

# Resource community formation and change in New Zealand

by

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## **ABSTRACT**

Since the 1970s there has been ongoing, if intermittent, work internationally relating to resource communities. Some has been done as research in the fields of resource management, planning, sociology, and anthropology. Much has been done in a more commercial, applied context, particularly social assessments of proposals for resource developments, or in some cases wind-downs and closures. Our recent research into resource community formation and change has developed from earlier work on hydro electricity construction towns, forestry, mining and farming communities in the 1980s. Then, the key external influences and alliances of multinational capital, the state and technology (including imported technology) were seen to be reflected in the organisation and nature of work and the exploitation of the natural resource base, with impacts on regional economies and the nature of local society. The research has moved beyond a boom-bust model to include an analysis of the effects of economic restructuring in New Zealand, using a comparative case-study approach. The research shows that there has been substantial social and economic change in the study communities over the last 20 years. Populations generally have fallen, with losses of key community people. Changes in technology and the organisation of work, including subcontracting and shift work, have greatly increased labour productivity while reducing employment overall. Substantial industry restructuring has also added to job loss, coinciding with restructuring and centralisation in social services and other sectors. Low cost housing has attracted newcomers, often characterised by low social-economic status, higher proportions of Maori people, more social and cultural diversity, and reduced community cohesion. Communities are also less clearly defined spatially by small localities. The research has strengthened the model of resource cycles in communities, adding an understanding of the interconnections between sectors at local and sub regional levels. It shows few rural communities in New Zealand are dependent on a single resource sector. The work provides a stronger conceptual and empirical basis for social assessment and resource planning in New Zealand, especially in communities that depend directly on the primary production or processing of natural resources.

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# **Resource community formation and change in New Zealand**

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## **Introduction**

Since the 1980s, there has been ongoing work by social scientists relating to resource communities. Some has been done as research - in resource management, geography, planning, sociology, and anthropology. Other work has been more commercial and applied, particularly social assessments of proposals for resource developments by private developers. There has even been an interest in wind-downs and closures, most often from employment and community development agencies, local government and community groups. For the most part the lines between research and applied and commercial work have been artificial - and between the two sources we find ourselves with a body of information and knowledge about communities and even whole sectors that we draw on for social assessments. But this body of knowledge is incomplete, and, most importantly for social assessment, there has been limited longitudinal research and development of conceptual frameworks for understanding the processes of community formation and change. Tykkylainen and Neil (1995:31) emphasise the need for a comparative approach for an analysis of the restructuring of resource communities, including change brought about by internal and external factors. Such knowledge is essential in comparative analysis for the projection of effects, an integral part of the social assessment process (Taylor et al., 1995; Burdge, 1998).

The research programme reported in this paper has been funded by the New Zealand Foundation for Research Science and technology over a four year period since 1996<sup>1</sup>. The aim has been to provide baseline data and an understanding of community formation and change in rural New Zealand. The focus of the research is on communities that depend on the primary production or processing of natural resources. These we refer to as resource communities (Taylor and Fitzgerald, 1988). It is intended that the programme should assist planning for sustainable development in New Zealand through increased knowledge and understanding of the processes of social change in communities that depend directly on the primary production or processing of natural resources.

The findings will assist the development of natural resources policies and plans, and the assessment, monitoring and evaluation of resource consent applications as required under the New Zealand Resource Management Act, 1991 (RMA). Central and local government and private sector providers will be better placed in their planning of social services for communities. Social assessment practitioners and social researchers will benefit from having substantive baseline information to draw on for future social assessments in the case study areas, as well as an improved understanding of the processes of community formation and change in these types of communities. The research has to date provided an improved understanding of sustainability issues, and the relationship between people and communities and their natural resource base - as recognised in the RMA.

## **Methodology**

During the first phase in 1996-8 the research examined community formation and change in the three sectors of forestry, mining and agriculture. In the current phase of work (1998-2000) the

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<sup>1</sup> Funding from the Public Good Science Fund, contracts TBA601 and TBA801.

sectors of fishing, energy and tourism are being examined. In each phase four major sets of tasks were undertaken:

- experiences in resource communities in New Zealand and overseas were reviewed and examined for evidence of cycles of social and economic change related to factors such as commodity prices, technology development and labour productivity, and the role of the state and private sector;
- the international and New Zealand domestic contexts for community formation and change in each of the forestry, mining and agriculture sectors were examined;
- 28 communities in the mining, forestry, and agriculture sectors were selected on the basis of previous research efforts and knowledge of the resource sectors, and short profiles were prepared on each using secondary data sources, including comparative census and industry statistics;
- comparative case studies were made of 10 communities and the results written into a series of working papers made available to the study communities and social assessment practitioners<sup>2</sup>.
- comparative statistical analysis was undertaken of 175 communities from the six sectors, forestry, agriculture, mining, fishing, energy and tourism using 1986 and 1996 census data. In contrast with the profiling exercise above, these communities were selected purely on the basis of the sectoral distribution of the labour force as recorded in the 1996 Census of Population & Dwellings. This was done by ranking each 1996 Census “minor urban area” (ie town with a population between 1000 and 9999 which is part of an administrative district), “rural centre” (or small town with a population ranging from 300-999 servicing a surrounding rural area), and “rural area” (or non-urban part of an administrative district), according to ‘z’ scores<sup>3</sup> of the proportion of the labour force employed in each ANZSIC<sup>4</sup> industrial sub-sector. Areas or communities which had sectoral employment z-scores greater than +1.5 were selected for further analysis. The resource sectors of interest included:
  - for agriculture – all agricultural and horticultural activities, but excluding agricultural services and hunting;
  - for forestry – all forestry and logging, and wood processing activities;
  - for mining – coal and metal ore mining;
  - for energy – petroleum and gas extraction, and electricity and gas production;
  - for fishing – all commercial fishing activities;
  - for tourism – accommodation, restaurant/cafe and hotel services.

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<sup>2</sup> The 10 community case studies and working papers were: for forestry – Kawerau (WP6), Murupara (WP7), Tuatapere (WP8); for mining – Waihi (WP9), Runanga (WP10), Ohai/Nightcaps (WP11); and for agriculture – Katikati (WP12), Clandeboye (WP13), Waitaki Plains (WP14) and Otautau (WP15).

<sup>3</sup> The number of standard deviations from the mean (of each minor urban area, rural centre and rural area – taken as 3 separate groups).

<sup>4</sup> Australian/NZ Standard Industrial Classification.

This method allowed us to separately compare like-sized areas with each other. The areas selected were then grouped by industry, and analysed according to social characteristics as recorded in the 1986 and 1996 Census. Where a “case” fell into more than one sector, it was allocated to one or another according to the actual number of people employed. As expected, the 28 communities which had been previously selected for profiling were also “objectively” identified by this statistically-based selection process.

### **Previous New Zealand work on resource communities**

The present research into resource community formation and change has developed since the early 1980s. There had of course been relevant previous community studies - eg. the farming community of Oxford (Somerset, 1974), the hydro-electricity construction town of Roxbrough (Burch, 1969) and the pulp and paper towns of Tokoroa (Chapple, 1976) and Kawerau (James, 1979). Then, in the early 1980s, Taylor and colleagues at the Centre for Resource Management<sup>5</sup> undertook a series of case study analyses of the characteristics of resource communities - including hydro-electricity construction towns (Taylor and Bettsworth, 1983), forestry communities (McClintock and Taylor, 1983) and farming communities (Taylor et al., 1987). This work fed into a series of papers covering broad concerns for social research and resource planning, including rapid population growth in rural areas (Taylor and McClintock, 1984). Some of this work was commissioned by state agencies responsible for central planning and development<sup>6</sup>, and was used to advocate for anticipatory and proactive social impact assessment (Conland, 1985).

The 1984 paper of Taylor & McClintock, in particular, looked at communities involved in the first stages of exploitation of natural resources - the planning and development stage. At the time, NZ was in the throes of a national development strategy (dubbed “think big”) - with large scale developments occurring in energy, petrochemicals and metal processing. The authors noted that the kinds of social changes that attended large scale developments in rural areas had not been adequately documented in NZ, and needed to be understood in a regional context, and in the terms of those people affected by the changes. The intention was to develop a model for analysing boom towns and their host regions. Drawing on development and world systems theory (Wallerstein, 1979), they noted how resource development decision-making, and the economic benefits from developments are centralised, while the negative impacts of changes and the social costs arising from the developments are substantially borne by the regions and communities in which the resource development activities are located. The previous lack of regional level analysis could itself be understood because planning and research tended to be controlled from the centre, and focussed on national benefits.

In terms of shaping communities, the paper by Taylor and McClintock noted the key influences of, and close alliance between, the interests of multinational capital and the State in resource development, the role of technological change ( and imported technology) and its influence on work and its organisation, and the power of the corporates to restructure local society. These interacting, extra-local influences, when focussed on resource exploitation, bring changes to regional and local communities and their physical environments which are not anticipated or always welcomed. Conflicts result. The writers argued then that understanding the changes at a regional level, and the forces behind them, “can be used to help in the negotiation of outcomes from any new project or industrial restructuring” - that is, it has strategic value.

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<sup>5</sup> At Lincoln College - now Lincoln University.

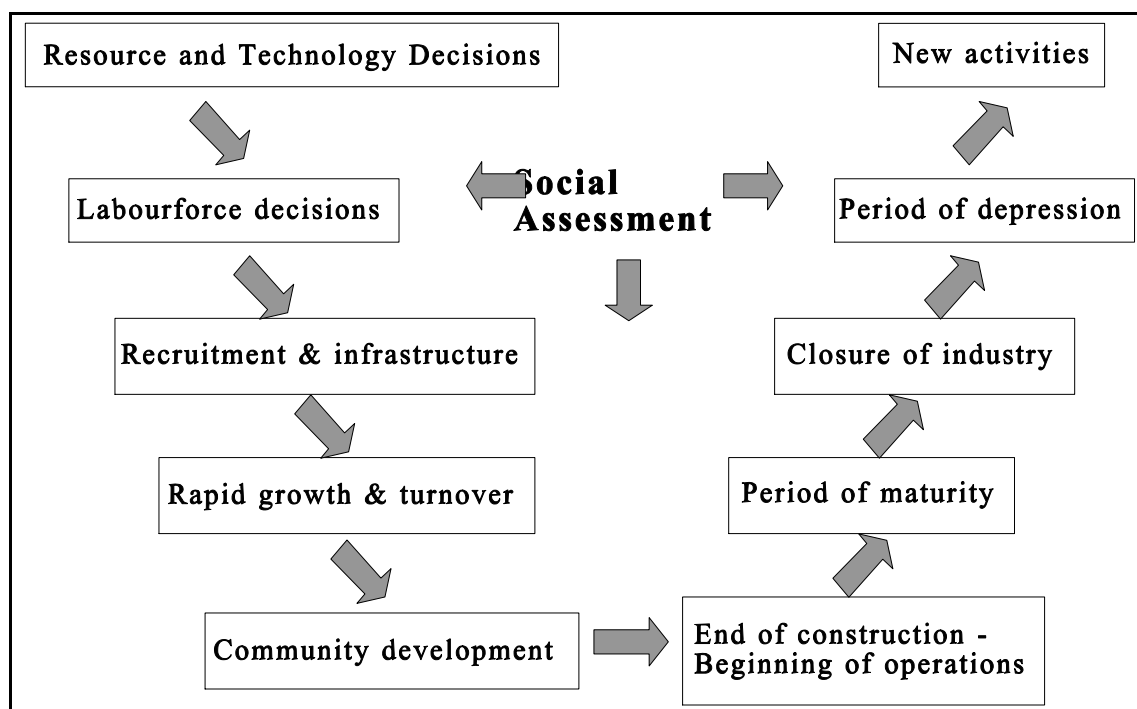
<sup>6</sup> Support and funding from the Town and Country Planning Directorate, Ministry of Works and Development, was of particular importance.

In tandem with this work, an increasing number of social impact assessments were being carried out by social scientists on individual large scale developments - including hydro-electricity dams (eg. Upper Clutha) petrochemical developments (Taranaki gas, Whangarei oil refinery), coal (Southland lignites, Waikato and Taranaki coal) and gold mining (Coromandel gold), forest products, and agricultural land development. These assessments provided a further body of community studies and a basis for examining the responses of communities and agencies to rapid social change, including wind downs. Research on resource communities, experience in social impact assessment in individual communities, and experience in monitoring and managing change in resource communities was drawn together in a number of publications, among which was "Social Impact Assessment in New Zealand - a practical approach" (Conland et al., 1985) which represented a collective effort by researchers, social assessment practitioners, planners and policy analysts working under the banner of the Social Impact Working Group. The observed similarity of the social changes associated with different resource developments fed into social impact assessment practise and theory (Taylor et al., 1995).

Taylor and Fitzgerald (1988) provided an overview of NZ experience and conceptual development in relation to resource communities, looking to move conceptual understanding from a "boom-town" model to a resource community model. By this time the projects of the think big era were over and resource communities had experienced project wind-downs and their social effects. Also, under the banner of the new right, central government had embarked on deregulating the economy and reducing the size of the state (shedding its direct involvement in resource ownership and development) - bringing closures and redundancies in many sectors that impacted severely on communities.

Social scientists and planners were grappling with how to deal with the effects of these winddowns and closures and the paper had a clear strategic intent - namely to improve planning for resource communities by recognising and therefore anticipating the kinds of short and long run social changes arising from resource exploitation.

The paper added to critiques of the "boom-town" model (Wilkinson, et al., 1982), and advocated linking social research and the results of individual social assessments to natural resource policy and to "draw together critical understanding of society environment interrelationships and the role of technological change". It noted the need to draw on historical and environmental analysis and to compare individual cases of change in resource communities, arguing that similar patterns of social change arise at different times, places and in different social economic and cultural environments for different projects. The central element of this paper was therefore the proposition, based on analyses of forestry, mining, energy, farming and tourism - based towns and overseas experience (eg., Wenner, 1984), that the circumstances of resource communities are cyclical (Figure 1). Integrated natural resource policy - away from sector specific approaches - was advocated along with the strategic utility of social assessment in policy and planning.



In the early 1990s there were few resources to systematically pursue the question of resource communities on a broad research front, although substantial work has been done on aspects of tourism and farming. However social assessment work has continued to stimulate and feed into our thinking about resource communities (Taylor, et al., 1995), including assessments as part of resource consent applications in tourism, forestry, and mining developments. There is also a growing body of cross-cultural social assessment studies conducted by NZ practitioners as part of international aid project developments in the Pacific.

The current study therefore builds on an extensive base of data and conceptual development.

### **Key findings from the case studies and comparative analysis of the communities**

#### Resource sector cycles, technological change and restructuring

The case studies, based on field research, date have shown that resource communities in the forestry, mining and agriculture sectors are vulnerable to the price cycles of a few commodities, such as coal, gold, timber, pulp and paper, meat and wool and dairy products. Sector reviews of the energy, fishing and tourism sectors show similar patterns. Changes in commodity prices have major social and economic effects on the communities that rely on them for primary production or processing. Major technological changes have increased labour productivity substantially in the three sectors of mining, agriculture and forestry, both in primary production and processing. Employment opportunities have reduced, especially for unskilled (often older) workers. These changes are shown in Figure 2<sup>7</sup>. It can be seen that there have been substantial losses of employment in several resource sectors, but that this change is uneven. The agriculture, forestry, coal mining and energy (both electricity and oil and gas) and fishing sectors were all down, but metal rock mining (mainly gold) and tourism were up in the period 1986-96.

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<sup>7</sup> Detailed workforce figures by sector are provided in Appendix 1.

Technological change, improved transport systems, and increased capital demands have led to amalgamations and centralising of processing plant, such as timber mills, dairy and meat processing. While a few processing plants have expanded, there have also been many communities that have experienced plant closures. Illustrations of these processes have been found in the case studies. For example, the dairy processing plant at Clandeboye has experienced considerable growth as one of the major South Island dairy processing factories, while plants have closed in surrounding communities in South Canterbury and also in Southland, including the case study community of Otautau - while dairy farming activity has increased in these areas and brought social changes. In the coal mining areas around Runanga small mines have all but disappeared, while one large new mine opened (and subsequently closed) and another is planned.

At Waihi, two large gold mines opened in the last decade, and one subsequently closed. A further change observed is that the workforces for expanded plants do not necessarily live in the local, traditional, resource community, or they have been recruited from other labour pools such as farming. Workers commonly commute from larger centres nearby, or areas with farm lifestyle developments, attracted by stronger property markets, educational and other facilities. Conversely, unemployed people in the traditional communities do not have the technical skills to work the new technology, or are seen by management to have work attitudes, such as to demarcation or shift work, that are 'outdated'. Social infrastructure in these places has often declined.

Changes in the way work is organised has seen a shift to sub contracting of labour and technical support, especially in primary production. Examples include mine companies contracting out all heavy earth work, forestry logging and trucking by contract operators, and the farming shedding of farm labour in favour of the use of agricultural contracting.

There is also some evidence for increased flexibility of individuals in moving between employment in different sectors, sometimes on a seasonal basis, e.g. shearing or meat processing to forestry. Another new factor is multiple, part-time work, eg., agricultural work plus self employment in agricultural contracting plus a small tourism business<sup>8</sup>.

The new patterns of work and employment have affected older people, who either shift out, or remain in the community unemployed or sometimes working part time. The social statistics show an increase in numbers of elderly across the communities studied. Depopulation by working age, child rearing, people has also contributed to the aging of the populations.

#### Other government and private sector restructuring

Since the mid 1980s, in particular, Government has centralised social services in health, education, social welfare and employment, leading to a loss of local services, employment opportunities. Local government reform was accompanied by the closure of local depots and rationalising of service centres, leading to further losses of employment from many small centres.

The people who subsequently left were often professional and administrative workers people and their families who contributed heavily to the running of community organisations.

Other private sector rationalisation has included banks, mercantile firms and general retailing. These activities have been concentrated increasingly in regional centres with attendant closure of local branches. Government restructuring and private sector rationalisation therefore caused people to withdraw people from rural economies at the same time, leading to a multiple effect on local economies. Local spending power was reduced and shifted to regional centres and their

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<sup>8</sup> This change has also been identified in a separate study of alternative enterprises on farms (Taylor and McCrostie Little, 1997). Future research on individual work histories will help to determine the extent of this change.

centralised retailing and servicing facilities. Some communities were struck by multiple effects of restructuring across several sectors, such as agriculture, forestry and mining in Western Southland. These changes are reflected in changes in the total labour force of resource communities 1986-96 with closely reflect those in the total population.

The data across the resource community sectors show that overall the populations and total workforces of the resource communities have grown less than New Zealand as a whole. This change is uneven between communities and sectors: agriculture based communities have declined slightly overall, energy based communities have declined markedly, forestry based communities have grown slightly, while fishing and tourism communities have shown marked growth. It should be noted here that there is a close sectoral linkage between fishing and tourism in many coastal communities (e.g. Picton, Kaikoura and Havelock), and appears that the tourism sector is influencing growth in these places. The case studies also showed that in some towns, such as Ohai for example, employment in the “traditional” sector - in this case coal mining - could fall substantially, but be replaced by employment in another sector - in this case agriculture services, with the town becoming a regional shearing base over the last 20 years.

### An increase in Maori population

The loss of employment from resource sectors, local government, transport, post office and other government and private sector services has led to vacant, lower cost housing being available to newcomers. These new arrivals are often characterised by being low income, welfare beneficiaries, single parents, unemployed or unskilled, and Maori (the indigenous people of New Zealand). The case studies identified that in many resource communities there has been an increase in the number of Maori as a proportion of the population, markedly greater than the strong national growth rate for Maori. The most recent trends, from 1986-96 are shown in Table 1.

TABLE 1 GROWTH IN MAORI POPULATION 1986-96

Sector	% change in Maori population 86-96
New Zealand	27.9
av minor urban areas	70.6
av rural centres	61.9
av rural areas	55.3
all resource coms	60.7
av agric.coms	42.7
av fishing coms	59.1
av forestry coms	28.5
av. energy coms.	10.8
av. mining coms.	108.1
av tourism coms	122.6

The evidence on Maori population growth from the individual case study communities is borne out by the data on average changes across communities in the various sectors. One implication of this growth in Maori population is that it is due to immigration by non-local iwi (outside tribes). These outsiders tend to lack the support of their extended kin group and local marae (tribal meeting place). Recent national-level analysis shows that the Maori population is socially and economically disadvantaged relative to the rest of the New Zealand population (Te Puni Kokiri,

1998). Movement to areas that are already socially and economically disadvantaged may increase the overall disparity.

### The poverty issue

The analysis of individual social indicators presented above shows that typically resource communities in New Zealand appear different from the total population. In Table 2 we have combined a number of variables as indicators of systematic disadvantage. It can be concluded from these figures that in 1996 there was a picture of relative disadvantage in these communities.

Here it has to be emphasised that these are averages for the 175 resource communities and that while some were experiencing a period of relative growth and affluence, the weight is still heavily towards relative disadvantage. Some individual communities were identified as being very poorly off relative to the total New Zealand population.

These communities already have relatively low personal and household incomes as a result of the income structure of the resource dependent industries. Low-income people are also attracted to these areas despite limited economic opportunities. Both these features of natural resource dependent localities have been indicated by Nord (1994). In effect, resource dependency and welfare dependency have become interchangeable in many New Zealand communities, as found also in Australian cases (Lane, et al., 1997).

TABLE 2 RESOURCE COMMUNITIES AND NZ COMPARATIVE SOCIAL INDICATORS, 1996

<i>comparative indicators 1996</i>	<i>% population change 86-96</i>	<i>Maori as % of population</i>	<i>Persons on income support</i>	<i>No academic qualifications</i>	<i>Personal Income &lt;\$30000</i>	<i>Adults not in the Labour Force</i>	<i>Women as % of labour force</i>	<i>Solo Parent HHDs</i>	<i>HHDs living in temp. dwellings</i>
all NZ	10.9	15.1	37.5	34.7	76.2	34.6	45.7	14.8	1.6
av. for resource communities	6.9	20.8	41.2	42.9	83.5	35.0	39.0	11.1	6.2
Comments	Slower growth	More Maori	More income support	Lower academic qualifications	More on low incomes	Adults not in labour force not much difference	Fewer women in labour force	Fewer solo parent households	Many more households in temporary dwellings

Freudenburg and Gramling (1994) examine the issue of poverty and natural resource based communities. The central problem, they argue, is the long-term decline in agricultural employment, and also in the comparative rate of employment in logging, fishing, mining and oil and gas extraction. These latter industries have traditionally been seen to offer higher wages than agriculture or tourism. Experience has shown that resource-based “development” does not necessarily spin off into other sectors and general regional development. Centre-periphery dependence prevails in place of wide and uniform economic growth. Furthermore, as Freudenburg and Gramling point out, it is now evident that some of the worst examples of rural poverty can be found in towns and communities that were previously homes to extractive industries which have either died out or moved on. They highlight the point that extractive industries such as logging and mining have experienced decreases in employment along with agriculture, as has occurred in New Zealand. Resource based industries are not the panacea often argued for rural economies, for resource dependent communities show instability and volatility in employment, resulting in periods of unemployment and relative poverty (ibid.:17). These cycles are modelled in Figure 5.

### Impacts of recent changes on community life

As discussed above, many of the resource communities experienced a loss of population between 1981 and 1991. Most importantly, they lost many key people from the “middle management” level, who previously played strong roles in local community organisation.

In the past decade, communities have become more diverse socially, culturally and economically, with greater levels of disadvantage and disparities of wealth both within and between communities. Locality-based social relations, previously focussed around school and hall, and in many cases a dominant work place, are becoming wider social networks that link into urban areas, with consolidation of activities such as sport teams around regional centres or larger towns, and the demise of many “traditional” organisations.

### Economic diversification as a buffer to the impacts of resource cycles

The case studies showed that some communities were buffered by diversity in their local economy, particularly when they had tourism as a major activity, or an economic activity that was not resource dependent, such as manufacturing, retirement and lifestyle settlement. An example was the community of Katikati and its neighbouring areas, which have become retirement centres for the Waikato-Bay of Plenty region.

Our initial hypothesis was that diversity of resource bases (e.g. farming, forestry, mining and tourism) helps to stabilise and sustain a local economy (Taylor and McClintock, 1985). But it is now evident that economic development activity needs to develop alternatives that are not resource based and vulnerable to related cycles. For example, in the late 1980s, agriculture, forestry and coal mining all experienced major restructuring and a simultaneous downturn in commodity prices. Towns such as Ohai, for example, experienced contractions in coal mining and agriculture - with closure of most shops and services. In the 1990s these trends continued, with further contraction in mining (including gold) and also for a time in tourism. In this respect tourism is far from a panacea, despite considerable growth since a low point in the late 1980s. Similarly, added value should if possible be based on several sectors, and preferably on moving products as far from the influence of commodity prices as possible - e.g. furniture manufacturing cf. timber milling. Information technology, alongside transport and services developed for tourism, will be another factor that allows rural areas to promote themselves as attractive for information intensive development, along with an outdoor lifestyle.

Freudenburg and Gramling (1994) call for a more critical view of the positive relationship often advanced about the link between prosperity and resource extraction. They argue that it is insufficient for communities to wait for prosperity when resource prices go up. Extraction may shift elsewhere (nationally and globally) due to factors relating to capital, political context, environmental policy or labour costs, etc. as we have long observed and argued for NZ communities (Taylor and Fitzgerald, 1988). Also, in a later study of the oil industry in Louisiana, Freudenburg and Gramling (1998:576) they found that in a period of decline or “bust” in the early 1980s linked industries experienced a decline in employment along with extractive employment. Examples in New Zealand include the loss of employment in rural transport as a result of a downturn in several sectors, which in turn hastened centralisation of cartage contracting into regional centres.

### **Refinement of the conceptual framework**

## Resource communities - a redefinition

Community continues to be an important level of analysis of the relationships between society and natural resources. It lies between the individual and household, and wider contexts such as the district, region, nation and world systems (Beckley, 1998). Machlis and Force (1988:221), when considering timber dependent communities, identify three major issues arising from the literature - "How is the community defined? What is meant by 'community stability'? And, how is timber dependency measured?". Like many writers on this topic, they draw on Wilkinson (1986:3-5) who considers three elements of community:

- a local ecology that designates the community as a collective through which residents of a small territory meet their daily needs;
- an organization of social life that contains sufficient structures such as groups, enterprises, social agencies and facilities to meet all daily needs;
- a field of collective actions to solve local problems and express local identity and solidarity.

Social scientists face problems in the analysis of community through the use of different levels of analysis and interdependent relationships between these levels (Machlis and Force, 1988; Beckley, 1998).

Tykkylainen and Neil (1995:31-2) point out that a resource community may be a compact village, a scattered village, a commune or town, or a subdivision of one of these. It may also consist of a network of localities. Our case studies confirm that communities can represent complex and less obvious social forms at the locality level. For example, in many places a number of old localities have merged into a new community form, characterised by the loss of old community structures, such as local authorities and pest destruction boards, and services, such as post offices, schools and pubs. There may be new organisations, such as a land care group, or a wider catchment can become the basis for community activities such as sports teams. Tykkylainen and Neil (1995:32) also point out that a "rural region is a set of various kinds or resource communities" and that "in many rural areas, the rural space, the countryside, consists of a mosaic of primary production communities and a network of villages and towns processing raw material". The capacity of a region to survive economic restructuring processes, without major community formation or deformation, may depend on the nature of its particular mosaic and the ability of its population to draw on more than one natural resource type. Another crucial factor may also be the size and composition of the remaining population that must maintain the social organisation necessary to sustain social life (and collective action).

## The importance of extra-local linkages - the state, private capital and technology

Tykkylainen and Neil (1995) review a number of prevailing approaches and determine that a new conceptual framework is needed. "Although there are general processes prevailing in the communities, theories of development as such do not explain sufficiently the restructuring process." (1995:42). They propose, in effect, four interrelated processes or conceptualisations (each has the potential to generate explanation as well as divergent cases). The experiences (boom-bust cycle) of any particular community will of course vary, but should be able to be understood and explained within this framework, which is adapted here to reflect the results of the New Zealand experience.

- general (macro) processes that affect resource communities: eg.

- shifting emphasis between the state and private sector
  - technological change and radically different communications systems
  - global product markets and price cycles
  - trade patterns and reform
  - transport systems and energy trends
  - capital markets and investment patterns
- sector specific processes: eg.
    - sector product markets and product cycles
    - sector research and development and innovation
    - labour, skills and training
    - capital - investment and disinvestment
    - ownership and control
- local processes, eg.
    - social organisation and cultural patterns
    - work history
    - local and regional labour market
    - settlement and commuting patterns
    - social services and infrastructure
    - levels of local government, community development
- policy related processes (central, regional and local government) eg.
    - monetary policy
    - tariffs and trade
    - sector specific policies and regulations
    - R & D
    - education and training
    - environmental policy and resource management systems
    - infrastructure and services
    - social policy and community development

Natural processes could be added to these. For example, Cloke (1996) has found, in a revised analysis of changes in New Zealand's agriculture sector, that changes at the level of productive units (farms) have been due to changes in the role of the state in the resource sector, as well as national economic policy, world market processes and trade policy, and natural cycles such as the weather.

### **Conclusions - where to from here?**

Resource communities in New Zealand are less clearly defined today by small localities. The research has strengthened the model of resource cycles in communities, adding an understanding of the interconnections between sectors at local and sub regional levels. It shows few rural communities in New Zealand are totally dependent on a single resource sector. The work provides a stronger conceptual and empirical basis for social assessment and resource planning in New Zealand, especially in communities that depend directly on the primary production or processing of natural resources.

The research confirms a need to consider both "macrostructural forces such as a region's position in the world system" and local, regional and resource specific factors, as identified through community case studies and longitudinal research (Freudenburg and Frickel, 1994:283-4). This is a more sophisticated model than the limited one with which the research started.

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## Appendix 1

<b>NZ Industry 1986</b>	full-time employment males	females	total f/t	part-time employment males	females	total p/t	all employment
Agriculture, services to agric., hunting	92,915	30,867	123,782	6,053	15,764	21,812	145,593
Forestry & logging	9,936	864	10,797	432	296	734	11,531
Commercial Fishing	3,575	327	3,902	411	198	612	4,514
Coal & metal ore mining, services to mining	2,399	158	2,556	45	42	93	2,649
Oil and Gas Extraction.	896	176	1,064	15	9	29	1,092
Electricity & gas supply	12,531	1,587	14,118	126	224	348	14,466
Accommodation etc	17,232	22,275	39,504	2,907	17,396	20,303	59,807
Total NZ all sectors	841,335	436,866	1,278,206	48,999	172,223	221,220	1,499,426

<b>NZ Industry 1996</b>	full-time employment males	females	total f/t	part-time employment males	females	total p/t	all employment
Agriculture, services to agric., hunting	74,889	28,455	103,332	12,258	20,772	33,036	136,368
Forestry & logging	7,398	825	8,220	672	564	1,236	9,456
Commercial Fishing	2,913	615	3,528	396	354	750	4,278
Coal & metal ore mining, services to mining	1,473	117	1,599	72	27	102	1,701
Oil and Gas Extraction.	381	72	453	6	12	18	471
Electricity & gas supply	5,418	1,227	6,645	177	216	393	7,038
Accommodation etc	18,702	22,332	41,040	7,245	21,129	28,371	69,411
Total NZ all sectors	778,317	474,450	1,252,764	111,693	266,349	378,045	1,630,809