested part of the municipality and 9% outside the borders. The remaining 61% are fairly evenly distributed in percentages from 12 to 18 across the municipality forested and mountainous areas, which in the questionnaire were divided in two separate areas respectively (Paper II and figure 2 above).

50% of the respondents stated that their reason for establishing an UWp in Vilhelmina was that their family lived there at the time. Among the FAF UWps, 23% of the respondents gave the location of the property and heritage as their main motives, while 22% of the 'various' UWps respondents gave takeovers of an existing firm, markets and customers, the local environments or raw materials as their main motives (Paper I).

In terms of the geographical localisation of customers, the results indicated that there was "local" domination for nearly all of the UWps. The majority of customers were in northern Sweden; 54% of the respondents stated that Vilhelmina was their main market, 14% stated that the surrounding municipalities formed their market and 30% stated that the northern Sweden inland and mountain region was their market. 42% of the UWps were serving customers in the northern Sweden coastal region, while 19% reached out to the southern parts of Sweden and/or abroad. The total exceeds 100% due to multiple answers (Paper II).

Long-term stability among the UWps was indicated by the finding that 82% of them had been in the municipality for over ten years. Future stability is predicted as 81 % of the respondents' stated that they are likely to carry on with their businesses in Vilhelmina for the next five years. Those entrepreneurs who indicated that they would leave Vilhelmina (6%), or close down the businesses (13%), cited old age, the local business climate and/or adverse local developments as their reasons for doing so. The future steadiness of UWps in this area is supported by the development prospects given. When asked about the development of current activities 46% of the respondents gave a positive forecast, 13% were neutral and 16% were negative; the entrepreneurs generally "believe in the past and trust in the future". When questioned about the development of new activities, 38% of the respondents were negative, 16% were neutral and 27 % were positive. Their motives for these responses were not uniform but incorporated individual experience, choice and personal disappointment regarding politics and societal systems (Paper I).

Characterising and displaying LNR and LNR access dependency

Seven different clusters, or *LNR and LNR access dependency profiles*, for the unique workplaces (UWps) were found; two smaller ones, four of medium size and one larger. The profiles show relatively distinctive patterns regarding LNR dependency and each profile was given a designation, which mirrored its unique characteristics, in order to emphasise differences and allow the LNR and LNR access dependencies to be related to future results (Paper II). Overall, the dependency frequencies for each LNR, and each type of LNR access, indicate that 'ownership', 'cultivable land', 'snow and frozen ground', 'wood resources' and the entire 'municipality landscape', with focus on the 'bare-ground forest landscape', are important to all profiles and thus to the great majority of the UWps. The profile names and details are as follows:

Varied dependency - 28 UWps which gave 65 (relatively few) and very dispersed LNR dependency statements; they were "united by differences".

<i>Ownership/Wood</i>	- 44 UWps which gave 192 dependency statements among which ‘ownership’ and the ‘wood resources’ statements were the most characteristic for this profile.
<i>Ownership/Non-wood</i>	- 9 UWps which yielded 74 statements indicating that ‘ownership’ and ‘non-wood resources’, ‘lakes and watercourses’ and ‘game hunting’ are vital LNRs for distinguishing this profile.
<i>Ownership/Tenancy/ Non-wood/Wood</i>	- 10 UWps which stated 82 dependencies focused on ‘ownership’ and ‘tenancy’ and ‘wood’ as well as ‘non-wood resources’ .
<i>Ownership/Wood/Landscape</i>	- 21 UWps that gave 177 dependency statements of which the combination of ‘ownership’, ‘wood resources’ and the entire municipality landscape were profile attributes.
<i>Utilisation/Landscape</i>	- 20 UWps that gave 168 statements indicating that the availability to the municipality of the landscape, and ‘the legal right of public access to private land’ (allmansrätten), was crucial.
<i>Manifold dependency</i>	- 22 UWps that stated 325 dependencies including almost all of the LNRs, and types of LNR access, included in the questionnaire. The prioritised form of accessibility was the ‘legal right of public access to private land’ even though ‘ownership’ and the ‘prescription from time immemorial’ (urminnes hävd) were also emphasised.

Further differences and similarities are that the entire LNR category ‘untouched nature’ is merely emphasised by *Manifold dependency* and ‘lakes and watercourses’ is a common feature within *Ownership/Non-wood* and *Manifold dependency*. There were obvious differences between *Ownership/Wood*, *Ownership/Tenancy/Non-wood/Wood* and *Ownership/Wood/Landscape* dependencies, however, the similarities in terms of dependencies on ‘ownership’, ‘cultivable land’ and ‘wood resources’ are noteworthy. It is not possible to identify whether these dependencies were direct, or indirect. A profile such as *Varied dependency*, which had no obvious pattern regarding the LNR category ‘rights to own and/or to use’, could potentially apply to more indirectly dependent UWps. Furthermore, the different LNR and LNR access dependencies exhibit tendencies that are associated with different accessibility rights. For example, dependencies on ‘cultivable land’ and ‘wood resources’ were associated with a dependency on ‘ownership’, dependencies on ‘lakes and watercourses’, ‘game hunting’ and ‘non-wood physical resources’, however, were combined with

dependencies related to ‘the legal right of public access to private land’ as an important accessibility right. The same types of LNR dependencies were, in some cases, combined with different rights to use the LNRs.

Activities appeared to be a factor that distinguished the profiles (Paper II). *Ownership/Wood*, *Ownership/Non-wood*, *Ownership/Tenancy/Non-wood/Wood* and *Ownership/Wood/Landscape* dependent UWps mainly focus on forest and/or agricultural farming (FAF) activities, *Utilisation/Landscape* UWps focus on trade, *Manifold dependency* UWps on tourism and *Varied dependency* UWps on services. Tourism was, however fairly common within the *Ownership/Non-wood* and *Utilisation/Landscape* profiles, FAF activities in the *Manifold dependency* profile, trade in the *Varied dependency* profile and transports/contracting within the *Ownership/Wood/Landscape* profile. In addition to this, *Varied dependency* UWps conducted all types of activities to relatively large extents, even though reindeer herding was only found in *Manifold dependency* UWps. Multiple activities were relatively common and fairly widespread. 15% of the UWps cited two or more main business categories, even though this was most common among *Utilisation/Landscape* and *Manifold dependency* UWps. Multiple main activity categories were carried out by 27% of the UWps and were present in all of the profiles. Secondary businesses were also carried out in 33% of the UWps surveyed.

The Ownership/Wood profile showed a general tendency to mainly locate activities within the municipality, in the forestland areas. *Manifold dependency* UWps activities were, to some extent, located in the western parts and outside the municipality. The *Ownership/Tenancy/Non-wood/Wood* profile was concentrated more towards the central parts of the municipality. The remainder of the profiles applied to UWps that carried out activities that were fairly evenly distributed within the municipality and outside its borders. There are, therefore, seemingly no major differences between the profiles regarding their main geographical localisation of activities within and/or outside the case study municipality (Paper II).

There do, however, appear to be some differences in the stated number of engagements between the LNR and LNR access dependency profiles and their different activities (Paper II). Overall, full-time, all-year engagements predominated. The majority of the engagement opportunities, both by total numbers and by engagement opportunities per UWp, were found in the *Utilisation/Landscape* profile (four per UWp) and the *Manifold dependency* (also four per UWp) profiles and in the *Varied dependency* profile, where the highest levels of engagement opportunities (five per UWp,) were found. The four remaining profiles engaged relatively few people. *Ownership/Wood* was the largest profile in terms of the number of UWps. However, it offered the lowest number of engagement opportunities per UWp (one). The engagements among *Ownership/Wood* UWps were predominantly part-time, all-year, while *Ownership/Wood/Landscape* engaged twice as many people per UWp and mainly on a full-time, all-year and part-time seasonal basis. *Ownership/Non-wood* and *Ownership/Tenancy/Non-wood/Wood* UWps both engaged on average two people per UWp, however the numbers of UWps with these profiles were low and the

extents of the engagements were very diverse. Finally, by relating engagement numbers to specific LNRs listed in the questionnaire (Paper II) a rough but potentially valuable indication was obtained of the potential magnitude of the effects on engagements from societal and/or culturally originated changes in LNR accessibility.

Discussion

A case study in Vilhelmina municipality has been conducted with an overall objective to examine natural resources as society-specific in relation to commercial activities. There have been no similar studies within other boreal (“rural”) municipalities; therefore it has not been possible to compare the situation in Vilhelmina to the general experience of other boreal municipalities. There are, however, clear indicators that Vilhelmina can be regarded as being representative of these municipalities. A central concern of this study is whether LNR and LNR access dependency in local commercial activities has been established, or not. The studies underlying this thesis have demonstrated the appropriateness of the methodology employed. The choice of local UWps for indicating influences of LNR and LNR access dependency on the local society has been supported by the acknowledged importance of small businesses to the local society. In addition, findings obtained with regard to general workplace structure, and the characteristics of Vilhelmina are consistent with official statistics and information in other types of reports (Bergqvist, 2004; Glesbygdverket, 2005; Paper I and II).

The results of these studies demonstrate that the small businesses in Vilhelmina, and in Sweden in general, constitute about 95% of the local businesses and they are predominantly run by the owners, possibly with their family. Nearly 80% (665) of the UWps are highly LNR-dependent and cover a wide variety of different business categories. 15% have multiple main businesses and about a third of the LNR-dependent UWps are involved in multiple main activity categories and secondary business categories.

The research has demonstrated that local bonds and stability are important for the vast majority of the LNR-dependent small businesses. The high levels of LNR and LNR access dependency, as well as the overall reliance on the local market, indicate strong local ties. This finding is further supported by the facts that virtually all of the UWps were established in Vilhelmina due to personal residency preferences, other types of personal municipality connections or the preference for municipality qualities and that more than 80% of the UWps have been located in Vilhelmina for more than a decade. High levels of stability in the future are indicated by the same proportion of entrepreneurs stating that they will continue their UWp businesses there for the next five years. Development prospects also appear to be largely positive with respect to current activities (61%) and, to a lower but still noteworthy degree (38%) concerning new activities.

The numerous engagement opportunities appear to be linked to the category of business conducted. Since different types of activities and LNR and LNR access

dependencies are relatively evenly distributed across the municipality, with higher concentrations in the more densely populated area incorporating the community centre, so are the engagements. Although each UWp does not engage a large number of people, the small but numerous LNR-dependent businesses offer a large total number of engagement opportunities in relation to the entire municipality workforce and the population. In the Swedish boreal municipality context, these 'engagements' (as defined differently from 'employment' in official statistics; *cf.* above and Paper I) offer both monetary and non-monetary contributions, and even though the latter category may be limited, the former appears to be crucial (Holmgren, 2004 and Paper I).

The UWps in Vilhelmina reflect many of the socio-economic characteristics of a boreal municipality. The methodology employed in this thesis contributes a unique perspective on local commercial activities by generating a general picture of the LNRs as fundamental prerequisites for businesses and, therefore, for the economic and social aspects of the lives of the people involved. Through their long-term engagement within the municipality the UWps, and thus the entrepreneurs and their families, can be seen to contribute to shaping the society by their presence, needs and activities. The usefulness and necessity of considering a LNR perspective in a local government responsibility and society development context is revealed by the results presented and the theories considered, with reference to the relevant local socio-economic characteristics of the boreal municipality.

The following discussion highlights persuasive reasons for basing municipal plans and decision-making on local circumstances, preferences and needs to promote positive societal development with respect to ecological, social and cultural as well as economic aspects.

Findings in a local socio-economic context

Historical analysis of the boreal municipality reveals that local natural resources have had a major impact on societal development in the region (Sörlin, 1988). Furthermore, a tradition of maintaining multiple engagements and livelihoods related to the local natural resources is evident (Johansson 2002; Westholm 1996; Paper II). General theories, supported by empirical findings regarding small businesses and the small business entrepreneurs, indicate a strong connection between the business and the people involved, as well as between the businesses and the local society. The entrepreneurship within the small businesses is, further, primarily driven by personal, non-profit motives and desires (Bergqvist, 2004; Taylor, Bryan & Goodrich, 2004; Paper I and II). The results obtained in this study also show that the generally widespread geographical locations of different activities, and thus of different types of LNR and LNR access dependencies, are most likely to be a result of residence preferences. This assertion is supported by the concept of man as essentially place bound (Orr, 1995; Paper I and II). This contextualisation summarises some important socio-economic characteristics of a boreal municipality as being based upon old, stable societal and cultural traditions, which are gradually adapting to general societal development trends.

From a present day fiscal perspective, there may be few incentives for local governments to consider LNR and LNR access dependency within local commercial activities. Due to the recognized low number of people employed per commercial enterprise, the local small business make marginal contributions to the local economy in terms of local income tax revenues, and thus the disposable incomes spent within the municipality (Lindgen *et al.*, 2000; Holmgren *et al.*, 2005). Nevertheless, the Swedish municipalities have a dual responsibility for maximising local benefits and minimising conflicts between individuals and between individuals and society (Hjern, 1986) as well as implementing global and national goals regarding sustainable societal and ecological development (Hägerhäll, 1988). For example, the municipality has a legally regulated responsibility regarding physical planning and building, as well as a responsibility for the global and local natural environment (Hjelmqvist, 1994; Miljöbalk (1998:808)). These responsibilities directly demands good knowledge concerning the LNRs and the scope to influence their use within the municipality. However, property rights and any changes to them, could significantly affect the natural resources utilisation and directly affect the economic and social structures of a local society, which are primarily controlled by national laws and regulations (Bengtsson, 1999).

Global and national systems, as well as development and sustainability models, are generally intended to promote healthy human societies and natural systems. Economic systems, management plans, laws, regulations, *etc.*, which originate from higher societal levels, are not, however, suitable for local conditions in all cases. Viewed from a local perspective, they can even impose restrictions on local development possibilities that, in the long term, are likely to affect general development. It can be conclusively stated that to be able to consider the primary circumstances affecting sustainable development, a model has to be developed at a suitable societal level. In a Swedish municipality context local strategies for fulfilling the dual municipality responsibilities can be assumed to constitute the basis for positive development at different societal levels, even though designing them remains a delicate matter (Orr, 1995).

Tamm (1980) recognised three crucial preconditions regarding the way rural resource systems should be structured in order to ensure the survival of the societal organisation and its inhabitants:

- A broad natural resource field so that no single resource becomes a key resource.
- The resource utilisation must consider that the society is a part of a global system.
- There is a need for direct management of the resources that humans and societies depend on, which will probably demand economic, as well as political and social, decentralisation.

In relation to the first of these three statements, the results obtained in this study show that there is a heavy dependency on LNRs and LNR access in Vilhelmina. The seemingly comprehensive extent of the entire list of LNRs and types of LNR access used in the questionnaire can be interpreted as representing a relatively broad societal, natural resource field; a field consisting of resources originating in

different types of natural environments and defined through different types functions offered by these environments. The role of the local government means that there is an urgent need to map and characterise the current natural resource utilisation, in order to be able to locate and evaluate current local assets; the culturally and traditionally rooted LNR-dependent local businesses and the inhabitants associated with them. The municipality must be viewed as a unit, and the businesses as based on characteristic local preconditions such as traditions, LNRs and local geographical environments, rather from a branch related perspective. Furthermore, it would be valuable to examine the LNR availability, as use of many LNRs is currently used in association with different types of access. It could, therefore, be assumed that the property rights system as a whole, along with the socio-economic influences, shapes the overall LNR utilisation. These processes can be presumed to reveal “new” potential LNRs and, or “new” ways of utilising the current ones. The decisions regarding present day laws and regulations affecting property rights are primarily a national government concern. Property rights must however be considered crucial for the local society and there is a need to emphasize LNR availability by means of making the most of local government authorities concerning this matter and to safeguard local interests towards external (global, national and regional) discussions and decisions intended to change the property rights system. All of this is necessary in order to assess, and potentially broaden the natural resource field in order to improve the preconditions for current and potential local actors, businesses and inhabitants, and thus facilitate positive and sustainable development. To improve the preconditions it would be advantageous to identify and examine conflicts, as well as current and potential synergistic situations between different LNR users. It is of natural significance to consider the municipality as an attractive residency environment for current, and future, potential inhabitants as well as the general business climate.

Today, the awareness of the local society as a part of a global system is recognised; however, there are opportunities to take more comprehensive advantage of the local-global connections. The global market could be more extensively recognised in order to be able to broaden the natural resource field, in terms of adapting existing knowledge and experiences from other parts of the world. Furthermore, it can offer the identification of space for expansion regarding the identified local market of the existing businesses, or perhaps more likely, it can be made use of, for example, by encouraging new businesses which could be based on presumably more expansive entrepreneurial motives.

Finally, extensive work are carried out, around the world, on different forms of local management (Granfelt, 1999) and studies have identified motives that promote centralisation, as well as decentralisation, of natural resources management (Hettne, 1980). It has been asserted that the local level activity is the source of the final societal and natural environment effects of natural resources utilisation (Orr, 1995). The concept of local level management is most likely a necessary complement to central governance. In order to promote healthy natural resource utilisation it is thus important to recognize the implications of the results presented in this thesis. If the local government, in its dual role, recognises the strong LNR dependency this will be an aid in fulfilling governmental responsibilities for durable long-lasting natural resource utilisation. The local

government would then be able to simultaneously actively manage the LNRs as an important local precondition. It would also be advantageous to acknowledge the importance of the strong local connections and small scale of the local business structure, which make these enterprises easier to examine and influence by the local government than large externally based companies. The local natural resource utilisation actors, both individuals and groups of different types, for example commercial activities, must, as both stakeholders and actors in the local society development context, be able to affect the development process regarding natural resource utilisation; they are also the ones with the highest interests in preventing unsustainable use.

Concluding remarks

This discussion has highlighted the value of addressing global and national durability and the local perspective on development issues. It is, therefore, important to consider these factors in terms of the actual local situation. Results presented in this thesis indicate that LNRs have extensive and profound implications for local UWps and consequently for the (Swedish) boreal municipality where they are active. This indicates that it is important to consider the LNR dependency in a local society development context, even though present day economic incentives to do so may be low. Effects of external systems, such as the national taxation system, should not determine the identification of valuable incentives concerning actions that could contribute to positive general, as well as local, development.

The results reveal that there is high LNR and LNR access dependency within long-term, stable local small businesses that have local markets. Among the other municipality-related preferences, for local business establishments, the municipality is prioritised as the preferred place to live. In both direct and indirect monetary terms as well as in population numbers and social residency terms, this points to a steady and locally based contribution to the boreal municipality from the LNRs and the LNR dependent actors. The preferences of current, and potential, inhabitants can therefore be regarded as vital to the boreal municipality in terms of the possibilities to increase the population, as well as the number of small businesses. This is because the results suggest that people wish to create an income where they want to live, rather than vice versa.

Each of the local UWps engages a relatively low number of people. Collectively, however, they offer a large number of engagement opportunities in Vilhelmina, which generate direct and indirect municipal economic revenues. As the engagements within small businesses are stable and, regarding primarily the forest farming businesses, often complement other types of livelihood (Holmgren, 2004; Arvidsson, 2005), they offer additional economic contributions to the entrepreneurs and the local society. Further, presented theories and results obtained suggest that engagements, in general, offer vital non-monetary contributions to individuals as well as to society, despite the comprehensive and more or less non-monetary definition (Bergqvist, 2004).

Engagement opportunities seem to be associated with the businesses that are conducted in terms of numbers and extents. Since virtually all types of businesses were found to be highly dependent on LNRs and/or LNR access, any societal changes affecting access to LNRs are likely to affect numerous and, or extensive local engagement opportunities. Local LNR-dependent UWps cover an extensive mix of activities. The majority of them are further dependent on more than one type of LNR or access to LNRs, and the dependency encompassed by such a variety of activities implies that a large number of LNRs are used in different combinations. The local society can thus be said to depend on a broad natural resources field.

In conclusion, the overall business structure, and the general small business characteristics within a Swedish boreal municipality and the national economic system may be disadvantageous for present day, socially-based development processes. However, the local small businesses have been shown to be vital to the boreal municipality in many ways. Thus, further elucidation of their role as LNR-dependent local actors is important in both local government and social development contexts. The preferences and activities of local small businesses, and of the people involved in them, are related to the socio-economic characteristics and traditions of the boreal municipality. The LNR-dependent local small businesses must also be considered relevant in an overall sustainable development context, which should include ecological, social and cultural factors as well as the economy and should be accompanied by the belief that the local level is an appropriate basis for positive societal development and healthy natural systems.

Further research

In considering LNRs as vital to local commercial activities, and therefore as vital for the local societies, despite their limited direct economic effects, one should examine local societies in terms of the importance of LNRs. The results in this thesis suggest that the reasons for the LNR and LNR access dependencies within commercial activities should be examined more closely, and greater attempts should be made to understand why the LNRs are so highly valued and how different actors define their value. Furthermore, there is also a need to examine the ways in which the LNRs are actually used in order, for example, to assess positive and negative relations between LNR users as well as development possibilities concerning LNR utilisation, and to design general development and sustainability strategies. From a municipality perspective it has been argued that it is most beneficial if natural resources are kept and/or maintained in a viable state for as long as possible within the borders in order to generate more work opportunities and higher economic returns. It is therefore as vital to define when a natural resource ceases to be a resource, as it is to define when it becomes one.

This study demonstrates that dependency on LNRs and LNR access has a clear influence on a boreal municipality. The results make a significant contribution to defining quantifiable values and identifying practical indicators related to these influences. The list of types of LNRs and LNR access used to describe and assess LNR and LNR access dependency in Vilhelmina can be used as a list of criteria for determining LNR dependency. The results obtained further expose areas of societal

LNR influences where indicators with implications for positive societal development, as well as ecological sustainability, could potentially be identified.

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