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Changing Accessibility for Tourism in the Aurland Municipality of Norway

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CHANGING ACCESSIBILITY FOR TOURISM IN THE AURLAND MUNICIPALITY OF NORWAY

by
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This thesis submitted by Kari Brekke in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota has been read by the Faculty Advisory Committee under whom the work has been done, and is hereby approved.

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This thesis meets the standards for appearance and conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

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Signature Kari Brekke

Date April 18, 1989

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ABSTRACT

Because of changes in accessibility, the Aurland Municipality in Western Norway may be subjected to increased tourism. In 1991, an all-season highway will open between Oslo and Bergen, which will pass directly through the Aurland Municipality. The shift in importance from mostly seasonal rail/fjord traffic to an all-season automobile traffic has the potential for accelerating tourism pressures in this highly scenic area. The purpose of this study was to address possible problems and prospects of changing accessibility for tourism in the Aurland Municipality.

In order to examine tourism in the Aurland Municipality, a number of methods were used. Fieldwork was completed in Norway. Questionnaire surveys were administered and archival research was undertaken. A model known as the Leisurization of Landscapes was utilized to study the changing land use patterns in the Aurland Municipality.

It was determined that the Aurland Municipality's land uses have been changing to accommodate growing numbers of tourists. The economy was shifting from an agriculture base to service industry oriented. These changes helped to advance the Aurland Municipality into the Intermediate Stage of the

Leisurization of Landscapes Model. In this stage, an area becomes transformed visually as well as in land utilization and economy. Because the area has become oriented to attracting and serving tourists, it has the potential of progressing into the Advanced Stage of the model. In this situation, the landscape becomes dominated by created attractions and commercialization of the original amenities.

Based on results from questionnaires surveys administered, respondents felt that the positive factors of better communication, increased traffic for businesses and increased tourism outweighed negative factors such as noise, pollution and heavy traffic if proposed highway by-passes are built around populated areas of the Aurland Municipality. In general, most respondents felt very optimistic about the future development of the Aurland Municipality and its prospects as a tourism center between Eastern and Western Norway. The Aurland Municipality has a unique combination of scenic recreation amenities, cultural amenities and a geographical position between Oslo and Bergen. Conclusions drawn from the study are that a comprehensive tourism development plan must be a priority at present in order to ensure Aurland's position as a leading tourism center on the Oslo-Bergen highway route in the 1990s without suffering the negative effects of tour circuit overload.

LIST OF NORWEGIAN TERMS

Aurland Reiselivslag - Aurland Travel Association

Den Norske Turistforeningen - an organization to promote hiking and tourism

Felesferie - common vacation period in Norway usually during July

Geiteryggsekspress - The "goat ridge" express, a bus connection between Oslo and Bergen that passes through tunnels under the "goat ridge", a mountain area in the mid-section of Southern Norway

Kommune - Municipality

Norges Automobil Forbundet - Norway's Automobile Association

Norges Statsbaner - Norwegian State Railways

Nortra - Private organization that collects statistics on tourism in Norway.

Oslo Lysverker - The Electric Utility Company of Oslo

Samferdselsdepartement - Ministry of Transport and Communication

Sogn og Fjordane Fylke - The county within which Aurland Municipality is located

Sogningen/Sogns Avis - one of the local newspapers for Sogn

Statens Vegvesen - State Highway Department of the Sogne Fjord region of Western Norway

LIST OF ACRONYMS

DNT - Den Norske Turistforeningen

NSB - Norwegian State Railways

CHAPTER I

INTRODUCTION

"Equipped with his five
senses, man explores
the world around him
and calls the adventure
Science"

-Edwin Powell Hubble,
Nature of Science (1954).

Tourism and Global Perspectives

The world as we know it today seems to have become a much smaller place due in part to improvements in communications, transportation and accessibility. For the international traveler, these developments have had an enormous impact on our global perceptions. Thanks to increased global accessibility, better communications links and relatively easy world travel, we can now visit places that would have been impossible to reach a couple of generations ago. International tourism, largely a by-product of industrialization, has become a vital sector in our world's economy.

During the 1980s, tourism has become one of the largest

and fastest growing industries in the world. In 1986, world tourism receits were estimated at over 1.8 trillion (US) dollars (Smith 1989). Being one of the largest items in world foreign trade, it is the most important export industry and earner of foreign exchange in many countries. Tourism also is considered to be one of the fastest growing economic activities with a world growth in visitor arrival figures of approximately six percent per annum (Mathieson and Wall 1984).

Although the tourism industry is a major source of income for many countries today, it is important to understand how it developed, particularly in Europe and Scandinavia. Europe always has held a certain fascination as a destination for North American travelers. Many North Americans can trace their cultural origins to European places so they seek out their past in a rich historical landscape that is both unique and diversified.

Nineteenth century steamships carried the American and Canadian elite at a time when "innocence abroad" prevailed. Furthermore, Europeans also have been exploring their neighboring countries for a long time. Prior to the 1920s, the tourism industry in Europe was supported by the upper class. Attracted by scenic wonders and superb hunting possibilities, early European tourists were primarily royalty or the very wealthy; these early tourists generally traveled

by yacht and private railway car. Tourism in Scandinavia began in this manner during the nineteenth century. The fjords of western Norway attracted both the English and German upper class. What once was a long and exhausting voyage across the Atlantic to Europe now can be completed in a few hours by plane. Today, with transportation improvements, Scandinavia has expanded its tourism facilities and is still a popular and much sought-after tourist destination. For example, Norway's total revenues from international tourists was 478 million US dollars in 1977. (Zimolzak & Stansfield 1983) The total number of foreign overnight visitors in 1986 was 3,297,715 persons (Nortra 1986).

Not only is the geography of tourism a critical dimension when examining world economic activity, but it is important when one considers the preservation of natural recreation amenities. Because of predictable land use changes in scenic areas of high tourism traffic flow, thoughtful planning and decisions can and must be made to protect the environment that is the base for such tourism activities in areas undergoing changes in increased accessibility.

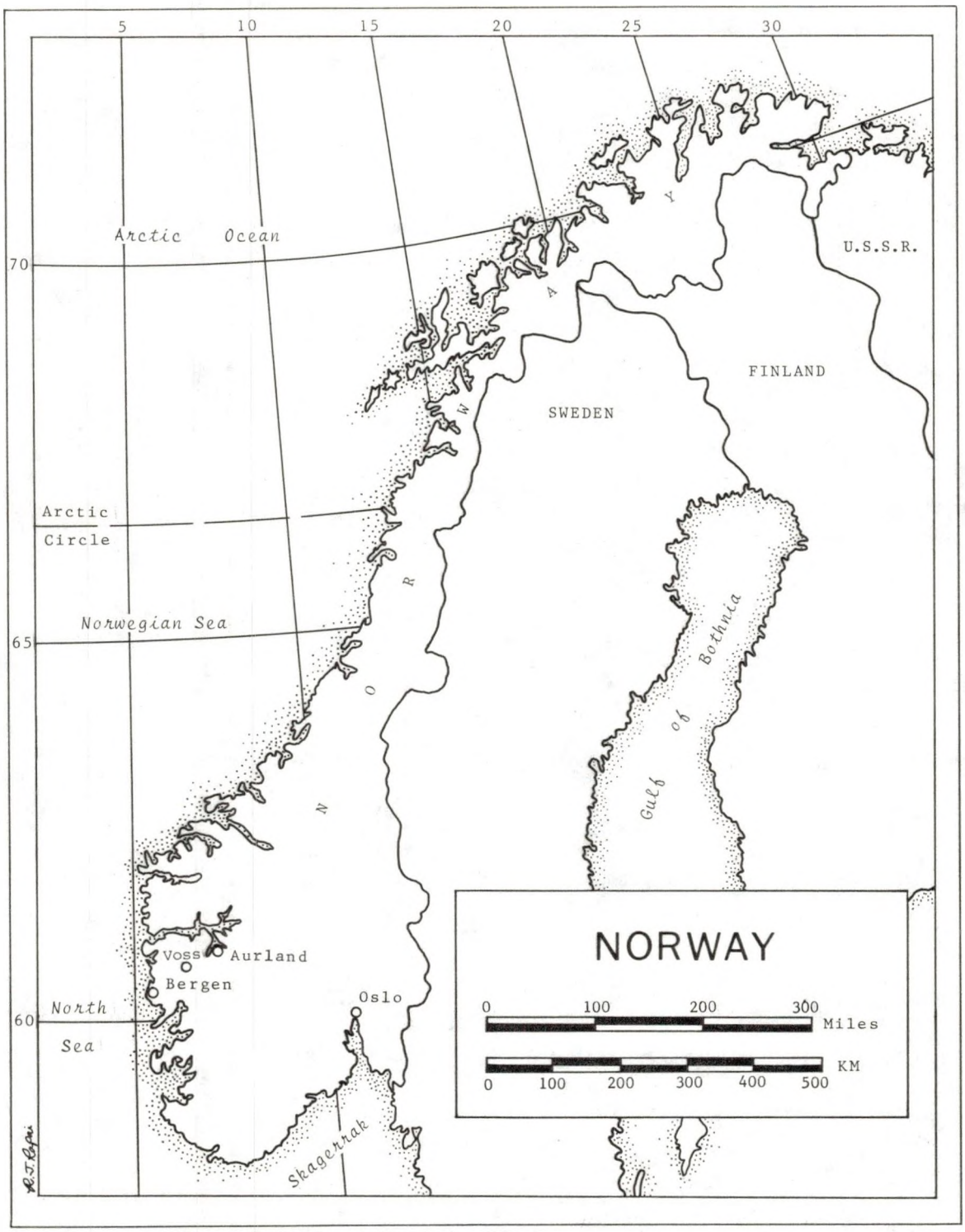
Problem Statement

Improvements in accessibility continue to be critical for increasing Norway's tourism traffic. Understanding the

development of the necessary infrastructure for a regional tourism industry is of growing academic and practical importance. The probable effects of expanded tourism and increased motor traffic through a fjord municipality in Western Norway is addressed in this thesis.

The Aurland Municipality (Map 1) was mostly inaccessible to the outside world 150 years ago. Today, boat traffic, railway connections, and a road connecting the region to eastern Norway make the area an attractive tourist destination. Presently under construction, a new all-season highway will open in 1991 which will link the Aurland Municipality with Voss and Bergen to the west. This, for the first time, will provide Eastern and Western Norway with a reliable year-round highway connection. The new road also will bring increased numbers of motorists into the municipality which previously only has experienced seasonal tourist traffic.

This thesis focused upon examining two potential impacts of the new highway in the study area: 1) the perceived effects that the new highway will have on year-round tourism traffic versus the seasonal tourism traffic and 2) the anticipated future land use changes that may occur in the Aurland Municipality as a result of the opening of the new highway.



Map 1. Location of Aurland Municipality

Overview to Thesis

This study is comprised of six chapters together with three appendices of ancillary information. Chapter II, the literature review presents the theoretical underpinnings of tourism development as a form of applied geography. Subsequently, Chapter III, Methodology, examines the approach undertaken to determine how local tourism in the Aurland Municipality of Norway has been affected by changes in transportation and accessibility prior to the 1980s. The focus of Chapter III is upon the usage of a combination of archival research, fieldwork and survey analysis to study the Aurland Municipality's tourism. Chapter IV is a case study of the Aurland Municipality. It includes a description of the site and situation of the study area, regional physical geography, regional historical geography from the 1850s to the 1980s, and an overview of the study area as it is today. Chapter V, Survey Analysis, is an interpretation of questionnaire results pertaining to the opening of the new highway connecting Eastern and Western Norway with respect to its perceived effect upon the Aurland Municipality. The concluding chapter, Chapter VI, considers the implication of changing land uses and the importance of improved accessibility to the Aurland Municipality. Having introduced this topic, it is appropriate to review the literature on

tourism relative to applied geography in order to better understand the transformation of areas from isolated or slightly developed tourist attractions to heavily-visited and intensely developed tourist districts.

CHAPTER II

LITERATURE REVIEW

> "The term Science should not be given to anything but the aggregate of the recipes that are always successful. All the rest is literature."
>
> -Paul Valery,
> Moralites, 41 (1932).

Chapter II gives an overview to the geography of tourism literature. The first section of the chapter discusses basic concepts of tourism, followed by a section which explains where the geography of tourism fits into the field of geography. The third section addresses early contributions to the literature followed by a discussion of the modern contributions of studies in tourism within the field of geography. The fourth section of the chapter addresses studies of Scandinavia and the Aurland Municipality. The final part of the chapter describes different models of tourism, with particular emphasis on evolutionary models. A model, developed by Zimolzak and Stansfield, is applied to the

Aurland Municipality to study the stages of tourism development.

Basic Concepts of Tourism

Tourism can be defined as the relationships and phenomena arising from the journeys and temporary stays of people traveling primarily for leisure or recreational purposes (Pearce 1987). This definition contains two elements, a dynamic one involving round-trip travel to a destination from a point of origin, and a static one involving non-permanent visits or activities at that destination (Mathison and Wall 1982). When defining tourism, it is important to make the distinction of what type of travel constitutes tourism. Furthermore, the length of stay should be identified as well as determining general travel categories, e.g, transit and cruise ship passengers.

International tourism involves the movement of people over an international border. A minimum of a 24-hour stay is required to be counted as an official international visit; this length of stay is preferred by tourism centers such as Aurland to generate increased income. Anything less than 24 hours is considered only a stopover or may be defined as an excursion (Mathison and Wall 1982); e.g. when cruise ship passengers are temporary visitors to the Aurland Municipality or when visitors arrive via the railroad and depart via the

fjord the same day on the famous "Norway in a Nutshell" tour.

Almost all international tourists that travel for recreational or leisure purposes are from highly industrialized and urbanized cultures. This flow of tourists is accompanied by a flow of money. In 1986, world tourism receits were estimated at over 1.8 trillion (US) dollars (Smith 1989). In this manner, money circulates globally and provides foreign currency earnings. This can produce side-effects, however, when countries become overly dependent upon tourism-related revenues and experience losses of these sources of income for one reason or another. Increased levels of tourism can provide improved amenities for the local population in the form of improved transportation and other economic features originally intended to serve the tourists (hotels, restaurants, stores and service centers) (Matley 1976).

Accessibility plays a key role in attracting tourists. Transportation links the resource to the market. The construction of highways, railroads, seaports and airports shortens travel time and helps increase the tourism traffic flow. Many countries subsidize their airlines, railroads and highways to promote tourism (Zimozak & Stansfield 1983); Norway subsidizes its airlines and railway system.

Some people visit areas solely for cultural and historical reasons while others visit areas because of their proximity to the market. Besides the availability of transportation, there are three other factors leading to the attraction of tourists to an area. First, basic or existing physical resources or amenities, e.g., mountains and fjords. Second, basic cultural resource attractions, e.g., Western Norway's ethnic heritage. Finally, location with regard to a market, e.g., the Aurland Municipality lies approximately midway between Oslo and Bergen.

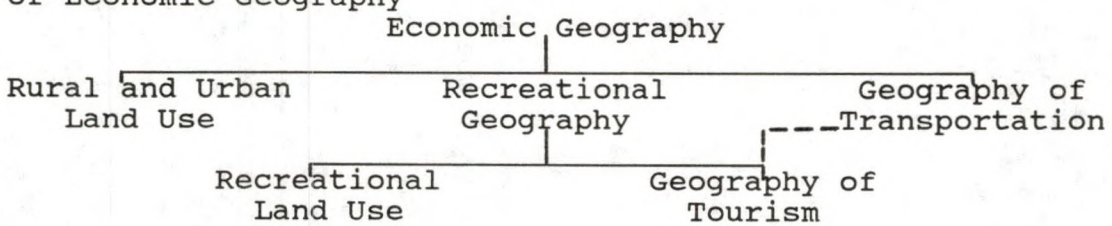
Tourism development in areas offering physical resources or amenities can occur in even the most inaccessible areas. However, accessibility improves and facilities develop as an area becomes more well-known. The more picturesque the place, the further people will travel to see it. Still, in the most remote areas, only the most unusual and remarkable tourism destinations will flourish. Mountain areas developed in this respect at a much later date than traditional seaside resorts largely because of the former's traditional inaccessibility. In the nineteenth century, mountain scenery became the main attraction, which is the case with the Aurland Municipality. With the popularization of winter sports, mountain areas have been able to extend their tourism season. Having defined the basic concepts of tourism and relating them to the Aurland

Municipality, it is appropriate to consider the relationship of tourism to geography.

Tourism and Geography

The geography of tourism is part of the field of recreational geography, which in turn, is a branch of economic geography. Because the study of tourism involves movement, it is also associated with the geography of transportation (Figure 1).

Figure 1. The Place of the Geography of Tourism in the Field of Economic Geography



(Matley 1976, 4)

The roots of economic geography can be traced back to two scholars trained in economics, Emory Johnson and Russel Smith, who both taught at the Wharton School of Finance and Commerce at the University of Pennsylvania in the early 1900s (James and Martin 1981). Consequently, a historical approach was made to review the early geography of tourism literature that emerged in economic geography prior to World War II.

Early Contributions to the Literature of Tourism

American geographers began writing about tourism in the 1930s. These studies saw recreation "as a distinct and significant form of land use" (Pearce 1981, 1). One of the first publications on this topic was completed by McMurry in 1930. He stated that the use of land for recreational purposes had been largely ignored in land utilization studies. McMurry used the state of Michigan as a case study and pointed out that recreation had become the third largest industry in the state at the time the article was written. He emphasized that wild lands were becoming more valuable in terms of hunting possibilities than for agriculture or timber. Eventually, the state of Michigan began to develop game refuges to make better use of state owned lands and to provide hunting grounds to the general public.

Another early examination of the economic impacts of tourism was a study completed by Brown in 1935 about the business of recreation. He analyzed the magnitude and economic significance of the American international and domestic tourist movement which, he stated, had received scant notice from geographers. This was because tourism was largely the province of the wealthy upper-class until the advent of the automobile. Brown looked at the tourist industry in New England, gave counts of tourists at political boundaries, and

estimated tourist flows based on hotel and admission records. He suggested off-season tourism would follow efforts to capitalize on winter sports. Brown called tourism a definite form of land utilization and the study of it virtually a "virgin field".

Carson's study of the recreation industry of New Hampshire followed in 1938. He anticipated that New England would become the first playground of the nation and that tourism would become a leading regional occupation. This is because of the proximity (accessibility) of the recreational zones to the large urban areas of the northeastern United States and the growing importance of the tourism industry to the region. Eighty percent of the visitors to New Hampshire came by automobile in the 1930s, and Carson indicated that types of tourist facilities were changing with the coming of the automobile. "Overnight" cabins had become popular for motorists instead of the long, rambling wooden hotels typical of the railway era. The automobile provided tourists with the mobility to see features of the environment that attracted them the most. Tourists to New Hampshire found landscape features such as the mountains, lakes, or the seashore most appealing with a seasonal recreational asset being the fall foliage displays. Changing land uses were evident in New Hampshire as the number of farms had decreased from 29,151 in

1890 to 14,906 in 1930; many farms were bought up for summer homes in this period.

Some of these early studies specifically observed that tourism modifies the existing landscape and gives rise to new and different urban forms. Jones (1933) compared the mining town of Canmore in the Canadian Rockies to the nearby tourist town of Banff. Although they are only thirteen miles apart, the cultural landscapes contrast widely. While Canmore has coal, Banff has hot springs. In Canmore, tourist activities are absent from the main part of the town. Canmore catered to the miners whereas Banff clearly served tourists. In 1932, thirty-five per cent of the residences in Banff advertised accommodations for tourists; while in Canmore, it was only one per cent. Banff had 2.2 times the permanent population as Canmore, but four times the commercial area. Although the natural environments surrounding the two cities are similar, the towns differed in form and function.

Eiselen wrote an article in 1945 which analyzed the tourist industry that had been built up along U.S. 16 in South Dakota. This was the first fully-paved highway in South Dakota and was the shortest east-west route between the East and South Dakota's principal tourist attractions: the Black Hills, Mt. Rushmore, and the Badlands, e.g., the route to Yellowstone National Park in Wyoming to the west. Traffic

on the highway was both local and out-of-state. Thus, each town had, in addition to local markets, a potential market in the persons traveling on the highway. The traffic flow would fluctuate with seasons with the main tourist season running from late May into September. The heavy tourist traffic flow on U.S. 16 during the summer months led to the establishment of a rural tourist industry with service facilities for tapping this market. Most of the facilities were in the form of gas stations, cabin camps and a few cafes. Within the Black Hills, the tourist industry included not only selling gasoline, sleeping space, and meals, but also various tourist attractions. Everything that might have been a source of income seems to have been exploited in the Black Hills. During the early 1940s, the Black Hills of South Dakota offered a good example of overdevelopment -- as a result, the appeal of attractions in the area decreased rapidly. After the depression and drought in the 1930s, people became increasingly dependent on the tourism industry. Many moved from rural areas into towns and established facilities along the highway to take advantage of the new industry. The Black Hills continues to be an example of tour circuit overload (a situation in which the landscape becomes over-saturated with tourism activities).

The main British contribution to the geography of tourism literature during this period was Gilbert's 1949 work on the

morphology of inland and seaside resorts. Because of a growing market of people being able to afford vacations during the Victorian era in Great Britain, a number of seaside and inland resorts developed. Gilbert cited three principal social classes that were concerned with these resorts: the resident, whether working or retired; the visitor who stays twenty-four hours or longer; and the day-tripper. In most cases, over fifty per cent of the workers in the inland and seaside resorts were engaged in the service industry. The railways originally brought the masses to the inland and seaside resorts. However, the first health oriented resorts in England originated long before the Railway Age. Bath, established in Roman times, is the oldest and most famous health resort in Britain. Sea-bathing became popular in the eighteenth century and thus followed the rise of seaside resorts such as Brighton, for the London market. The health resorts of England can be divided into three types. The first is inland spas such as Bath. The second type is the ancient port or fishing village that has been converted into a seaside resort such as Brighton. The third type can be described as "new" towns that were founded as resorts on land that had been unoccupied previously other than by a few isolated house such as Blackpool.

Pre-World War II studies also include work on the development of tourist geography in Germany in the late 1930s

by Poser. He examined the various forms of tourism in Riesengebirge: 1) spas, 2) summer climate, 3) winter sports, 4) hiking, and 5) transit tourism. Poser studied the spatial distribution of these forms of tourism, their history, and the numbers of persons involved in each type. He recognized such locational factors as the physical features of the landscape, including the suitability of the terrain for winter sports and the climate. Poser also identified cultural and economic features related to types of settlement, location of resorts, house types, and accommodations (as cited in Matley 1976).

Transition to the Modern Period in the Geography of Tourism

Although these early studies in tourism laid the groundwork for future studies, geographical studies in tourism did not emerge again until the 1960s and 1970s, thereby adding to the "meager list of comprehensive geographical writing on tourism" (Pikora 1988, 97). This gap in the literature between the 1940s and 1950s perhaps can be attributed to two factors: 1) World War II; and 2) the only recently rapid growth of the tourist industry. The composition of tourists shifted from predominantly upper-class tourists to a sizeable middle-class group with financial resources to travel. Since 1945, the number of tourists from the middle class has risen dramatically thanks to the Post-Industrial Revolution. When the tourism industry began to include a larger cross-section

of the population, researchers had cause to justify the relevance of additional studies.

Such work began with the history of tourism by Sigaux in 1966. He traced the beginnings of tourism back to the Greeks, who started the Olympic games in 776 B.C. A Greek named Herodotus was one of the great travelers of classical antiquity; he lived between 484 and 425 B.C. The Romans also were early travelers, and built many roads. Most travel in this period was associated with learning and religion. Pilgrimages were early forms of tourism. While Christians went to the Holy Land in the medieval period, Muslims started annual pilgrimages to Mecca in the seventh century. In the 15th century came the European age of sailors and discoveries. The first tourist guidebook appeared in 1552 by Charles Estienne, a Frenchman. Michel de Montaigne wrote extensively on his travels to Italy, Switzerland, and Germany. Royal tourism prevailed throughout the Middle Ages. Also, between France and Italy, there was an exchange of artisans, painters, and sculptors. During the 17th century, better roads in France were constructed leading to royal residences. In England, many inns were opened during the 18th century, a period of great road development in the United Kingdom. The first rail travel came to Europe in 1825, and tourism accelerated accordingly. By the 1880s, the French rail network was 15,000 miles long. By the 1900s, the automobile

had come to Europe. With the coming of the airplane, tourism movements increased even more dramatically. In 1939, there were hourly airline departures from Paris for London, and by 1964 there were 5,800,000 arrivals and departures from the Paris airport. Thus, Sigaux's work was crucial in putting modern tourism into a broader historical context.

Modern Contributions to the Literature of Tourism

Increasingly, studies have been done on the impact of tourism on international trade. Matley (1976) pioneered research in this aspect on the geography of international tourism. His resource paper provided an overview to general international tourism considerations such as the origin of tourist flows and the world pattern of tourist movements. Matley discussed spatial and locational factors affecting tourism flows such as accessibility, and he also wrote in detail about available forms of transportation and existence of transportation routes. Furthermore, Matley mentioned the concept of saturation levels for tourism in any given district as well as described physical and cultural factors influencing the location of tourism. Hence, Matley's work was of special value for identifying why the Aurland Municipality would make a good case study for the geography of tourism.

The World Bank has studied tourism as an economic

phenomenon. The Tourism Sector Working Paper, written in the early 1970s described the growth of tourism throughout the world, the various factors that have affected this growth, and the prospects for developing countries to benefit more fully from tourism. The focus was on vacation travel, the type of tourism that has characterized the Aurland Municipality in the past. The first part of the paper addressed the recent growth trends of international tourism since the early 1950s and the major tourist generating areas. Then, it examined factors affecting vacation such as income, educational level, social structure, degree of urbanization and geographical location. Likely tourist flows to developing countries and pattern of tourism expenditures were discussed in such context as seasonality of tourism income and types of tourism facilities. The financial aspects of investment in accommodation were discussed as well as planning for the tourism sector. The next section of the paper dealt with foreign exchange and employment effects of tourism in developing countries and some social effects of tourism development. The final part of the paper outlined the World Bank Group operations in tourism and their financing of many projects. The thrust of the World Bank's projects were for tourism in Third World countries, so this paper had lesser application to the Aurland Municipality.

Research has been done on the physical effects of tourism on the environment by Hall in 1970 and Cohen in 1978. Hall

indicated that in London the hotel boom took over from the office boom as the single major factor of urban physical change. He further stated that "the age of mass tourism is the biggest single factor for change in the great capitals of Europe and in many smaller historic cities too in the last 30 years of this century" (Hall 1970, 445). Cohen's article examined the impact of tourism on the physical environment. Although he noted that tourism development can be beneficial from economic, political and cultural spheres, he tended to stress the negative, detrimental impacts. Tourist development can be self-destructive, in that it destroys the very landscape quality which attracts development in the first place. According to Cohen, there are four factors influencing the environmental impact of tourism: 1) the intensity of tourist site-use development; 2) the resiliency of the eco-system; 3) the time perspective of the tourist developer; and 4) the transformational character of tourist development. Tourism development is centrifugal in nature; e.g., it develops around a core and expands towards a periphery. As the core matures, it experiences the most intensive ecological transformation. "Contrived" attractions are built to supplement a mature core, or are placed in areas with fewer natural attractions. Developing countries face greater environmental risks from tourism development than developed countries, and thus need to enact measures to protect their countries from overdevelopment.

What lessons can the Aurland Municipality learn from other studies to avoid overdevelopment in the future? A number of articles have appeared in the geography of tourism literature recently that are of interest. The following is a review of their findings.

Kariel's 1984 article was an attempt to identify visitor characteristics and areal use patterns in the Canadian Cordillera, a region similar to the Aurland Municipality. The author then related the information into a conceptual model which shows the influence of fame and accessibility on area use and visitor origin. Kariel had five major findings in his article. Firstly, famous areas are more heavily visited than other equally attractive or accessible areas. Total visitation to a tourism area depends on numerous factors in addition to fame which include: accessibility, nearness to large population centers, attractiveness, and size. Kariel's research showed that the more famous the area is, the higher the percentage of distant and far distant visitors it receives. Second, the more easily accessible areas receive more use than less accessible areas. Consequently, the types of tourism facilities located close to the highway will attract the most users. The same rule applies to trail use. Third, there are seasonal variations in activities and in total visitation. Fourth, private car is by far, the most popular form of travel for all visitors. Finally, visitors

can be divided into two categories with different characteristics and contrasting activity patterns: highway oriented and back country. Kariel defined accessibility as the ease of reaching an area in terms of time, cost, or physical difficulty; an accessible area is defined as one located along a major highway or a very short distance away or on a paved access road. For the long-distance traveler, an area that is easily accessible should be near a major airport and have direct public ground transportation.

Kariel also discussed the physical, social and economic effects of tourism. In some areas, he stated, the impact of tourism has reached the point where mountain ecosystems are seriously damaged. Conservation measures must be implemented immediately to ward off further degradation. Direct impacts on the physical environment are most immediate and easily visible and include: trampled campgrounds, damaged plants, eroded land, polluted streams; littered areas; increased noise levels; and trails which become wider and deeper. Indirect impacts occur with the construction or expansion of tourist related facilities. Additional infrastructure is built to support the new facilities. The extent of these impacts depend on the number of tourists visiting an area, the frequency of visitations, the length of the tourist season, the activities of visitors, and the sensitivity of the physical environment to damage. On the positive side, the

main appeal for local residents to become involved in the tourism business is money in terms of increased sales for local businesses and increased employment. Kariel pointed out the key negative social and economic consequences, too. Often land prices, along with goods and services rise to the point where local residents are priced out of the market. As areas transform into tourism centers, longtime inhabitants find that the former peace and tranquility of the rural areas are transformed into a more urban lifestyle. Crime and vandalism increase. Conflicts with pre-existing land uses grow as recreational pressures extend throughout the landscape. Agricultural land, forest, and wild life habitat are lost through encroachment of new developments. These and other impacts produce mixed feelings on the part of the local population. Although there is appreciation of the opportunity for employment and income, also there is resentment of changes in the way of life. Thus, the Aurland Municipality needs to recognize these consequences of tourism pointed out by Kariel if it is to avoid such problems.

A follow-up to Jones's Banff-Canmore comparison in the Canadians Rockies has been written by Cheng (1980). In her article she stated that Canmore, on the Trans-Canada Highway, is being increasingly subjected to pressures for tourism development. Because the Aurland Municipality will be on a major national highway in Norway, Cheng's observations are of

special value. As Cheng pointed out, tourism can be economically beneficial to a host community, but when certain levels of development are reached, residents begin to worry about the accompanying social costs. In Canmore, people already are concerned about the consequences of too much tourism development because of what has happened to the neighboring city of Banff. Cheng looked at changes experienced by residents when tourism development occurs. Gradual expansion in the number of tourist services and facilities has the potential to alter the social environment. If processes are carried too far, a valued quality of life may be lost by the residents. Banff once had the friendly, quiet-town-in-the-mountains atmosphere that Canmore now enjoys--and the Aurland Municipality does too. Now, however, Banff has become a bustling, exciting resort town known for its congestion, commercialism, and urban qualities. Cheng noted two types of social changes that occur in areas undergoing tourism development--tangible and intangible. Tangible changes include: congestion, commercialization, transience in the population, and loss of discretionary time. Intangible changes consist of: the development of a resort atmosphere, lack of "real people" in town, loss of feelings of security and trust, the growing impersonality, and the development of unhealthy attitudes towards tourists.

Doxey (1975) has written an article on a theory of

visitor-resident irritants. He examined the stages of irritations which stem from the impact between residents and visitors at two tourist destinations: Niagara-on-the-Lake, Ontario and Barbados. The author has created an "irridex" to act as a gauge of irritation intensities. Stage One is that of euphoria and is associated with the initial stage of tourism development. Visitors and investors are welcome. Stage Two is the shift over time that turns euphoria to apathy. Tourist are taken for granted and contacts between residents and outsiders become more formal. Stage Three is when tourism turns to annoyance as tourist saturation points are reached. Residents begin to publicize misgivings about the tourist industry. Planners try to increase infrastructure rather than setting limits to growth. Stage Four is antagonism. This stage is reached when irritations are overtly expressed verbally and physically. Outsiders are seen as the cause of all problems and the reputation of the destination diminishes. The Aurland Municipality is at Stage Two of the "irridex", so it must try to prevent itself from advancing into Stage Three.

McGoodwin (1986) has written an article about the tourism-impact syndrome in developing coastal communities in Mexico that may have some indirect lessons for the Aurland Municipality. He was most concerned with the sociocultural problems that occur with the initial phases of tourism

development. McGoodwin's article focused on Teacapan, a small, impoverished rural community on Mexico's Pacific coast. Prior to 1967, the year an all-season road was built to Teacapan, the community was semi-isolated. The community was engaged in either small-scale commercial fishing or in agriculture. After the road came, so did large numbers of tourists who were attracted to Teacapan's beautiful beaches and palm-fringed lagoon. Sociocultural stresses on the community included: 1) loss of political and economic autonomy, including loss of real property; 2) loss of folklore and important institutions of traditional folk culture; 3) social disorganization; and 4) hostility toward tourists. The experiences in Teacapan are consistent with the idea that unassisted coastal tourism development, particularly in its initial phase, will be predictably severe in any Third World areas in which the hosts are impoverished and the sociocultural differences between themselves and their guests are extreme. While the Aurland Municipality is just the reverse, or quite wealthy, it still could suffer sociocultural stress.

Another article of importance to the Aurland Municipality was published by the Commission of the European Communities in 1982. This paper focused upon a set of guidelines and proposals of the European Community regarding tourism in Europe. It stated that tourism increases contact between

peoples of Europe and helps them get to know one another in their many differences and similarities. By deepening knowledge of the rich variety of cultures in Europe and the common civilization which underpins them, tourism becomes a force for peace and mutual understanding. The Commission proposed several measures to encourage tourism and make travel easier in Europe. Working conditions for those employed in the tourism industry also were explored. Community transport policies were discussed as well as tourism and regional development in poorer areas. The article concluded by emphasizing the importance of safeguarding Europe's heritage, a factor of concern in the Aurland Municipality regarding Western Norway's cultural background.

Geoffrey Wall (1975) has written a follow-up to Gilbert's work on the form and function of British seaside resorts. He wrote that the catered-style of accommodation reminiscent of the railway era is being totally replaced by self-catered accommodations, a circumstance occurring in the Aurland Municipality. Thus, many buildings in seaside resorts are changing function. Their outward appearance remains unchanged, but the internal structures are altered for different uses. Trailer and camping sites are overtaking the periphery of the seaside resorts. This causes intensive exploitation of the coast and changes a predominantly nodal system to a linear system of resource use.

In order to understand how to attract tourists to a region, inferences can be drawn from Smith, Hetherington and Brumbaugh's 1986 article on "Highway 89, A Regional Tourism Model". This article documented the processes used to develop a tourism marketing plan for a number of small Northeastern California communities which have had circumstances similar to the Aurland Municipality. Separately, each community lacked the funds to reach urban tourism markets. However by uniting with the theme "Highway 89 - the scenic mountain route", the area could be promoted as a regional tourism center. The area merchants wanted to devise a plan to divert motorists into their towns. The region was located away from Interstate 5, a major north-south freeway. The communities had to work together and develop a tourism program development process which consisted of establishing: 1) a level of cooperation with each other; 2) a preliminary position statement; 3) a commitment for a tourism study; 4) a market and resources analysis; 5) conceptual planning; 6) plan approval; 7) master planning; 8) final commitment with a staged implementation process; and 9) evaluation. With the help of a research team from California State University-Chico and good marketing strategies, the towns along Highway 89 were known as being on Northeastern California's Scenic Mountain Highway. The problems the communities encountered were that local proprietors lacked business sense to expand their services or handle the increased tourism. The local people

liked the regional concept but did not reinforce it with local money. Local leadership needed to be developed in the tourist generating process and a much broader information base regarding the area needed to be developed. Despite these problems, the plan was successful and attracted many new tourists to the area.

Coogan's (1979) examination of building roads in a mountainous area of the United States helped provide a comparison to circumstances in the Aurland Municipality. She studied the construction of two typical east-west routes across the Appalachians, the two Baltimore-Cincinnati corridors, and the effects they have had, and are likely to have on the economic and social lives of adjacent areas. The history of these roads, still under construction in places, was reviewed and the stimulus it is hoped they will provide for tourism and manufacturing industries in each state considered. Coogan concluded that the new highways have been a catalyst for economic growth and that there are few communities near them which have not benefitted, something hoped by the people of the Aurland Municipality.

In the 1980s significant work on tourism development was completed by Pearce, and both of his major works have implications for the case study of Aurland Municipality. His first book, Tourism Development (1981), provided a systematic

approach to the study of tourism development. He introduced a model of the spatial dynamics of tourist space, which is a useful starting point for the systematic analysis of tourism development. In addition, Pearce discussed the structures and processes of tourism development and the locational factors influencing tourism development. He also covered impacts of tourism development and spatial planning for tourism. The later part of the book examined two case studies. The first described how Queensland, New Zealand developed from a regional holiday center to one of the country's foremost resorts. The second examined the development of Languedo-Roussillon, one of the largest and most ambitious tourist development operations ever undertaken in Southern France. Pearce's more recent book: Tourism Today: A Geographical Analysis (1987) used a carefully reasoned approach and illustrated the geographical dimensions of tourism. He emphasized general patterns and processes of tourism which were drawn from a wide range of empirical studies, geographical methods of analysis and theoretical considerations. Pearce reviewed a number of tourism models which will be discussed later in this chapter. In addition, he analyzed tourism demand and motivation, tourist flows at international, intra-national and domestic scales, and spatial variations and structures in tourism. The book concluded by reviewing major themes explored and showed how geographical

techniques and spatial perspective can contribute to the planning, marketing and development of tourism.

Mathieson and Wall (1984) studied economic, physical and social impacts of tourism. Mathieson and Wall discussed the nature of tourism and tourists, and examined the conceptual frameworks of tourism while evaluating the adequacy of impact methodologies then in use. From an economic viewpoint, the authors considered tourism in relation to such topics as balance of payments, income and employment. The physical impacts of tourism were looked at in both natural and man-modified environments. Mathieson and Wall also wrote about the social effects of tourism on traditional lifestyles and the erosion of cultural heritages, matters of concern in the Aurland Municipality.

The Regional Context for Aurland Municipality

Before one can look at the Aurland Municipality, it is necessary to consider it from a European regional perspective. The newest book on the cultural geography of Europe written by Terry Jordan (1988). He covered such broad topics as the physical setting of Europe, races, language, religions, demography, states and politics, agriculture, rural settlements, cities, industries and particular regions as case studies. On the subject of tourism, Jordan wrote that much

of Europe seems destined to rely upon this tertiary activity for a sizable part of its livelihood, a prediction for the Aurland Municipality to take heed about its future.

The following section will address regional geography studies for Scandinavia and the Aurland Municipality.

Studies of Scandinavia and Aurland

Predominantly, the literature reviewed in this section was written in Norwegian and had to be obtained in Norway. However, an up-to-date English source on the geography of Scandinavia has been completed by Brian John (1984). His study was concerned with Scandinavia's environmental, cultural and economic landscapes. He also revealed the independence and personality of each country in Scandinavia through a wide variety of regional case studies.

Arne Selbyg's work (1986), also in English, is about the modern Norwegian society. Selbyg, a native Norwegian, has given an overview of current social conditions in Norway and the social processes at work. Selbyg addressed such topics as the location and population of Norway, the economy, government and politics, social welfare, health services, the educational system, religion, crime, mass media, leisure and recreation (for the Norwegians), art and culture, foreign

relations and Norway's future. Although neither John's or Selbyg's studies addressed foreign tourism in Norway in any detail, they were crucial sources for overall background information.

The primary Norwegian sources are reviewed below. Much of the information from these sources is covered in detail in subsequent chapters of this thesis. Therefore, a brief summary is given for each source. Many individuals have contributed to the literature of the Aurland Municipality. Anders Onstad (1962) has written two volumes on the history of the settlement and on the genealogy of Aurland. Of particular interest for this thesis were his writings on the some of the first tourists who visited Aurland. These were namely royalty and wealthy sportsmen, who came during the 1800s before the Aurland Municipality was very accessible to the outside world. An interpretation of what he has written on this subject has been included in Chapter IV, the Case Study, to provide a historical overview for the beginnings of tourism in Aurland Municipality. Einar Johnson (1980) has documented the history of the Flåm Railway, which will celebrate its 50th anniversary in 1990. The Flåm Railway was instrumental in increasing the accessibility of the Aurland Municipality to tourists from all over the world, much like the new Oslo-Bergen highway will increase motor accessibility of Aurland for tourists in the 1990s. The Flåm Railway is

discussed more in detail in Chapter IV. Svein Tonnesson (1986) has provided an overview of the expected traffic increases in the Aurland Municipality as a result of the new highway opening in 1991. His report was made primarily for the Municipality to address routing changes, positive and negative effects that the new highway will bring to all parts of the municipality, and effects for the local economy. He did not address impacts of the road on tourism for the Municipality, as this study does. Parts of Tonnesson's study are mentioned in Chapter IV and Chapter V, Survey Analysis. Valuable research has been completed by Jon Teigland (1987) on the effects of the hydroelectricity projects in Aurland for recreational tourists and is discussed more in detail in Chapter V. Work has also been completed on tourism in Aurland by Ulshagen and Hansen (1986). The focus of this study was an overview of tourism in the region and the importance of the industry to the Aurland Municipality. Parts of their study are also included in Chapter IV.

Models for Investigating Tourism in the Aurland Municipality

There are advantages and disadvantages to tourism development. On one hand, tourism can lead to improved infrastructure and facilities for local economies. Tourism also can add to global understanding and good will. On the other hand, disadvantages of tourism are tour circuit

overload, over-investment, seasonality of income, environmental problems, and higher land prices that destroy agriculture. Competition grows for limited and valuable resources, such as land. Landscapes are changing as their values are reassessed in terms of tourism potential rather than for uses within the primary sector of the local economy. Global changes in land use reflect the geographical aspect of tourism as one of the fastest growing sectors in the world.

The geography of tourism does not yet have a strong conceptual and theoretical base, and this is due to the relative recency of tourism as a field of study. "However, since the late 1960s, a number of models dealing with various aspects of tourism have emerged, in most cases, independent of one another" (Pearce 1987, 5). Pearce has emphasized that there is as yet no comprehensive, all-embracing model of tourism. Rather there is a series of different models which have highlighted particular parts of the tourist system (Pearce 1987) These include models of tourist travel: origin-destination models, structural models and evolutionary models. This thesis primarily is concerned with how tourism development in the Aurland Municipality has changed over time and anticipates future changes; consequently, only the evolutionary models will be addressed in their general context.

Evolutionary models stress change over time and are important in understanding why tourism developments come about and what factors influence the nature of distributions or structures at a particular time (Pearce 1987). Thurot's (1973) model sees the evolution of tourism in the Caribbean in terms of three phases of class succession. Phase One is the discovery by rich tourists and construction of an international first class hotel. Phase Two is the development of upper middle class hotels and expansion of tourism traffic. Phase Three is the loss of original value to new destinations and arrival of middle class and mass tourists. The time frame of this model is dependent upon how long it takes the upper middle class tourists to arrive and how long it takes the upper class tourists to find new destinations (Pearce 1987). Plog's (1973) model, has emphasized the personalities of different types of travellers, instead of class. He indicated that travellers are distributed alone a continuum from psychocentrism to allocentrism. The travel characteristics of the two groups vary from the psychocentrics being anxious, self-inhibited, non-adventuresome to the allocentrics who are self-confident, curious, adventurous and outgoing. Plog stated that the market for any given destination evolves and appeals to different groups at different times. The allocentrics will "discover" a destination, and as it becomes more famous it will attract more visitors and the midcentrics will move in. The

destination will lose its appeal for the allocentrics and they will move on. Thus, Plog has projected a destination moving across a spectrum. As areas become more commercialized, they lose the qualities that originally attracted tourists in the first place (Pearce 1987).

Miossec's model (as cited in Pearce 1987) has emphasized the structural evolution of tourist regions through space and time. He considers four basic elements in his model: 1) resorts; 2) transport networks; 3) the behavior of tourists; and 4) the attitudes of local decision-makers and the population. In the early phases of the model, Phase Zero and One, the region is isolated and has little or no development. Tourists may know very little about the area, and local residents contemplate the possibilities of tourism development. Phase Two brings further development in the form of the multiplication of resorts; increases in transportation accessibility; progress in perception of the region on the part of the tourist; and the beginning of planning policies on the part of local decision makers for better serving the tourists. Phases Three and Four bring an increasingly complex hierarchical system of resorts and transport networks as the tourist industry expands. Local residents may fully accept or reject tourism in the region and strict planning measures are enforced. At this point, most tourists are fully aware of what the region has to offer and some specialization may

occur. Miossec has pointed out that with further development, tourism itself (perhaps in the form of created attractions), rather than the original attractions are now drawing tourists to an area. This will cause some tourists to move on to other destinations as suggested by Plog (Pearce 1987, 17).

Zimolzak and Stansfield (1983) emphasized tourism studies as a part of cultural geography, and developed the Leisurization of Landscapes Model, which is used to study the Aurland Municipality in this thesis. This model states that the transformation of rural landscapes in regions specializing in tourism follows a predictable pattern of three stages.

Initial Stage is a minor modification of the landscape brought on by the influx of vacationers and tourists. Visitors are first and foremost attracted by a natural recreation amenity, not exclusive of the cultural realm. Increased numbers of tourists lead to increased number of service industries that cater not only to the tourist, but also to the local residents. As tourism grows more profitable in the area, improvements in transportation and development of recreational facilities follow. The area strives to improve accessibility and the use of the local attractions.

Intermediate Stage occurs when the area becomes transformed visually as well as in land utilization and

economy. It is oriented to attracting and serving tourists. Infrastructure improves gradually as the area becomes more accessible to tourists. The Aurland Municipality is in this stage of development. Tourism remains seasonal in Aurland at the present time, but due to improvements in accessibility with the new highway, year-round tourism may result. Tourists are initially attracted to Aurland for its fjord and mountain scenery. However, as facilities expand in the Aurland Municipality, tourists may be drawn to the region for its created attractions, thus leading Aurland into the Advanced Stage of Zimozak and Stansfield's model.

Advanced Stage is when the landscape becomes dominated by created attractions and commercialization of original amenities. This stage can lead to tour circuit overload. Waikiki in Honolulu, Hawaii is a prime example of a landscape that has become saturated with high-rise hotels, created attractions such as the Polynesian Cultural Center, and commercialization of the once beautiful landscape.

Summary

In defining the literature of tourism, it is important to understand the basic concepts of tourism, including categories of tourists and lengths of stay at various destinations. It is also vital to understand what attracts

tourists to different destinations. Most of the groundwork for tourism research was laid in the 1930s. Further work was not undertaken until the 1960s, when tourism research started being viewed as part of applied geography. Regional and case studies are becoming the focus of geographical writings about tourism. Geographical models are especially helpful when studying stages of tourism development. For example, Zimozak's and Stansfield's model states that the transformation of rural landscapes in regions specializing in tourism follow a predictable pattern of initial, intermediate and advanced stages. It is now appropriate to turn to Chapter III, the Methodology, to understand the steps and procedures taken to analyze the changing landscape of the Aurland Municipality using the Zimolzak and Stansfield Leisurization of Landscapes Model.

CHAPTER III

METHODOLOGY

Background

Many people in the Upper Midwest have genealogical roots in Scandinavia. The writer has ancestral ties to Norway and has visited the Aurland Municipality nearly annually since childhood. Over time, certain land use changes have been observed firsthand. These land use changes include extensive hydroelectricity development, an all-season road to Eastern Norway, and most recently, new road and tunnel construction that will allow the Aurland Municipality to have an all-season road westward toward Bergen. In order to develop a fluency in the Norwegian language, the writer lived in Norway two years in her adult life. During the second year there, she became interested in the new road development and the effects it may have on year-round tourism versus the seasonal tourism it presently experiences during the summer months.

Procedures of research will be explained in this chapter. Using Zimolzak and Stansfield's Leisurization of Landscapes model and questionnaire surveys, the research objective was

to examine changes of land use, shifts in tourism flows and expansion in the local tourism facilities as a set of identifiable impacts from the road construction in the Aurland Municipality of Western Norway. In order to accomplish this objective, a five-phase methodological approach was taken: 1) initial reconnaissance; 2) preliminary archival research; 3) primary fieldwork and data collection; 4) survey analysis and 5) follow-up field work. A brief description of each phase follows.

Initial Reconnaissance

Since the early 1980s, land use changes in the Aurland Municipality have been visible because of recent road construction that included new bridges, new paved road segments, and massive tunnel building through the mountains. During preliminary field reconnaissance in the Spring of 1986, the writer became interested in what effects these land use changes would have for expanded year-round tourism in the region. The new highway segment, which will not open until 1991, will create a reliable year-round highway connection between Eastern and Western Norway. Estimates from 1986 predicted that the road will carry between 1500 to 2000 cars a day through the study area, which today is predominately a summer season tourist destination.

The rationale for the selection of the Aurland Municipality as a study site was that land uses are changing as a direct result of the new road construction. The study area is in the intermediate stage of the Leisurization of Landscapes model. When the new highway opens and brings in a larger influx of visitors, it is possible that, with time, the Aurland Municipality will evolve to the Advanced Stage of the model.

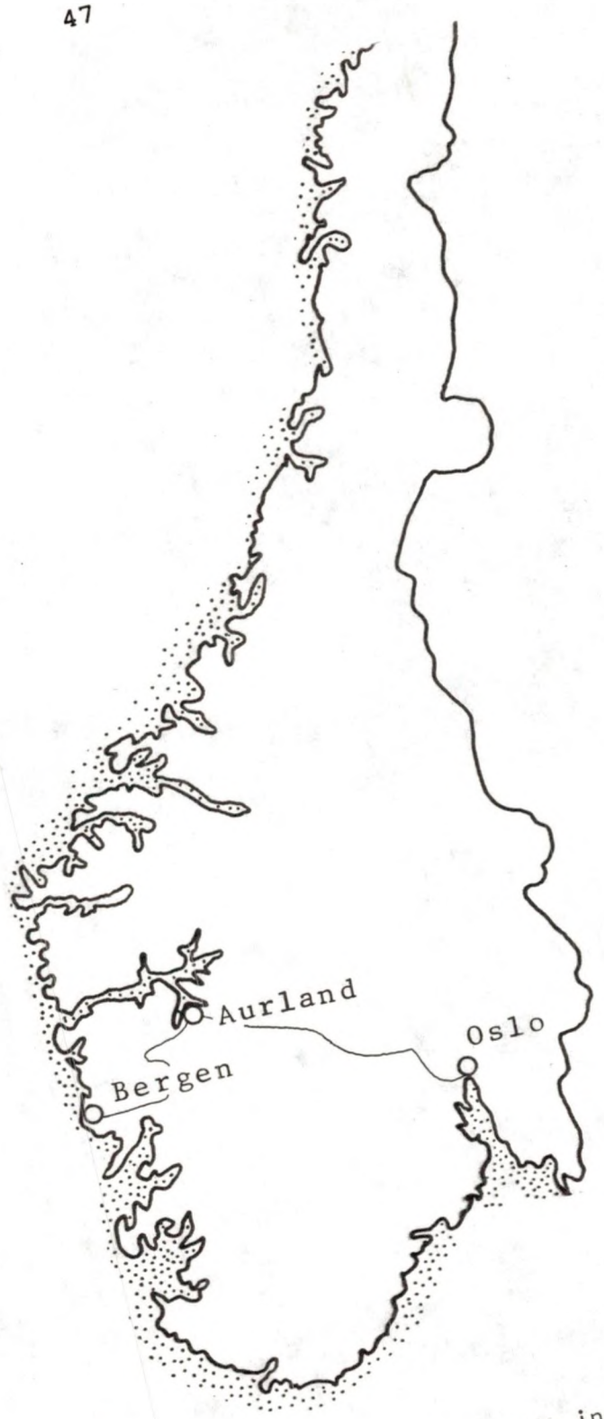
Preliminary Archival Research

Initial archival research began in the Fall of 1986 after the study problem had been defined. The library work was undertaken at the University of North Dakota to study the general impact of tourism at multinational, national, regional and local levels. A five-year back search of professional geographical journals such as the Professional Geographer, the Geographical Review and the Annals of the Association of American Geographers was accomplished as a standard starting point for research in cultural geography. These three journals were selected as the focus for locating other periodicals because of the paucity of specialized holdings in the geography of tourism at the University of North Dakota Library. Upon completing this inventory, a DIALOG on-line computer search was conducted by using key words for the topic. Despite substantial time and cost, this approach

yielded few citations of related studies. Bibliographies on tourism were consulted as sources of secondary information, and these, too, were scanty as sources. Consequently, arrangements were made to engage in archival research at the University of Bergen, in Oslo, and in the Aurland Municipality in the summer of 1987. The importance of the Norwegian language sources cannot be emphasized enough: there simply is a lack of tourism studies on Norway in English. It was critical to obtain these data sources from Norway in order to complete the research for Chapter IV, the Case Study.

Primary Field Work and Data Collection

With the preliminary archival research completed, intensive field work was undertaken in Norway during July of 1987. During the first stage of the field work in Oslo, substantial time was spent collecting data from various governmental agencies. The first office contacted was the Samferdselsdepartement (Ministry of Transport and Communication). Various governmental reports pertaining to the highway construction project were provided by this agency. In addition, legal documents were obtained relative to the selection of the route for the Oslo-Bergen Highway (Map 2). The next office visited was Norges Automobil Forbundet (Norway's Automobile Association). This was not as good a data source as the previous agency. However, it did supply



Map 2. Oslo-Bergen Highway Route in 1991

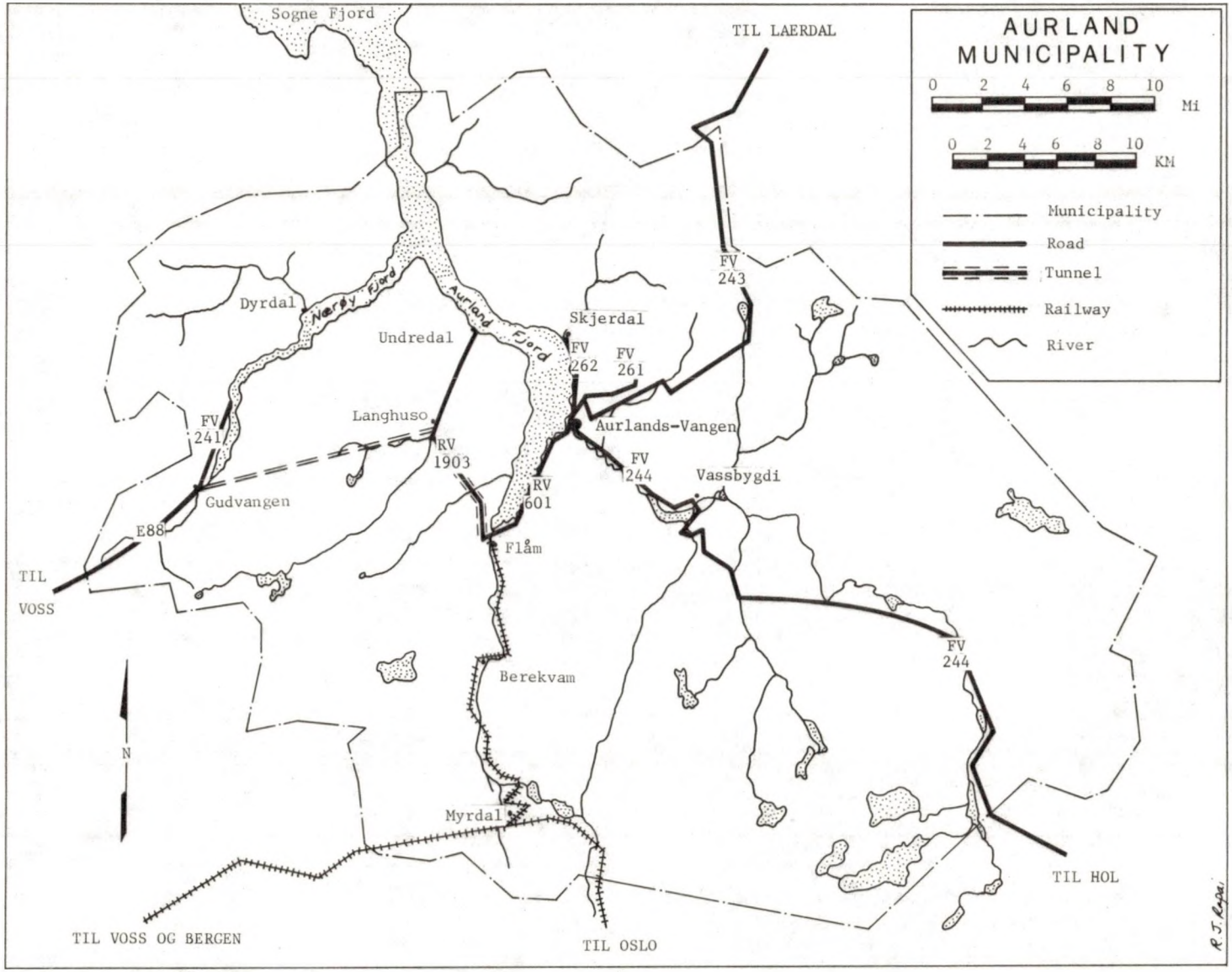
some excellent touring maps and special maps showing roads under construction.

The Tourist Information Center, located in the Oslo City Hall, also was contacted for additional data sources. Little valuable statistical information was to be found there, but its personnel suggested another office called Nortra which has comprehensive statistics on tourists in Norway. Nortra did prove to be a valuable source of information. They provided excellent over-nighting statistics for all of the provinces of Norway, including source countries of the visitors. The final office successfully visited was Den Norske Turistforeningen (DNT) - an organization to promote hiking and tourism. Hiking in the mountains of Norway is one of the major tourism pull factors attracting visitors to the country. The mountains surrounding the Aurland Municipality are considered an important hiking and recreation area that draws many tourists. Because base maps are vital to studying a region that is undergoing land use changes, detailed topographical maps of the study area were obtained from DNT at a nominal fee.

After one week in Oslo, the field work continued on the West Coast. Twelve days were spent traveling in Bergen, part of Sogn and Fjordane Fylke (the county for the Aurland Municipality) and the study area itself. Leikanger in Sogn

is a four hour drive from Bergen and this is where the Sogningen/Sogns Avis (local newspaper) is published. This newspaper is one of two local papers and was selected because of the better level of cooperation available from its editor than from the other journal. Research was completed in the newspaper's archives. Articles on local tourism and the new highway under construction were obtained with some difficulty because of the lack of an index for this local paper. After this stop, the next office visited was the Planning Division of the Statens Vegvesen, Sogn og Fjordane (State Highway Department of Sogn and Fjordane). It is located in Hermansverk, a few kilometers east of Leikanger. That office supplied some recently published reports pertaining to the tunnel construction of the new highway segment. These tunnels, when completed, dramatically will change the accessibility of the Aurland Municipality to other areas of Western Norway.

Following the archival investigation in Leikanger and Hermansverk, field research was undertaken in various parts of the study area. The Aurland Municipality consists of the town of Aurland and the parish communities of Flåm, Vassbyggdi, Undredal, and Gudvangen (Map 3). The sites within the study area were selected because they all are located in the highway construction zone where existing tourism



Map 3. Aurland Municipality and its Infrastructure

facilities may be expanded or entirely new tourism facilities may be built.

The town of Aurland had a number of offices that were very helpful in the process of data collection. The Aurland Reiselivslag (Aurland Travel Association) had a wealth of information on the municipality and on-going projects. Some of the main reports obtained were impact studies of the new highway for the Aurland Municipality, future prospects for Aurland's position as a center between Eastern and Western Norway, and a study of tourism industry in the Aurland Municipality. These documents were photocopied and pertinent parts of these reports later were translated from Norwegian to English. The agency provided a number of referrals. One referral was to the Aurland Municipality's administrative office. There, publications were obtained that included a seven year plan for land use in the municipality from 1983 to 1990.

To test the conditions for later undertaking a more complete survey of the local situation, pilot interviews were conducted specifically with one hotel-owner, one hotel employee from a different hotel, one campground owner, and two small-business people to gauge local responses towards the opening of the highway. Reactions were mixed. However, most of these respondents held the "wait and see" attitude before

they were going to add any costly expansions or new construction. Furthermore, a local historian, Anders Ohnstad, was interviewed. He has written a substantive history of the Aurland Municipality and provided supplementary information on the region's pre-1900 historical geography.

Parish Communities

Parish communities also were visited to see the immediate and visible consequences of the new road's impact upon local economic development. Vassbyggdi is a small town that is near the Oslo Lysverker's (The Oslo Electric Company) large-scale hydroelectricity project. As a direct consequence of the hydroelectricity projects, this parish was the first in the Municipality to experience changing land uses. Being primarily an agricultural area, land was bought to house the offices for the Oslo Electric Company. Also, Vassbyggdi was the first area to be connected to Eastern Norway with a year-round road built by the Oslo Electric Company.

The parish of Flåm, on the other hand, is an important crossroads center. Not only will it have the highway in 1991, but it is also the terminal station for the Flåm Railway and is the port terminus for the commuter traffic on the fjord. Flåm has experienced changing land uses, too. Land used for agriculture that is adjacent to the new highway has been

converted to a camping facility with furnished cabins and rooms available to rent.

The parish of Undredal is reached easily now from Flåm since the first of two tunnels is open. The five kilometer (3 mile) tunnel leaves Flåm from just above the railway station and comes out at a point called Langhuso. From Langhuso, it is a ten-minute drive on a newly finished road to Undredal, that incidently, was officially opened in 1988 as part of the new highway segment. A store owner was interviewed named Oystein Undredal. He said 100 people were living there and before the road came two years ago, the only outside connection was via the fjord. Mr. Undredal anticipated more tourists coming to Undredal via the new road. However, he said that the population of the parish was growing older and older, and it was difficult to keep the young people there when few employment opportunities existed.

On the return drive from Undredal to Flåm, the writer stopped to observe ongoing work on the second tunnel from Langhuso to Gudvangen, an 10.9 (6.5 mile) kilometer long tunnel which is under construction from both ends. The writer had the opportunity to drive into the tunnel for several kilometers and directly view the processes involved in tunnel building.

After staying over a week in Aurland Municipality, it was time to return to Bergen, this time taking the ferry to Gudvangen which is the only way to get there until the new highway opens. It was critical to interview ferry transport operators to get their reactions to the opening of the new road. Ferry personnel said that the ferry would become obsolete in the off-tourist season (October through April), but during the summer months it would be revived again for the tourists to enjoy the scenic splendors of the mountain and fjord scenery. Gudvangen is where the tunnel terminates when driving westward from Aurland, and it has some tourist facilities. A campground owner was interviewed informally and said that no major plans were underway for any new tourism facilities now, but perhaps more could develop when the road opens.

Returning to Bergen, Norges Statsbaner (NSB) (Norwegian State Railways) provided data on the number of passengers traveling annually with the Flåm Railway for the past seven years (see Appendix). Also, the main office for the fjord boats to Sogn was contacted successfully for information regarding boat routes and schedules. The last few days of the summer field season were spent in Oslo to complete data collection from government and private agencies.

It must be pointed out that many Norwegians take their

vacations during the month of July. It was not easy to contact the appropriate people in many offices because of "felesferie" (common vacation period). Consequently, it was discovered that July is not an advisable time to undertake some aspects of field work in Norway because holidays are frequent and most people working in Norway get an average of four to eight weeks off per year. However, while it was difficult contacting certain government officials and tourism operators in the summer, the time spent in Norway in 1987 was fruitful because key data regarding past and present land use, changing tourism traffic and future changes in the local tourism facilities were obtained successfully. Furthermore, this fieldwork was supplemented by mail-back questionnaires.

Survey Analysis

The fourth phase of the research methodology emphasized survey analysis of data collected from mail-back questionnaires that had been distributed after the 1987 field season. The survey focused upon local people's reactions to the construction of the all-year road. This mail-back questionnaire survey was administered in December of 1987 to sixty persons in Norway who had attended a seminar on tourism in the Aurland Municipality in June of 1987. There was over a 50% return rate and the results of the surveys are discussed Chapter V, Survey Analysis. The questionnaires were open-

ended, i.e. used the free response form. This allowed for a wider range of answers to the questions. The data obtained from the surveys provided valuable qualitative information.

Follow-up Activity

Library research continued at the University of North Dakota in the Fall of 1987 and in the Spring and Fall of 1988. A second DIALOG on-line computer search was run again late in 1988 that used fewer specific key words; this search proved to be successful and provided many useful citations. Follow-up field work was undertaken in the summer of 1988 with the writer spending time in the Aurland Municipality to observe any changes that had happened in the past year. Also, the writer has had access to local newspapers from Sogn since the initial field work in the summer of 1987 to keep abreast of any changes in the situation. These current events are discussed in the following chapter, Chapter IV, Case Study.

CHAPTER IV

CASE STUDY

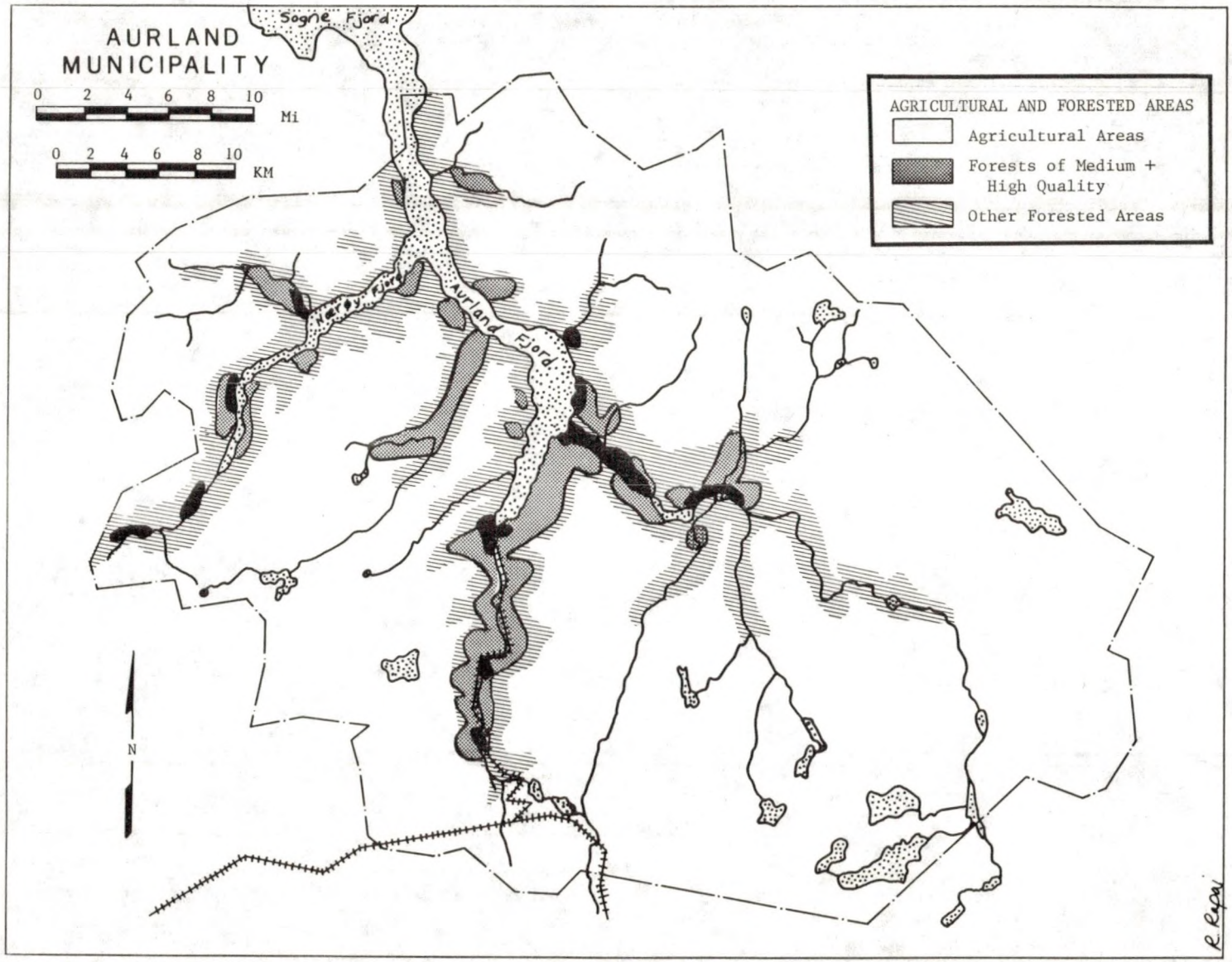
> "How far down do we descend before it dawns upon us that we are actually in the Aurland Valley, the fairy tale valley that all of Norway talks about, the enchanting, wildly beautiful, closed valley with energy sources running down all the valley sides and untamed power at its bottom that incites nature lovers and hydro-electric power developers to major battles and exhausts all moderate points of view"
>
> Inger Heiberg - "On a mountain walk down the Aurland Valley" (n.d.)

Before it is possible to use the Leisurization of Landscapes Model of Zimolzak and Stansfield for studying the Aurland Municipality, it is important to know about the physical and cultural geography of this part of Norway. The Municipality's outstanding fjord scenery and its intriguing rural settings have been vital components in attracting tourists to the Sogne Fjord region for the past 125 years, and those scenic and cultural amenities are vital aspects for planning future tourism developments around Aurland and its neighboring communities. Consequently, it is appropriate to begin this case study by examining the site and situation of Aurland Municipality.

Site and Situation of Aurland Municipality

Aurland Municipality is located at the head of the southeastern arm of the Sogne Fjord, the longest and deepest fjord in Western Norway (see Map 1). The municipality is adjacent to two fjord branches of the Sogne Fjord: the Næroy Fjord and the Aurland Fjord (see Map 3). Its eastern border is the Lærdal Municipality, its southern boundary is along the Hol and Ulvik Municipalities, its southwest border is with Voss Municipality and its northwest boundary abuts the Leikanger Municipality. Aurland Municipality has four valleys: Aurland, Flåm, Undredal and Næroy. These valleys are narrow and have very steep mountain sides. Six well-defined local centers are found in Aurland Municipality: Aurlandsvangen, Vassbygdi, Flåm, Myrdal, Undredal and Gudvangen (Ulshagen and Hansen 1986).

The combined area of Aurland Municipality is 1488 square kilometers (574.4 square miles), 82 percent of which is 900 meters (2952.75 feet) or more above sea level. Some of the individual mountain tops are in the 1700 to 1800 meter (5577.4 to 5905.5 feet) range. Most of the area consists of a wilderness of bare rock, ice and snow (Map 4). Twenty-six square kilometers (10.03 square miles) of this region is forested and/or used for agriculture (only three percent of the entire land area of Norway is suitable for agriculture).



Map 4. Agricultural and Forested Areas of Aurland Municipality

The mountain areas within the municipality have an abundance of lakes. In all, there are 1529 fresh water lakes that cover a combined area of 69.3 square kilometers (26.75 square miles) These water resources have, for the most part, been utilized for hydroelectric development (Generalplan 1983-90 Aurland Kommune 1983). More importantly for this case study, however, is that this lake-strewn mountain terrain is a high quality scenic amenity for tourism.

The low-lying areas by the fjord and in the valleys have a humid continental climate ("Dfb" according to Koppen) with long cold winters with little snow and short summers. Such a climate in a fjord environment historically, has been a key factor in limiting tourism to the summer season, especially if there is a problem of accessibility. To better understand the local climatic conditions that faced the initial tourists coming to the Aurland area and which were underlying factors helping to keep the region at the first stage of the Zimolzak and Stansfield's Leisurization of Landscapes Model, it is necessary to review the following data on climate. The municipality is one of the driest areas in Norway. Aurland's average yearly precipitation is 610 millimeters (23.98 inches), and the average yearly temperature is 6.5 degrees C (43.7 degrees F). January is the coldest month with an average temperature of -1.4 degrees C (29.5 degrees F). July is the warmest month with an average temperature of 16.1

degrees C (61 degrees F). However, the local microclimates vary by elevation. Myrdal, located 846 meters (2775.58 feet) above sea level has 1,720 millimeters (68 inches) of precipitation per year. February is its coldest month with an average temperature of -6.4 degrees C. (20.5 degrees F) and July is the warmest with a temperature of 10.7 degrees C (51.3 degrees F) (Generalplan 1983-1990 Aurland Kommune 1983).

The vegetation in the Aurland Municipality also varies relative to the elevation. Under 150 meters (492 feet) elevation, most of the land is used for agriculture. From 150 meters (492 feet) to 600 meters (1968.5 feet), the thickest boreal forest can be found consisting mostly of pines and spruce trees. Much of this area is characterized by steep changes in local terrain. The area from 600 to 1000 meters (1968.5 to 3280.8 feet) above sea level also is noted for extremely steep terrain variations and contains primarily birch trees. The tree line ends at about 900 meters (2952.75 feet) above sea level, however, some of the birch trees stretch up to 1000 meters (3280.8 feet) above sea level in the better protected locations. The alpine zone, from 1000 to 1500 meters (3280.8 to 4921.25 feet) above sea level, continues to be a rugged terrain but has luscious plant life. Above 1500 meters, few plants grow. At this level, the only things that thrive are glaciers. The highest glacial peaks are Storskavlen at 1730 meters (5675.8 feet) above sea level,

the large Liahovden at 1763 (5784.1) meters above sea level and Blåskavlen at 1809 meters (5935 feet) above sea level.

The Aurland Municipality has some of the most rugged and beautiful mountain and valley landscapes in all of Norway, being well-known for this far beyond its borders. The Næroy Fjord in Sogn is a declared landscape conservation area by the Norwegian government. The narrow fjord arm with its dramatic natural environment supports a habitat for seals and golden eagles. The Aurland Valley is a rugged, elongated valley rich with plant life. The rivers are partly drained after hydroelectric regulation. The Flåm Valley is a long, narrow valley with many beautiful waterfalls. The railway and an old construction road display impressive engineering feats. The valley has an interesting geomorphology, rich plant life, and rivers which are well stocked with salmon and trout. The high mountain areas between the Næroy Valley and the Flåm Valley are important hiking areas in Norway with many marked trails. This area could be characterized as relatively unspoiled nature. The Aurland Municipality also hosts large wild reindeer herds in the high mountain plateaus. A herd count during the summer of 1979 estimated 5000 to 6000 animals (Generalplan 1983-1990 Aurland Kommune 1983). Consequently, because of its special physical environment, there is a concern that without proper land use management, the area will experience tour circuit overload once it passes through the

second stage into the third stage of the Leisurization of Landscapes Model of Zimolzak and Stansfield.

Population and Economic Growth Periods

Such possible adverse human impact upon the ecosystems of the Aurland Municipality will come more likely from outsiders visiting than from local inhabitants using the highland and fjord-landscapes. Why? Because Aurland Municipality is a sparsely-settled region; its population in 1986 was 1,938. However, the largest census count was recorded in 1845 when the population reached 2,811 (Ulshagen and Hansen 1986). This population decrease can be attributed to two reasons: high emigration to America in the nineteenth century and substantial rural-out-migration to Norway's cities in the twentieth century. One positive consequence of this out-migration, however, is that descendants of the emigrants from the Aurland Municipality may be attracted to return to visit the land of their ancestors.

As population has risen and fallen, so have the major modern growth periods for the region. The municipality has had four major economic growth periods after 1875. The first two periods were tied to railway expansion. These were the construction of the Bergen Railway, around 1900, and the building of the Flåm Railway (1920-1940). The third period

was related to energy development. Hydroelectric plant construction during 1963-83 provided a major growth spurt. Between the late 1960s and 1983, the largest industry in the Aurland Municipality was the hydroelectricity project built by Oslo Lysverker (Oslo Electric Co.) In 1977, there were 880 people employed with the company (Ulshagen and Hansen 1986). Today's fourth growth period is associated with an ongoing year-round highway construction project started in the early 1980s that is to be completed in the early 1990s. The role of these four growth periods in the evolution of Aurland Municipality's cultural landscape is best understood by examining its historical geography.

Historical Geography

Although there has been human habitation in the Aurland Municipality since pre-Viking days, the first commercial tourism in the region can be traced only to the mid-nineteenth century. Consequently, the focus of this historical geography is the period after 1850. Foreign tourists with an interest for nature, fishing, and hunting started visiting Norway in 1850. Improvements in accessibility, the economy and social changes gave more people reasons to seek out tourism centers. Before it was only royalty and the wealthy upper-class who had the means to travel. The modern mass tourist traffic that is

present today was not possible until after World War II (Ohnstad 1962).

1850-1920: Aurland's tradition as a tourist center started around 1850 when the first English lords came for salmon fishing and to hunt reindeer. At that time there was not talk of any type of "thoroughfare traffic", and the tourists generally stayed a long time. From 1850 onwards, there were overnight lodges in many places in the municipality (Ohnstad 1962). These first tourists "discovered" the Aurland Municipality thereby starting the first phase of the Leisurisation of Landscapes Model by Zimolzak and Stansfield. In this stage of that descriptive model, there is a minimal change of land use, e.g., only a few tourist facilities were constructed and the tourism itself was focused upon enjoying only the scenic and other physical amenities, e.g., fishing for salmon.

The Leisurization of Landscape continued slowly when the railroad from Bergen to Voss opened in 1883. The railway itself was a tourist attraction. The first major stream of tourist traffic passed along the Gudvangen - Stalheim - Voss route and a hotel was built in Gudvangen. Small boats and cruise ships carried tourists to and from Gudvangen and through the Næroy Valley to and from Voss by horse and buggy. Most of the tourists were English and Germans but also a good

number were Norwegians, especially from Bergen. The latter took the round-trip "Norway in a nutshell" tour, as it is called today, going from Bergen through the Sogne Fjord to Gudvangen, Stalheim and Voss before returning to Bergen (Ulshagen and Hansen 1986).

Despite this small but growing level of tourism, the Flåm Valley before the turn of the twentieth century was a distant and forgotten valley. The Norwegian Parliament decided in 1894 to build the Oslo-Bergen Railway (see Map 2, p. 47). Once railway construction started, commercial interest expanded into the Flåm Valley and the mountains surrounding the Oslo -Bergen Railway. Building the railway required an ancillary construction road through the valley. Goods and materials were brought up to the railway via the road. This increase in traffic led to the construction of the Fretheim Hotel (Ohnstad 1962). It remains the most prominent hotel in Flåm today. Such expansion of the infrastructure meant that conditions were ripe for the Aurland Municipality to pass into one form of the final part of the first stage of the Zimolzak and Stansfield Leisurization of Landscape Model. For example, just after the turn of the century, a tuberculosis sanitarium was planned for Vatnahalsen, a mountain area up the valley from Flåm. The plans were changed, however, and a hotel was built. The hotel was supposed to be "Norway's St. Moritz" and have a great future (Ulshagen and Hansen 1986). The first

brochures printed for the hotel were aimed at a different market than today because they were printed in Russian and German, e.g., only the nobility and the industrialists who could afford the time and expenses of an exclusive resort environment.

Meanwhile, Den Norske Turistforening (an organization to promote tourism and hiking) began building foot trails through the Aurland Valley in the 1870s. The valley became well-known through tourism articles in daily newspapers and tour guide books. Consequently, cabins were built along the trails and eventually, a significant number of tourists started exploring Aurland this way. The Bergen Railway opened in 1909, and Myrdal was a junction for the road and railway; there also were generally improved economic situations for most people in the Aurland Municipality. It is at this point that the Aurland Municipality started to become accessible to the middle class tourist, a reflection that the region was starting to pass from the first stage of the Zimolzak and Stansfield Leisurization of Landscapes Model into its second stage: declining exclusiveness associated with improved accessibility and less-costly tourist facilities. Modern cultural influences from outside the area were strong and began to change the traditional farming society in a mixed fashion: isolation was reduced but valuable farmland began to be converted to tourism facilities. (Ulshagen and Hansen

1986). While tourist traffic in the area grew as a result of better communication, the local community became more "worldly", too, with employees of tourism facilities becoming exposed to the urban dialects of Norwegian and to middle class social customs and lifestyles from not only Oslo and Bergen, but from beyond Norway.

1920 - 1986: By 1894, the Norwegian Parliament had decided to build a branch rail line from the Bergen Railway down to the Sogne Fjord, but the final details and plans were not finalized until 1923. Work then began but construction was not completed until 1940. The Flåm Railway is in the special category of a tourist railway and is one of the largest tourist attractions in Norway. Original projections were for only 22,000 passenger a year, but it has been carrying over 200,000 passengers a year (see Appendix 1 and 2) (Ulshagen and Hansen 1986). Such a level of tourism reflects the degree to which the Aurland Municipality had passed into the early phases of the second stage of the Leisurization of Landscapes Model of Zimolzak and Stansfield. At this point in that descriptive model, there is an increase in tourism that seemingly starts to exceed the capacity of the existing infrastructure, but the flow of tourists remains manageable because the tourist destination has not become so readily accessible that the local entrepreneurs have become overwhelmed for providing lodgings, meals, and related

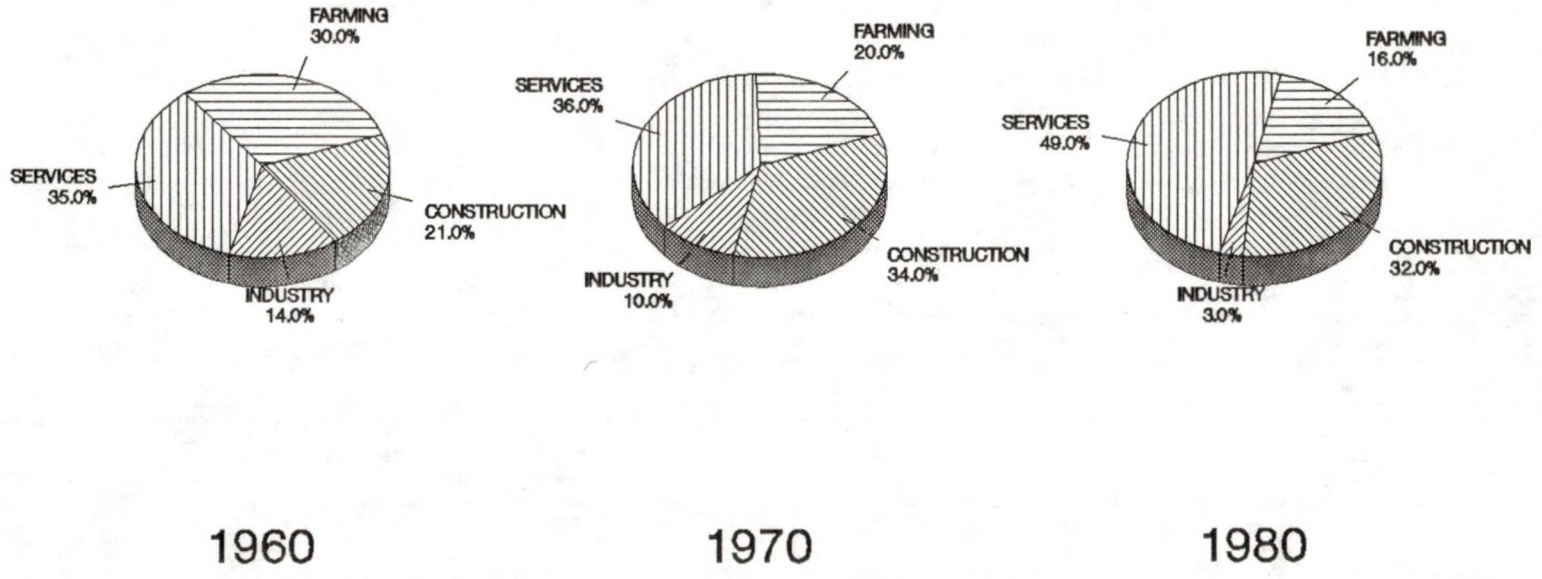
services. The tourism traffic is seasonal, too, at this point, so there is under-utilization of tourist facilities in the off-season, so this provides a "recovery" period from the peak season.

Yet, tourist accessibility to the Aurland Municipality improved as a consequence of energy development. Oslo Lysverker, Norway's largest hydroelectric company, bought the most substantial parts of the waterfall rights in Aurland water basin in 1945-46. In order to obtain licensing to begin operation of the power plant in 1965, Oslo Lysverker had to respond to local demands for a good road, which was a major developmental concern for the municipality. The municipality wanted an all-season road to Eastern Norway through the Hallingdal Valley. Oslo Lysverker agreed to build the Aurland - Hol road through Hallingdal and also to build a summer road between Aurland and Lærdal (see Map 3). Both of these roads have increased automobile traffic in Aurland and have helped support the modern development of tourism in the municipality. Hotels and stores earned a great deal of money in the construction years and consequently have modernized and expanded their businesses (Ulshagen and Hansen 1986). This type of tourist facilities expansion indicated that the later phases of the second stage of the Leisurization of Landscapes Model of Zimolzak and Stansfield were being reached in the 1970's: increased accessibility resulting in greater tourism

flow with tourist demands being handled so to not overload the local environment. However, in this second stage there are land use changes.

Transformed from a largely farming economy to a major tourism area, the Aurland Municipality in the past 100 years has evolved like few other places in Norway. While agriculture plays a lesser role for employment than previously, tourism has taken on a larger significance in the region (Figure 2). Tourism is valued as one of the municipality's top economic activities. The main tourism season in the Aurland Municipality runs from early May to late September. It is anticipated that the planned opening of the all-season highway in the early 1990s will make year-round tourism the most important industry for the municipality; tourism already had became the single most important industry in Flåm by 1980 (Generalplan 1983-1990 Aurland Kommune 1983). As the Aurland Municipality's accessibility improves, it could advance into the final phases of the Second Stage of the Leisurization of Landscapes Model: overwhelming domination of the local economy by tourism but a form of tourism where the attractions are focused upon scenic-amenity and historical-cultural amenity resources. Land uses may be oriented toward securing tourists in the second phase of the Leisurization of Landscapes Model of Zimolzak and Stansfield, but providing created attractions and the crass commercialization of the

Figure 2. **DIVISION OF WORK FORCE BY SECTOR**



original amenities are not undertaken at this point. It would appear that the Aurland Municipality is on the verge of the last parts of Stage Two of the Leisurization of Landscapes Model of Zimolzak and Stansfield because of the plans for new tourism facilities being prepared as a result of the anticipated improved accessibility of the region.

Accessibility and Infrastructure

In the travel industry, it is important that a destination is easily accessible. The situation of the Aurland Municipality is in the midst of the fjord arms, with high mountains and narrow valleys. It is easy to think that travel in this region has been and still is difficult. But many changes have taken place over the last 50 years and many more changes are to come. Before it is possible to consider the possible impacts of the soon-to-be completed all-season highway upon local tourism, it is useful to remember that the present infrastructure of the municipality is as follows:

Railroads: The Flåm Railway has connections to Myrdal and to the Bergen Railway, which provides a year-round connection to Bergen and Oslo.

Roads: In 1967, a non-winter seasonal road was opened from Aurland to Lærdal-Revsnes. It is open during the snow-

free months of the year, usually May through September. Associated with the hydroelectricity project, Oslo Lysverker built a road from Vassbygdi to Hol. It was opened in 1974 and functioned as a construction/toll road until Spring of 1985 when it became a state highway. Since that time, Aurland Municipality has had an all-season road eastward, but as of the summer of 1988, it still had no ferry-free road connection westward to Bergen.

Ferries and boats: In general, the fjords have funneled the trade and have helped to expand the commerce between the different settlements, hence the traditional importance of ferries and boats in this region. There are daily ferry connections from Gudvangen-Revsnes-Kaupanger and Flåm-Aurland-Kaupanger. Furthermore, there are tri-weekly ferry connections from Aurland to Leikanger. An express boat from Bergen goes to Aurland/Flåm two times a day in the summer and once a day in the winter.

There is no airport in the municipality at present. The closest such facilities are in Sogndal, Voss, and Bergen (Ulshagen and Hansen 1986). Consequently, the Aurland Municipality's further development as a tourism center has been contingent upon the construction of an all-season highway to Bergen.

Development of the All-Season Highway

Why is the growth of future tourism in the Aurland Municipality being linked to road construction according to this application of the Leisurization of Landscapes Model of Zimolzak and Stansfield? It should be noted that while the fjords have served through time as the most important travel routes for people and settlements in the inner fjord areas, today, that picture has changed drastically. In the fast-paced computer technological age with its emphasis upon constant accessibility, the mountains and fjords have become barriers for the somewhat isolated and fjord communities which depend upon ferries, boats and seasonal roads, forms of travel especially difficult during bad weather. Retrospectively, year-round roads encourage increased car ownership and are vital to isolated areas to reduce transportation costs for goods. From the perspective of the Leisurization of Landscapes Model of Zimolzak and Stansfield, year-round roads increase tourism opportunities and revenues for fjord communities.

This background on the spatial, cultural, and economic relationship of road improvement to regional development helps to explain why the Norwegian Parliament decided in 1975 that the main Oslo-Bergen highway would be built over the File Mountains. These plans are still in effect, but this route

will not be used until the highway is connected to Lærdal. In the meantime, the road will go through Geiteryggen to Hol. In addition, the section of road from Hol to Aurland would be improved to national highway standards, so that a ferry-free highway would exist between Oslo and Bergen, thereby reducing travel times between Norway's two most populated cities. The work on the highway has been in full operation, both in Hordaland (Voss - Dale) and in Sogn and Fjordane (Flåm - Gudvangen) during the late 1980s. According to construction plans and budget projections, the last tunnel between Langhuso and Gudvangen will be completed in 1991 (Tonneson 1986).

The building of this road has had and presently continues to have an enormous impact on the infrastructure of the Aurland Municipality, and it is perceived as a key factor for any future tourism expansion in the region. The road has been built in sections. The work on the 5 kilometer (3 mile) Flåm-Langhuso tunnel started in 1981 and was completed in 1985. At the same time a road was built to Undredal, which previously never had road connections. Work is now being done on a 10.9 kilometer (6.5 mile) tunnel from Langhuso to Gudvangen. This tunnel is scheduled to be completed in 1991 and will be the longest tunnel in Northern Europe. When this segment of the road is completed and used with the upgraded pre-existing Aurland-Hol Road, large parts of the Municipality will be tied more closely together, and Norway

will have for the first time, a ferry-free, year-round Oslo-Bergen highway. The present plans are that even when the Langhuso-Gudvangen road opens, ferry piers in Flåm and Aurland will be maintained. However, existing ferry traffic from Gudvangen to Kaupanger/Revsnes will be discontinued and the departure point will change from Gudvangen to Flåm/Aurland. This will lead to a reduction of total ferry departures from five daily departures to three daily in the winter and still fewer in the summer since the Lærdal road will handle most of the general and tourism traffic. Year-round ferry traffic between Flåm and Gudvangen is to be discontinued when the new road opens, but, according to the ferry operators, ferries are to be sailing during the summer to accommodate the large influx of foreign tourists who journey to the region to enjoy the beautiful fjord and mountain scenery.

The travel range of people from outside the Aurland Municipality will change drastically once the highway opens. Tables 1 and 2 show the number of people within a two or three hour driving range of the Aurland Municipality before and after the main highway opens. This increase in the number of people within a short drive of the Aurland Municipality especially is critical to note because it could generate a rise in the number of domestic excursionists, i.e., Norwegians taking a day-long or weekend holiday in the region. An ideal weekend drive is considered to be two to three hours from the

Table 1: Population within a three hour driving range of the Aurland Municipality before the Oslo-Bergen highway is completed.

2 hours:		3 hours:	
Municipality	population	Municipality	population
Lærdal	2,256	Balestrand	1,921
Sogndal	5,696	Vik	2,548
Leikanger	2,832	Årdal	6,381
Hol	4,217	Luster	5,142
Ål	4,668	Gol	4,106
		Nesbyen	3,364
		Flå	1,262
		Nore & Ulvdal	2,999
	19,669		27,723
Population within a three hour driving range			47,392

(Tonnesson 1986, 5)

Table 2: Population within a three hour driving range of the Aurland Municipality after the Oslo-Bergen Highway is completed.

2 hours:		3 hours:	
Municipality	population	Municipality	population
Lærdal	2,256	Årdal	6,381
Sogndal	5,696	Luster	5,142
Leikanger	2,832	Balestrand	1,921
Vik	2,548	Gol	4,106
Hol	4,217	Hemsedal	1,625
Ål	4,668	Nesbyen	3,364
Voss	14,060	Flå	1,262
Ulvik	1,292	Nore & Ulvdal	2,999
Grandvin	1,089	Ulensvang	4,071
		Eidfjord	1,031
		Kvam	8,744
		Samnanger	2,378
		Fusa	3,816
	38,658	Bergen	207,252
Population within a three hour driving range			292,750

(Tonnesson 1986, 5)

point of origin to the destination. Should such a circumstance occur, it is not inconceivable that tour circuit overload could be reached and a shift made to emphasize created tourist attractions and to having a crassly commercial form of tourism, i.e., the tourism characteristic of the Third Stage of the Zimolzak and Stansfield Leisurization of Landscapes Model.

In order to avoid tour circuit overload, it is important to take into account the potential negative effects the new road may have on the Municipality so that provisions can be made to reduce or eliminate potential problems such as noise, pollution, excessive traffic, safety concerns for pedestrians and cyclists, aesthetic conflicts and other specific local issues. For example, some suggestions have been made in the Aurland Municipality to build bypasses, cross-walks, sidewalks and bicycle lanes and to provide safe routes for children walking to school.

Furthermore, many alternatives have been suggested for bypasses around the main settlements. In Flåm, there are two alternatives for the highway. The first is a tunnel through Freteimshaugene, a hill just behind the city center. The second alternative, in the meantime, is to run the traffic through Flåm center and to improve the present road.

According to newspaper accounts, the people of Aurland Municipality have preferred the first alternative. However, because of governmental budget constraints, no funds will be available for the project until 1993-94 fiscal year. The municipality now has decided to build the tunnel with its own funds and be reimbursed at a later date by the Norwegian government. The major problem with routing the road directly through Flåm center is that the parish is the terminus for both the Flåm Railway and the fjord traffic. Many tourists are on foot and would have a difficult time crossing a busy highway to reach tourist amenities on the other side of the road unless costly traffic lights are installed. The town of Aurland also has plans of a bypass from Onstad to Grimsette over the hydroelectric project. This will consist of a road and tunnel on the right side of the Aurland Valley to avoid the hairpin turns of the present road at Lovisdal. If this plan is acted upon, the new road will avoid Vassbygdi entirely and will have serious implications for the road building to Lærdal which connects Inner-Sogn with Aurland. It is anticipated by local politicians and the news media that no funds will be available for that project for decades if the proposed by-pass is built.

The soon-to-be finished all-year road will bring the Aurland Municipality into a new epoch in the early 1990s: it will become a nodal point for traffic communication when the

new road opens. Not only will it be a connecting point between east and west, but also between the north and south. The new road system will initiate new criss-cross route connections that will connect with the Geiteryggsekspress (the "goat-ridge" express), a direct bus connection between Oslo and Bergen. Plans are already underway for a sea bus, a ferry carrying passengers, from Inner Sogn that will connect with bus routes utilizing the new highway. It is possible that these boats will be stationed in Aurland, further advancing Aurland into the later phases of the Intermediate Stage of Zimolzak and Stansfield's Leisurization of Landscapes Model and become a national center that is oriented to attracting and serving tourists. Yet, this road has non-tourist implications, too.

Non-Tourist Traffic after Langhuso-Gudvangen Segment Opens

A large share of Norway's existing long distance east-west traffic undoubtedly will use the new highway when it opens. Some of the traffic will be local between Aurland and Hordaland. With the reduction in travel time between Aurland and Gudvangen coupled to travel time on the existing highway between Gudvangen and Bergen, Aurland will become as equally a fast east-west route as the present route over the Hardanger Plateau.

Predictions made in 1982 from the Highway Department in Sogn and Fjordane estimated 1500 vehicles per day during the summer season and 500 vehicles per day during the winter season using the Flåm-Gudvangen route. Forty per cent of the traffic will be local between Aurland and Gudvangen, a reflection of the region's central place hierarchy.

When the road between Flåm and Gudvangen is completed in 1991, all corners of the municipality, with the exception of Myrdal, will be linked together by roads. Undredal and Gudvangen/Næroy will be connected with the rest of the municipality in a new way. The travel time will be reduced greatly to the municipality's center (Table 3) and the population on these outer fringes will, for the first time, be able to take advantage of goods and services within the municipality with little travel effort.

Table 3: Reduction in actual travel time to Aurlandsvangen, the municipality's center before and after the Flåm-Gudvangen tunnels are completed.

	Before	After	Time Saved
Undredal-Aurland	30 min.	25 min.	5 minutes
Gudvangen-Aurland	110 min.	30 min.	80 minutes

(Tonnesson 1986, 10)

However, there are some groups of farm communities on the Næroy Fjord that presumably will be affected adversely by the

new highway. These isolated farm areas have no roads and rely purely on boat traffic for outside communication. A direct consequence of the Aurland-Gudvangen road will be the large reduction of boat service between Aurland and Gudvangen except during the summer months for the tourists. Thus, the tourism traffic is interwoven into the local economy even more significantly because of the new road west from Aurland.

The New Highway and Its Impact on the Economy and Landscape

Public and private service industries have been the most important employer in the municipality in the 1980s. In 1981, 45 percent of all jobs were found in this economic sector (Table 4). In 1985, those employed in the tourism related activities numbered 293 persons. The tourism industry earned 22.4 million kroner in 1985 (Over $3.5 million dollars). Much of this revenue was associated with the twenty overnight facilities in the Aurland Municipality (Table 5 and Map 5). The total tourist bed capacity in Aurland Municipality in 1986 was 924. This number is significant if one compares with other municipalities in Western Norway. While none of the hotels are in the "luxury class", the standard is exceptionally high for tourist accommodations. The tourism industry is seen as one of the most important growth industries in the future and eventually will develop into a year-round industry as the new highway is opened.

Table 4: Employment by sector Aurland 1981.

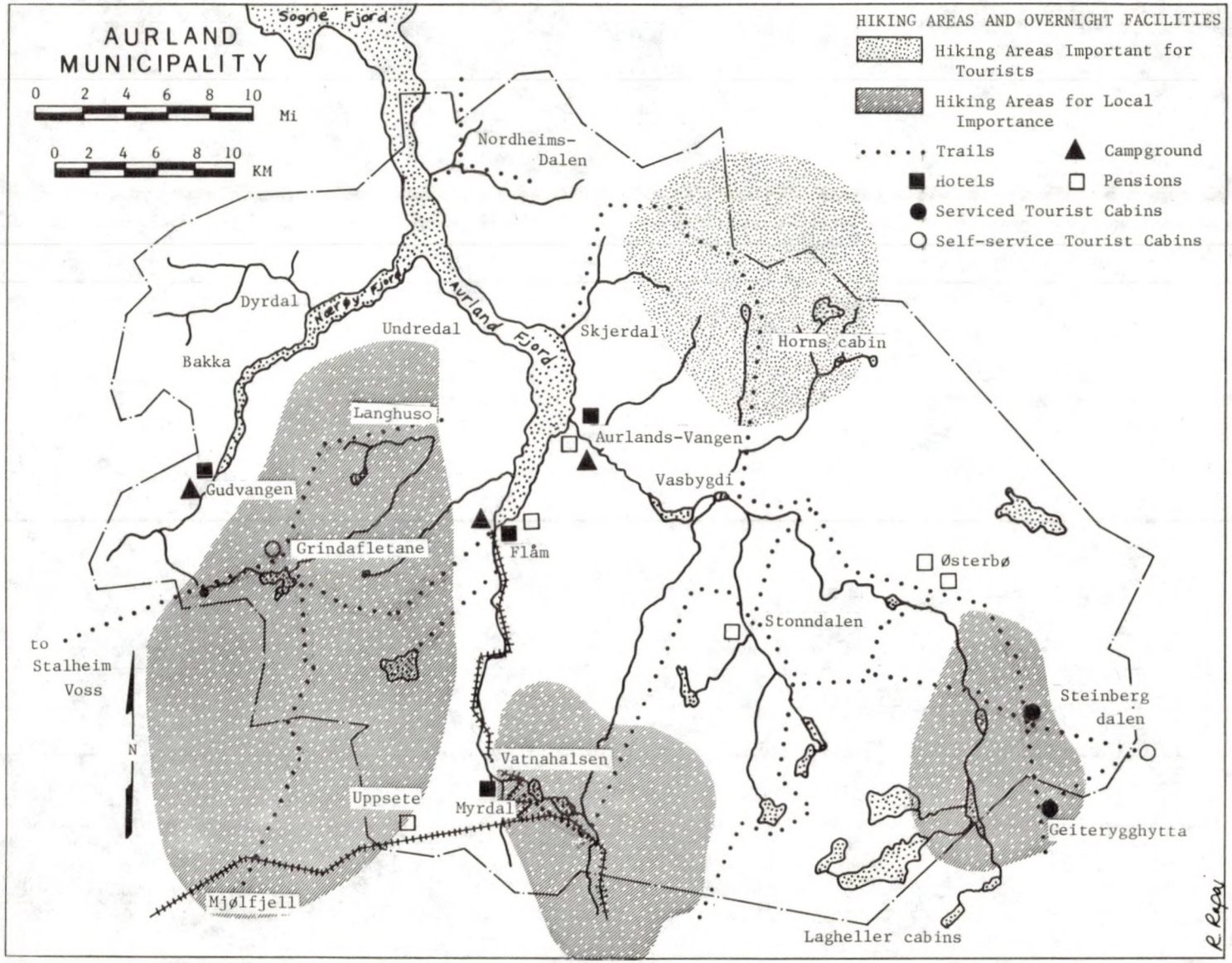
Employer	1981	%
Primary	161	21
Industry	20	2
Hydroelectric Power	165	21
Construction	202	27
Stores, Hotels and Restaurants	94	12
Transportation, Postal & Telephone	125	16
Banking and Finance	10	1
Total	777	100

(Ulshaugen and Hansen 1986, 7)

Table 5: Overnight facilities in the Aurland Municipality today.

Number of Businesses	Aurland	Flåm	Gudvangen	Myrdal	Total
Hotels	1	1	1		3
Pensions	2	1	1		4
Motels	1		1		2
Cabins/Mountain Resorts	4	1		1	6
Youth Hostels		1			1
Campgrounds	1	1	2		4
Totals	9	5	5	1	20

(Ulshaugen and Hansen 1986, 20)



Map 5. Hiking and Overnight Facilities of Aurland Municipality

Because the second and third stages of the Leisurization of Landscapes Model of Zimolzak and Stansfield emphasize the transformation of the local environment into land uses serving tourists, it is important to recognize the plans being make for such service facilities as a consequence of the highway construction within the Aurland Municipality.

Service Facilities

Aurland Municipality has six major community centers. The new highway's anticipated land use can be viewed as stretching across a continuum of changes ranging from no change to substantial new development. Thus, the anticipated shift in some facilities are arranged from the least change to the most change. Vassbygdi has no tourism facilities and none are planned since the new highway will not be routed through the parish. Its major economic activities are agriculture and housing the offices for the Oslo Electric Company. This community, therefore, represents one place not anticipating any shifts in land use as a consequence of the new road.

Myrdal, which is the mountain railway station where passengers change trains to the Flåm line, has cabins for tourists. Other than that, its present facilities are limited. Many tourists that wish to walk down the Flåm Valley

do begin in Myrdal and use the road which originally was built as a construction road that brought supplies to the Oslo-Bergen railway when it was being built in the late 1800s. Thus, Myrdal could become a prime site for future tourism development.

Undredal currently has limited tourist facilities with only one guest house that provides boat transportation on the fjord. There also is one general store that makes its own home-made goat cheese. Other attractions include the Undredal Church which is a rebuilt stave church and the smallest rural church in Norway. Undredal, a town of one hundred residents, only has had road connections since 1985. The road "officially" was opened in April of 1988, and it could become a major tour bus stop if its historical and cultural attractions are publicized.

Gudvangen has the following service facilities for tourists: a grocery store, a hotel, a motel, a pension (less-expensive, more informal guest house) and two campgrounds. All of these facilities are situated close to where the new highway will be and should receive increased year-round income once it opens. There is still land available to expand or build new establishments since agriculture is still the most important industry in Gudvangen. The Næroy Fjord and Valley long have attracted tourists and artists. It is a well-

established and "easily sold" travel destination. The opening of the new highway will make the Næroy region more accessible for many individuals and groups and provide all-season employment for the local community.

The town of Aurland has the largest number of service facilities in the Municipality. It has one hotel, two pensions, one motel, four mountain resorts and a campground. Aurland also has a good selection of stores, ten in all, a gas station, the Aurland Savings Bank, a hair dresser and four small shoe factories where the well-known Aurland shoes are hand-made. No major plans are underway at present to build new tourism facilities in Aurland, however, it is possible that some of the present facilities will be improved or expanded depending on how much of the automobile traffic will stop there in starting in 1991.

Flåm is one of the better-established tourism centers in the Aurland Municipality. It has a hotel, a mountain resort, a pension, a youth hostel, a campground, two grocery stores, a bank branch and a tourist information center. The fjord boats and Flåm Railway bring in a large number of tourists during the summer months. Flåm has the most ambitious plans for expansion once the new highway opens in 1991. There are plans for a Fina Gas Station with cafeteria and motel. Also there are major plans underway for a "flotel", a floating

hotel anchored in the Sogne Fjord next to Flåm. This luxury class floating palace would be based in Flåm, but would be able to be moved to other locations in the Sogne Fjord for special events. In addition, a tourism complex containing restaurants, shops and a recreation facility with swimming pool are planned to be built adjacent to the fjord to support flotel guests and other tourists from the Flåm Railway, fjord boats and the new highway once it opens.

Summary

The Aurland Municipality has a solid platform for tourism development: natural attractions which have gained international attention, e.g., the Aurland Valley, the Flåm Valley and the Næroy Fjord. Technical and cultural attractions also of major interest: the Flåm Railway, hand-made Aurland shoes, hydroelectric development, settlements in Undredal and rich discoveries from historic times. The Aurland Municipality has a long history of tourism back to the past century.

Many would characterize Aurland as a newly wealthy municipality, a municipality that, in recent years, could have doubled its budget many times over without having to take out any loans. The "new wealth" has for the most part come from the massive hydroelectric development in the municipality that

has been headed by Oslo Lysverker from the period 1969 to 1984.

Chapter IV, has given an overview to the physical and historical geography of Aurland. It has also explained the development of the all-season Oslo-Bergen highway and its future implications upon tourism traffic in the Aurland Municipality. The region is progressing into the latter stages of the Second Stage in the Leisurization of Landscapes Model. When it becomes a year-round nodal point for tourism traffic, it could very well move into the Advanced Stage of Zimolzak and Stansfield's Model.

The following chapter, Chapter V, Survey Analysis, is an interpretation of questionnaire surveys that address issues and concerns about the opening of the new highway and future economic and environmental impacts that may occur in the Aurland Municipality.

CHAPTER V

SURVEY ANALYSIS

"Research is to see what
everyone else has seen, and
think what nobody has thought"
-Dr. Albert Szent-Györyi
-Scope Weekly, quoted in Science of Mind
(n.d.)

This chapter provides an analysis of the results of a mail-back questionnaire that was administered in December of 1987 to 60 persons in Norway who had attended a seminar on tourism in the Aurland Municipality in June of 1987. The addresses of the people attending the seminar were obtained from the Aurland Travel Association which sponsored the seminar. Thirty people returned the survey form and two other persons responded with more detailed information pertaining to the study which will be discussed later in the chapter. Consequently, there was over a 50 percent return rate for the questionnaire. Generally a 30 to 40 percent return rate for responses is considered normal, so this was a well above average return rate. The questionnaire (below) was in the open or free response form and was four questions long.

A translation of the survey questionnaire.

December 10, 1987

To Participants of the Mini-Seminar in Aurland 6/87:

I am a student at the University of North Dakota and am studying for a masters degree in geography. My thesis project is on the outlook for increased tourist traffic in the Aurland Municipality in connection with the main Oslo - Bergen Highway opening in the 1990s.

I was in Aurland in July of this year and collected information. However, I would appreciate it if you would fill out the questionnaire below pertaining to the new main highway.

Please return the questionnaires to me by January 15th, 1988.

In advance, thank you for the help!

Kari Brekke

1. What effects, positive or negative, do you see the new main highway bringing to the Aurland Municipality?

2. Do you think the Municipality will greatly expand tourism facilities in response to the increased traffic through the region? (Hotel beds, restaurants, gas stations, stores and other facilities)

3. In your opinion, do you anticipate traffic stopping in the Aurland Municipality or just "passing through"?

4. Can the large volume of traffic have negative effects in regard to pollution, noise and other concerns?

The chief goal of the survey was to provide supplemental data to field work completed by the writer in the summer of 1987. In particular, this instrument was used to enhance the research and to gain new insights and opinions of the people who would be affected by the new highway. This group of people was selected to be surveyed primarily because they had an interest in the municipality and held a concern for the future effects of such a road related to tourism, recreation, and environmental issues.

Overview

In tourism research, a questionnaire is an extremely valuable method to gather data that is not readily ascertained from investigating the fixed-feature space of the cultural landscape. Perceptions and attitudes constitute data that are critical to this research problem. Although open response questionnaires are not always as precise as other forms of data acquisition, they reveal a wider range of the answers of local inhabitants to a particular question and provide important qualitative information.

Procedures of Analysis

Survey forms were printed on University of North Dakota Geography Department letterhead and included a self-addressed

return envelope. A courier hand-carried the questionnaires to Norway in mid-December 1987, and placed Norwegian postage stamps to the return envelopes to insure a higher survey return rate. The respondents were asked to complete and return the form within one month of receiving it. With thirty completed forms returned, the next major obstacle was translating all of the questionnaires and the two more detailed responses. Few of the surveys were typewritten, so there were some difficulties deciphering the handwriting. Also, not all of the Norwegian language responses were in the standard written language; much of it was in the Sogne Fjord dialect. With the task of translation completed, compilation and tabulation was the next step. With an open response questionnaire, precise statistical analysis is always difficult. While the responses varied both in content and length, they had to be separated and grouped so that the general data could be analyzed appropriately in a systematic manner.

Survey Results

This section analyzes the results of the translated survey forms and two more detailed responses which were sent in lieu of the questionnaire. The two individuals, who have completed extensive research in Aurland, sent letters and copies of reports that they had written. The first researcher, Jon Teigland, has written a study on the effects

of hydroelectric development in the Aurland Valley on outdoor recreation and tourism. In connection with the hydroelectric development, the Oslo Electric Company built a year-round road connecting the Aurland Municipality with Hol in Eastern Norway. In his report, he mentions the possible user groups for the road. Mr. Teigland states that the Hol-Aurland road has opened the Aurland Valley to day trip hikers. It has made the Aurland Valley not only more accessible to motorists, but they can choose which parts of the area they wish to experience. But, the report points out that just because the Aurland Valley is more accessible does not necessarily mean that the area will attract more hikers. This will depend on how attractive the area is compared to other regions. Some of the motorists will choose to drive through the municipality because it is the most practical way to get between two points. Others will chose the road because of recreational opportunities. So, the users of the highway must be categorized in several main groups. Some will use the highway through the valley first and foremost to get quickly between places in Eastern and Western Norway. This group will stop in Aurland only for necessary errands or will drive through without stopping. The natural attractions in the valley will play a lesser role in this type of travel.

On the other hand, some of the thoroughfare travelers will decide to drive through the Aurland Valley just to experience nature or to take part in some form of outdoor recreation.

These motorists have probably planned the Aurland Municipality in their travel route. In this retrospect, the Aurland Valley and the recreational opportunities are an intervening opportunity that motorists take advantage of on their journeys.

Another group are those that have decided to visit Aurland primarily for the purpose of outdoor recreation. This group has selected the Aurland Valley over other possible alternative recreation areas for the following reasons 1) physical attractiveness and challenging hiking possibilities and 2) accessibility of the valley compared to other alternatives from the point of origin of the motorists. In Teigland's study, he took a sample of motorists in the Aurland Municipality in 1986 and found that 85 percent of the traffic consisted of Norwegian travelers. Of these people, almost all (ninety-five percent) were on vacation. Only six-percent of those asked were taking day hikes in the area, and those people lived in Aurland or in neighboring municipalities. The largest percentage of motorists (fifty-seven percent) drove through the Aurland Valley without over-nighting or stopping. Eight percent stayed overnight, while the other thirty-five per cent stopped in the valley. The main reason for stopping was to eat, to look at the scenery, or to fish. Mr. Teigland concludes that most of the motorists are thoroughfare travelers and they only stop out of necessity. Because so

few people use the Aurland Valley as a recreational area, the Aurland-Hol road's main purpose is for thoroughfare travelers. Mr. Teigland's study, although completed before the new highway segment is opened to Western Norway, is important because it gives and idea of what type of motorists use the road and what percent stop to enjoy the scenic and recreation amenities of the Aurland Municipality.

The other individual who sent a letter and a copy of his study was Mr. Svein Tonnessen. He completed a study for the Aurland Municipality on the effects of new highway on the development of the local economy. He indicated that because the highway will not be completed until 1991-92, his report cannot be anything more a look ahead to future conditions. Parts of his report are included in Chapter IV, Case Study. In his letter, he states that in looking at the effects of the new highway for tourism, it is important to take in account the demographic aspects of the municipality. Aurland, in a short time, will feel the effects of a large reduction in population and a steadily aging population. At the national level, there is a large competition for a highly qualified work force. For somewhat isolated municipalities like Aurland, this poses a problem in recruiting competent people for positions that will aid in the development of the municipality. The new road will help the municipality in

this situation by making it more accessible to the potential work forces.

The following is an interpretation of the questionnaire surveys. Similar responses are grouped together and quotes are used frequently to highlight insightful responses.

The first question asked was: "What effects, positive or negative, do you see the new major highway bringing to the Aurland Municipality"?

Forty percent of the respondents cited better communication as one of the chief positive effects of the new highway. This applies not only to areas lying outside the municipality, but within Aurland's boundaries. The Aurland-Flåm-Gudvangen road will connect the area together in an unprecedented way. The new highway also is viewed as a factor to help keep the local population, especially the youth, in the area. It will be relatively easy to live in Aurland and to work outside the municipality. Furthermore, the new road will make it less difficult to reach institutions of higher education and to travel to cultural attractions in larger places. As one respondent said "The new road will provide permanent residents with a feeling that they live in a place that follows along with society's development".

Also, as a positive effect, forty-three percent of the respondents cited the importance of increased traffic for business establishments. Many new jobs are expected to be created and there is hoped to be increased industry and activities in all areas. Many new service industries should spin-off as a result of the new road. Businesses should earn more money, hence positive economic consequences will prevail. As one respondent said "The road will carry with it many activities in the form of services for travelers." As another respondent stated, "For a municipality as a whole, the new highway will have a positive effect - more traffic, more transactions, easier sale of local products."

Thirty-three percent of those who returned the questionnaire said that increased tourism was a positive factor of the new highway. "Many new people will discover Aurland. It will become known as a place on the main highway route between Oslo-Bergen, and this is an inexpensive marketing tool for the Aurland Municipality. For the tourism industry, which will take off big in Aurland, the road will present many new routes." More tourists and travelers are anticipated to create a larger market for services, cafeterias, roadside inns and over-nighting establishments.

"The main highway will have positive effects. It has already had an effect on Aurland as it is today. Aurland was

once a road-less community. The new major highway will make Aurland a central community. Vassbygdi has started up as a site for industry, that will provide many work places, thanks to the highway. The road has already brought in many tour buses and has increased tourism traffic in the Aurland Valley."

As for the economy, one person wrote: "As it is today, Aurland and Flåm are in hibernation large parts of the year. During the summer months, June, July and August, it explodes with tourists. A more even year-round traffic flow will have positive effects both for the economy and for those who would like to move here."

Marketing and competition are important points raised. "The amount Aurland will get out of the thoroughfare traffic will depend on how many other attractions are along the way between Oslo and Bergen." As pointed out by another respondent, "Aurland lies between two well established tourism centers - Voss and the Hallingdal area. If people are going to stop in the Aurland Municipality, we must improve the product, we must be much better. If nothing is done, it can be a catastrophe for tourism because of the short drive to Voss and Hallingdal. We have two advantages with the Flåm Railway and the Fjord."

The last two points raised are important. The Aurland Municipality is unique from the established tourism centers of Hallingdal and Voss because of its location on the Sogne Fjord and the attraction of the spectacular Flåm Railway. None of the other centers have these attractions, and the Aurland Municipality should try to attract overnight visitors on these points.

The first question also asked about the negative effects of the new road. One person said there were no negative effects but most respondents raised some important concerns. Twenty-six per cent of the respondents said that heavy traffic and noise were a major concern. Thirty-six percent mentioned pollution and exhaust as a negative effect. "The narrow valley will be weighted down with traffic, pollution and noise". Twenty per cent of the questionnaires involved comments about dangerous traffic conditions and accidents as a problem. "There are safety concerns for the elderly and children walking by the road". Seventeen percent of the people that responded were concerned with the criminal activity associated with people using the road. Some thought that there would be an increased flow of drugs and alcohol, increased break-ins, and other crimes. As one person put it "Aurland will be a more open society, and that always follows with negative things, that as more protected area hadn't had before". Three of the respondents said that life would be

less calm and there may be a disappearance of the local culture.

There were also environmental concerns associated with the new highway. Some people said that the highway will spoil the surroundings because it will require much land, some of it fertile soil. "Bad consequences will result for the nature and surroundings. Aurland will change and lose its uniqueness. Changes in the landscape in connection with the highway will be negative." Another person said "Traffic will be a negative weight for the environment, especially for those who live near the highway." The strains will become larger on an already pressured nature - with the large scale hydroelectric plants already in operation. One respondent thought it would be negative to transform the local environment to a tourist/shopping center. yet, this was the only person to be opposed to tourism development vis-a-vis the new road.

Question 2 asked "Do you think the Municipality will greatly expand tourism facilities in response to the increased traffic through the region? (Hotel beds, restaurants, gas stations, stores, and other facilities)

Ninety-three percent of the respondents answered yes to this question. Twenty percent said plans were underway

already in that direction, especially in Flåm where land was set aside for this purpose. One respondent expanded on that saying, "There are also plans and ideas more or less concrete about a new hotel in Flåm. In addition, "unofficial" plans (among other things, a swimming complex) about other over-nighting places and new tourism products. Flåm will become an advanced "stopover place" where tourism traffic will grow - also over-nighting at cabins, hotels and campgrounds. Other ideas on tourism products in Flåm: new service station with restaurant, tourism information center, travel agency, stores, post office, bank and other facilities. There are concrete plans for a gas-service station with restaurant/motel in Flåm. As far as existing stores, gas stations, hotels and restaurants as they are today, the selection in the town of Aurland will be important." To confirm the above comments, the writer knows a farmer in Flåm, who has been approached by Fina Oil Company in Norway. The company would like him to either sell or lease his land, which is adjacent to the new highway, to them for a proposed service center (Figure 3). The development is anticipated to cost one million US dollars and Fina is trying to recruit local investors. The architect's drawing shows the proposed service center is to include gasoline pumps, a store, a cafeteria, a motel and ample parking for cars and semi-trailers.

Twenty percent of the respondents said that it was

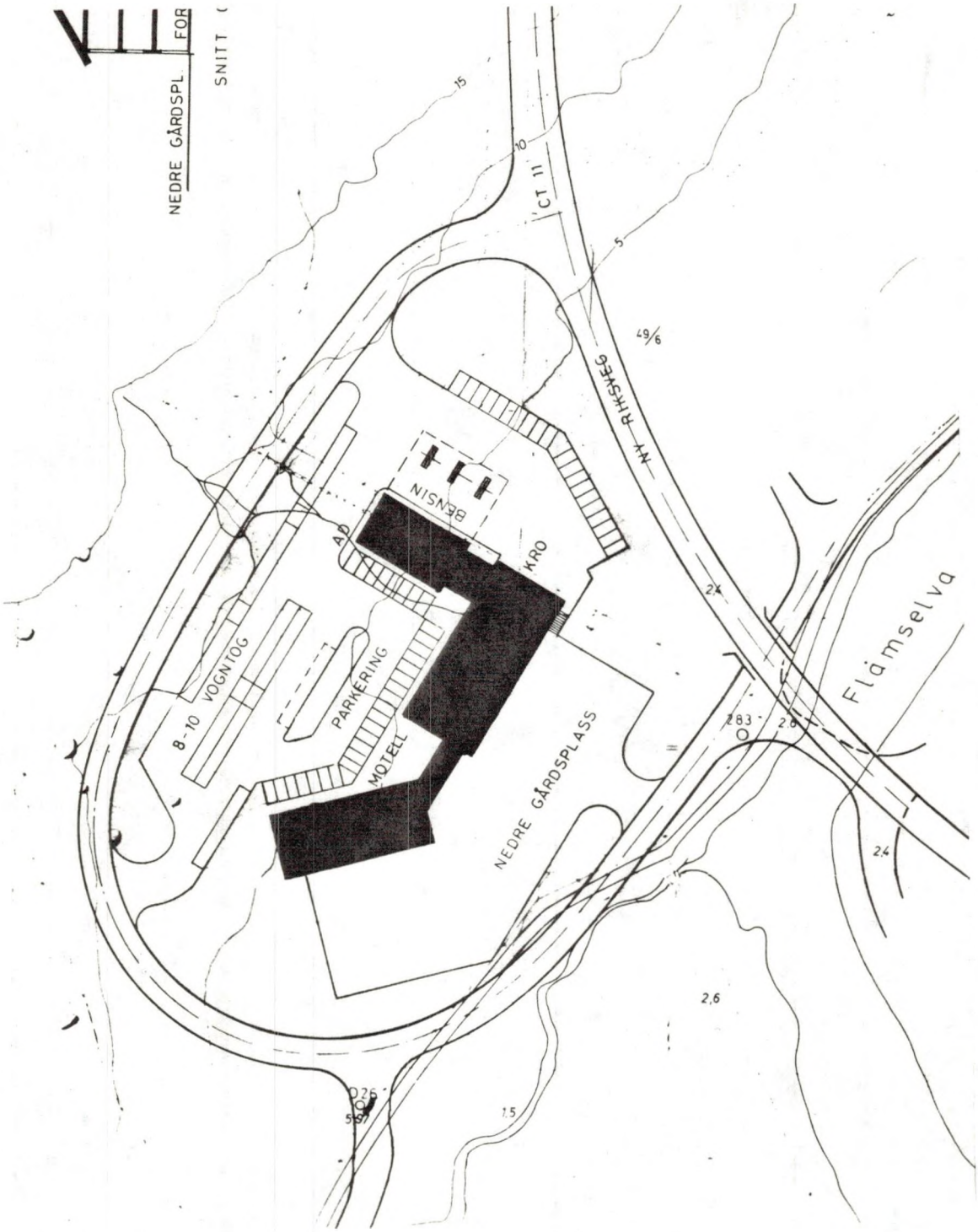


Figure 3. Proposed Fina Service Station Complex

important for the Aurland Municipality to expand and improve the present tourism facilities if they intend to attract tourists. "The possibility to sell tourism will largely depend on what the municipality and the tourist board have to offer."

The Aurland Municipality is one of the wealthiest municipalities in Norway and is well equipped to build a good offering for tourists. So one can expect that the community will support any economic ventures that will benefit the tourism industry.

Many of the respondents felt that a plan should be drawn up as to what development should take place. Existing establishments in the area perhaps should expand gradually with insight to the needs the thoroughfare travelers will have. Someone suggested adding a few specialty stores with typical "Western Norwegian" items. But others were concerned with overexpansion. "The stores must be aware of how much shopping the local folks do outside of the municipality. It will be easy to drive to Voss where there are many more stores".

A few of the respondents doubted that the increased traffic would net many tourists. They wondered if the

traffic was thoroughfare traffic, would it be enough to lay a foundation for many gas stations, cafeterias, hotels and restaurants. Investment is very costly in Norway, so many business establishments may take the "wait and see" approach before beginning large expansions or new construction.

The third question in the survey was, "In your opinion, do you anticipate traffic stopping in the Aurland Municipality or just "passing through"?

More than fifty per cent of the respondents said that they thought that people would stop in Aurland for varying lengths of time. Twenty-five per cent thought that most traffic would be thoroughfare traffic and not stop. One person said "Some will stop but not a lot. Anyway, one per cent of 100,000 is 1000. In the entire municipality there are 2000 persons, so not such a large percentage need to stop before it works."

Marketing is an important tool for tourism development and it is important that people know what the area has to offer. As a respondent said "It depends on how good we are to develop a tourism product in Flåm, if we manage to have an attractive facility ready when the road opens. We must be clever to market the municipality. If nothing is done, few will stop." Quoting another respondent, "Some of the

travelers will surely stop in the Aurland Municipality. But the selection of the roadway through Aurland will surely have an effect on the stopover rate. With good tourist information in this country and other countries, and the combination of nature and the beautiful views this road offers, I believe tourism will grow and with a good set-up in Aurland, many of the travelers will stop."

Other quotations follow relating to marketing and stopovers in Aurland:

"Much of the traffic will be travelers not tourists, and they will stop to a smaller degree - But tourists, I believe will to a larger degree, have short stays in the Aurland Municipality."

"If those working in business manage to work out a way that relates to nature in Aurland and make it well known with the advertisement "up-to-date": Mountains, waterfalls, valleys, ocean, fjords, foot tours, fishing, hunting, climbing, etc."

"Yes, but it is completely dependent upon how the municipality sets itself up. Most of the motorists will have errands other places so that it will be impossible to stop for longer periods. Another point is nevertheless, that Aurland

lies midway between Oslo and Bergen and if the facilities are there, it can become an actual place for food, gas, etc."

"We are trying to portray Aurland as an interesting vacation area. Fjords, Flåm Railway, new activities, and I believe that many will agree here that were trying to make Aurland well known."

"Stop? To fill gas and shop or stopover a longer period of time to get to know the municipality. I must unfortunately say that the present service offerings are relatively small. With the onset of motorists, Aurland will lose, for everyone, its place as Western Norway's "nature pearl"."

"In the beginning, I believe some will stop in Aurland. Some tourist companies will surely market the nature/landscape and farming and hydroelectric projects. In general, the average traveler will hardly stop more in Aurland than other places."

In general, most people believed that travelers and tourists would stop in the Aurland Municipality, especially if the area is well marketed and facilities are in the appropriate areas. Aurland has the best offerings right now for services to the motorists. The heavy truck transportation probably will not stop. One respondent

commented, "The plans for Flåm must become a reality to build a gas station with cafeteria and motel."

The final question in the survey was "Can the large volume of traffic have negative effects in regard to pollution, noise and other concerns?"

Twenty per cent of the respondents answered no to this question. The rationale behind the argument was that if the proposed tunneled by-pass were built around the towns of Aurland and Flåm before the new road opens, there would be minimal disturbance.

Quoting one respondent "With good planning of highway by-passes around the population areas, I wouldn't believe the negative effects would be so great."

Seventy-three per cent of the respondents answered yes to this question. Most people seemed to be concerned with the noise levels and pollution. It is narrow at Aurland, in Flåm and in the Næroy Valley, so the general consensus was that traffic would be very noticeable.

As one respondent stated, "An increase in traffic of this magnitude will clearly follow with pollution and noise, and this is the most negative factor." Another person said,

"There will be more noise, more thoroughfare traffic, a "more open" society, and more traffic accidents. Quoting a third person, "Traffic is a constant environmental shock, noise, exhaust, accidents. The placement of the highway will depend if the negative effects become essential or not."

One less negative response was that someone thought there would be some negative effects but it could be worse. "People, flowers and trees live in Paris, London and New York." Another person felt that there would be some negative effects, but not more that in other districts of Western Norway. "Aurland has enough wind that breaks up the exhaust. There could be worse water pollution in the long narrow Næroy Fjord and Aurland Fjord where there might be some dumping from hotel and service facilities."

Summary

In summary, the positive effects of the highway - better communication, increased traffic for businesses and increased tourism are perceived to outweigh the negative effects of noise, pollution and heavy traffic if the proposed highway by-passes are built around Aurland and Flåm.

Most people thought Aurland would improve and expand tourism facilities - especially in Flåm with a proposed

service center with cafeteria and motel. This extra facility would be critical in attracting tourists. Fortunately, the Aurland Municipality is one of the wealthiest in Norway, so it has the capital to support business ventures associated with tourism. Many felt it would be wise to draw up a development plan for the municipality in connection with the new highway opening. A small percentage of the respondents wondered if the tourism traffic would be great enough to support many new constructions or major expansions of present facilities.

Over half of the people who returned the questionnaires thought that travelers would stop in Aurland that came via the new highway. A clever marketing strategy would pay off for the municipality since it lies midway between Oslo and Bergen. The Aurland Municipality has the unique attractions of the Sogne Fjord and the famous Flåm Railway that rivals Voss and the Hallingdal Area do not have.

Again, the negative effects of the new highway include pollution, noise, heavy traffic which could cause accidents and safety concerns for pedestrians, increased criminal activity, and environmental concerns. The proposed highway bypasses that will be built as tunnels by the towns of Aurland and Flåm should alleviate some of the problems incurred with the new highway.

Chapter V has presented an interpretation of the data gathered from the questionnaire surveys. The comments from the surveys suggest that most of the local respondents feel that they will benefit from the service industries that will spin-off as a result of the new highway. As the region grows more accessible, more recreation facilities and attractions could follow. This line of thought follows Zimolzak and Stansfield's Leisurization of Landscapes Model's intermediate stage. Properly handling the environmental concerns raised will help prevent Aurland Municipality from progressing into the later stages of the model.

Chapter VI, the Summary addresses changing land uses, the importance of improved accessibility to the Aurland Municipality.

CHAPTER VI

CONCLUSION

This thesis has examined the anticipated effects that the Oslo-Bergen Highway will have on year-round tourism in the Aurland Municipality relative to selected land use changes that already are underway involving the new highway segment. These land use changes include the transformation of agricultural lands for highways and campgrounds. Future land use changes that may occur, particularly in Flåm, are the use of agricultural land for: 1) a gas station with adjoining cafeteria and motel; and 2) a tourism complex containing restaurants, shops, and a recreation facility. Such services are the consequence of better accessibility. Improvements in accessibility are critical for attracting tourists to any region, but particularly to Western Norway.

The Aurland Municipality was an isolated and seldom-visited area 150 years ago. The only traffic routes were via the fjord or by foot over the mountains. When the Oslo-Bergen

Railway was opened in the late 1890s, tourists visited Gudvangen and Flåm via horse and buggy on construction roads that had been built to carry supplies to the railway builders. Later, when the Flåm Railway opened in the 1940s, the area experienced greatly expanded tourism. Since then, roads have been built to make the area more accessible to the rest of Norway. Road building is a challenge in Western Norway because of the steep, mountainous terrain. The Aurland Municipality has had seasonal road connections to Inner Sogn and year-round road connections to Eastern Norway since the late 1960s and early 1970s thanks to roads built by the Oslo Electric Company. In 1975, the Norwegian Parliament decided that the main Oslo-Bergen Highway would be built via Aurland-Flåm-Gudvangen. Massive tunnel construction was begun in the early 1980s from Flåm to Langhuso, and in the mid-1980s from Langhuso to Gudvangen. The second tunnel, which will be the longest in Northern Europe, will be completed in 1990. When this highway segment opens, Norway will have, for the first time, a year-round ferry-free road connection between its two largest cities. The new highway will bring motorists thorough the Aurland Municipality on a year-round basis, which at present only experiences seasonal tourism.

In reviewing the literature of tourism, McMurry (1930) and Brown (1935) saw tourism as a distinct and significant form of land use in the 1930s. Other early studies by Jones

(1933) and Eiselen (1945) observed that tourism modifies the existing landscape and gives rise to new and different urban forms. The tourist industry grew rapidly after World War II, when a sizable middle class had the resources to travel. The automobile has also had a huge impact on the growth of the tourist industry. In the 1970s, researchers have become concerned with the physical effects of tourism on the environment. Cohen (1978) noted that tourism development can be self-destructive in that it can destroy the very landscape quality which attracted development in the first place. Consequently, thoughtful planning should be made to protect the environment that is the basis for such tourism activities in areas undergoing changes in accessibility. Kariel (1984) pointed out in his study that conflicts with pre-existing land uses grow as recreational pressures extend onto the landscape.

Evolutionary models are helpful in predicting land use changes in scenic areas of high tourism flows. Miossec's (1976, 1977) model emphasized the structural evolution of tourist regions through space and time. The four basic elements of his model are: 1) resorts; 2) transport networks; 3) the behavior of tourists; and 4) the attitudes of local decision-makers and the population.

Zimolzak and Stansfield (1983) have developed a model that emphasizes the predictable transformation of rural

landscapes in regions specializing in tourism. The Initial Stage of the model is a minor modification of the landscape brought on by the first influx of vacationers and tourists. Visitors are attracted by a natural recreation amenity or a cultural-historical amenity. Increased numbers of tourists lead to more service facilities built to serve them. Improvements in accessibility and transportation follow. The next stage of the model is the Intermediate Stage where the area is transformed visually as well as in land utilization and economy. The Aurland Municipality is in the latter part of the Intermediate Stage of the model. Careful and thoughtful planning must be undertaken now, before the full effects of the motor traffic are inflicted upon the Aurland Municipality. The final stage of the model is called the Advanced Stage. The landscape becomes dominated by created attractions and commercialization of original amenities. This stage can lead to tour circuit overload.

Overall, this model was appropriate for studying the changing landscape of the Aurland Municipality. The only complaints the writer has with it are that 1) it may be too simple of a model; 2) it may need to be refined so that one knows exactly when to move from one stage to the next; and 3) there perhaps should have been a fourth stage.

Tourism development has advantages and disadvantages.

Advantages include improved infrastructure and facilities for the local economy. Disadvantages of tourism development are tour circuit overload, seasonality of income, environmental problems and higher land prices that destroy primary economic production. Competition grows because land and landscapes change as their values are reassessed in terms of tourism potential rather than uses such as agriculture. Global changes in land use reflect the geographical aspect of tourism as one of the fastest growing sectors in the world. In the Aurland Municipality, land use changes are evident as agricultural land is sold and used for highways and for building new service facilities.

Questionnaire surveys administered in December 1987 reflect opinions of Norwegians to the opening of the new highway in the Aurland Municipality. Over fifty per cent of people receiving the survey responded, and two people, Jon Teigland and Svein Tonnessen, supplied more detailed information. Teigland cited different user groups for the highway and Tonnessen emphasized the demographic aspects of the Aurland Municipality as being important to the development of the area. For people that returned the questionnaires, most felt that the positive effects of better communication, increased traffic for businesses and increased tourism outweighed negative factors such as noise, pollution and heavy traffic if highway by-passes are built around populated areas

of the Aurland Municipality. Land use changes will be most evident in Flåm with many plans underway to build new facilities to serve tourists. Just how many motorists will stop in the Aurland Municipality will depend on how well the Municipality is able to market itself. Environmental concerns were raised, but could be resolved with bypasses built around the towns of Aurland and Flåm. Overall, most people felt very optimistic about the future development of the Aurland Municipality and its prospects as a tourism center between Eastern and Western Norway. Because of heavy competition from Hallingdal to the east and Voss to the west, a comprehensive tourism development plan should be prepared to attract as many tourists as appropriate to stop-over in Aurland. The Aurland Municipality has many attractions that its competition does not, e.g., the Flåm Railway and the beautiful Sogne Fjord.

For the Aurland Municipality, implications of this study are clear. Because the municipality is one of the wealthiest in Norway, the bypasses should be built around Aurland and Flåm as soon as possible with the municipality's own funds. The Norwegian government will compensate the Aurland Municipality in 1994, but no funds are available until that time. It is critical that by-passes are built before the highway opens in 1990 to alleviate environmental concerns such as noise, heavy traffic and safety concerns for pedestrians.

The Aurland Municipality has a unique combination of scenic recreation amenities, cultural amenities and a geographical position between Oslo and Bergen. A thoughtful tourism development plan should implemented up to ensure Aurland's position as a leading tourist attraction on the new highway before it opens. This plan should take in account environmental concerns and also should include marketing strategies that would attract motorists to stop in Aurland versus the more developed centers of Hallingdal and Voss. Brochures and advertising would be an important part of these marketing strategies.

The Oslo-Bergen Highway is an important link in further development of tourism in the Aurland Municipality. The tourism industry in Aurland will be able to provide more jobs if the season is year-round versus only during the summer months. Also, if one considers Tables 1 and 2 in Chapter IV, an additional 254,092 persons will be within a three hour driving range of Aurland once the highway opens. When one considers that the ideal weekend drive is two-to-three hours, this opens a large potential market that Aurland has not had before.

For future research, a follow-up study could be undertaken in 1992, one year after the Oslo-Bergen highway

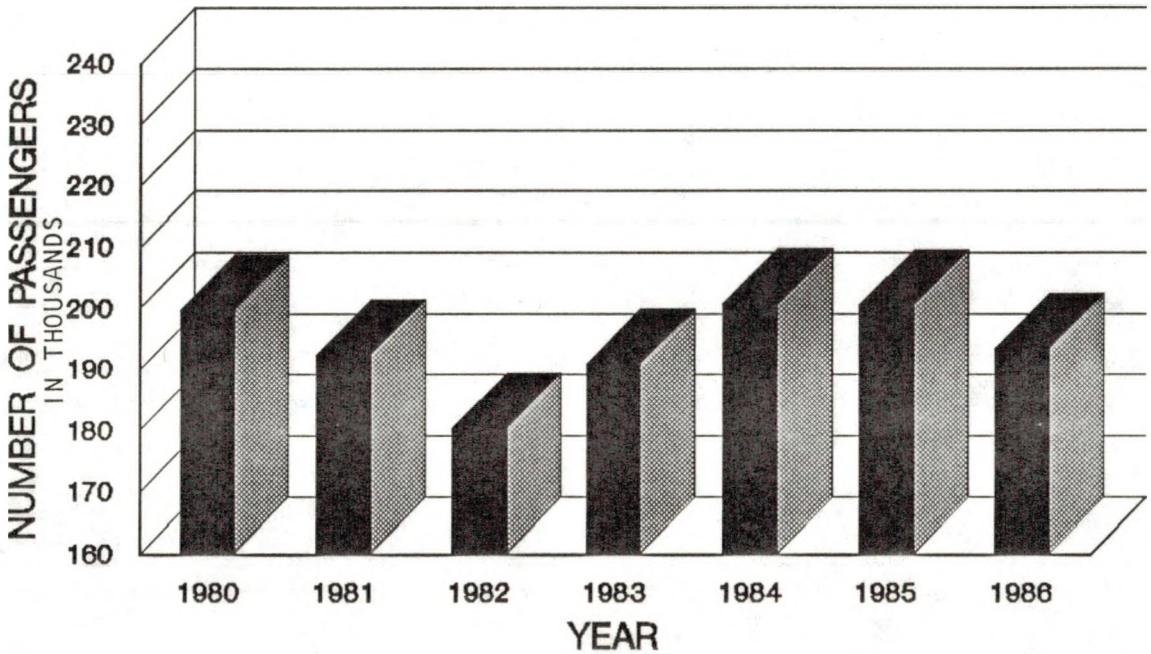
opens, to see what changes have actually taken place in the study area.

In conclusion, the Aurland Municipality is in a good position to make tourism a year-round industry in the local economy when the highway opens in 1991. With the additional tourism facilities planned for Flåm, and clever marketing strategies, the Aurland Municipality should be able to capitalize on its position as a major tourism center between Eastern and Western Norway. The full effects of the highway will not be known until it opens, but in 1989, the positive prospects for the Aurland Municipality look very promising.

APPENDICES

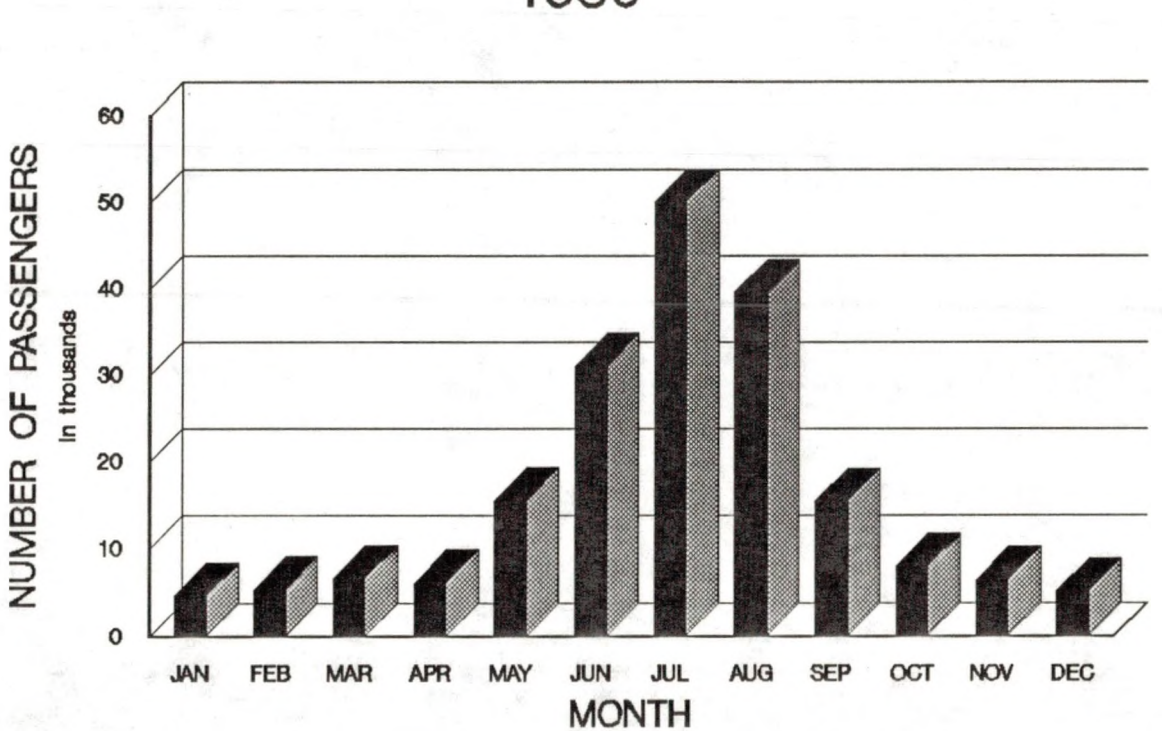
Figure 4. **PASSENGERS WITH THE FLAAM RAILWAY**

1980 - 1986



APPENDIX A

Figure 5. **PASSENGERS WITH THE FLAAM RAILWAY**



APPENDIX B

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