

The Waitaki Valley:

**Its people and resources as depicted in 40 years
of applied and academic social science**

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This bibliography is about social changes due to natural resource development in the Waitaki Valley. It includes material from a variety of sources such as, theses and dissertations, conference papers, refereed journal articles, books, book chapters, edited books, government reports, consultancy reports and university reports. Geographically, the references in this bibliography are of the Waitaki Valley which stretches from the mountain highlands to the coastal plains from central Canterbury to north Otago in the South Island of New Zealand. The references focus on social issues in the Waitaki Valley related to natural resource use; such as, the hydro-electric power irrigation scheme and the transfer from pastoral farming to dairy farming. As a result of these changes, since the 1970s, the Waitaki Valley has been heavily researched.

A great deal of material records various aspects of social and ecological conditions in the Waitaki Valley. Researchers have been interested in studying the area because it has experienced a unique and high level of natural resource development. Some authors wrote their material to capture for posterity the significance of changes in the Valley; for themselves as local authors, for the community and for the country. Some research was partly driven by resource management and planning issues to help in local and regional decision making. Some references have an ecological or historical focus. All of the references selected for this bibliography document social issues related to natural resource development in the Waitaki Valley. Although numerous documented, the existing empirical research base is piece-mail, ad-hoc, fragmented and narrowly focused. The purpose of this annotated bibliography is to 'connect the dots' made by past work through a longitudinal, catchment-like approach. Specific themes exist throughout this bibliography allowing for a theoretical analysis

identifying social changes due to natural resource development in the Waitaki Valley since the 1970s.

Several themes occur throughout the references in this bibliography (see Figures One through Five). They are: land use change, recreation and tourism development, community development, regional planning, government programmes, population change, employment, economic development, pest management, natural resource development, rural society, cultural landscapes, resource conservation and local perspective.

Figure One: Themes in the Literature Centered On the Waitaki Valley

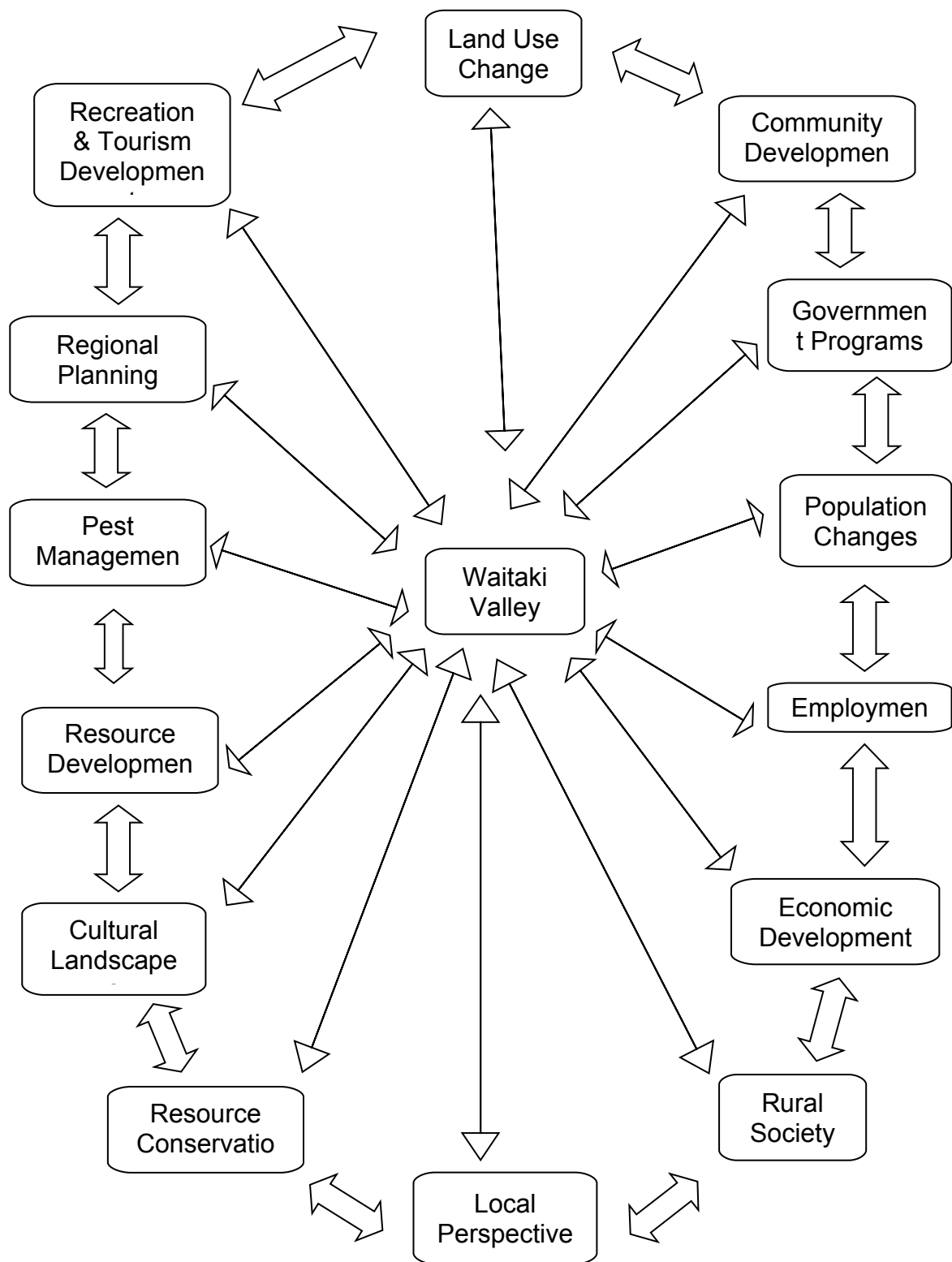


Figure Two: Themes in the Literature Centered On Hydro Development

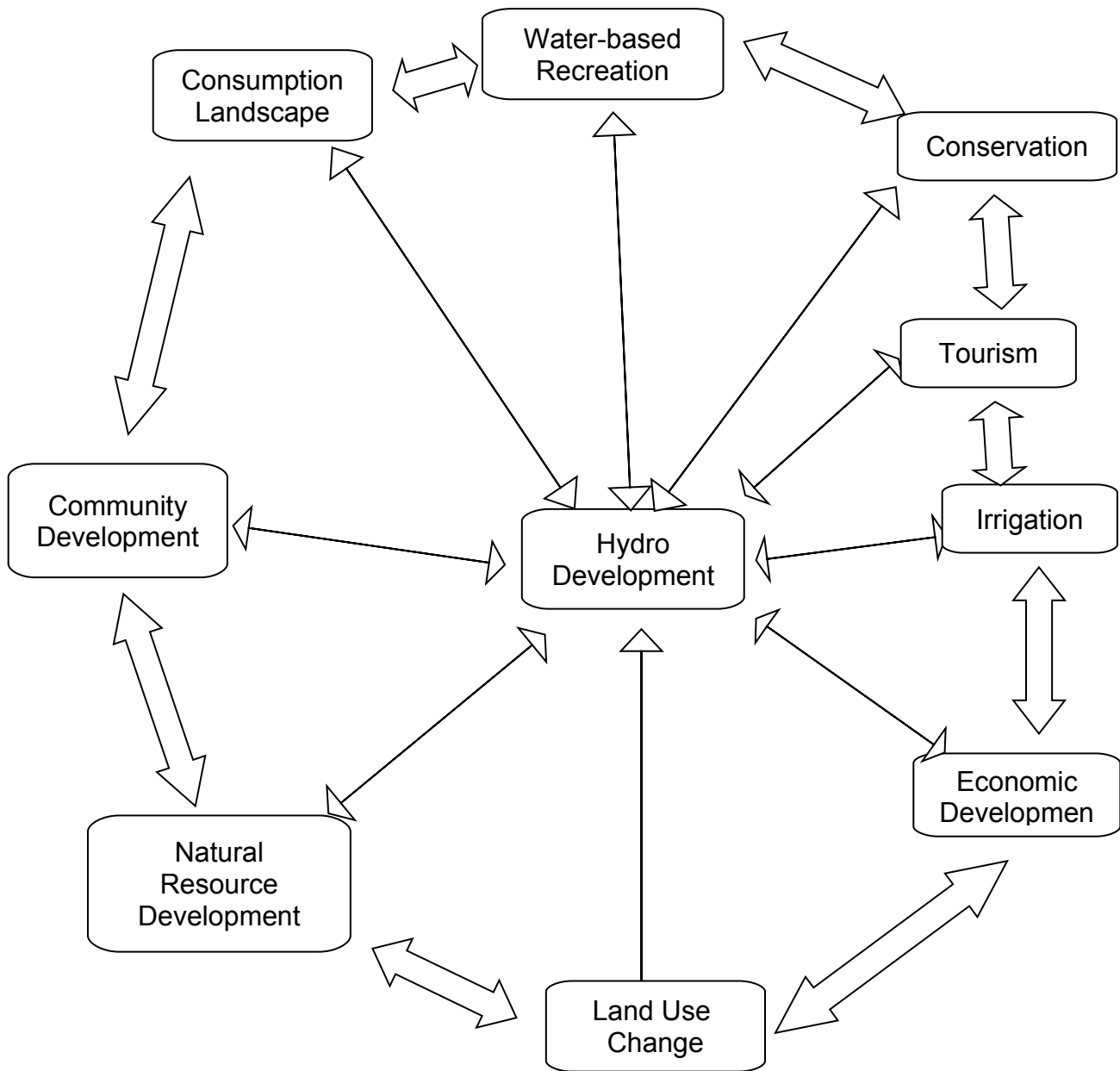


Figure Three: Themes in the Literature Centered On Irrigation

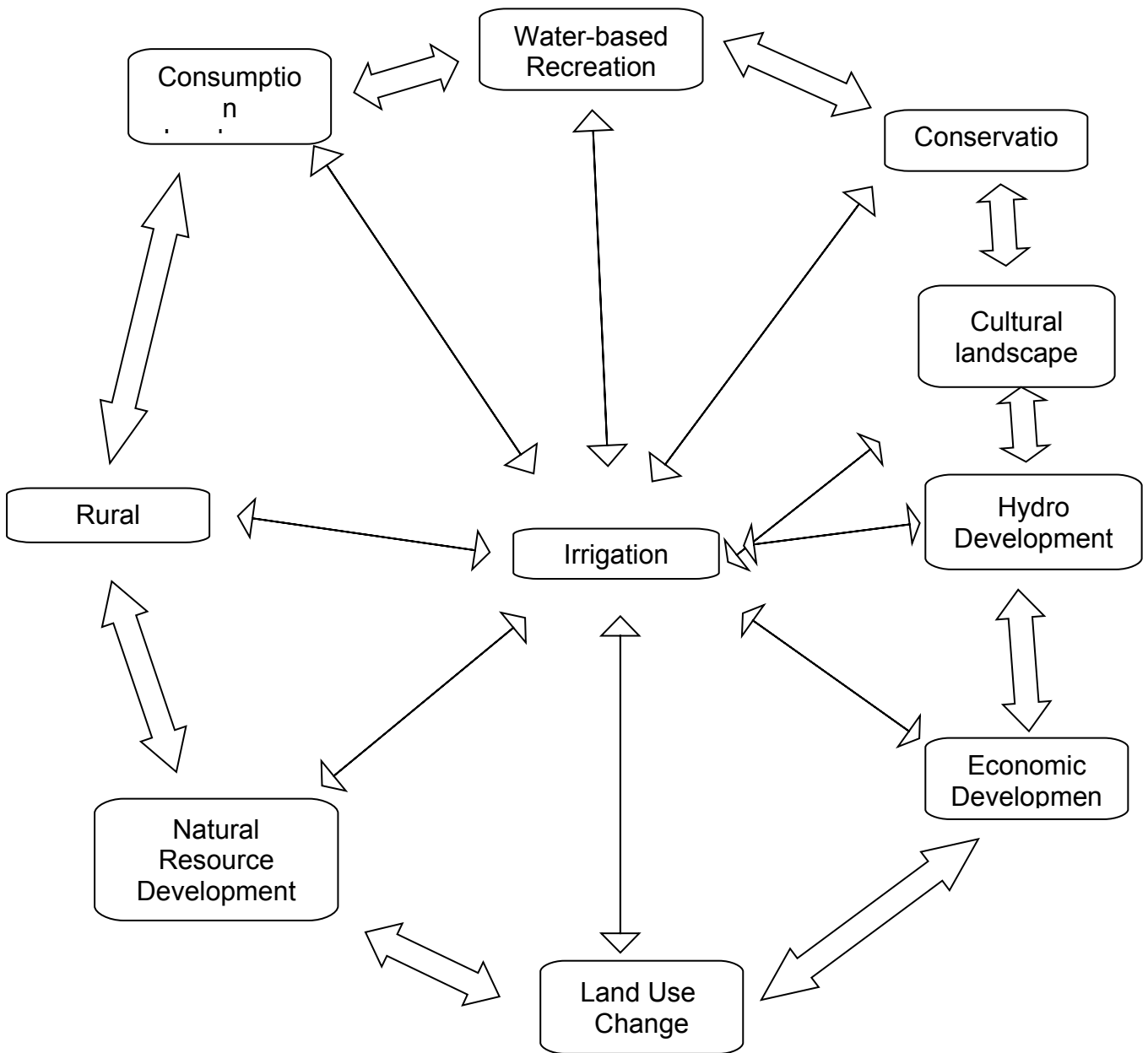
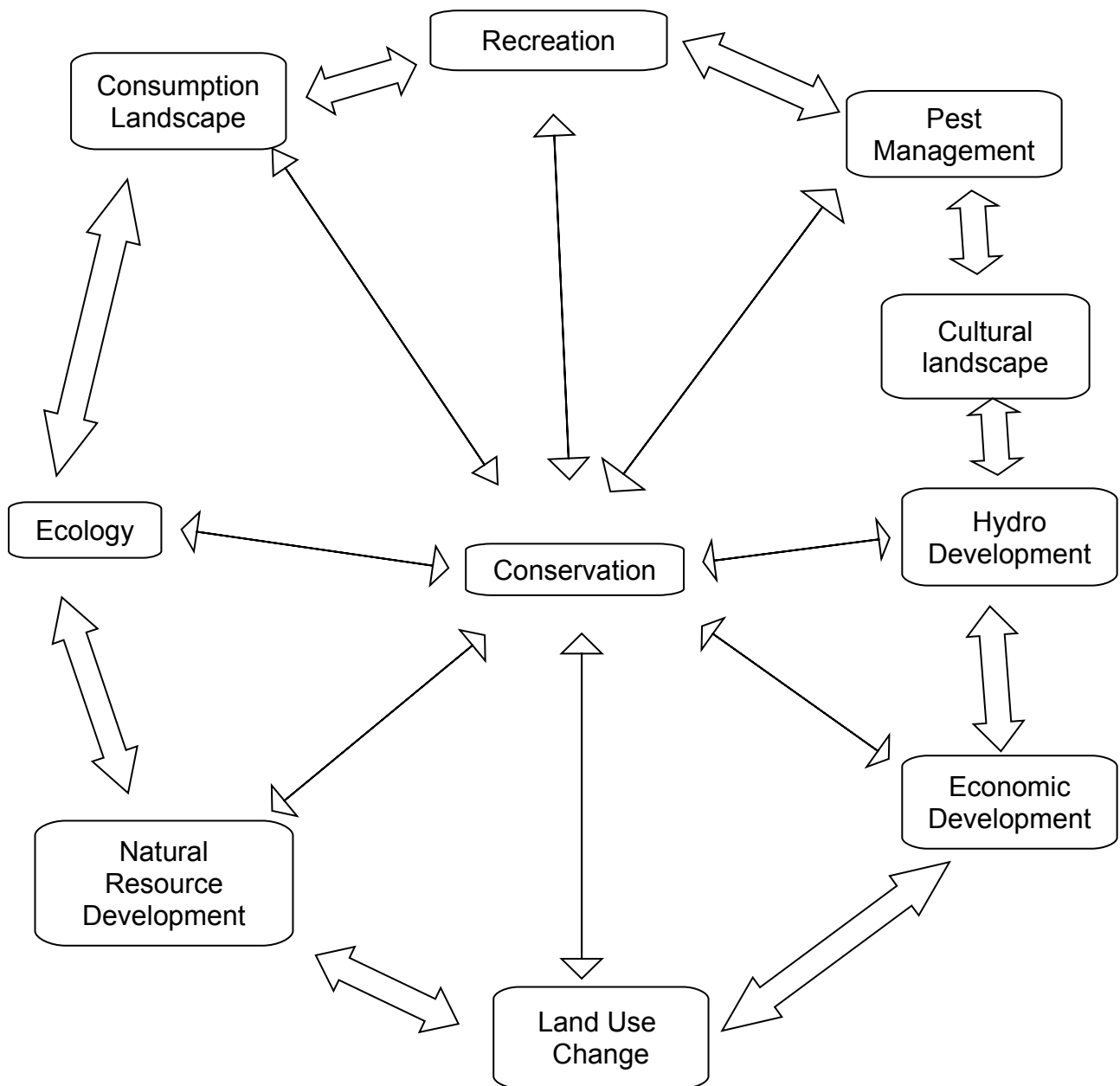


Figure Five. Themes in the Literature Centered On Conservation



While the following sections identify re-occurring themes found throughout the annotated literature it is important to recognise that a reference does not solely belong to the theme under which it is categorised. This thematic analysis blends among itself with out clear lines of differentiation because the themes are all relative

to one and another. References and themes, as well as themes and themes, overlap and encompass each other. The thematic classification was derived after careful reading of all the annotations, which identify the central focus of the author's work.

1. Theory

Theoretical perspectives relating to the Waitaki Valley range from ecological (Baines 1990, Baines and Taylor 1993, Hughy and Wason 2005, O'Conner 1975, O'Conner 1970, Review 43 1986, Taylor and Baines 1991), economical (Dann 1977; Hubbard and Brown 1979; Kerr, Sharp and Gough 1986, Little and Taylor 2001, Steven 1987, Whitby 1979), historical (Bendien 1983, Gilkison 1936, Natusch 1984, Nordmeyer 1981, Relph 2007, Sheridan 1995), social (Blake et al 1983; Davison 1986; Fitzgerald and Taylor 2000; Fitzgerald and Taylor 1989; Gillies 1977; Hall 1987; Heenan 1973; Johnson 1992; Little, Taylor and McClintock 1998; McClintock 1999; Ny 1987; *Social and Institutional Monitoring...* 1990; Stevens 1974; Taylor Baines and Associates 1996; Taylor Baines and Associates 2006; Taylor and Baines 1989; Taylor and Bettsworth 1983; The Ministry of Agriculture and Fisheries 1991; Wardle, Foran and Gibson 1996), cultural (Douglas 2004, Fairweather and Swaffield 1994, Heron and Pawson 1996, Houghton 1980, Pawson 2004, Robertson et al 1978) and recommendations for policy and planning (Fitzharris and Kearsley 1977; Greenaway and Gimblett 2006; Morris, Fairweather and Swaffield 1997; O'Conner and Ackley 1981). Many writers incorporate maps, photographs, sketches, census statistics, quotes and poetry into their material.

2. Land Use Change

Land use change in the Waitaki Valley is constantly occurring and irreversible, according to Little, Taylor and McClintock (1998). A survey by Robertson (1978)

shows pastoral farming as the pioneering use of natural resources in the Waitaki Valley. However, since irrigation through the hydro-eclectic power scheme project, land use has changed from pastoral farming to dairy farming. Morris, Fairweather and Swaffield's (1997) ethnographic study examines how community dynamics influence land use change. Little and Taylor (2001) discuss the social changes related to land use change in the Waitaki Valley due to irrigation. Fairweather and Swaffield (1994) surveyed seventy-seven stake holders expressing their preferences for five different land use scenarios. The method found clear patterns of preferences for different land use effects. Heron and Pawson (1996) found stakeholders generally have a negative view on land use change regardless of economic benefits because the new use alters the visual appearance of the Waitaki Valley to something unfamiliar. According to Houghton (1980) residents also have a negative opinion towards unknown land use change, as in the development of the Lower Waitaki where residents were questioned on three potential river development proposals. Fitzharris and Kearsley's (1977) journal article tells how the traditional development of the lakes created by the hydro-electric power scheme project was solely to provide a source of electricity. Today, in addition to providing electricity, the lakes are significant resources for recreation; an unplanned use, requiring time and money to retrofit.

3. Recreation and Tourism Development

Recreation and tourism is evolving as the main industry of the Waitaki Valley. Davison (1986) studied the changing fashions in mountain land recreation and the various ways in which recreational opportunities have been facilitated in the Lake Ohau district. Benedien (1983) uses Twizel as a case study to explain the "hydro-town life cycle". Twizel, a former hydro-town, develops into a grand tourist attraction.

Fitzgerald and Taylor (2000) question whether Twizel can establish an identity as a tourism town, and if tourism can sustain its economic base. Ny (1987) refers to Tourism as the saving grace of Twizel's economy after its down turn in the early 1980s due to government setbacks and low employment. McClintock (1999) profiles four Waitaki Valley communities as energy and tourism based. All four communities have a commonality; their economy depends on natural resources. McClintock (1999) claims that the tourism sector is not immune to similar cyclical pressures experienced by other natural resource based sectors. Fitzharris and Kearsley (1977) argue that recreation development has not been sufficiently incorporated into the planning of hydro-electric power schemes. Hydro-power construction offers many opportunities to develop recreation in a planned manor rather than retrofit, as what has occurred in the Mackenzie Basin. The upper Waitaki Valley has become a recreational growth pole, according to Forest (1977). He argues that "a laissez-faire attitude to recreation is no longer viable, if everyone is to be able to participate in the activity of their choice" (Forest, 1977 p.89). Greenaway and Gimblett (2006) document the current recreational use and opportunity in the Lower Waitaki River and anticipate changes to recreational use as a consequence of natural resource development for hydro-electric power. Relph (2007) also documents changes of recreation use in the Waitaki Basin. He describes new tourism activities that have recently revolutionized the high country. Stevens' (1974) documents people's identification with certain recreational activities. Steven's (1987) report discusses the development of commercial recreation in the pastoral high country. Blake, et al (1983) explains the public's interest in high country recreation for tenure changes. They found that recreation interest groups would like to have better access to high country areas for recreation and would like to have better policies in order to achieve this. In addition to improved access, recreation in the high country is changing in both

scale and diverse use. Recreation is becoming more intensive and causing more impacts on the land. Ultimately, recreation has the potential to cause significant environmental, visual and economical changes in the high country.

4. Community Development

Due to social changes and natural resource development, communities in the Waitaki Valley have developed in unique ways. Benedien (1983) explains the "hydro-town life cycle", making it possible to forecast and assess social issues in hydro-town communities. Fitzgerald and Taylor (2000) tell the story of Twizel, a survivor of significant transformation. The town overcame political, social and economic struggles in response to this transformation. Hall (1987) writes of rural community formation and change, within a theoretical framework of closure, community and communion. Johnson (1992) compiles workshop papers with a common theme which focuses on the effects of change on individuals, groups and communities caused by policy or other external effects. McClintock (1999) researches community formation and change. Community change regarding development of natural resources and population. Natusch (1984) writes of similar community issues but specifically focuses on the Waitaki dam. Stating that due to community elements in the 1920s there will never be another Waitaki. The Ministry of Agriculture and Fisheries (1991) addresses issues and concerns associated with the process of rural community development and makes recommendations for improvement. The report describes current local initiatives. Another local initiative recorded by Douglas (1977) and Pawson (2004) is a community's effort to memorialize fallen soldiers by planting oak trees and how the community maintains the scheme today. Unlike the memorial oaks scheme, Baines (1990) writes about the lack of ownership by residents of government programs, such as the Rabbit and Land Management Programme.

Baines and Taylor (1993) also identify the role the Rabbit and Land Management Programme plays in communities.

5. Regional Planning

The ultimate purpose of the following references in this bibliography is to make policy recommendations for regional planning. The Waitaki Valley lacked regional planning during the hydro-electric power development scheme. Greenaway (2006) describes current recreational use and anticipated changes to recreational use as a consequence of the North Bank Tunnel Concept. This report serves as a resource for policy makers and planners regarding implementation of the irrigation scheme. Fitzharris and Kearsley (1977) argue that recreation has a regional impact and therefore planning should take place at a regional level in order to provide users the most optimal recreation experience. Forest (1977) discusses the need for regional recreation planning and development on hydro project schemes. O'Conner and Ackley (1981) also make regional planning recommendations in response to the Man and the Biosphere government program. They recognise the threat and frustration that regional councils can create on local councils and identify inter-related areas of progress for successful regional planning. The need for successful regional planning in Waitaki is increasing as the use and management of natural resources extends beyond local communities.

6. Government Programs

Many government programs have been implemented through out the Waitaki Valley for a variety of initiatives. The largest of them all is the hydro-electric power development scheme. Natusch (1984) and Nordmeyer (1981) document the historical engineering feat that vastly and dramatically changed a river's struggle from

the mountain to the sea through man's efforts to control and harness the Waitaki River. Another government program written by Baines (1990), Baines and Taylor (1993), *Social and Institutional Monitoring...* (1990) and Taylor Baines and Associates (1996) is the Rabbit and Land Management Programme which was created to monitor and reduce rabbits in the Waitaki Valley. This government program formally organized pest control for natural resource sustainability. The program was crucial in order to maintain the livelihood of farmers in the valley whose land was devastated by the introduced species. Another government program in the Waitaki Valley is the Memorial Oaks Scheme. Douglas (2004) and Pawson (2004) published historical documentation of the government funded scheme that altered the Waitaki Valley landscape by planting trees in response to social change. The most recently published government program in the Waitaki Valley, written by Greenaway and Gimblett (2006) and Taylor Baines and Associates (2006), is the North Bank Tunnel Concept. The purpose of their material is to research the social and ecological impacts of a new hydro-irrigation scheme proposed for the Lower Waitaki Valley.

7. Population Change

The Waitaki Valley is prone to drastic population change. O'Conner (1975) states how Waitaki villages grew with the intensification of agriculture settlement and describes the age and gender of people in the area. In the past population change was due to the 'boom-bust' impact typical to temporary hydro-towns built for the hydro-electric power scheme project. Bendien (1983) discusses how the social consequences caused by the wind-down of Twizel, originally a temporary hydro-town, could have been prevented by applying the 'hydro-town life cycle'. Ny (1978) writes about the population change and community services in Twizel, Mt. Cook and

Omarama. Natusch (1984) describes how hydro-towns averaged a population of 2,000 people, which were mostly men. Gillies (1977) compares the social and demographic effects of irrigation schemes. Irrigation development creates a more diverse population and workforce. On the other hand, Heenan (1973) writes how the population trends in the Waitaki follow a distinctive rural trend of being male dominated and having an out-migration of youth. Population decline is difficult to reverse because of the impact of underlying social and economic forces causing the trend to be accumulative. Today, population change is in response to tourism since communities in the Waitaki Valley are predominately comprised of holiday homes. This observation has not been specifically researched and documented.

8. Employment

Similar to population change, employment has varied over time in the Waitaki Valley. The hydro-electric power irrigation scheme temporarily created thousands of jobs in the area. Natusch (1984), a former engineer for the hydro-electric power irrigation scheme, describes social conditions as poor and work on the dams as being labour intensive. Most people were employed by the Ministry of Works. Taylor and Bettsworth (1993) examine the social characteristics of hydro-towns including characteristics of the workforce. Houghton (1980) found in her study that residents of the Lower Waitaki don't want the problems of Twizel and would prefer for the workforce to be dispersed rather than one large works town. In addition to the hydro-electric power scheme, other employment orientated around natural resources has evolved in the Waitaki Valley. For example, pastoral farming evolved into dairy farming and dairy farming is evolving into tourism and other forms of recreational use.

9. Economic Development

Economic development is constantly evolving in the Waitaki Valley. Traditionally, the region's economy was based on pastoral farming. Since the hydro-electric power irrigation scheme, pastoral farming has evolved into dairy farming. Hubbard and Brown (1979) examine the economic regional impacts of the irrigation developments. Their study found that the irrigation development in the Lower Waitaki basin had a positive economic effect on the region. Whitby (1979) examines development possibilities of the Upper Waitaki in terms of their private profitability to the individual run-holder. Little and Taylor (2001) also analysed the economic impacts associated with irrigated land use change. It is necessary for residents to make their business relevant to farming with irrigation in order to survive in a new social and economical environment. Today, tourism is becoming the Waitaki Valley's economic base. Dann (1977) argues Twizel's suitability to become a permanent town to service the Mackenzie Basin through tourism. He believes "the hotels will help sustain the community and vice versa" (1977 par.3). In addition to Twizel, Mount Cook is a tourism based community in the Waitaki Valley. Kerr, Sharp and Gough (1986) estimate the economic benefits associated with Mount Cook National Park.

10. Pest Management

The Waitaki Valley suffers from exotic species, which without predators thrive and devastate the land. A government program written by Baines (1990), Baines and Taylor (1993), *Social and Institutional Monitoring...* (1990) and Taylor Baines and Associates (1996) is the Rabbit and Land Management Programme which was created to monitor and reduce rabbits in the Waitaki Valley. This government program formally organized pest control for natural resource sustainability. The livelihood of farmers depended on the programme as their land was destroyed by the

introduced species. The findings from this research can benefit the Programme as well as other communities faced with a similar problem. Another pest in the Waitaki Valley is the Himalayan Tahr. Management of this species is complicated and has increased tensions between farmers and the Department of Conservation. Farmers view the Himalayan Tahr as an economic resource for commercial trophy hunting rather than an exotic pest, as the Department of Conservation views the species. Hughy and Wason (2005) surveyed forty-three high country farmers on the management of Himalayan Tahr. Their research contributes to the ongoing debate about the future management of the species.

11. Resource Development

Resource development, ranging from farming to hydro-electric power to tourism, is prevalent in the Waitaki Valley. *Review 43* (1986) contains poems and articles relevant to natural resource use and development in the Waitaki. Topics include fire management, the influence of science on the tussock grasslands, roles of forestry and Matagouri management. Fairweather and Swafield (1994) surveyed stake holders and found clear patterns of preferences for different land use effects. Gillies (1977) found that without irrigation development the population declines and ages which causes a shift in social services and education. Without development, the area lacks social, educational and employment opportunities for young people and overall quality of life decreases for all community members. Hubbard and Brown's (1979) research also states that irrigation development has a positive effect on communities. They found that farm owners increased their capital through construction, operation and maintenance on their property in response to irrigation development. Little and Taylor (2001) discuss the social changes of irrigation by identifying three waves of ownership change. Relph (2007) documents a variety of

resource development that has taken place in the Waitaki Valley beginning with the traditional land use of pastoral farming up to the most modern forms of tourism. Steven (1987) researches the development of commercial recreation in the pastoral high country. He recommends a community based planning process as a way to incorporate the perceptions and concerns of all who claim resources in the high country. Wardle, Foran and Gibson (1996) set a logical framework for land use scenarios and future land allocation for the mountain lands while accommodating the needs of the stakeholders. The Resource Management Act states that land use change is market driven while avoiding adverse effects to the environment. This can result in inappropriate land use in the long run.

12. Rural Society

In general, overall the Waitaki Valley is rural. Hall (1987) researched rural community formation and change specifically focussing on the historical development of the Kurow district. Heenan (1973) analyzes demographic trends of North Otago. The results show a level of differentiation between village and farming communities in North Otago. Houghton (1980) studied communities of the Lower Waitaki and found that they are generally farming communities and residents share farm values. Socially the area is homogenous and stable. Morris, Fairweather and Swaffield (1997) examine the nature of community and the specific character of rural community in the Mackenzie/Waitaki Basin and the role that community dynamics play in land use change. Johnson (1992) published conference papers from a workshop on rural community studies. The papers propose various approaches to rural community studies. All of the papers have a common structure of social analysis which focuses on the effects of change on individuals, groups and communities caused by policy or other external factors. Little, Taylor and McClintock

(1998) document social changes in the Waitaki Plains as a result of irrigation. Irrigation changed almost all aspects of society in the Waitaki Plains to function around dairy farming, and reducing quality of life. Sharidan (1995) provides a first person perspective on all aspects of society in hydro-town communities during the hydro-electric power development scheme. Taylor and Bettesworth (1983) examine the social characteristics of hydro-towns. Their study finds that it is necessary to plan for people when planning for resource development in rural communities. A report by The Ministry of Agriculture and Fisheries (1991) addresses issues and concerns associated with the process of rural community development and makes recommendations for improvement.

13. Cultural Landscapes

Traditional pastoral farming is the iconic representation of land use in the Waitaki Valley. Morris, Fairweather and Swaffield's (1997) report accounts for landholder's attitudes to farming and intensification and diversification of land uses. In a separate study, Fairweather and Swaffield (1994) surveyed stakeholders expressing preferences for pictures that showed the effects of a range of different land use scenarios. Their method found clear patterns of preferences for different land use effects. Heron and Pawson (1996) receive similar results when survey respondents identified images and ideals of the South Island High Country and how they play an important role in their self identity. However, the current economic and ecological reality is far removed from the myth of a pastoral utopia promoted in advertisements. Despite this downturn, a change of resource use and landscape is unpopular since culturally, residents relate pastoral farming with the high country. The high country landscape, as a pastoral farm setting, has strong symbolic meaning to many. Davison (1986) found that although a majority of New Zealander's are urban

dwellers, a large amount of the public has a stake in, or personal identification with the mountains lands than those who live and work there. Another cultural landscape in the Waitaki Valley in addition to pastoral farming is the Memorial Oaks Scheme. Pawson (2004) explains the powerful sense in which the trees embodied the soldiers that they represented. Pawson writes, "In their place, the trees would grow old as the boys would have done, simultaneously changing the landscape as would their work as men" (2004 p.124).

14. Resource Conservation

Much research has been done on the human development and exploitation of natural resources in the Waitaki Valley. As the development occurred in the past and as it will continue to occur in the future. Taylor and Baines (1989) developed a framework for thinking about sustainable development and an adaptive and integrated social impact assessment. The framework identifies unsustainable trends and attributes of sustainable development with an emphasis that sustainable development heavily depends on monitoring because it is outcome oriented. Taylor and Baines (1991) are also the authors of a paper that provides a framework for sustainable development for rabbit-prone lands. The paper states that, "the viability of the farms and their communities are in serious question" due to the environmental degradation on pastures and landscapes by rabbits (Taylor and Baines, 1991 p.1). Wardle, Foran and Gibson (1996) set a logical framework for fifteen sustainable land use scenarios and future land allocation for the mountain lands of the south island of New Zealand. As land use development intensifies, as a result of tourism and subdividing farmland, resource conservation initiatives and interest will come to the forefront of issues for the Waitaki Valley.

15. Local Perspective

Most material in this bibliography utilizes the perspective of local residents in the Waitaki Valley. Methods range from personal documentation (Natusch 1984, Nordmeyer 1981, Relph 2007 and Sheridan 1995), interviews (Baines and Taylor 1993; Fitzgerald and Taylor 2000; Fitzgerald and Taylor 1989; Greenaway and Gimblett 2006; Little and Taylor 2001; Morris, Fairweather and Swaffield 1997), surveys (Blake et al 1983, Fairweather and Swaffield 1994, Fitzgerald and Taylor 2000, Hughy and Wason 2005) and census data (Gillies 1977, Heenan 1973); each providing insight of local stake holders. In order to best understand the social changes that occurred due to natural resource development in the Waitaki Valley, researchers must tell the story of the people who live there. Obtaining local perspective helps outsiders understand resident's sense of place for the Waitaki Valley. These efforts by researchers can make it possible for natural resource development to occur with local community support and benefits.

Conclusion

As the above themes describe, significant social change has occurred in the Waitaki Valley due to natural resource development. The following annotated bibliography is on social change due to natural resource development in the Waitaki Valley. This research base provides a longitudinal understanding of thematic characteristics which can assist in regional planning. However, as a result of a recent visit through the Waitaki Valley, some social changes due to natural resource development are so recent that they have not yet been documented. Undocumented natural resource development includes vineyards and subdividing farmland. Just as the Waitaki Valley was heavily researched through out the 1970s, research of the area needs to

continue because social changes persist in response to modern day natural resource development, or lack there of.

Bibliography

Baines, J. (1990). *The Rabbit and Land Management Programme 12 Month Review*. Canterbury: Taylor Baines and Associates.

In this report, contracted by the Ministry of Agriculture and Fisheries, Baines discusses key issues concerning the administration the Rabbit and Land Management Programme (RLMP). This reference is relevant because the RLMP effects the Waitaki Valley. The report questions if the existing RLMP strategy has a chance of success. The report includes: an executive summary, background to the first year of implementation, the 1988 task force recommendations, highlights of the 1990 Interim programme, a summary of issues and recommendations. During this year of review, the programme has experienced success and shortcomings. A notable achievement is a general improved awareness and attitude of the programme. A major concern is a lack of ownership of the Programme by land owners. Overall, "many agencies point to the Programme as an innovative approach to implementing public policy that will probably have application elsewhere" (p.1).

Baines, J. and Taylor, N. (1993). *Rabbit and Land Management Programme Social and Institutional Monitoring Mid-term Assessment*. Canterbury: Taylor Baines & Associates.

In November 1992, the Director of the Rabbit and Land Management Programme (RLMP) commissioned Taylor Baines and Associates to carry out a mid-term assessment of the programme. They conducted structured interviews of individuals from a wide range of groups. This report focuses specifically on eleven elements of change by the RLMP. The main emphasis has been on identifying changes in behaviour and attitudes. This data, interview responses discussing change due to the RLMP, provide a local's perspective of the role the RLMP plays in the community.

Bendien, J. (1983). *The Wind-Down of Twizel*. Centre for Resource Management and Lincoln College.

This report is a case study that discusses the wind-down of Twizel, a hydro-town. Historical comparative research by the Centre for Resource Management examines the social changes of hydro-towns. Systematic comparative research shows that social issues were not unique to individual hydro-towns over a certain time period. Rather, the social issues were the same regardless of the town, location and time. This reoccurring pattern creates a "hydro-town life-cycle", making it possible to forecast and assess social issues of hydro-towns. This knowledge would prove beneficial to Twizel which began as a temporary construction village but became "a persistent hydro-town" by existing after the project. Like other temporary hydro-towns, Twizel suffered social issues during its wind-down. Private developers proposed to buy Twizel and create a grand tourist attraction out of the former hydro-town.

Blake, H. et al. (1983) *Pastoral High Country: Proposed Tenure Changes and The Public Interest*. Canterbury: Centre for Resource Management

This report includes pastoral high country in all of the South Island of New Zealand, not just the Waitaki Valley. It also includes chapters on many issues regarding New Zealand's high country. Section 3.4 entitled 'Recreation' is the most relevant to this bibliography. This section states how "the Land Settlement Board is the main controlling agency for all uses of unalienated Crown land, including high country recreation" (p.73). Recreation interests groups would like to have better access to high country areas for recreation and have set policies in order to achieve this. In addition to improved access, recreation in the high country is changing in both scale and diverse use. Recreation is becoming more intensive, causing more impacts on the land. Some of these impacts can have an adverse effect on farming operations. Ultimately, recreation in the high country has the potential to cause significant environmental, visual and economical changes in the high country. For these reasons the report concludes recommending careful planning of the high country. This requires a comprehensive assessment of the social, economic and environmental consequences of decisions for short and long term planning.

Dann, D. (1977). *Twizel Tourist Village*. Ministry of Works Department.

This proposal argues Twizel's suitability to become a permanent town to service the Mackenzie Basin. Twizel will mainly service the New Zealand Electricity Department's Operational needs and tourists as a holiday resort. This proposal also briefly mentions the arguments against Twizel becoming a permanent town. These arguments are based on natural characteristics of Twizel such as, Lake Pukaki's rocky shoreline and unpredictable and fast changing weather. Next, the proposal offers a brief report on existing facilities at Twizel and how Twizel can contribute to the future development of the area. Lastly, an addendum written by S.M. J. Smith, a project engineer writes to Twizel Tourist Village report arguing for hotels to be based in Twizel rather than Pukaki. He believes "the hotels will help sustain the community and vice versa" (par.3). Following the proposal, are a variety of town planning maps showing the layout Twizel. A district plan (WP51) shows recreation proposals in the Mackenzie Basin. Sheet 5 is a plan showing the Twizel Tourist Village Scheme. It is recommended that this proposal be revised every five years.

Davison, J. (1986) *OHAU: A study of the evolution of New Zealand mountain land recreation*. New Zealand Man and the Biosphere Report No. 10. Canterbury: Centre for Resource Management.

This study contributed to the Waitaki Man and Biosphere program and the overall understanding of the needs for recreation management in the mountains and integrating it with other resources uses. Chapter one describes the setting of the study. Chapter two describes recreation in the Lake Ohau district. Chapter three discusses the managing agencies and chapter four describes themes and integration. Three broad themes are: the changing fashions in mountain land recreation; the recreational significance of the Lake Ohau district and the various ways in which recreational opportunities have been facilitated in the lake Ohau district. Responding in management planning for appropriate recreation can serve only to stimulate a sense of public community and identity with the land.

Douglas, R. (2004). *Mighty Oaks from tiny acorns grow.*

This book tells the story of a scheme to memorialize fallen soldiers of the Great War who were from the Waitaki Valley. The scheme consisted of planting an oak tree with a bronze plaque for every fallen soldier throughout the Waitaki Valley. This book records “what the ‘Memorial Oaks’ are, why they were planted, and where to find them” (forward). It tells about changes to the scheme, such as replacing the bronze plaques with concrete crosses, since it’s origin in 1918. The book also includes biographies of fallen soldiers, maps, photographs and a list of the fallen soldiers who are memorialized by the scheme. The ‘Memorial Oaks’ scheme is a unique feature of the Waitaki Valley and exemplifies social change to the land.

Fairweather, J. and Swaffield, S. (1994). *Preferences for Land Use Options in the Mackenzie/Waitaki Basin.* Research Report No. 224. Canterbury: New Zealand Forest Research Institute Limited.

This study uses the Mackenzie/Waitaki Basin as a case study for the estimation of socio-economic effects of land use change in rural environments. The method used to identify attitudes was a 'Q sort' survey. The survey involved seventy-seven stakeholders expressing preferences for pictures that showed the effects of a range of different land use scenarios. Analysis of the results identified several set of preferences or themes. Five (A-E) composite land use scenarios have been generated. The method found clear patterns of preferences for different land use effects however; these five scenarios do not correspond closely to particular stakeholder groups. Rather, patterns of land use effects have been identified by stakeholders as a whole.

Fitzgerald, G. and Taylor, N. (2000). *Resource Community Formation & Change: A Case Study of TWIZEL.* (Working Paper 22). Taylor Baines & Associates.

Gerard Fitzgerald and Nick Taylor are co-authors of this paper, which is part of a larger project funded by the Foundation for Research, Science and Technology. This paper is relevant because Twizel is a community within the Waitaki Valley. Specifically, this paper focuses on the history and development of Twizel. Generally, this paper provides a strong “conceptual and empirical basis for social assessment and resource planning in New Zealand, especially in rural communities that depend directly on primary production or processing of natural resources” (p.1). Using a variety of research methods, the paper tells the story of Twizel, a unique “residual hydrotown” (p.42). A survivor of significant transformation, Twizel originated as a company construction community and has evolved into a self administered and self funding rural town. The town overcame political, social and economic struggles in response to this transformation. The paper concludes by questioning the future of Twizel establishing a new identity. Can tourism, its most recent economic base, sustain the town?

Fitzgerald, K. and Taylor, N. (1989). *North Otago Social Assessment.* Lincoln: Centre for Resource Management.

This unpublished report, written for the North Otago Council for Social Services (NOCOSS), provides a social assessment of rural North Otago in response to economic restructuring. NOCOSS guided Fitzgerald and Taylor's field research which comprised mostly of purposive, in-depth interviews with providers of social services. Based on this research, the report describes the social conditions of: rural change, unemployment, youth, women and children, elderly, minority groups and economic initiatives of North Otago. Overall, in 1989 social conditions were poor in North Otago due to economic restructuring, lack of funding and severe drought. In conclusion, Fitzgerald and Taylor make recommendations and a social development strategy organization chart to guide rural social development in North Otago. Based on their research, "there is a need to coordinate and advocate for social services, and to review regularly mechanisms for funding" (p.46).

Fitzharris, B. and Kearsley, G. (1977). *Recreation and Hydro Development in the Waitaki Valley: Lessons for the Cutha*. Proceedings of the Ninth New Zealand Geography Conference.

After the construction phase, local benefits from the hydro-electric development power scheme can be little compensation compared to the losses, unless emphasis is placed on developing recreational opportunities. This paper examines this thesis using experience from the Waitaki Catchment. Recreational development has not been sufficiently associated with the hydro schemes. An exception of one outstanding example is the deliberate creation of Lake Ruataniwha where a canal was intended. This is unfortunate when hydro power construction offers many opportunities to develop recreation in a planned manner. For example, recreation due to a hydro project scheme has boomed at Otematata. Recreation goes beyond a local impact, it has a regional impact. Therefore planning should take place at a regional level in order to provide users the most optimal recreation experience.

Forest, D. (1977). *Recreation as a Regional Resource- The Waitaki Example*. Proceedings of the Ninth New Zealand Geography Conference.

This paper discusses the need for regional recreation planning and development on hydro project schemes in the Waitaki Valley. In the 1960's, for the first time, the New Zealand government utilized a resource associated with a hydro project scheme; it retained part of Otematata, a hydro-town, as a holiday and retirement village. Since this precedent, the Upper Waitaki Valley has become a recreational growth pole. Despite the popularity of recreation in the Upper Waitaki Valley by the public, little research exists. Interest must be stimulated in the recreational field with reference to resource development so recreation may be given full consideration in the planning and design of water resource projects. Ideally, a multi-objective planning approach will be developed for recreation in the Waitaki Valley. Specific identification must be given to the agriculture, recreational and tourist potential of the area rather than solely electricity resource use of the area as in the past. The paper gives full credit to the Waitaki Lakes Committee for recreation development and opportunities existing on hydro project scheme sites in the Upper Waitaki. The paper concludes that "a

laissez-faire attitude to recreation is no longer viable, if everyone is to be able to participate in the activity of their choice" (p.89).

Gilkison, R. (1936). *Early Days In Central Otago (New Zealand) Being Tales of Times Gone By*. Second Ed. Christchurch: Whitcombe & Tombs Limited.

This book provides, in detail, historical information of Central Otago. Originally written in 1940, this revised version includes re-written and re-assessed material since the publication of the previous volume. The book includes twelve chapters covering a variety of social topics on Central Otago. However, the book does not include information on the hydro-electric power scheme because it was written previously. Even so, this reference is relevant to this bibliography because it tells of life in the Waitaki Valley before the scheme. The chapters include detailed accounts of individuals' stories providing a vivid picture of life in the early days of Central Otago. In addition to the descriptive text, many maps, illustrations and photographs provide interesting visual aides.

Gillies, A. (1977). *Social and demographic consequences of irrigation development in the Kakanui-Waiareka catchments and Lower Waitaki Plains, North Otago, New Zealand: a comparative study*. A thesis submitted for the degree of Master of Arts in Geography. Dunedin, New Zealand: University of Otago

Gillies, the author of this thesis, compares the social and demographic effects of irrigation schemes in the Downlands of the Kakanui Basin and the Lower Waitaki Plains. Gillies found that without development the population declines and ages which causes a shift in social services and education. Without development, the area lacks social, educational and employment opportunities for young people and overall quality of life decreases for all community members. Gillies' concludes that an opposite, and therefore positive, social and demographic effect occurs with the development of an irrigation scheme. In addition to a more diverse population and broader range of social services, development of an irrigation scheme reduces the risk of drought. Irrigation development "has important implications for the total social and economic growth and development of the North Otago region as a whole" (p. 176).

Greenaway, R. and Gimblett, K. (2006). *North Bank Tunnel Concept-Water Consents Recreation Report*. Appendix 23.

This report assesses the potential effects the North Bank Tunnel Concept (NBTC) will have on recreational activities of the Lower Waitaki River. The report describes:

- The nature of current recreational use and opportunity in the area of the Lower Waitaki River between the Waitaki Dam and the coast.
- Anticipated changes to recreational use and related opportunities as a consequence of the NBTC.

Section five of the report discusses the significance of the Lower Waitaki River to recreation based on a River Recreation Survey undertaken in the summer of 2002. The report concludes with a table (Table 14) showing the comparison of effects on

the Lower Waitaki River from the NBTC with the status quo. The summary of the report and table is that the net effect on recreation to the Lower Waitaki River from the NBTC is generally minor.

Hall, R. (1987). *Continuity and Change In a New Zealand Rural District*. Christchurch: University of Canterbury.

Halls' work is a thesis submitted for the Degree of Doctor of Philosophy in Sociology in the University of Canterbury. This reference is relevant for this bibliography because it is about the historical development of the Kurow district. The topic of the thesis is rural community formation and change. Hall analyzes this topic using a framework developed from the Weberian Theory to explain the dynamic interplay between three sets of locality relationships: propinquity (community), property (class) and kinship (family). A key argument is that the process of community formation within a locality can not be adequately understood without understanding all three relations together. Hall writes within a theoretical framework of closure, community and communion being sensitive to the tensions between relations of propinquity, property and kinship. This enables us to better understand the process of community formation and change within a locality.

Heenan, L. (1973). *The People of North Otago: a demographic profile*. In T.J. Hearn and F.A. Slater (eds), op.cit: 83-115.

This chapter, written by Heenan, is part of a book titled, North Otago Region and Development. The book is comprised of several chapters about regional development and agriculture in North Otago. Chapter 5, *The People of North Otago: a demographic profile* is the most relevant portion of the book for this bibliography. The chapter provides a demographic profile for the following towns: Masterton, Tokoroa, Blerheim, Ashburton, Oamaru, Levin and Taupo. Mostly based on census data, Heenan analyzes the demographic trends of North Otago. This demographic analysis shows a level of differentiation between village and farming communities in North Otago. Population trends in Waitaki County follow a distinctive rural trend of being male dominated and having an out-migration of youth. Population decline is difficult to reverse because of the impact of the underlying social and economic forces causing the trend to be accumulative.

Heron, R. and Pawson, E. (1996) *Changing Places. New Zealand in the Nineties*. Auckland: Longman Paul Limited.

In this book, case study 8.4 Cultural landscapes of the high country, is relevant to this annotated bibliography. Images and ideals of the South Island high country play an important role in the self identity of many New Zealanders. However, the current economic and ecological reality is far removed from the myth of a pastoral utopia promoted in advertisements. Due to this downturn, economic, political and social changes are inevitable in the high country. Run-holders fear foreigners will obtain mountain views through land ownership in the high country. Alternative natural resource use, such as forestry, has been considered in order to improve the current situation. However, a change of resource use and landscape is unpopular since

culturally, residents relate pastoral farming with the high country. Thus, the fundamental issue of high country sustainability is as much cultural as ecological. The issue of landscape sustainability in the high country can be seen as an expression of the contest between global, regional and local ownership over ecology, identity and capital. This contest is intense because the high country landscape has strong symbolic meaning to many.

Houghton, R. (1980). *Lower Waitaki Communities Study*. New Zealand: Ministry of Works and Development and Department of Lands and Survey.

Lower Waitaki communities are generally farming communities and residents share farm values. "Socially, the area is stable and homogeneous" a wide variety of maps identifies and depicts the study area (p.82). This study includes aspects of regional planning, irrigation development and power development of the Lower Waitaki. The river is considered valuable for providing irrigation water to the land. Social impacts of proposed river development depend on which of the three plans is chosen. During this study, residents were in an unsatisfactory state not knowing how the river would be developed. This gives governmental authorities a poor reputation by residents even though irrigation is a high priority river use, in local opinion. The impact of the construction efforts is another concern to residents. They "don't want the problems of Twizel" and would prefer for the workforce to be dispersed rather than one large works town (p.76). If construction does occur on the Lower Waitaki this reference serves as a "base-line" study. In conclusion, the report recommends continuous monitoring of social change in the area so remedial action can be taken where problems occur.

Hubbard, L. and Brown, W. (1979). *The Regional Impacts of Irrigation Development in the Lower Waitaki*. Research Report No. 99. Canterbury: Agricultural Economics Research Unit.

The aim of this study is to examine in terms of output, income and employment, the regional impacts of the irrigation developments which have occurred in the Lower Waitaki basin. \$18.85 quantifies the average economic impact of irrigation development in the Lower Waitaki basin. This number was found by calculating the net regional injections of increased agriculture output, on and off farm construction, and operation and maintenance. Therefore, it appears the irrigation development in the Lower Waitaki basin has had a positive economic effect on the region. Farm owners have increased their capital through construction, operation and maintenance on their property in response to irrigation development.

Hughy, K. and Wason, K. (2005). *Management of Himalayan Tahr in New Zealand: High Country Farmer Perspectives and Implications*. Research Report No. 276. Canterbury: Lincoln University.

The relevance of this reference's research is due to heightening tensions among the farming community, and between the farming community and DoC about ongoing opportunities for land tenure review. The purpose of this report is: (1) to outline farmer perspectives about Himalayan tahr and the management of tahr on high

country stations; and (2) to contribute to the ongoing debate about the future management of the species. Forty-three high country farmers were surveyed in 2004. Almost all respondents consider tahr a resource to some extent and that they have become more so over the last ten years. Almost all respondents favoured sustainable management of tahr in the long run. Reported income for farmers generated by activities associated with tahr ranged from under \$1,000 to over \$50,000 per year per property. The study results found a need for cooperative management approach between run holders, DoC and hunting interests that seeks to meet the combined interests of all parties. This regime could consider recognition that tahr are a significant resource and promotion of a cooperative management approach between run holders, DoC and hunting interests that seeks to meet each interest group's interests.

Johnson, M. (1992). *Proceedings of a Workshop on Rural Community Studies*. Ministry of Agriculture and Fisheries Policy Technical Paper 93/7. Wellington: Ministry of Agriculture and Fisheries.

The Ministry of Agriculture and Fisheries (MAF) published this technical report which includes eleven papers presented at a workshop in Wellington on the 3rd of December in 1992. These papers represent various approaches to rural community studies, making it relevant to the Waitaki. The format of the paper categorizes the presentations into three groups: research approaches, social assessment and rural research and field work considerations. Despite these categories, presentations have a common structure of social analysis which focuses on the effects of change on individuals, groups, and communities caused by policy or other external effects. MAF believes that government departments must match their research needs with their policy advisements. MAF will apply the findings from the research presented at this workshop to policy in order to improve social conditions of rural communities in New Zealand.

Kerr, G., Sharp, B. and Gough, J. (1986). *Economic Benefits of Mt. Cook National Park*. Canterbury: Centre for Resource Management.

This study's aim is to estimate the economic benefits associated with Mount Cook National Park. Specifically, the use-value of Mount Cook National Park as it existed during 1984. This reference is relevant to this bibliography because Mount Cook National Park is a significant natural resource in the Waitaki Valley. The study developed a model to describe the optimal amount of visitors to a national park. The results found that individual domestic and foreign tourists have very similar effects on regional development. Therefore, it is not beneficial to market or provide for one user group over the other. Economic benefit analysis is valuable to park management issues. It provides guidance in making decisions at the margin, and especially in cases of conflict in which one group's welfare must be traded-off for another's (p. 141).

Little, H. and Taylor, N. (2001). *Social and Economic Impacts Associated with Irrigated Land Use Change*. The New Zealand Association for Agricultural and Resource Economics (NZAERS) Conference: 6-7 July, 2001.

Little and Taylor wrote this paper for the NZAERS Conference in Blenheim, New Zealand of 2001. It discusses the social change of irrigation. Little and Taylor created a model that formulizes how irrigation creates three waves of ownership change. The model begins with pastoral farming (Phase One) and results in dairy farming (Phase Two). This change has social and economical impacts. Irrigation changes land use, ownership, work, paid labour, and demography and community social structures. The ability of people to adapt to farming with irrigation determines on many factors including age. In general, younger generations were more willing to adopt the new and different farming practices using irrigation. In addition to farmers, service providers in town must adapt to irrigation; making their business relevant to farming with irrigation is necessary in order to survive in a new social and economical environment. Positioning of rural towns is critical in order to capitalize on the production, social and economical changes of irrigation.

Little, H., Taylor, N. and McClintock, W. (1998). *Resource Community Formation & Change: A Case Study of WAITAKI PLAINS. (Working Paper 14). Canterbury: Taylor Baines & Associates.*

Little, Taylor and McClintock are the authors of this paper which is one in a series of case studies about agricultural communities in New Zealand. This paper is part of an ongoing project entitled "Resource Community Formation and Change" with funding provided by the Foundation for Research, Science and Technology. The setting of this paper is the Waitaki Plains and it tells the story of dairy farming in the area. Irrigating the Waitaki plains caused "irrevocable change" that substituted pastoral farming with dairy farming (p.4). This new agriculture practice, dairy farming, attracted Dutch and Kiwis from the North Island to the area. Dairy farming required and established a different lifestyle in the Waitaki Plains. This industrious lifestyle had a negative effect on social conditions of the Waitaki Plains. Compared to pastoral farming, dairy farming required more time and money with provisional and low pay. Dairy farm employees, known as sharemilkers, created a new and disliked socio-economic class in the Waitaki Plains. Irrigation changed almost all aspects of society in the Waitaki Plains to function around dairy farming, reducing the quality of life in the Waitaki Plains.

McClintock, W. (1999). *Resource Community Formation & Change: Profiles of Energy Fishing and Tourism Communities. (Working Paper 19). Canterbury: Taylor Baines & Associates.*

This paper, written by Wayne McClintock, "is part of a four year programme funded by the Foundation for Research, Science and Technology to investigate resource community formation and change in New Zealand" (p.1). This paper is relevant because four, out of the thirty cities profiled, are of the Waitaki Valley. These cities are Twizel, Otemata, Omarama and Lake Takapo. According to census data, McClintock categorizes the cities as energy, fishing or tourism communities depending on the main source of employment. Twizel and Otematata are energy communities where as, Omarama and Lake Tekapo are Tourism communities. All four of these communities have a commonality; their economy depends on a natural resource or resources. Comparing these cities found that a community's profile

varies depending if the workforce is energy or tourism based. An energy based workforce has a higher percentage of “trades workers/ machine operators,” where as a tourism community workforce has a high percentage of “sales/ service” (p.18). All four communities experienced the development of a natural resource and population changes. With quantitative support from comparing community profiles, McClintock concludes that “the tourism sector is not immune to similar cyclical pressures experienced by the other natural resource based sectors” (p.71).

Morris, C., Fairweather, J. and Swaffield, S. (1997). *Investigating Community: Imperatives For but Constraints Against Land Use Change in the Mackenzie/Waitaki Basin*. Research Report No. 236. Canterbury: Lincoln University.

This report examines the nature of community and the specific character of the rural community in the Mackenzie/Waitaki Basin of New Zealand and the role that community dynamics play in Land Use change. The study utilizes an ethnographic approach to provide a description and analysis of the social context of land use change in the Mackenzie/Waitaki Basin. The report begins by reviewing the history of land use change, identifying land user groups, and describing the environmental and political factors that influence land use. The report then accounts for landholder's attitudes to farming and intensification and diversification of land uses. These opinions are written in first hand quotations to illustrate points of view. Landholder's perceive to be in conflict with a number of groups, mostly being bureaucracy and government, and environmentalists. The report concludes by proposing policy implications of the findings. The report asks if there a consensus among residents of the Mackenzie/Waitaki on the term 'community' and finds that there is absence of any single community.

Natusch, G. (1984). *Waitaki Dammed and the Origins of Social Security*. Dunedin: Otago Heritage Books.

Gil Natusch, the author, had “a distinguished career as an engineer with the Ministry of Works and is well equipped to tell the story” about damming the Waitaki (Forward). The book describes in detail, with many photographs, the social history providing the reader a thoroughly descriptive experience of what life was like when damming the Waitaki. Over all, social conditions were poor and work on the dams was labour intensive. The hydrotown communities had a population of about 2,000 people, which were mostly men employed by the Ministry of Works. The book includes a map of the Waitaki Valley, upstream of Kurow, showing the course of the river as it was in the 1920s. The chapters are entitled: In the beginning, Construction, Life in the Camp and The Later Developments. Natusch concludes that damming the Waitaki was a highly efficient long term investment and the value of the project will continue to rise. However, due to the social, economical and environmental elements of the 1920s it cannot be repeated, “there will never be another Waitaki” (p. 62).

Nordmeyer, A. (1981). *Waitaki The River and its Lakes The Land and its People*. Upper Hutt: Waitaki Lakes Committee.

The Waitaki Lakes Committee commissioned Nordmeyer, a renowned parson, politician and public figure of the Waitaki Valley, to write about the history of the Waitaki River catchment area. The committee, “felt that the vast and dramatic changes which were taking place in the river’s struggles from the mountain to the sea through man’s efforts to control and harness her resources should be noted and that the changes that have occurred in river, land and people, both during the last century and this, should be recorded in book form” (p.xi). All of the content in this book is relevant to this bibliography; however certain chapters are more significant than others. These chapters discuss hydro development and the man-made lake’s effects on recreation and the environment, developments in farming and the people of the river basin. The book includes many high quality photographs and illustrations providing both a historic and modern depiction of social, natural and hydro scheme life of the Waitaki Valley.

Ny, A. (1987). *A Study of the Pukaki-Ahuriri High Country Area. A Focus on Population Change in Twizel and a Discussion of Community Services in Twizel, Mt. Cook and Omarama.*

In the report, funded by C.O.G.S., Ny discusses the population change and community services of Twizel, Mt. Cook and Omarama. These villages are all located within the Waitaki Valley. However, Twizel is unique because it originated as a temporary hydro-town. When Twizel became a permanent town the population decreased leaving excess facilities and services. Due to this, Mt. Cook and Omarama use Twizel’s excess resources for services their village does not provide, such as schooling and healthcare. Ny refers to tourism as the “saving grace” of Twizel’s economy after its down turn in the early 1980s due to government setbacks and low employment.

O’Conner, K. (1975). *An Introduction to the Waitaki. (Report no. 1). Canterbury: The New Zealand National Commission for UNESCO by the Tussock Grasslands and Mountain Lands Institute.*

In general, this report describes human use of natural resources of the Waitaki. The introduction describes The Man and The Biosphere (MAB) Programme, for whom this reference was written. The introduction includes the history of the MAB programme and its thirteen projects with five objectives. It also gives a New Zealand context of the MAB programme and how five of the thirteen projects are of significance to the Waitaki, “as a microcosm for study of the complex interactions and feed-back relations between man and the environment” (p.5). Eight sections follow the introduction and in addition to text, they include: photographs, illustrations, charts, tables, graphs and maps providing the reader with a visual depiction of information. The first section outlines and describes the region which O’Conner defines as “the Waitaki”. The second section describes the form of the land focusing on geology. The following five sections describe the climate, soil resources, vegetation, water resources and animal wildlife. The last section describes the use of resources with a sub-section about human settlement and demographic change of the Waitaki. Specifically, within this section, O’Conner states how Waitaki villages grew with the intensification of agricultural settlement and describes the age and gender of people

in the area. In a following sub-section, about electricity generation, O'Conner explains how a negative relationship existed between people and the exploitation of a natural resource, because for many years the "Waitaki dam caused local concern and anxiety due to differentials in down stream flow" (p.70). Overall, this report describes the Waitaki and how humans have altered, utilized and influenced the natural resources of its environment.

O'Conner, K. (1970). *Reconciling Uses of High-Country Resources*. Tussock Grasslands and Mountain Lands Institute. *Review*. No. 19: 113-123, September.

This article is based on an address to the conference of High-Country Section of Federated Farmers at Timaru. The article begins by describing 'The Situation' by listing various ways people value and use high-country resources. Next, he discusses the 'Rights to Resource Use' explaining farmer's relationship with the Crown and regulating use of the area. O'Conner believes in a national need for healthy profitable high-country farming based on four principles. The principles state that there is a social or cultural basis for fostering and development of high-country resources. O'Conner hopes the Institute will continue to help runholders collaborate with government agencies in surveys and experiments. Through such a partnership undeveloped mountain resources can be made more economical, reconciling uses with the resource.

O'Conner, K. and Ackley, K. (1981). *New Zealand's Waitaki: A Regional Planning Perspective for Regional Resources*. *A Journal of the Human Environment Research and Management*, Volume X, Number 2-3,143-147.

O'Conner and Ackley, the authors of this article, make regional planning recommendations based on The Man and the Biosphere Programme (MAB) research project of the Waitaki. The article first discusses the history of human cultures and their different influences on the land. It explains how, "New Zealand chose the field area of Waitaki to be a field laboratory for the [MAB] study" (p.142). The second section of the article explains landscape transformation in New Zealand, specifically describing the Waitaki and includes a detailed map of the study area. Next, the report discusses the findings of the Waitaki MAB in order to understand historical and contemporary changes. Based on these findings, the authors make planning recommendations for the region. They recognise the threat and frustration that regional councils can create on local councils and identify three inter-related areas of progress for successful regional planning. The need for successful regional planning in Waitaki is increasing as the use and management of natural resources extends beyond local communities. The article concludes discussing the emergence of issues for the lower Waitaki River, pastoral development in the upper Waitaki and nature conservation and recreation in both areas. It is the authors' hope that the Waitaki MAB increases confidence of public decision making for regional planning of the Waitaki. A regional planning approach "promises much by taking account of both the understanding of natural and human use systems and the identification of community goals" of the Waitaki(p.147).

Pawson, E. (2004). *The Memorial Oaks of North Otago: A Commemorative Landscape. Glimpses of A Gaian World*. Dunedin: School of Social Science.

This paper is relative to this bibliography because the Memorial Oaks Scheme of North Otago created social and natural changes to the Waitaki Valley. In the beginning, the paper discusses planting trees for commemorative purposes and how there is a lack of research in this area. "The scheme was ambitious and unusual. It was popular at its time and over the past decade has regained attention and significance" (p.116). There is a powerful sense in which the trees embodied the soldiers that they represented. "In their place, the trees would grow old as the boys would have done, simultaneously changing the landscape as would their work as men" (p. 124).

Relph, D. (2007). *From Tussocks to Tourists: The Story of the Central Canterbury High Country*. Christchurch: Canterbury University Press.

Originally from the high country, Relph's childhood memories inspired him, rather than qualified him, to write this book. He returned to the high country and found few aspects unchanged over fifty years, but many aspects had changed dramatically and continue to do so, "particularly as regards to land management and the rise of tourism" (p. 7). Chapter Seven, Where Wool is King: The era of the big sheep runs, names, depicts in photographs and describes the sheep stations comparing the present ones to the past. The chapter also includes several paragraphs and pictures of hydro electricity development. Chapter Eight, Alpine Playground, describes traditional forms of recreation such as, ice skating, tramping, climbing, hunting, fishing and skiing in the high country. Chapter Nine, Jetboats to Helicopters: Tourism comes to the high country, describes new high-country tourism activities that have recently revolutionized the high country including the Coast to Coast multisport competition. This reference includes many pictures, maps and diagrams in the text.

Review 43. (1986). *Tussock Grasslands and Mountain Lands Institute*. Canterbury, New Zealand: Lincoln College.

This journal contains poems and articles relevant to natural resource use in the Waitaki Valley. Topics of the articles include a review of fire management, the influence of science on the use of tussock grasslands, the effect of snow fall for farmers, roles of forestry, rabbit control and Matagouri management. Compared to other references, this journal provides a variety of scientific information of issues relative to the high country of New Zealand.

Robertson, W., et al. (1978). *Waitaki Basin Land Use Study*. Wellington: Department of Lands and Survey.

This is a technical report about history and development, conditions and trends in the Waitaki Basin. A survey of land use in the Waitaki Basin shows that pastoral farming is a pioneering use of the area's natural resources. Energy production, recreation and tourism are now the main economic bases. Land use problems associated with relative changes are the reason for this report. The study found that an increasing diversity in land use is a key feature of the Waitaki landscape. Water from hydro

canals is used for irrigation and tourist attractions and recreation facilities based on outdoor activities are being developed. Pressure for more intense land uses are also apparent, such as subdivision of rural land. The report concludes that "land use prospects magnify when landholders, residents and government agencies co-operate in testing new land uses. The Waitaki Basin is ripe for positive action and innovative land use" (p.42). Appendix B of the report includes a Land Use Legend and Explanation for mapping and classifying the Waitaki Basin.

Sheridan, M. (1995). *Damn Dwellers. Twizel, NZ: Sheridan Press.*

Sheridan, the author and wife of a late hydro worker, experienced life in the Waitaki Valley throughout the hydro project scheme. A mission to compile and publish her poems evolved over nine years, resulting in this book. The book includes two parts. Part One is about the town of Otematata and Part Two is about the town of Twizel. In addition to a personal and historical contextual account; photographs, poems, cartoons, maps and letters provide a vivid depiction of hydro-communities.

Social and Institutional Monitoring and Evaluation in the Rabbit and Land Management Programme. (1990). Report for Phase I and II. Canterbury: Taylor Baines & Associates

The Ministry of Agriculture and Fisheries contracted this report by Taylor Baines and Associates. The work represents the social and institutional component of thorough monitoring of the Rabbit and Land Management Programme (RLMP) towards its goal of long-term sustainability of land resources in the semi-arid areas. This reference is relevant because the RLMP includes the Waitaki Valley. The aim of this report is to better understand the decision-making process associated with rabbit control and management. This report covers the early phases of the Programme and the findings can benefit all associated with the Programme and other communities faced with a similar problem. The main finding "is that a better consultative mechanism needs to be established between regional councils and farmers" (p.21). In order to become more involved in the RLMP, farmers need more access to critical information and power to share in decisions.

Steven, J. (1987). *Commercial Recreation in the Pastoral High Country: Clarification of the Issues. Master of Science in Resource Management. Canterbury: Centre for Resource Management.*

This report discusses the development of commercial recreation in the pastoral high country of the South Island of New Zealand which includes the Waitaki Valley. The basis of the study is on the use and administration of the pastoral high country. Diverse issues within a framework highlight decision-making steps and key inputs for planning and policy. This study confirms the need to consider commercial recreation as more than an isolated form of development. Rather, broad decisions about the implementation of existing land use policies should guide future administration of commercial recreation. Steven's recommends a community based planning process as a way to incorporate the perceptions and concerns of all who claim resources in the high country.

Stevens, W. (1974). *Recreation in the 'Waitaki'*. Canterbury: Lincoln College.

Unfortunately, the text throughout this reference is difficult to read, making this annotation less in-depth than others. Even so, this reference is highly relevant to the bibliography and needs to be included. This paper provides a general overview on recreation in the Waitaki. It highlights themes that can be researched more specifically. These themes include the need for regional planning, changes in population and people's identification with certain recreational activities in the area. Chapter Three, The Social Factors- population, public amenities and administration and Chapter Four, Recreation- resources and activities existing at present, are the most relevant chapters in this reference to this bibliography.

Taylor Baines & Associates. (1996). *Rabbit and Land Management Programme End of Programme Social Assessment*. Canterbury: Taylor Baines and Associates.

The Rabbit and Land Management Programme (RLMP) funded this report and the report was prepared on contract to Landcare Research. This reference is relevant because implementation of the Programme includes in the Waitaki Valley. The Programme ran for five years from 1989-95 and covered 400,000 ha. It "aimed to achieve a reorientation towards sustainable land use and pest control in areas of high infestation from rabbits" (p.vi). This report provides a thorough assessment on the social implications of the RLMP with a specific interest to the Community Change and Development chapter. RLMP was part of a social and environmental transformation throughout the high country of New Zealand. Land degradation by rabbits had significant effects, changing the area's culture. This assessment found that the dynamics of social change require multi-year programmes to have flexibility to avoid administrative constraints. It also states that the achievement of the RLMP's long term objectives will take "several more years to emerge" (p.xiv). However, an assessment that the RLMP has found is new support by farmers for natural resource sustainability.

Taylor Baines & Associates. (2006). *Waitaki North Bank Tunnel- hydro-electricity proposal. Social Impact Assessment- Stage One (Water consents application)*. Report to Meridian Energy Ltd.

This report is the first of several stages to analyze the Social Impact Assessment (SIA) on the effects of the NBTC to the Waitaki River. The SIA provides an output specific to the water resource consents for the NBTC. Over time the SIA will identify potential positive and negative social effects of the NBTC during the consenting, planning and design, construction and operation stages of the project. This report includes an introduction to the NBTC and the report's scope and objectives, approach and methodology of the SIA, a description of the social environment and its capacity to manage social issues. The SIA concludes that recreation users and nearby land owners are likely to be the most effected by the NBTC. Being the first stage of SIA, the report focuses on assessment of social/community needs and opportunities for building capacity and partnerships as a basis for maximizing social

benefits from any Waitaki water allocation to hydro-electricity. The report recommends further social assessment alongside ongoing communication and consultation activities between Meridian and the community.

Taylor, N. and Baines, J. (1989). Sustainability, Social Issues and Integrated Assessment for a Rabbit and Land Management Programme. *Presentation to the Rabbit and Land Management Workshop*. MAFTECH, Lincoln: Rabbit and Land Management Workshop.

Taylor and Baines are the authors of this presentation for the Rabbit and Land Management (RLM) Workshop. This reference is relevant because the RLM Programme involves the Waitaki Valley. The basis of the presentation is on their experience in developing a framework for thinking about sustainable development and an adaptive and integrated social impact assessment. The presentation discusses unsustainable trends, attributes of sustainable development, specific issues for the rabbit programme and lessons from SIA and integrated impact assessment. The authors conclude that sustainable development heavily depends on monitoring because it is outcome oriented.

Taylor, N. and Baines, J. (1991). Monitoring for Sustainable Land Use: The Case of the South Island New Zealand Rabbit and Land Management Programme. *Eleventh Annual Meeting of the International Association for Impact Assessment*. (pp.1-18) Urbana-Champaign, Illinois: International Association for Impact Assessment.

This paper was prepared from work undertaken on contract to the Ministry of Agriculture (MAF Technology, Lincoln) as part of the social monitoring for the Rabbit and Land Management Programme (RLMP). This programme focuses on the Waitaki Valley due to environmental degradation. The rabbit, a non native species to New Zealand, has caused damage to pastures and landscapes. As a result of this damage, "the viability of the farms and their communities are in serious question" (p. 1). This paper provides a framework for sustainable development of rabbit-prone lands. The definition of sustainable development and community viability is "the establishment of management regimes that are based on a partnership between social systems and the natural environment" (p.2). Based on survey data, the paper describes the profile of farmers and their communities. It discusses the programme's organization and implementation by the central government its descent to the regional and community level. Major issues for programme implication were financial and administrative shortcomings. The authors recommend more effective co-operation between pest authorities, farmers and researchers assisting the programme. In conclusion, they emphasize that it is "crucial to get the process of the assessment right from the start" for effective monitoring and implication of rural resource pest management (p.14).

Taylor, N. and Bettsworth, M. (1983). *Social Characteristics of New Zealand Hydrotowns: A Case Study*. (Information Paper No. 1). Canterbury: Centre for Resource Management.

The authors', Taylor and Bettesworth, "aim in this study has been to examine the existing literature and database on the social characteristics of hydrotowns as part of a comparative study of rapid growth and resource development in New Zealand (p. 124). Taylor and Bettesworth, the authors of this paper, specifically chose a case study method to research hydrotowns in New Zealand. They chose this method because it is better suited to analyze data of resource communities, is flexible and creates a "total picture" with access to information (p.10). This reference is relevant because it includes information of two hydrotowns within the Waitaki Valley: Twizel and Otematata. The practical implication of this research is that large scale development of a natural resource effects the physical environment as well as the social environment. Therefore, it is necessary to plan for people when planning resource development in rural communities. The content of this paper includes: an introduction discussing the history and evolution of hydrotowns, demographic patterns, characteristics of the workforce, housing and accommodation, commercial activity and local body finance, hydrotowns as communities, welfare associations and community services, disadvantaged groups, winding down (impacts and issues) and suggestions for further research. Three future research proposals are: Project One. Improved Statistical Data Base, Project Two: Cromwell Community Study and Project Three: The Long Term Position of Twizel in the Waitaki.

The Ministry of Agriculture and Fisheries. (1991). *Report on Community Development Initiatives For Sustainable Land Management*. Canterbury, New Zealand: Taylor Baines & Associates.

Independent consultants, Taylor Baines & Associates spent 20 months monitoring rural community change in New Zealand. The principal aim of their work is to provide "information critical to the formation of policy as well as to the implementation and organization of the Rabbit and Land Management Programme (RLMP)" (p.2). The paper illustrates the "The General Picture" providing the context for community development in respect to current issues for the RLMP (p.3). The following section explains the RLMP in respect to local initiatives. This includes discussion on the background, philosophy and principles behind development initiatives in the high country. The report lists and briefly describes current local initiatives. It addresses issues and concerns associated with the process of rural community development and makes recommendations for improvement. The report concludes with a summary of key issues for a community development process and key messages to MAF and the regional councils on the community development process. Overall, this report makes recommendations to improve community development in rural high country communities in New Zealand. Taylor Baines & Associates believe that community development is important in many areas of rural New Zealand.

Wardle, K., Foran, B. and Gibson, R. (1996). *Developing Sustainable land use scenarios for the dry tussock grasslands of New Zealand. Mountains of East Asia and the Pacific*. Lincoln University: Centre for Mountain Studies.

Mountains of East Asia and the Pacific is a book of the proceedings of the East Asia Pacific Mountain Association symposium, held at Lincoln University in May 1993. Papers include a wide range of mountain issues, from cultural attachment to issues of sustainable resource use in mountain areas. The aim of this paper is to set a

logical framework for land use scenarios and future land allocation for the mountain lands of the South Island of New Zealand, while accommodating the needs of the stakeholders. Fifteen land uses were proposed for the pilot planning study, which included farming, enterprises, forestry, conservation, recreation, wasteland, watershed and scenic backdrop. This framework enables government agencies to utilise the "bigger view" in resource and land use planning on a broader scale. Currently, this long-term regional process does not fit in with current planning processes. The Resource Management Act states that land use change is market driven while avoiding adverse effects to the environment. This can result in inappropriate land use in the long run. In order for a long term regional planning process to be successful it must have widespread local participation and support.

Whitby, M. (1979). *Economics of Pastoral Development in the Upper Waitaki*. New Zealand Man and the Biosphere Report No. 3. Canterbury: Tussock Grasslands and Mountain Lands Institute.

The purpose of this report is to examine development possibilities of the Upper Waitaki. These possibilities are in terms of their private profitability to the individual run-holder and public policies related to development in the Upper Waitaki. The current physical and economic uncertainty confronting high country run-holders creates a cautious approach to business planning. The study finds that there is enough water to irrigate 31,000 ha of the total 90,000 ha of irrigable land of the Upper Waitaki. There is also the possibility to establish 120 new farming units. Properties affected by the irrigation/land settlement scheme must undertake alternative land development or, on average, the carrying capacity of each property will fall by approximately 1,200 su. Irrigation and land settlement schemes offer significant possibilities for integration of dryland, irrigated and pastoral farming systems.