

Forestry and Rural Development in Scotland

Bill Slee¹

ABSTRACT

The relationship between forestry and rural development has often proved problematic in the UK because of the low level of economic activity taking place in much private sector woodland and the substantial reduction in size of the state forest workforce in recent decades. This decline in forest-related work in the state sector and more widely has been compounded by the 'contractorisation' of forest work, which has resulted in a dramatic reduction of the locally resident workforce. The recognition of this diminishing contribution of forestry to direct employment in rural economies and wider issues of land ownership and governance have generated a number of responses: first, more sophisticated means of measuring the benefits of forestry have been developed; second, NGOs, particularly in Scotland, have strongly advocated alternative models of forestry which are associated with higher levels of local employment creation; third, new policy means have been developed in Scotland that offer communities an opportunity to acquire woodlands in collective ownership; finally, other initiatives have been promoted to nurture local development from forest-related economic activity. This paper explores the relationship between forestry and rural development in the context of evaluative work undertaken for the 'WoodsWork' project, an initiative that sought to facilitate forest-related socio-economic development in two area-based projects in northern and western Scotland.

This work was undertaken for Scottish Enterprise and the Forestry Commission

INTRODUCTION

This paper is based on work undertaken for Scottish Enterprise and the Forestry Commission in relation to the evaluation of intervention to support two community-based forestry projects in the Highlands of Scotland. It exposes the adjustment challenges in the forest sector in the UK arising from the introduction of new thinking about rural development into the forestry arena. This is of particular relevance because the current industrial forest estate in this area is largely the product of 20th century demands and may be less well suited to nurture rural development in the first decade of the 21st century. It also raises questions about the extent to which past expenditures to support forestry and wood supply chain development, look, with the benefit of hindsight, to represent a relatively unproductive use of public money.

BACKGROUND

Over the 20th century, parts of northern Scotland moved from being amongst the least forested to being the most heavily forested parts of the UK. This programme of afforestation was almost exclusively a response to the introduction of new regimes of state support after the end of the First World War, which were modified after the Second World War to endeavour to incorporate more fully the private sector into the new regime. The result was a fundamental shift in the nature and shape of the UK forest estate from a lowland broadleaved one located principally in the south of Britain at the beginning of the century to one based principally on exotic conifers located in the hills and uplands of northern and western Britain at the end.

¹ *Countryside and Community Research Unit, University of Gloucestershire, Dunholme Villa, The Park., Cheltenham UK.
Email: rwslee@glos.ac.uk*

The new afforestation, built largely on experience gained in public sector coastal land stabilisation projects and a longer history of upland forestry experimentation by large estates, had profound impacts on rural development. It created a substantial demand for employment at planting and ground preparation stages and created upstream demands for young trees and other inputs. Indeed, in the 1930s, forestry developments were explicitly undertaken to provide employment opportunities in upland areas close to areas of high unemployment, especially coalfield areas. An examination of post-Second World War documents reveals that forestry (and hydro-electric power) were seen as two keystones in the development of the economy of northern Scotland. However, the contribution of forestry to rural development rather fell off the rural development agenda in the latter half of the 20th century before being reintroduced with some vigour, particularly in Scotland for a rather specific set of reasons in the 1990s.

The substantial programme of support directed at the forest sector at the same time as a high level of support for the farm sector in the aftermath of the Second World War ensured that the expanding forest estate was pushed to a hill and upland location. Both public and private sector forestry developments were based on the production of new plantations of exotic conifers. The Forestry Commission had acquired powerful legal rights to acquire land but was denied access to better quality land by farming policy. The private sector was supported after 1947 by generous tax concessions and a significant grant scheme. The nature of the tax concessions drove the private sector forestry to move to land of poorer and poorer quality, but of increased ecological sensitivity (Tomkins, 1989).

The promotion of forestry at this time was primarily to provide a strategic reserve of timber sufficient to satisfy national demand in a 'war of attrition'. In a carbon-based economy, access to coal in deep pit mines was contingent on the availability of wooden pit props to hold up the coal shafts. This single demand underpinned the level and nature of support to the forest sector. By the mid-1950s, it was recognised that a war of attrition was highly unlikely. Hydrocarbons began to substitute for coal to a greater and greater extent. The strategic rationale for a rapid growing conifer

estate had all but disappeared by the late 1950s. The willingness to dispense with deep-pit coal mining in the 1980s removed the last vestige of a strategic argument.

Between 1965 and 1986 several government inquiries had questioned the economic case for forestry and often struggled to come up with a convincing case. Nonetheless, throughout that time, there was little sign of a shift in the style and location of forestry in the UK. A forestry model had been implemented in the shadow of war, was assiduously pursued in a time of peace, in spite of the changed circumstances.

In the shadow of this new model of industrial forestry there was still a residue of former multi-purpose woodland management. HL Edlin, a Forestry Commission employee, assembled a vast array of pre-industrial uses of timber revealing the incredible richness and diversity of locally crafted woodland products in the early 20th century (Edlin 1949). However, many of these craft-based activities were declining as Edlin observed them, not because the new model of industrial forestry had supplanted them, but because their high labour costs in production and changing patterns of demand rendered them largely obsolescent. A rich woodland culture was thus diluted more by benign neglect and demand changes than by coniferisation of the forest estate.

MODELS OF RURAL DEVELOPMENT AND THEIR SIGNIFICANCE TO SCOTTISH FORESTRY

Much of the analysis of forestry's connections with rural development has taken place in a theoretical vacuum. Not until the late-1990s, in spite of a burgeoning interest in rural development at both policy level and in practice from the late 1980s, was any serious attention applied to the role of forestry in rural development. This could be a function of the fact that this widening interest in rural development was driven more by farm policy failure than by changes in the forest sector. More recently, there have been some attempts to place forest development in a wider rural development framework (Hytinen et al 2002; Elands and

Wiersum 2003) and individual studies have necessarily connected to specific theories. This section reflects briefly on these, focusing on the extent to which interventions in the forest sector have been or might ex-post be justified by reference to particular bodies of theory.

A number of groupings of theories of rural development in redeveloped western countries have been made, notably by Terluin (2003). She identifies four main groups of theories:

- Traditional theories
- Pure agglomeration theories
- Local milieu theories
- Territorial innovation theories

In this classification, the traditional theories tend to focus around the tendency of markets towards equilibrium. The second group focus on the tendency towards agglomeration and increasing spatial inequalities in economic activity. The local milieu theories suggest that specific constellations of social and economic factors can contradict normal market processes or lead some areas to 'buck a trend'. The territorial innovation approaches constitute a hybrid set of theories connecting agglomeration ideas with social capital/innovation system ideas.

An alternative perspective is to explore theories in a fivefold grouping based on a classification into:

- Market-based theories
- Critical theory
- Social theories of development
- Alternative theories
- Hybrid theories

The principal rationale of this grouping is to put together cognate groups of theories with a view to seeing what light, if any, they throw on the bases for intervention in the forest sector in the UK in general and Scotland in particular. Whilst the market-based theories hinge around the equilibrating tendencies of markets (and the need to speed up resource reallocation towards equilibrium) as well as the correction of market failure, the critical theories expose certain negative consequences of the operation of capitalist markets, in particular the tendency for cores and peripheries to emerge. The critical theories also explore the transnational forces of globalisation

and its consequences as well as the tendency for differential regulation to determine the economic performance of regions and countries. The alternative theories use a range of explanations of rural development and include endogenous development theories and ecological modernisation. The hybrid theories tend to connect economic theories to other social sciences theories, such as network theory, innovative milieu approaches or cluster theory, in which the concept of social capital is often cited as of importance.

The emergent theories have endeavoured to offer explanations for rural socio-economic change in developed countries. A number of overarching concepts have been used to describe this, including a shift from productivism to post productivism, globalisation. New concepts such as ecological modernisation have emerged to explain the combined use of market-based environmental economics with better understanding of the science of environmental change and the complexities of institutional reform.

The principal logic of policy intervention in the forest sector in the UK has not always been constant and has, in the UK case, been more a product of political pragmatism than adherence to prevailing economic theory. In the 1930s the major global economic slump produced a forest policy based on the desirability of investing in a long-term industry for social reasons to help overcome the extreme deprivation found in some semi-rural coalfield communities. Forestry was a suitable case for investment because it would soak up unemployed labour, contribute to national strategic objectives and not contribute to the surpluses of primary products swilling round world markets at the time.

In the post second world war period, the strategic argument prevailed until recognition in the late 1950s of its irrelevance. Thereafter market failure and its correction became the object of attention and major changes in forest policy, such as the change in grants in favour of broadleaves, the emergence of a range of peri-urban forestry support schemes. Further, the Forestry Commission became a major provider of green infrastructure in the form of recreation opportunities, the delivery of which was also

premised on the notion of public good and market failure.

More recently, regional development agencies in the UK have tended to pick up and promote cluster theories. Based on the work of Michael Porter (2003), cluster theory advocates posit that competitive advantage can be obtained from collaborative action by the state and industry. Clusters can operate in spatially associated cluster or amongst non-spatially clustered firms. Cluster theory connects closely to the innovation system theories and to the idea of the innovative milieu. If the state, normally in the form of some kind of regional development agency, can collaborate with industrial partners to provide the preconditions for a cluster to flourish, it can thereby trigger a set of conditions in which sustained growth in the sector can be anticipated. In Scotland the cluster concept is applied to forestry at both national and regional level, whilst in England it is applied at sub-regional level, as in the Heartwoods Initiative in the English Marches. In this example, attempts were made to stimulate a local wood supply chain cluster in spite of evidence of a highly disparate forest sector, forest owner disinterest and little likelihood of the creation of competitive advantage.

The adoption of a cluster approach to develop the Scottish wood supply chain by Scottish Enterprise, the major regional development agency for the south of Scotland was based on a more promising set of foundations. A limited number of innovative firms were backed by Scottish Enterprise to build competitive advantage. This has created a core group of large-scale wood processors in Scotland. In its Scottish manifestation the cluster concept has morphed into something that endeavours to operate at both national and regional levels and additionally endeavours to embrace rural development forestry. The cluster approach claims a number of successes. However, this cluster necessarily connects to the industrial model of forestry, the profitability of which in either financial or economic terms has been increasingly questioned. In addition, the connection between the aspirations of rural development activists and the cluster approach is rather weak.

Other models and theories may offer a better fit with the rural development forestry model as developed on the ground in Scotland. Those models which expose the value of bottom up developments and the development of social capital are closer to the practitioner views of how rural development forestry should be developed. Further, the cluster-based model struggles to deal with issues of public good provision, and in a sector where so much of the value of the resource is contained in the public goods, it is difficult not see a role for forestry more within the ecological modernisation paradigm than within conventional cluster thinking.

Indeed, the pursuit of competitiveness gains within the industrial model may compromise the achievement of effective intervention based on other rationales. This is most clearly evident in the case of market failure arguments. In many ways, the production forest is associated with relatively low levels of public good provision. Some elements of the industrial forest model, such as large-scale clearfell, are undoubtedly associated with negative disamenity. The creation of even-aged monocultures can adversely affect wildlife values. Recreational public good values of young Sitka spruce forests are known to be very low (Willis and Benson 1989).

At the same time as cluster theories have been advocated by the major development agencies a range of other 'softer' development interventions have been implemented. The Leader Community initiative provides an example of this softer approach. The Leader Initiative is underpinned by a hybrid bundle of theories and values. Prominent among the theoretical foundations is the idea of endogenous development: an assertion that local embedded enterprise, rooted in particular cultures and particular places, can challenge the hegemony of global capital and, based on local knowledge and product differentiation, find and exploit a market niche. At times network theory, ecological modernisation, social capital theory and a number of alternative theories are bundled together within a new rural development paradigm to try to explain how some usually small-scale businesses can survive and thrive in an era of dominance by global capital. The Leader approach is premised on the fact that local networks can be nurtured by public

intervention and this offers an alternative development model to that based on the promotion of global competitiveness.

THE INDUSTRIAL MODEL OF FORESTRY AND ITS ECONOMIC IMPACTS

In the early phases of development of industrial forestry model in the UK, the forest industry became a significant platform for development in some parts of Northern Scotland. However, the impact was not universal. In some areas of the far north of mainland Scotland and on many of the islands, there were extensive areas of land largely unsuited to 'commercial' tree production. These areas remain lightly afforested. Further, in crofting areas, where a particular form of land tenure had been established in the late 19th century to give a particular class of small farmers secure tenure, forestry was generally seen as antagonistic to crofting land use. But in other areas such as the South West Highlands, parts of the Central Highlands, the Great Glen and South-east Sutherland forestry emerged as a significant local employer. In addition the state sector forestry often brought with it the added bonus of new build housing that went with the job, a not inconsiderable advantage when modern conveniences were lacking in a significant proportion of the existing housing stock.

By the late 20th century, the promise of high levels of forest-related employment in the industrial forest sector had largely evaporated. The principal causes were first, the development of new technologies, in particular the mechanised felling of trees with harvesters which in the last decade of the century had a profound effect on the numbers employed in extraction; and second, the increasing pressure on the Forestry Commission and private forestry to reduce its costs. The result was an increased tendency to mechanisation, much of it carried out by private sector subcontractors to the forest sector.

Privatisation of the Forestry Commission had seemed highly probable in the wave of privatisation of public sector bodies in Britain in the 1980s. Instead a sell off of largely

inconsequential residual parts of the public forest estate that fitted uncomfortably into the Forestry Commission's management portfolio was as far as privatisation got. However, the significance of this should not be underestimated since these sell-offs created a furore in many communities and provided the basis for the upsurge of community engagement with forestry from the early 1990s onwards. Beginning in the central highland community of Laggan, many communities became radicalised by the prospect of the sell-off of state forest assets. They were supported by a burgeoning NGO interest in forest-based rural development, which was strongly influenced by developing overseas practice in rural development forestry. This offered a model that contrasted starkly with the industrial model, which had been so actively and strongly supported by the Forestry Commission in the UK in its pursuit of a strategic reserve. To a considerable degree, forestry, with its high levels of absentee ownership and its use of mobile gangs of contractors came to resemble a colonial extractive industry and was likened to such by some commentators (Inglis and Guy 1997). The case for a reorientation of forestry practice towards local rural development was made strongly at this time (Callander 1995).

It was also becoming evident by the 1990s that the economic values of forestry extended beyond timber. These arguments had first been articulated in economic terms in North America and by the mid-1960s were increasingly being used in the UK. By 1972, they formed a significant part of the Treasury's study into the costs and benefits of forestry in the UK. The essence of these arguments was that forestry delivered a significant range of non-market benefits.

The growing interest in public good values has engendered a burgeoning interest in the refinement of techniques as well as an emerging spatial literacy about their impact. It is now evident that amongst the use-related public goods such as informal recreation and wildlife watching the values are influenced enormously by accessibility. As studies became more refined, it became apparent that the levels of these values were highly variable over space and by the late 1990s an evidence base was emerging which showed variations in annual recreational public good

values from around £2 per hectare in remotely located conifer plantations to well over £400 per hectare in peri-urban locations.

The wider impact of forestry on rural economies had become the object of increased attention in the 1990s, not least because there were signs that woodland planting might be encouraged back down the slope in the wake of emerging food surpluses in the European community and burgeoning support costs to the farm sector. A number of academic studies were undertaken (Dhubain et al. 1994) which revealed significant multiplier effects and these were followed up by publicly commissioned research. However, these multiplier effects were often not local and major processing was often at a substantial distance from the forest.

The connectivity between forestry and local communities was weakened by two principal factors. First, subcontractors substituted for local employment as a result of cost-cutting strategies. Large-scale contractors emerged who were mobile throughout northern Britain. Second, substantial public sector support was offered to the creation of new investment in large-scale processing plant. Inevitably, this meant that local small-scale processing plants, already facing high costs, would be effectively unable to compete for timber.

The principal challenge in mid-Argyll, the case study area of this paper, is to explore whether or not the two styles of forestry one based on an industrial model and one based on an endogenous development model, can coexist in ways that both support the transition towards more sustainable rural development.

MID-ARGYLL AS A STUDY AREA

Background

Mid-Argyll is a classic example of an area deeply affected by the imposition of an industrial forestry model from the 1930s, but particularly in the period following the Second World War. A significant proportion of land (not estimable exactly because the study area did not match any administrative units) has been converted from moorland and upland pasture to forestry much of

which is now nearing maturity. The region consists of a dissected and heavily glaciated landscape interpenetrated by sea lochs and with wide straths (valleys).

Although almost all of the forest cover is of exotic conifers, predominantly Sitka spruce, the natural vegetation of the area would have comprised mixed broadleaves and conifers with oak the predominant species on the better quality lower land. Indeed the area still contains fragments of the so-called 'Atlantic oakwoods' most of which are protected for nature conservation. Trees are widely present in the landscapes, both in the large blocks of commercial forestry and in smaller woodlands which are either relics of the earlier forest cover or products of boundary planting, amenity plantings around large houses or natural regeneration in areas from which ruminant animals are excluded.

The forestry is interspersed with low intensity agriculture with extensive upland grazing prevailing, with better land farms having a significant amount of enclosed land and poorer land farms having a high proportion of unenclosed rough grazing.

Minard, the community at the centre of this study is a loch-side settlement of about 200 people, about 15 kilometres from the administrative hub of the sub-region, the town of Lochgilphead. It is predominantly a commuting and retirement community. The original community forestry project in the area involved improving access to an area of Forestry Commission woodlands which occupied a coastal strip of land between the village and a 19th century mansion constructed about two kilometres to the west. Since that time a number of other initiatives have been promoted to enhance access and pursue small-scale economic opportunities.

Compared to the other Scottish study area of north Sutherland, this area has received significant numbers of in-migrants and is relatively accessible to the major urban central belt of Scotland. It also has large numbers of tourist visits

Methods

The methods used to explore the economic impact of forestry in mid-Argyll are based on the Understanding Forestry in Rural Development (UFIRD) approach (Slee, Evans and Roberts 2003). Although the focus in the more localised study was the community forestry project at Minard, a small village in the middle of the study area, the economic analysis embraced a wider area.

The methods were based on a two-stage approach that considers:

- The direct and indirect impacts of forestry as a land-using, timber-producing activity, including its connections with local and other processing firms
- The halo effect of forestry on adjacent households and businesses in terms of the effects of forestry on their business turnover and residential preferences

The data collection was based on face-to-face surveys of forest owners and forest businesses and halo businesses and a self-return questionnaire dropped at households in two communities including the core case study community.

The core of the methods is a modified Keynesian model as developed in the UFIRD study. The model explores the linkages of forestry into the regional economy but rather than looking at formal linkages also explores the so-called halo effect.

Results

In mid-Argyll, forestry generates about £5.5million income for the local economy through forest management and processing, a further £3.75 million to £13 million through the residential halo effect and up to £50 million through a tourism halo effect. Thus as in study areas in southern England examined in the UFIRD study, a predominantly industrial forest such as that of mid-Argyll delivers greater value through the halo effect than through production forestry. The green infrastructure of forestry is of greater importance than the production of woody fibre. This reflects the high significance of tourism in the sub-regional economy, which suits on one of the major tourist routes in rural Scotland.

Most of the direct forest-related employment is in conventional production forestry, reflecting the prevalence of the industrial forest, but there are increasing signs of work related to the redevelopment and rehabilitation of semi-natural woodland for biodiversity and landscape reasons. The public sector foresters accept this as a necessary part of their forest practice and there are a number of private sector forest owners who have recognised that there are substantial opportunities to draw down grant aid to rehabilitate or plant native species, although it has often proved difficult to develop new forest processing enterprise on the back of environmental forestry.

The greatest proportion of timber is sold to two major processors one to the north and the other to the south. A number of biomass initiatives have been progressed in the area but the overwhelming majority of wood is sold outside the district to large-scale processors. Some local processing takes place and there are a number of micro-businesses making use of forest products.

The state forestry sector although now only employing a small fraction of the staff employed thirty years ago is a much larger employer than the private sector industrial forestry which is managed by locally based agents, often for absentee owners. These private sector forest practices create only a small and largely disembedded workforce.

Although predominantly industrial forest, the Forestry Commission estate has been extensively developed for tourism and recreation with many picnic sites and trails. Further, the area is extremely rich in archaeological monuments, many of which are located on public forest land. There are also many well-used fishing lochs in the forested areas.

In spite of the considerable efforts to provide amenities in the forest, most local residents make a clear distinction between the industrial forest and the traditional woodland. In landscape terms, the semi-natural woodland is overwhelmingly preferred. The green infrastructure value of this woodland is considerably higher than that provided by the industrial forest, though for some uses such as mountain biking or car rallying, the forest roads can provide a significant resource. Further, the industrial forest generates a great deal of road traffic (in spite of efforts to use forest roads and sea

transport wherever possible) and this is antagonistic to local road users and costly to the local council in road repair bills. Local users also dislike large areas of clearfell, though tend to tolerate it as the price of local employment creation. Few want to see the industrial forest model extended; almost all would like to see further native woodland creation.

DISCUSSION

Rural development, in the sense of understanding the drivers of rural economic change and intervening to enhance rural economic welfare, has emerged as a topic of enormous interest to developed western nations in the wake of the decline of their primary sectors. The notion of 'rural development forestry' seems to try to counter the trend of reorienting investment away from the primary sector, which underpins much rural development thinking and activity in Western Europe.

One emergent trend in western Europe has been the movement of urban refugees into rural areas bringing with them new demands and new economic activities. These in-migrants are a heterogeneous group, selective in their destinations, and varied in their demands on their new host community. They generate what Persson and Westholm (1993) termed a new mosaic of rural regions. Areas that had haemorrhaged population for decades, such as parts of Western Ireland and the Scottish North West Highlands have seen a population turnaround in the last 20 years.

However, it might be argued that the multifunctionality of both agriculture and forestry afford opportunities on which to build platforms for rural development. The level of residential migration into and tourism developments in attractive landscapes is a testament to the market power of attractive multifunctional landscapes.

In both farm and forest sectors there has been a marked push to promote local bottom up development. The Leader initiative provides the most coherent policy manifestation of this support of bottom up or endogenous development. Leader principles of area-based, partnership driven, integrated development strategies often engage

with farm and forest sector actors, but normally to reconnect these sectors to local markets or speciality products, rather than to try to create competitive advantage on a global stage as is the aim of the cluster model. However, the new rural development paradigm (van der Ploeg et al. 2000) as implemented in the European Union, seems to focus around creating opportunities for farm based diversification, rather than supporting dynamic areas of the rural economy. It is based on an entirely different set of premises to the cluster model.

Much rural development is also couched in terms of post-productivist land use, in which the amenity functions or consumption demands assume a dominant role. The rural economy of significant swathes of rural England could be said to have reached such a state. The existence in northern Scotland of so many loss making sporting estates that command such social cachet, suggests that post-productivism may have been a significant driver of the north of Scotland economy for over a hundred years.

However, it is impossible to explore rural development forestry in Scotland without consideration of the institutional architecture of the country and the devolution of power that came with the creation of a Scottish parliament in the late 1990s. Much of the rhetoric of rural development forestry was couched in language much used by development actors as they attempted to throw off the shackles of colonial exploitation. The internal colonialism model had been widely used in political economy circles to explain the history of exploitation of highland resources (Hechter 1973). Further, the nature of landownership in Scotland, with the juxtaposition of some of the largest and smallest landholdings in Britain had long been a cause célèbre. Land reform became a pivotal symbolic act by the new Scottish parliament. Forestry could not be immune from these debates and the sell off of small parts of the Forestry Commission estate, reputedly 'behind the backs' (i.e. in specialist national journals rather than local papers) strengthened the local perception that the state forestry service was not interested in bottom-up development and support of local communities.

In the late 1990s it became evident that the Forestry Commission had to respond to the pressures from a number of local activists, and growing NGO support. A number of partnership initiatives were set up and policy mechanisms were set in place to give voice to these concerns in a Forestry and People panel. New policy initiatives emerged to support the community acquisition of public sector forest resources.

At the same time as the emerging response to growing grassroots pressure for control or at least influence over the forest resource, the state had been supporting the industrial forestry model through its support of the forestry cluster. Given the nature of the Scottish industrial forest such support is entirely understandable. A substantial forest resource was nearing maturity and it was appropriate that efforts should be made to maximise the scope for value added. The cluster approach was a logical response to this policy need.

The two strands in Scottish forestry policy with respect to rural development, the contemporaneous response to grass roots activism and the search for global competitiveness are not entirely complementary. The pursuit of the industrial forestry model, with its necessary search for competitiveness, demands a style of forestry which is at best tolerated and at worst despised by local people, especially where there is little value added to forest produce in the region. Equally, the alternative model of forestry, producing a rich native forest landscape and habitat with only modest production outputs seems somewhat self-indulgent in the eyes of those who recall the working forest as a platform for rural development a few decades ago. However, for the affluent rural in-migrant, or the hotelier, these resources underpin locational preferences and are valorised in local economic activity, albeit by a more indirect route than the production forestry model.

This raises questions about the extent to which it may be possible to have the two styles of forestry (see van der Ploeg (2003) for a discussion of different farming styles in farming) co-existing synergistically within a given area, or whether it is more appropriate to effectively zone rural areas with particular functions in mind: in one case an

industrial forest wood raw material production function; and, in another, a green infrastructure function.

However, rural society cannot be pigeon holed and there are likely to be multiple and conflicting demands on what are multifunctional resources offering different development opportunities. It is impossible not to see a high degree of path-dependence, especially in a sector such as forestry where the present state of forests is so conditioned by past policies and decisions. It is also impossible not to expect divergent demands from different actors and stakeholders. Devolution of power and subsidiarity make fools of (or are completely neutered by) rigid, top-down strategies. Within the current Scottish system, there are inevitably tensions between the strategic demands of industry and the more localist demands for living space and green infrastructure. Our analysis reveals that we should not underestimate the value of the green infrastructure in economic terms, which might then need to be factored in to the reconstruction of the industrial forest model.

CONCLUSION

Forestry in many parts of the Highlands of Scotland has been developed along an industrial forestry model with significant consequences on land use and economy. In spite of it being an industry buffeted by the winds of global competition, the Scottish government, through its development agencies, has been committed to supporting a dynamic processing sector. This has produced an industrial structure with a combination of dynamic indigenous firms and multi-nationals occupying a pivotal role in forest products processing. But, this process has also led to reductions in the aggregate Scottish forest workforce and the emergence of a capital-intensive processing sector.

Alongside this industrial forest, there has been a clamour for the re-embedding of forestry in local economies. This responds partly to the demand for subsidiarity and self determination and partly from the deepening sense of alienation of local people from their forests as the Forestry Commission reduced its workforce and non-local owners managed their industrial forests with a light touch.

Perhaps the greatest scope for re-embedding will arise through the use of wood in energy production. The rural development forestry model was founded more on a native forestry, multiple use of woodlands model of resource use, but in a world of highly priced hydrocarbons, wood energy may play an increasingly important role in local sustainable development. Notwithstanding the teething problems in the renewable energy sector in mid-Argyll, the future looks healthy, unless and until other demands drive up the price of low-grade woody biomass. The alternative forestry model based on that espoused by the RDF activists looks relatively weak in its potential compared to the new demand for biomass.

Mid-Argyll is an example of a forest region where the industrial model has been superimposed on an older style of forestry and an old and very different woodland structure. The lichen-clad and gnarled oaks and the ranks of Sitka sit uncomfortably alongside each other both in physical space and in the local psyche. The results of this research suggest that forestry's economic impacts need to be explored in an holistic manner. Multifunctionality of use and demand and new modes of governance will necessarily drive forestry to a differentiated character in different regions. The industrial forestry model and the rural development forestry model must be flexible enough to accommodate those demands, but, as is always the case with forestry, not too responsive to the fickleness of the moment which can undo the work of decades of nurture and support.

REFERENCES

- Callander, R. 1995. Forests and people in rural Scotland. Perth, Scotland, UK, Rural Forum, Forests and People in Rural Areas Initiative (FAPIRA).
- Dhubain, A.N., Gardiner, J.J., Davies, J., Hutchinson, G., Chilton, S., Thomson, K., Psaltopoulos, D. & Anderon, C. 1994. Socioeconomic impact of afforestation upon rural development. Final Report, EU CAMAR Programme. Dublin, University College.
- Edlin, H. L., 1949, Woodland Crafts in Britain, London : Batsford
- Elands, B. and Wiersum, F., 2003, Forestry and rural development in Europe, Wageningen : Wageningen UR
- Hechter, M., 1975, Internal colonialism: the Celtic fringe in British national development 1536-1966, London : RKP.
- Hyttinen, P., Niskanen, A., Ottitsch, A., Tykkylainen, M. and Vayrynen, J., 2002, Forest-related perspectives for regional development in Europe, EFI Research Report 13, Leiden : Brill.
- Inglis, A.S. & Guy. S. 1997, Rural development forestry in Scotland: the struggle to bring international principles and best practices to the last bastion of British colonial forestry. ODI Rural Development Forestry Network Paper No. 20b. London. Overseas Development Institute.
- Persson L-O and Westholm E, 1993, Towards a new mosaic for rural regions, Paper presented to the EAAE Conference Stresa, Italy.
- Porter, M., 2003, The Economic Performance of Regions, *Regional Studies*, 37, 549-578.
- Slee W, Evans, R and Roberts D, 2003, Understanding Forestry in Rural Development, Report to the Forestry Commission.
- Terluin, I., 2003, Differences in economic development in rural regions of advanced countries: an overview and critical analysis of theories, *Journal of Rural Studies* 19 327-344
- Tomkins, S., 1989, The battle for the hills, London : Christopher Helm
- van der Ploeg, J.D. (2003). The virtual farmer : past present and future of the Dutch Peasantry, Assen : Royal Van Gorcum.
- van der Ploeg J.D.; Renting H.; Brunori G.; Knickel K.; Mannion J.; Marsden T.; de Roest K.; Sevilla-Guzmán E.; Ventura F. 2000, Rural development: from practices and policies towards theories *Sociologia Ruralis* 40 (4) 391-408
- Willis, K.G. and Benson, J. (1989). 'Recreation value of forestry.' *Forestry* 62(2): 93-110.