

Alcohol, Gambling and Fast Food Outlets
Within the
Bay of Plenty and Lakes Region



August 2004

Acknowledgements

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Table of Contents

1.	Executive Summary	1
2.	Background.....	3
2.1	Purpose and Audience for Report.....	3
2.2	Who is Toi Te Ora Public Health?	3
2.3	What is Public Health?	3
2.4	Social Determinants of Health.....	4
2.5	The Precautionary Principle	5
3.	Normalisation and Healthy Public Policy	7
4.	Density of Alcohol, Gambling and Fast Food Outlets.. Error! Bookmark not defined.	
4.1	Alcohol Outlets	11
4.1.1	Policy Implication.....	14
4.2	Gambling Outlets.....	16
4.2.1	Policy Implication.....	19
4.3	Fast Food Outlets.....	23
4.3.1	Policy Implication.....	25
5.	Reducing Inequalities	27
5.1	Distribution of Outlets and Ethnicity	30
6.	Conclusions and Recommendations.....	33
Appendix 1:	Methodology	35
Appendix 2:	Bay of Plenty and Lakes District Profile.....	38
Appendix 3:	Co-Location of Outlets and Schools	40
References		42

1. Executive Summary

Given the recent amendments to the Local Government Act 2002, local councils are guided by principles of community well being, sustainable development and community participation in all significant decision making processes. The requirements of the Act are to promote the social, economic, environmental and cultural well being of communities with a clear duty to protect public health. This report provides information and guidance for policy and other decision makers regarding the potential public health impacts of alcohol, gambling and fast food outlets within the Bay of Plenty and Lakes region.

Local councils have a long tradition of considering the physical environments in which communities exist – recreation facilities, transportation options to name just two. The challenge is to determine what other factors should be considered when developing local policies to promote the social, economic, environmental and cultural well being of communities. This report suggests that the density of alcohol, fast food and gambling outlets is a significant area warranting attention because of the potential for adverse health outcomes for the local population.

There is significant international research, and local anecdotal evidence, that higher concentrations of alcohol, gambling and fast food outlets increase social acceptance, use and subsequent harm. This poses risks to the community's well being.

Analysis of local data found a direct relationship between the density of liquor, gambling and fast food outlets and deprivation. Gaming machines, however, are randomly distributed throughout the region regardless of deprivation. We identified schools within the Bay of Plenty, which are in close proximity to liquor, fast food and gaming outlets and provide specific information on the decile rating of the school and the ethnicity of students. It is important to note that New Zealand's (NZ) decile ratings used in education are the reverse of Deprivation Scores – i.e., a low school decile rating corresponds to higher NZ deprivation score. Within this project we did not identify Early Childhood Educational settings or make any comparisons to proximity of outlets.

A Territorial Local Authority (TLA) breakdown is also presented showing a per capita rate in comparison to the national average. No significant relationship was found between density of outlets and ethnicity (self identified Māori populations) or youth (under 20 years). A normalisation risk profile was developed to highlight high risk communities, and a map of the Bay of Plenty region is included for discussion.

Toi Te Ora - Public Health recognises that there is opportunity for more collaborative work between councils, communities and organisations like our's. Co-operative opportunities and responsibilities exist both in terms of central government legislation like the Local Government Act 2002, the Health Act 1956, the Gambling Act 2003, the Resource Management Act 1991.

This report is intended to encourage debate on these issues and to provide information that may contribute to councils' understanding and awareness of the public health needs, priorities and aspirations of the community and the implications of planning and decision-making processes on community health.

2. Background

2.1 Purpose and Audience for Report

The following document explores relevant literature describing the potential impacts of the location and density of alcohol, gambling and fast food outlets. In addition, it provides a brief summary of the relationship between population demographics and the density of alcohol, gambling and fast food outlets within the Bay of Plenty and Lakes region. For a detailed description of the methods used to develop this report, please see Appendix 1.

This report is intended to inform and provide local information to local councils and community stakeholders groups in the hope that they will be encouraged to reflect and accommodate community needs, priorities and aspirations in their policy and decision-making practices. We hope that this report can illustrate the potential special impacts of policy development and decision-making on public health and community well being.

2.2 Who is Toi Te Ora Public Health?

Toi Te Ora Public Health (TTOPH) is the Health Promotion and Health Protection department within Pacific Health, the owned operational arm of the Bay of Plenty District Health Board. It is a provider of public health services that influence environments to protect and promote the health of the population and reduce inequalities in health status. TTOPH serves the Bay of Plenty and Lakes Health Districts from Waihi Beach in the west, to Cape Runaway in the east, and Turangi in the south. It has three offices located in Rotorua, Whakatane and Tauranga.

TTOPH plays an important regulatory role within liquor licensing and is also involved in varied health promotion projects. Among other things, these projects aim to reduce alcohol-related harm, improve nutrition and promote healthy communities in the wider sense.

After July 2004 the Ministry of Health will be responsible for the minimisation of harm from problem gambling in NZ, pursuant to the Gambling Act 2003. TTOPH is yet to be advised of its role in providing services for this.

2.3 What is Public Health?

Public Health has been defined as “the science and art of preventing disease, prolonging life and promoting health through the organised efforts of society.” (Acheson, 1988)

Public Health is about promoting well being and preventing ill health before it happens. It is about keeping people healthy and improving the health of populations rather than treating diseases, disorders and disabilities in individuals.

Public Health takes a population health approach, which includes:

- Taking into account all factors which determine health
- Planning how these factors can be tackled

Public Health Action can:

- Take place at many levels throughout the health sector and beyond
- Be planned and implemented in collaboration with other sectors
- Provide advice to other sectors on the health impact of their activities, and where necessary, regulate these
- Support other parts of the health sector and other sectors to take a population health approach to service planning and delivery (Ministry of Health, 2002)

The Ottawa Charter for Health Promotion (WHO, 1986) is a key document that underpins public health work. It indicates that promoting health means:

- Building healthy public policy
- Creating supportive environments
- Strengthening community action
- Developing personal skills
- Reorienting the health services

Historically, public health focused on sanitation and more recently lifestyle issues such as physical activity, nutrition, gambling, and alcohol and tobacco use. It is now recognised that modification of social, economic and environmental factors yield greater population health dividends than individual lifestyle approaches. Indeed, such interventions may be necessary before individual lifestyle approaches can be effective (Lawlor et al., 2003).

2.4 Social Determinants of Health

The main determinants of health lie outside the health sector. There is strong and growing evidence that higher social and economic status is associated with better health. In fact, these two factors seem to be the most important determinants of health (Health Canada, 2003).

The World Health Organisation (Wilkinson and Marmot, 2003) lists the key social determinants of health as:

- The social gradient
- Stress
- Early life
- Social exclusion
- Work
- Unemployment
- Social support
- Addiction
- Food
- Transportation

In order to have a positive impact on the social determinants of health, the following principles are essential:

- Collective responsibility for health
- The state has a role in protecting and promoting the public's health
- Focus on whole populations
- Emphasis on prevention
- Concern for socio-economic determinants
- Multi-disciplinary basis
- Partnerships with populations served (Beaglehole and Bonita, 1997)

Social determinants of health have an enormous impact on people's lifestyle decisions and their overall health. A focus on the social determinants of health will lead policy makers to reconsider simply framing vulnerable populations as the problem, i.e., young people are binge drinkers. Instead they will regard high-risk environments as an important part of the problem, i.e., young people live in environments that actively promote and encourage binge drinking.

Once these issues are reframed in terms of high-risk environments rather than vulnerable populations, local councils can consider the policy implications.

2.5 The Precautionary Principle

In the context of discussing the role of local governments to regulate local environments and promote health, safety and community well being, it may be useful to point to the relevance

of the Precautionary Principle – Principle 15 of the Rio Declaration, 1992. The Precautionary Principle links the limitations of available research evidence with the responsibility of decision-makers to protect human and environmental health. It involves acting to avoid serious or irreversible potential harm, even where there may be limited scientific certainty as to the likelihood, magnitude or causation of that harm (IUCN World Conservation Union 2003).

3. Normalisation and Healthy Public Policy

In our health work we often hear our communities say that making the healthy choice is becoming increasingly difficult and in a sense we are becoming “normalised” to particular behaviours such as regular fast food consumption, intoxication and gambling within high risk environments. For example, it is becoming a normal practice of community groups to apply for grants from pub charities in order to survive financially and New Zealand is well recognised for its culture of binge drinking.

As indicated by the Ottawa Charter, healthy public policy is imperative for stability and enduring health within communities. Every decision and every policy that local government makes has the potential to affect the social determinants of health. The environments in which people live shape public attitudes and public policy can be employed to "make the healthy choices the easy choices". The Public Health profession views the process of behaviour and attitude normalisation as a powerful agent precisely because it does have influence on community norms and behaviour changes over time. Therefore, government decisions and policies at all levels, do impact on the health of their communities, in both positive and negative ways. This process of normalisation, or attitudinal change, is important in public health.

Health promotion activities surrounding tobacco use are an example of how community norms can be positively influenced. Twenty-five years ago, smoking was considered a socially accepted behaviour in all walks of life – at work, at school, in homes, on marae and in public places. Today's attitudes toward smoking are considerably different as evidenced by the strong support for the recent legislation to ban smoking from bars and restaurants. A good part of the success of the re-orientation of attitudes towards and behaviours surrounding smoking were centred on the collaborative efforts of health, law and central government. The targeting of advertising campaigns and development of workplace and public space policies has served to normalise the "smokefree environment".

Today many urban planners are realising planning decisions in areas such as transportation, amenity and open space, urban design and policy development can help address population health issues such as the obesity epidemic (Medical News Today, 2004). The sprawling cities of the second half of the century have made it virtually impossible to get to work without a car. Where incidental physical activity was the norm a generation ago, it is now the exception. (Ewing, 2003)

The liberalisation of alcohol legislation over the years has had a dramatic impact on New Zealanders' attitudes towards alcohol. Not all of these changes have been positive:

"Changes in drinking behaviour have been accompanied by attitudinal changes between 1995 and 2000 (including) a greater tolerance towards intoxication, ... particularly by those groups whose consumption has shown the greatest increase."
(Habgood et al., 2001)

Alcohol availability may influence adolescent consumption to a greater degree than the adult population. According to Jones-Webb (1997), alcohol availability may influence adolescent drinking by shaping normative expectations about appropriate drinking behaviour.

"The form and level of alcohol availability suggests its social acceptability or appropriateness, especially to young people. If alcohol is readily available and convenient to purchase, then one is hard pressed to conclude that the young will not accept the normality of drinking." (Edwards 1995)

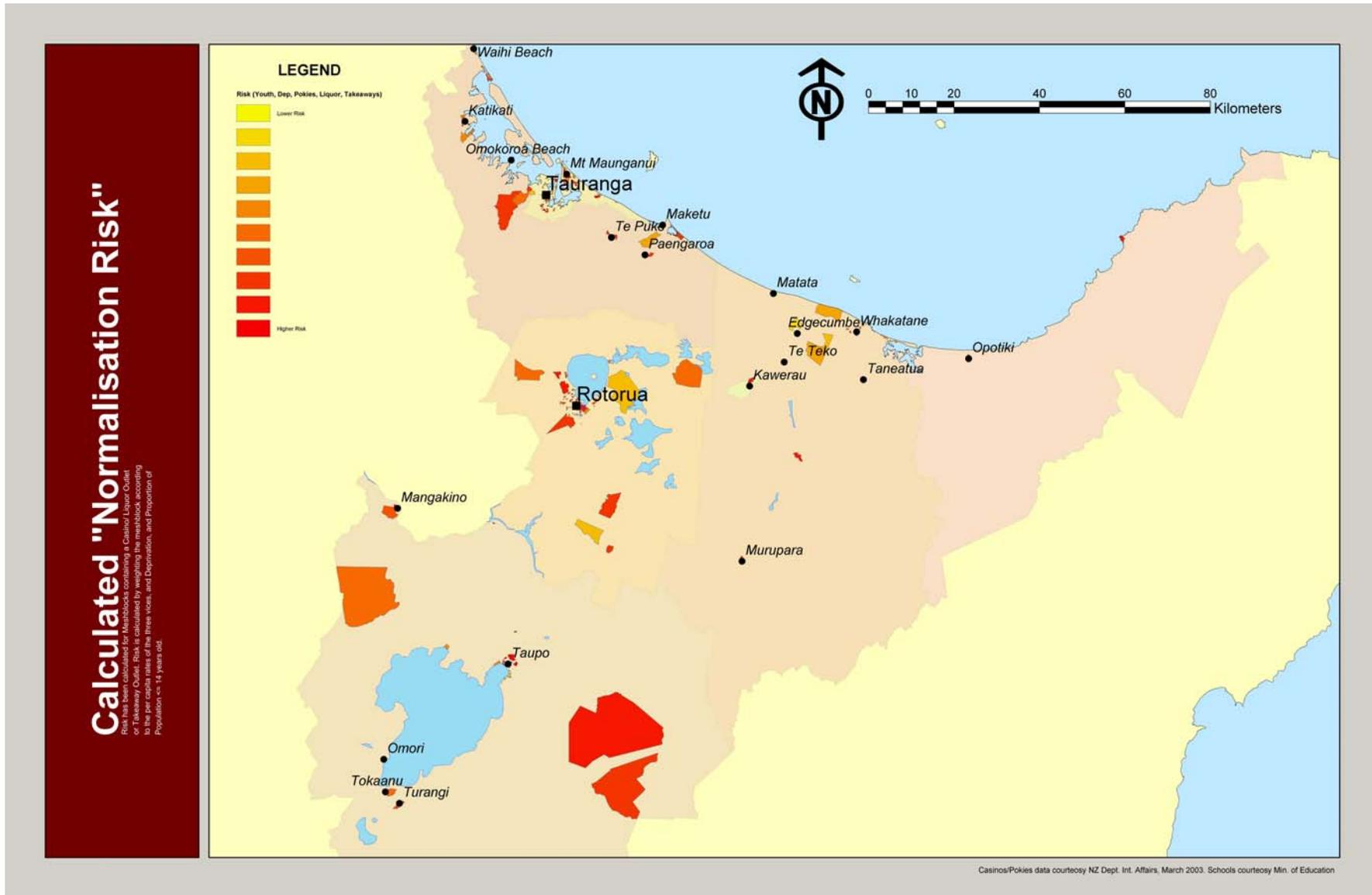
New Zealand's recent history with gambling and gaming machines demonstrates how quickly community norms can change. The uncontrolled proliferation of gambling machines and the way in which gambling losses are redistributed into communities in the last decade is perverse because it has resulted in many sectors of society now considering gambling as an essential part of their organisation's community-provided revenue. This has legitimised a kind of co-dependent relationship whereby the revenue seekers rely on the unhealthy addictions of the problem gambling section of society in order to carry out their often "community good orientated" activities. TTOPH is concerned about the health ramifications of this gradual institutionalisation of co-dependency between community organisations and unhealthy addictions.

Public policy can help to normalise both healthy and unhealthy behaviours. TTOPH believes that local councils can facilitate healthy choices by considering how the physical location of alcohol, gambling and fast food outlets may influence community norms.

We have presented Figure 1, page 10, for discussion and to illustrate the concept of normalisation throughout the BOP/Lakes Region. The normalisation risk has been calculated for mesh blocks containing liquor, takeaway or gambling outlets and is weighted according to

the per capita rates of the three risk factors, deprivation and the proportion of young people under 14 years old.

Figure 1: Calculated Normalisation Risk



4. Density of Alcohol, Gambling and Fast Food Outlets

4.1 Alcohol Outlets

In 1989, an amendment to the Sale of Liquor Act in New Zealand liberalised the restrictive licensing regime. By 1995 the number of alcohol outlets had doubled (Casswell et al., 2001). International evidence confirms that a high density of alcohol outlets is directly correlated with increased alcohol-related harm (Scribner et al., 2000; Norstrom, 2000; Weitaman et al., 2002; Lipton et al., 2000; Gorman et al., 2002).

Huckle (2002) suggests that measures of physical availability of alcohol (indicated by the number of outlets within localities, or as a ratio to population) are related to drinking quantity, drinking frequency and a variety of measures of alcohol-related harm.

There are 881 people for every off-premises licence in the Bay of Plenty and Lakes region and 350 people for every on-premises licence as at 15 September 2003. These figures include the many sporting and social clubs throughout the region that have an on- and off-licence. Compared to the national per capita average our analysis showed that all TLAs within the BOP and Lakes region are over-represented in off-licenses and with Kawerau being the only exception in on-licenses.

Analyses of the graph below shows both Rotorua and Taupo have the highest numbers proportionately, of on-licensed premises, with the tourist trade reportedly influencing this. It is important however to consider the usual resident population that exists all year round within this higher density. Interestingly we see that our more deprived local council areas, Kawerau and Opotiki, have the highest per capita rate for off licensed premises. It is also important to note that a significant amount of alcohol-related harm occurs from drinking in the home or other private settings.

Figure 2: On-Licensed (per 10,000 people)

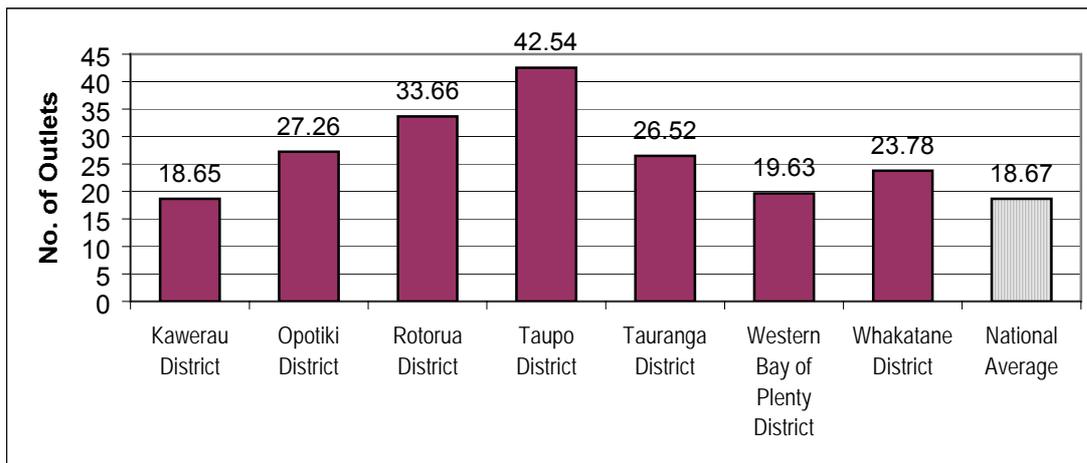
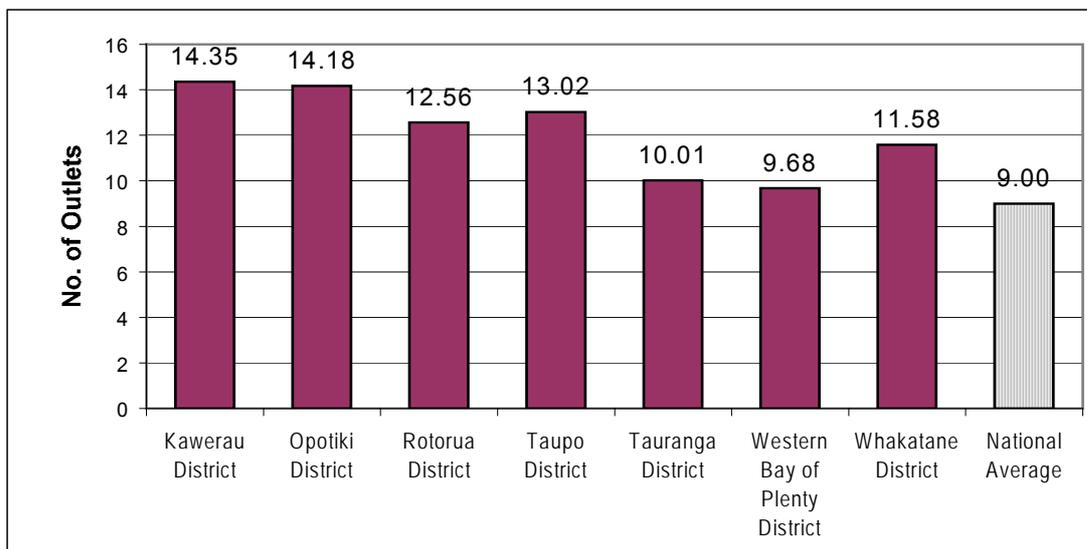


Figure 3: Off-Licensed (per 10,000 people)



It isn't just drinking per se that is of concern. A NZ study of offenders found that 84% had been drinking prior to a violent incident and that almost three quarters of these had been drinking at the time of the incident or within the previous half hour (Bradbury, 1984). International research also confirms this trend. In Australia alcohol is involved in up to 50% of violent crime. A New South Wales study showed that alcohol was involved in 62% of police attendances, 73% of assaults, 77% of street offences and 40% of domestic violence incidences (Doherty, 2003). Alcohol is also a well-recognised key risk factor for death and injury and has been linked to cardiovascular disease, some cancers, interpersonal violence, motor vehicle crashes, other accidents and injuries, domestic violence, assaults, suicide, time off work, alcohol poisoning, family dysfunction, infant morbidity, foetal alcohol syndrome and alcohol dependency.

“Each type of analysis showed that those areas with high alcohol outlet densities experienced more violent crime than low density areas, even after controlling for neighbourhood social structure.”(Gorman et al., 2001)

Alaniz, et al. (2000) found that, in United States of America, alcohol availability and advertising are disproportionately concentrated in racial/ethnic minority communities. Mosher (1997) also argues that alcohol outlets proliferate in poor neighbourhoods and contribute to a downward economic spiral. Retail businesses, especially supermarkets and banks, begin to desert neighbourhoods as they become defined as poor and as crime (or the perception of it) increases. Alcohol outlets fill the void left by these businesses because they require little start up capital, have low labour costs, enjoy high profit margins and provide good cash flow.

“Research suggests that the over-concentration of alcohol outlets in poor neighbourhoods is part of a process of local economic decline rather than a reflection of poor people’s greater demand for alcohol.” (Troutt, 1993; Mosher, 1997; Lee, 1998)

“Liquor stores began replacing supermarkets and banks; taking on these business roles (selling groceries, cashing cheques, issuing money orders etc) The illegal and nuisance activities surrounding many liquor stores increased, further making the area unattractive to other sorts of businesses.” (Lee and Rafael, 1998)

Given that this may be a reality within our region, especially within isolated rural areas, it highlights the importance of community input into decisions about where liquor outlets are established. As suggested in an Alcohol Healthwatch paper (Hill, unpublished NZ), it is possible that poor integration of legislation has left gaps between the Resource Management Act 1991(RMA) and the Sale of Liquor Act 1989 (SoL Act) which renders the public powerless to influence the number and location of licensed premises in their neighbourhoods.

Evidence of the alcohol-related harm for young people shows a startling increase in the number of teenagers binge drinking and consuming larger amounts of alcohol. A recent study found that 18-19 year olds are now the heaviest drinking group in the country. This

research also indicates that not only are consumption rates increasing but at significantly younger ages.

Given the disproportionate level of alcohol related-harm experienced by young people and New Zealand's worsening alcohol consumption trend over the last decade, we investigated the correlation between youth populations (under 20 years) and outlet locations (Figure 10, Appendix 2). Due to the high density of liquor outlets throughout the region it was difficult to produce a map to clearly illustrate geographical spread. We did however produce Table 1, Appendix 3, which shows the schools within 100 metres of a liquor outlet. The table also includes Ministry of Education decile rating and ethnicity of students. Of the 22 schools within 100m of a liquor outlet 50% are of decile 3 or lower.

In recent times the BOP/Lakes region has experienced increases in criminal behaviour and problems associated with young people and alcohol use in public places. As a result, many local authorities have permanently imposed liquor bans.

"The international evidence is clear that density of alcohol outlets is a predictor of heavier consumption and alcohol-related harm. More rigorous control of number/density of alcohol outlets is therefore one effective strategy to address problem drinking for youth (and all ages)." (Huckle, 2002)

"As yet unpublished data, an ecological analysis of off-license outlet density, reported a positive interaction between off-premise outlet and youth population densities, and alcohol dependence, injuries (including injuries relating to assaults) and suicides." (Huckle, 2002)

4.1.1 Policy Implication

"Behind the Statistics there lies much suffering and heavy cost. The plea that alcohol issues should be given higher policy priority is manifestly justified." (Edwards, 1995)

Although not a legal requirement TTOPH recommends that each TLA develop Local Sale of Liquor policies. These can address issues that relate specifically to the unique characteristics of each community. It is also important for community involvement and

consultation in the development of these policies ensuring they have an opportunity for input on issues such as hours of operation, location of outlets, per capita rates etc.

"Regulations and policies related to the availability and use of alcohol provide an opportunity for policymakers to affect the geographic distribution of alcohol problems and create safer communities." (Edwards, 1995)

A recent international review of research and public policy concluded that policies regulating the physical availability of alcohol were most effective, and there was a breadth of research showing that restricting the density of alcohol outlets could be an effective low-cost strategy for reducing local alcohol-related harm (Babor et al, 2003).

The implication of this is that communities can work to reduce local alcohol-related harm through urban planning and licensing policies that affect local alcohol availability. Many decisions on planning and policy are made at the local level by communities experiencing the social, cultural and public health impacts of alcohol (Yen and Syme 1999; Reynolds et al, 1997).

When writing such policy it is important that it is formulated around the objective of the SoL Act, which is to establish a reasonable system of control over the sale of liquor to the public with the aim of contributing to the reduction of liquor abuse, so far as that can be achieved by legislative means.

Section 23 of the Health Act 1956 requires every local authority to promote and conserve the public health within its District. Therefore any policy on the sale of liquor must be consistent, fairly applied to all licensed premises and take into account any public health issues, such as those discussed in this document.

The exchange of information is imperative in ensuring regular liaison and also provides an opportunity to give and receive feedback from licensees. Development of Local Accords comprising representatives from Council, Police, Health, other key stakeholders and licensees from both on and off licensed premises is a recommendation of TTOPH. Within our region, Taupo is an example of a council successfully developing a Liquor Accord within its community.

Host responsibility is a statutory requirement of the SoL Act. The principles of host responsibility include the promotion of low and non-alcoholic drinks and food, serving alcohol with care, and a responsible approach to dealing with intoxication and minors. It has been our experience that many licensees fail with these requirements. We therefore recommend that all applicants for an on license have to display a written and current host responsibility policy for their premises.

When at all legally possible the full notifiable consent process should be adhered to for every new license or renewal. This ensures the community has input into these important decisions which impact on it.

As with any other health issue there are no easy solutions. To seriously reduce the multitude of problems linked to alcohol many different approaches will be needed. Premises granted the right to sell alcohol must put practical policies in place to limit alcohol-associated problems. District Licensing Agencies and all those involved with policing the Sale of Liquor Act must continue to work closely together. Central Government can also help by introducing policies that seek to minimise alcohol consumption.

4.2 Gambling Outlets

“Problem gambling” can loosely be defined as behaviour that has an adverse effect on general health, personal, family, work or wider social activities. Research from Australia and other countries analysed by The Gambling Institute (2001) indicates that 3.1% to 4% of New Zealanders are susceptible to problem gambling. The rate is considerably higher (12%) for youth aged 13 to 18 (Sullivan, 2002). It is estimated that each problem gambler impacts upon 5 other people.

According to Abbott and Volberg (2000) gaming machines and track betting have the highest social impacts within NZ. The study showed that gaming machines are the type of gambling most likely to cause problem gambling. A survey found that people who preferred a continuous form of gambling, where winnings can be bet immediately, were eight times more likely to be lifetime problem gamblers than those who preferred non-continuous forms. More than 90% of new gambling help-line clients in 2002 were regular gaming machine players.

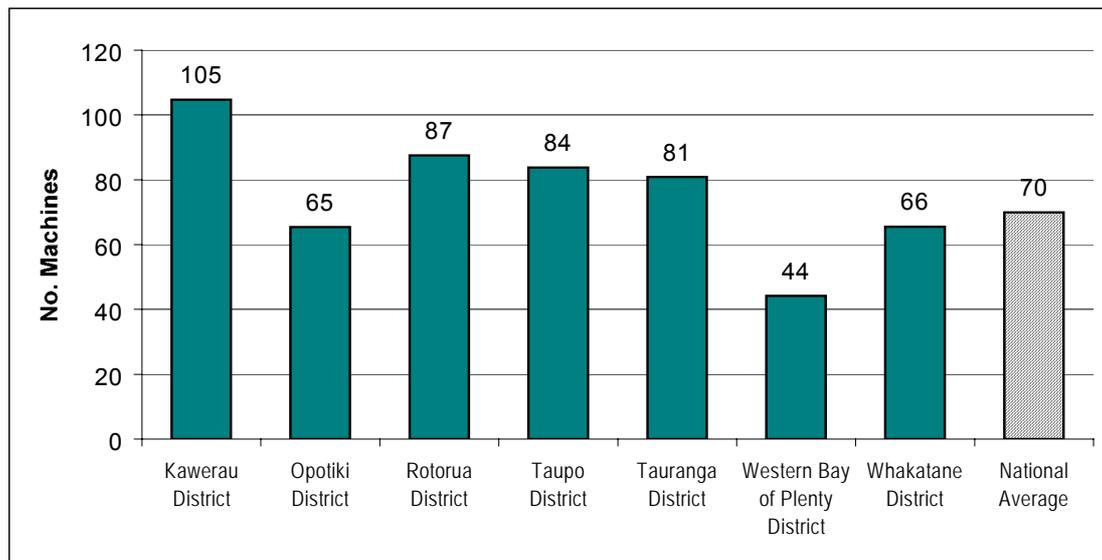
Figure 5, page 21, shows the location of gambling outlets (pokies) in the Bay of Plenty and Lakes region. While there is an obvious clustering of outlets around the Central Business Districts (CBD), isolated and rural areas also have their share of outlets. This image is

useful in that it shows geographically that accessibility is high. It's important to note that each site on the map may represent up to 18 pokie machines. Within the Bay of Plenty and Lakes region approximately 216,288 people live within 3km of a gambling outlet compared with only 57,720 people who live more than 3km away from an outlet.

There are slightly fewer gaming outlets per capita in the Bay of Plenty and Lakes region (1,986 people for every gaming outlet) than the national average (1,884). However there are more gaming machines per outlet (fifteen gaming machines compared to the national average of thirteen). This means that the Bay of Plenty and Lakes region has more gaming machines per capita (132 people per gaming machine versus 143 nationally).

Although the differences are very small for our area overall, Kawerau District has many more gaming machines per capita (only 98 people for every gaming machine compared to Western Bay of Plenty's 204). Figure 4, page 18, shows the per capita rate of gaming machines for each TLA as at June 2003. The Gambling Act 2003 means all TLAs now have the responsibility of developing a local gambling policy and these may include policies aimed at reducing the per capita rate.

Figure 4: Gaming Machines (per 10,000 people)



In Victoria, Australia, Doughney (2001) has shown a strong connection to the disproportionately large numbers of machines in communities of lower than average socio-economic status.

“...it remains the case that, in Victoria at least, gaming machine densities are higher in socially and/or economically disadvantaged area and that, in turn, this is likely to mean that people in those areas spend (ie, lose) more on gaming machines than people in other areas.”(Doghney, 2001)

The disproportionate losses incurred by those in lower socio-economic groups act as a regressive tax. It is also interesting to note that there are no requirements to redistribute the proceeds from the pokies back to the communities from which they arose. The mere increased presence of a greater concentration of pokie machines, in conjunction with other high risk environmental factors, is an obvious public health risk.

Unfortunately, no NZ specific information exists on the money being expended by the users in our communities or the exact losses attributed to pokies. Information supplied by Gambling Watch shows that non-casino pokie losses were \$941 million throughout New Zealand. This provides a national average figure as at July 2003 of \$37,310 annual loss per pokie machine. Given that this figure is an average, location and size of population may vary this figure. However, it provides the only information available at present. Electronic

monitoring, which is to be implemented within the next three years, will provide specific data on the financial impact in communities.

Recent research in Wellington confirms that New Zealand gaming machine owners may also target the poor. Torkington (2003) found that in some lower socio-economic neighbourhoods there is one machine for every 61 residents. By contrast there are no machines in a number of wealthy suburbs.

According to Bellringer et al. (2003), the rapid expansion of the gambling industry has special significance for young people:

“Young people are the first generation to be exposed to a large range and availability of gambling opportunities. They are growing up in an environment where gambling is considered normal behaviour in daily life.” (Bellringer et al., 2003)

Figure 6, page 22 was produced to illustrate the proportion of schools throughout the Bay of Plenty and Lakes region that are close to a gambling outlet (within 300 metres). Refer also to Table 2, Appendix 3, which shows the schools within 300 metres of a gambling outlet. This table contains the decile rating of each school and the ethnicity of the students. It serves to demonstrate that a number of schools throughout the Bay of Plenty are very close to a gambling outlet. There are 187 schools throughout the Bay of Plenty and Lakes region: 25 (13%) within 300 metres, 68 (36%) within 700 metres, 89 (48%) within 1km and 106 (57%) within 1.5km. The schools within 300 metres of a gaming outlet include 52% of decile 3 or lower.

4.2.1 Policy Implication

The Gambling Act 2003 came into effect on 18 September 2003. The Act requires local councils to adopt a policy on class 4 (non-casino) gaming machines. This policy must be reviewed every three years. In adopting the policy, the council must have regard to the social impact of gambling within the district.

After 14 years of unrestrained pokie machine growth, critics of the Act can argue that pokie machines are already normalised in our communities. The Act does not allow councils to reduce the number of gaming machines or venues that were in place before 18 October 2001. Nonetheless it does provide an opportunity for councils to adopt a long-term view and

begin to exercise some control over the availability of non-casino gaming machines in their areas.

To help reduce the normalisation of pokie machines, councils should consider including these items in their Class 4 Venue Policy:

- Ensure that objectives of the Policy are to minimise the harm to the community caused by gambling and to curb the growth of pokie machine gambling in the district
- Place an overall cap on the number of pokie machines based on a ratio per adult resident. Toi Te Ora Public Health believes that councils should err on the side of caution and set the ratio at 1 pokie machine per every 200 adult residents
- Restrict Class 4 gambling venues to ones that have an on-license for the sale of liquor with a Restricted area designation
- Restrict venue licenses to areas that are not within 300 metres from schools
- No pokies in family-oriented venues eg. family style restaurants

The Problem Gambling Foundation of New Zealand released an excellent resource pack for local councils in August 2003. This pack includes sample policies and background information on the public harm caused by the proliferation of pokie machines in our communities.

Figure 5: Location Of Gambling (Pokies) In The Bay Of Plenty

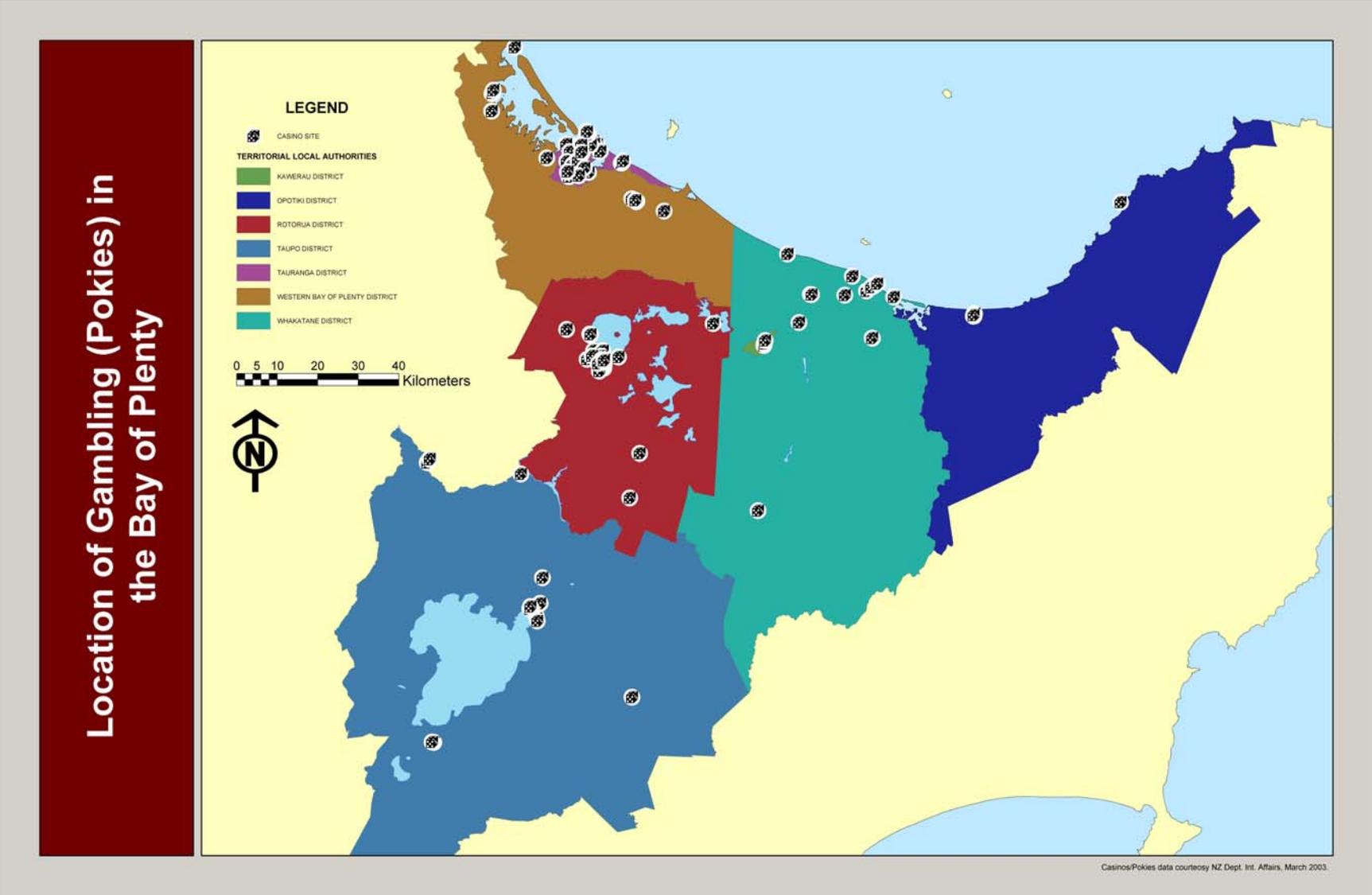
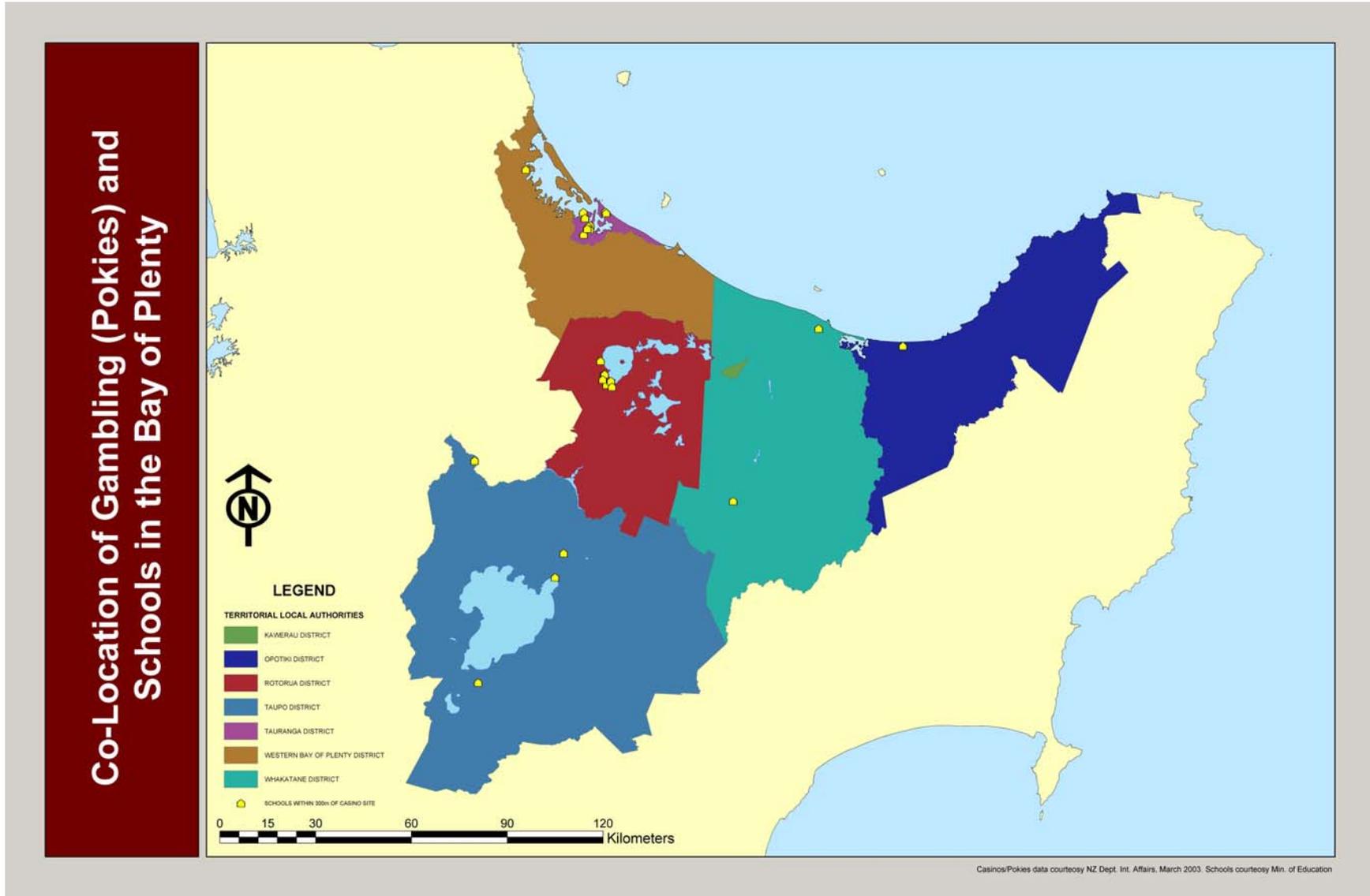


Figure 6: Co-Location Of Gambling (pokies) And Schools In The Bay Of Plenty



4.3 Fast Food Outlets

The relationship between the distribution of fast food outlets and deprivation is also of concern. Significant changes in dietary habits and physical activity levels worldwide are a result of industrialisation, urbanisation, economic development and the increasing food market globalisation. (WHO, 2003)

An ecological study by Reidpath et al. (2001) suggests that socio economic status and environmental determinants (in this case density of fast food outlets) interact to create environments in which the poor have increased exposure to energy-dense foods.

"There is growing concern with the increasing prevalence of obesity in industrialised countries, a trend that is more apparent in the poor than in the rich."(Reidpath et al., 2001).

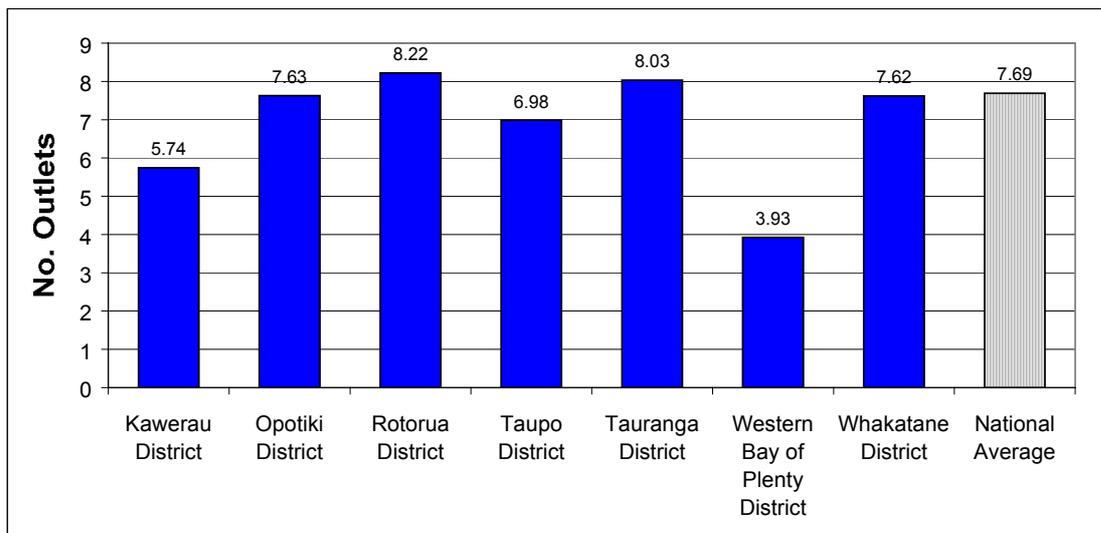
The increase in the availability of high fat take-away foods is considered to be one of the important changes in society. Obesogenic environments are essentially environments that encourage the consumption of food and/or discourage physical activity. A number of recent studies examining area-level effects and obesity have found strong associations between factors such as income inequality, neighbourhood deprivation, and obesity (Swinburn et al, 1999). These effects were apparent even after accounting for individual levels effects such as age, gender, and level of education.

It is unclear whether the appearance of fast food outlets in deprived areas is a market driven response to local demand, or whether their appearance drives demand. In either case it would appear that deprived communities are potentially more obesogenic.

We have 1,377 people for every takeaway outlet in the Bay of Plenty, which is above the national average of 1,300.

Although the differences are very small for our area overall, Rotorua District has only 1,216 people for every takeaway compared to Western Bay of Plenty's 2,547.

Figure 7: Takeaway Outlets (per 10,000 people)



Swinburn et al. (1999) considers obesity to be the biggest health risk currently facing New Zealand children. The obesity epidemic appears to be increasing rapidly in children and the true health consequences will only become fully apparent in the future. Frequent predictions of the extent of the obesity problem indicate that as many as one in seven children suffer from obesity and this percentage is increasing. Within New Zealand rates are also much higher in Māori and Pacific Island populations:

“Pacific children's levels of overweight/obesity were 62%, Māori 41% and New Zealand European and Others 24%.” (MoH, 2003)

Recent data from the 2002 National Children's Nutrition Survey provides a comparison between Māori and Non-Māori eating patterns.

The mean contribution to daily energy from total fat was lower for NZEO (Pakeha) children (males 32.6 percent; females 32.3 percent) than for Māori (34.2 percent; 34 percent) and Pacific children (35 percent; 34.3 percent). p.13. Pacific children obtained a higher proportion of fat from Pies & pasties (males 10 percent; females 9 percent) than NZEO children (5 percent). Māori males obtained a higher proportion of fat from Pies & pasties (8 percent) than NZEO males (5 percent) (NZ Food, 2003).

Given the increasing obesity rates, particularly in children, and growing evidence of the impact of environmental factors, we have prepared Table 3, Appendix 3, which shows schools throughout the region within 100 metres of a fast food outlet. The table also includes decile rating and ethnicity of students. Of the 30 schools within 100m of a fast food outlet 50% are of decile 3 or lower. Due to the high density of fast food outlets throughout the region it was difficult to produce a map to clearly illustrate geographical spread.

4.3.1 Policy Implication

“Traditional ways of preventing and treating overweight and obesity have almost invariably focussed on changing the behaviour of individuals, an approach that has proven woefully inadequate, as indicated by the rising rates of both conditions.”

(Nestle and Jacobson, 2000)

In the USA report “Halting the Obesity Epidemic a Public Health Policy Approach 2000”, Nestle and Jacobson indicate that a stronger emphasis is required on societal influences and policy, which positively address the environmental barriers to making healthy food choices and engaging in an active lifestyle.

In our literature search we found no specific information on the policy implications for fast food outlets within New Zealand. Analysis of the spatial impact of fast food outlets on the health of the population is a fairly new science in New Zealand. The growing obesity problem is however, a very real problem and the role that policy plays in addressing this demands some serious attention. Below are some overseas examples for discussion.

Some of the key interventions to address childhood obesity focus on the school environment. They include limiting the purchase of confectionery and other energy dense snacks inside and outside the school grounds, regulating the sponsorship and advertising of food companies, and encouraging and promoting healthy food and drink options (MoH, 2001). It is also recommended that governmental and regional organisations develop an integrated policy for nutrition and physical activity.

The U.S. Action Plan on Food Security defines food security as “when all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life”. There are three key elements to food security:

1. Physical and economic access to food by individuals and households
2. Adequate availability of food

3. Full utilisation of food, a balanced adequate diet, safe water, sanitation, education, and health care

There is a considerable body of literature from overseas which describes what local government is doing to address food security. Strategies include:

- Designate area for community gardens and farms
- Create breast feeding friendly environments
- Promote farmers' markets that help small farmers earn income and consumers obtain fresh produce
- Establish food-buying cooperatives
- Establish a Food Policy Council to develop a plan and coordinate efforts to achieve food security

Clearly the normalisation of fast food outlets impacts on food security. Are there ways that local councils can influence the establishment of fast food outlets through District Plan zoning or through careful framing of bylaws? Most councils also use caterers and contract food vendors at council premises or events. To help reduce the normalisation of fast food consumption, councils should consider these issues:

- Incorporating the issue of fast food availability in their LTCCP – consider adding a statement that prevents new outlets from being established within 300 metres of schools
- Developing a Nutrition Policy for all council catering, food services and contracts. This Policy should ensure that the balance of food served under the council's name are healthy options

5. Reducing Inequalities

The New Zealand Health strategy emphasises the need for health policy to reduce inequalities for the population groups with the poorest health status, and particularly for Māori and Pacific peoples. *Decades of Disparity: Ethnic Mortality Trends in New Zealand 1980-1999* is an important study that was carried out by the Public Health Intelligence Group of the Ministry of Health, and the Wellington School of Medicine and Health Sciences Department. The key findings in the document discuss the health inequalities that exist for Māori within New Zealand. It specifies that these inequalities are not random, but instead that more socially disadvantaged groups have poorer health, greater exposure to health risks and poorer access to health services in all countries.

The New Zealand Deprivation Index ranks areas from 0 to 10, with 10 being the highest level of deprivation. Factors that increase the score include a high proportion of people on low income or unemployed, with no academic qualifications, overcrowding, no car, no phone, living in rental accommodation and single parent families. Bay of Plenty and Lakes District profile (Figure 12, Appendix 2) shows the number of people living in meshblocks at the different Deprivation Levels. Those meshblocks containing less than 50 people are excluded. These graphs should be used as basis for comparing other subsets of the data. The urban rural split for each TLA (Figure 13, Appendix 2) is also included. It is apparent that a large proportion of the population in the Bay of Plenty and Lakes region lives at a high level of deprivation.

We have already highlighted international and national evidence that suggests alcohol, gambling and fast food outlets are disproportionately located in areas of socio-economic deprivation. In particular:

- Alcohol outlets fill the void left by the flight of other businesses out of poorer neighbourhoods
- Owners of gambling outlets seem to target poorer neighbourhoods
- Fast food outlets in deprived neighbourhoods contribute to obesogenic environments which encourage the consumption of food and/or discourage physical activity

We explored whether these international findings are mirrored locally by investigating the relationship between alcohol, gaming and fast food outlets and the NZ Dep. 1996.

An analysis of data within our region strongly suggests that owners favour placing these establishments in more deprived areas ($P < 0.0007$). Refer to Figures 8 and 8a. page 29.

Given the disproportionate levels of alcohol-related harm and the increasing concern around gambling and rises in obesity rates experienced by young people, we were specifically interested in the relationship between location of outlets and youth under 20 years. Our analysis of the relationship between outlets and youth show that although there is a slight upwards trend our findings suggest that owners within the BOP region don't favour placing these establishments in areas that have proportionately more young people. This indicates that the adult population of an area, more than the overall population, influences the number of each type of outlet. At the time of this research project a positive correlation has been found between youth and outlets. This data can be used as a base line for future monitoring of trend changes.

We also investigated the relationship between youth (population under 20) living in deciles eight or greater and density of outlets. Analyses showed there are a greater number of liquor and gaming outlets in Meshblocks containing a higher percentage youth under 20. However gaming machines appear to be evenly distributed regardless of age and there are fewer fast food outlets in Meshblocks containing a high percentage of youth under 20. (Figure 11, Appendix 2).

Figure 8: Frequency of Takeaways, Gaming and Liquor Outlets Versus Deprivation in the Bay of Plenty Overall

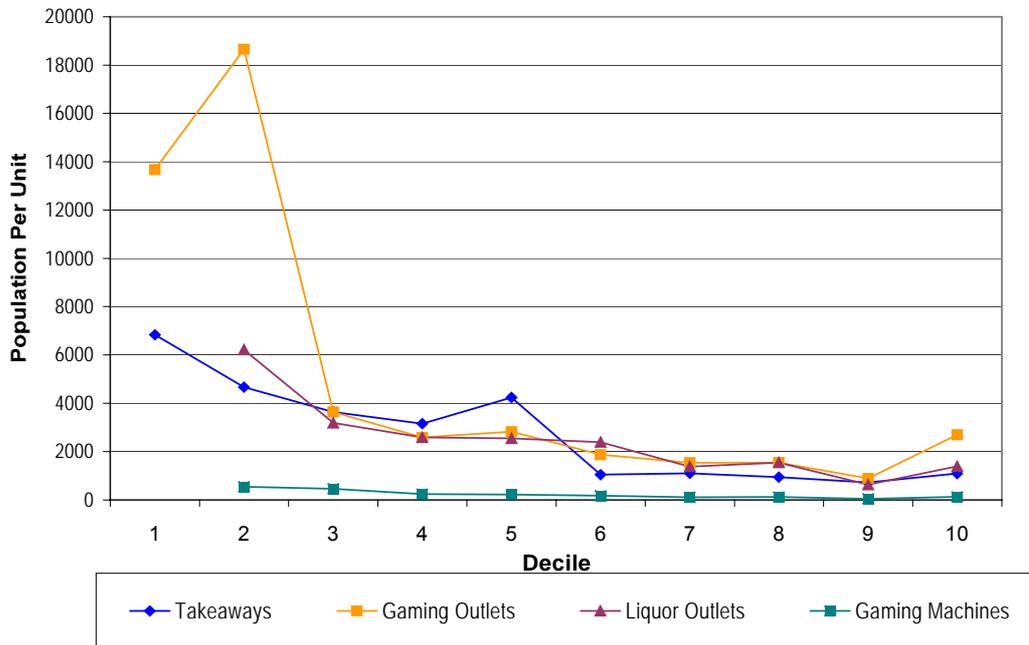
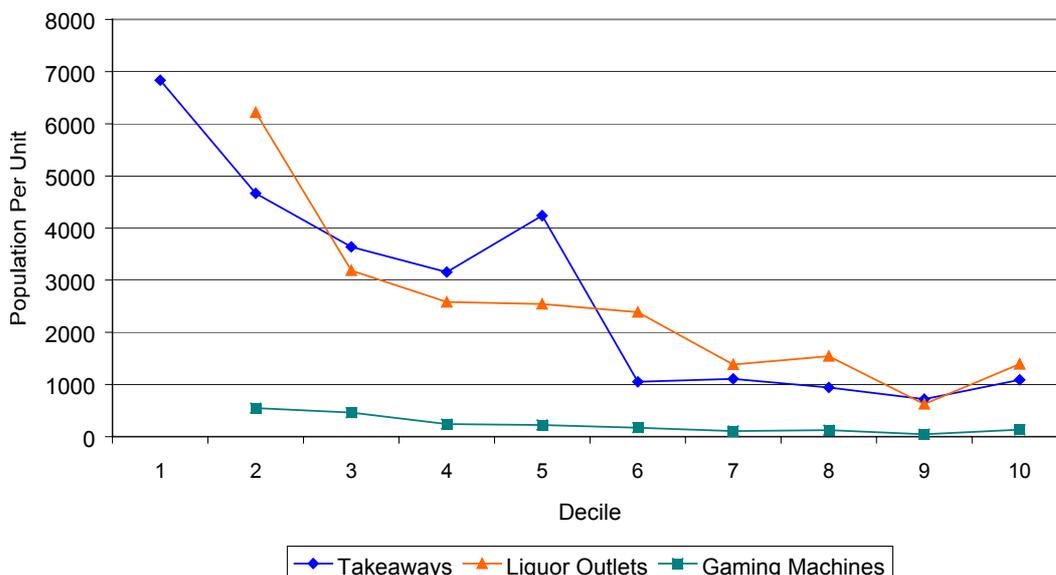


Figure 8a excludes Gaming Outlets, which enabled us to look more closely at the population per unit rate for liquor and fast food outlets and gaming machines versus deprivation. Clearly it can be seen that people living in areas of decile 6-10 have a significantly higher exposure to Liquor and Takeaway outlets and again a slightly higher increase for gaming machines.

Figure 8a: Frequency of Gaming Machines, Takeaway and Liquor Outlets Versus Deprivation in the Bay of Plenty Overall



It must however be noted that none of these establishments have total freedom as to location. They must comply with council District Plans, sale of liquor legislation and with gaming restrictions including licensing requirements. It may be possible to help address these issues through council actions, such as the development of specific local liquor and gaming venue policies and through Long Term Council Community Plans. All local councils are encouraged to address and carefully consider their policy influences in these areas.

5.1 Distribution of Outlets and Ethnicity

New Zealand research has found a strong link between living in areas of increasing deprivation, and having increasingly poor health. However analysis of socio economic position/ health status data identifies three distinct types of ethnic inequities in Health in New Zealand. These ethnic inequalities have been described as the distribution gap, outcome gap and the gradient gap (Reid et al., 2000). For example it has been found that about two thirds of Māori live in the most deprived one-third of New Zealand. Within our region only twelve percent of the population in decile 1 to 6 areas are Māori, and in deciles 7 to 10 41% are Māori (in decile 10 areas alone over 60% are Māori). This indicates that Māori populations may experience disproportionate levels of adverse impact from both high densities of alcohol, gambling and fast food outlets and also location within high deprivation areas.

The outcome gap also indicates the disturbing fact that even Māori living in the least deprived areas have a lower average life expectancy than Pakeha in the most deprived areas (Reid, 2001). This evidence strongly suggests that along with deprivation, ethnicity is also an important factor affecting Māori health and their position in New Zealand society. According to the Social Report -Te purongo oranga tangata (Ministry of Social Development, 2003) despite improvements in many areas within New Zealand society as a whole there are significant gaps between Māori and Non-Māori across a wide variety of sectors, including health, knowledge and skills, safety, and economic standard of living.

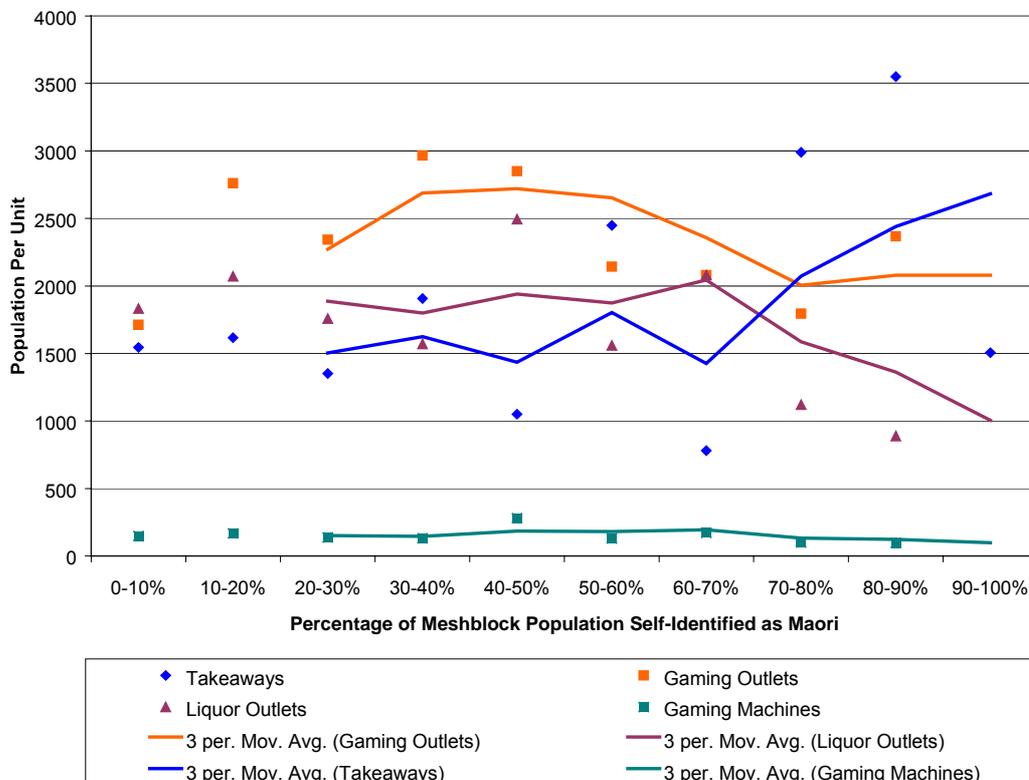
The New Zealand Health strategy emphasises the need for health policy to reduce inequalities for the population groups with the poorest health status, and particularly for Māori and Pacific peoples. There is clear evidence of the disproportionate alcohol and gambling related harm for Māori. We explored the relationship between outlet location and ethnicity (self identified Māori).

“Māori have a higher incidence of alcohol related problems, with one in five Māori men indicating that alcohol is causing problems to their health.” (Wyllie et al., 1996)

Analysis of Figure 9 below suggests that owners don't favour placing these establishments in areas that have proportionately more Māori. It is highly likely that gaming outlets are placed in the Bay of Plenty overall regardless of ethnicity but extremely unlikely that gaming machines are placed randomly. This indicates that although predominately Māori areas may not have more gaming outlets, each outlet does tend to have more gaming machines overall, which may indicate higher demand. It can also be shown through the moving average trend line that meshblocks with a higher percentage of Maori have a higher density of liquor outlets.

“Māori are a unique indigenous population in part because prior to contact with non-Māori, they had no history of consuming alcohol or gambling.” (Dyall 2002)

Figure 9: Frequency of Takeaways, Gaming and Liquor Outlets Versus Ethnicity in the Bay of Plenty Overall



"Alcohol availability and advertising are disproportionately concentrated in racial/ethnic minority communities." (Alaniz 2000)

It is important to consider the current issues and limitations around ethnicity data collection in New Zealand. It is a fundamental human right to self identify, however there is a great deal of variation in use of ethnicity and understanding of the term. It is also often confused with other concepts such as ancestry, nationality and country of birth. There are also many data collection and research challenges including that of data completeness, of gaps in ethnicity data, the consistency of standard questions and methods.

The issues surrounding ethnicity data have led to inaccuracies in statistics, and this has meant in health for example, under estimation of rates of Māori mortality and morbidity. Also the incompleteness and/ or incomparability of ethnic data across the health sector has meant it has not been possible to have a comprehensive picture of the extent of ethnic disparities.

Despite these limitations, the data clearly demonstrate health inequalities across the following dimensions:

- Socio-economic position
- Ethnicity identity
- Geographic place of residence
- Gender (MoH 2002)

It is important to use ethnicity data to measure, monitor and address these inequalities.

6. Conclusions and Recommendations

There is clear indication of a relationship between population demographics and the density of outlets for alcohol, gambling and fast food, within the Bay of Plenty and Lakes region. This document aims to stimulate discussion between TLAs and the health sector and also to explore possible solutions to collectively address the issues raised surrounding alcohol, gambling and fast food outlets and the inequalities, which exist within our region.

Toi Te Ora Public Health is convinced that the correlations between density of fast food, liquor and gaming machines and deprivation scores as presented and discussed in this paper, are significant enough to warrant increased responsibility for the influence that policy decisions have on population health. The influence that TLAs and all levels of government have through day-to-day decision-making and policy development can be positive or negative. This is because policy decisions have the power to legitimise social behaviour and normalise practices that hitherto were less available or accessible. It is important policy writers and decision-makers have a clear understanding of policy impacts on population health over time and how this contributes to what the health sector calls “the determinants of public health”.

One of the challenges we all face is that of accessing community input, which enables our communities to express their viewpoints on local decisions. There are some existing planning frameworks for Local Authorities, which aim at creating positive environments for health. For example Victoria Government (Australia) recognises the strong relationship that exists between place and people’s health and wellbeing.

The opportunity is there now for urban planners, engineers, policy-makers, health sector workers and others, to develop holistic and intersectoral approaches. All play a part in influencing conditions that affect public health, impacting on individuals and families within the context of their local communities.

Toi Te Ora – Public Health invites Territorial and Regional Councils in the BOP/Lakes region to:

- ◆ Discuss the content of this report with us, with a view to developing opportunities to work together to collectively address the issues it raises.

- ◆ Include health related policy development tools such as Health Impact Assessments (HIA), during the development of policy within its communities. For example, in preparation of Long Term Council Community Plans.
- ◆ Take steps to map, monitor and evaluate spatial relationships between liquor outlets, gaming venues and machines and fast food premises over time, in order that trends and impacts within the communities can be better understood.
- ◆ Participate in preparation of, and seek to abide by the NZ Urban Design protocol, currently being developed by the Ministry for the Environment.

This report is intended to encourage debate on these issues, and to provide information that may contribute to councils' awareness of the health implications of their planning and decision-making processes. Toi Te Ora Public Health recognises there is current opportunity for intersectoral collaboration on identification and implementation of healthy community visions and outcomes. We all share responsibility under NZ's various pieces of legislation, to establish healthy public policy and to responsibly and creatively implement it.

Appendix 1: Methodology

Literature Review

A literature review was carried out to obtain relevant information on liquor, gambling and fast food, and associated harm, as well as the impacts of outlet density, and its correlation with population demographics.

Information was sourced from journals, internet searches, and organisational information.

Data Analysis

The specific meshblock data, which was required for this project, was purchased from Statistics New Zealand and also provided by various other sources as outlined below.

Pokies data was obtained directly from www.gaming.dia.govt.nz in XLS format. Data is stated to be valid from 30 June 2003.

The Pokies data was Geocoded as follows:

1. Using the ESR Batch Geocoding tool against the Pokies list approximately 60% of addresses were exactly geocoded.
2. The remaining 40% of addresses were manually adjusted as appropriate. For example, misspelt addresses were corrected, suburbs were provided if known and other corrections to data were performed. A further 20% of sites were batch geocoded as a result of these corrections.
3. The remaining 20 sites were manually Geocoded using the Crichlow associates Geostan engine. Approximately half of these matched to street level.
4. The remaining sites were matched to physical locations using ArcGIS 8.0 and the Streets Layer by manually identifying the street and placing the facility according to local knowledge or verifiable feature.

Using these techniques all 161 sites were placed within a geographic space to at least street level.

Liquor/Takeways:

The analysis of business demographics is limited for pragmatic reasons to those enterprises whose data is maintained on Statistics New Zealand's Business Frame.

- The enterprises that are maintained meet at least one of the following criteria: greater than \$30,000 annual GST expenses or sales
- more than two full-time equivalent paid employees
- in a GST-exempt industry (except for residential property leasing and rental)
- part of a group of enterprises
- registered for GST

The most current Licensed Premise Register was sourced from the Liquor Licensing Authority and Justice Department, and it is dated to be valid as at 15 September 2003.

Data was assessed as follows:

Number of Geographic Units (Business Locations) By Selected 6-digit ANZSIC Industry Codes and Total For All Area Units within Tauranga District, Western Bay Of Plenty District, Rotorua District, Kawerau District, Whakatane District, Opotiki District and Taupo District territorial authority areas as at February 2002 at 1997 Survey

Coverage:

G512300 Liquor Retailing

H572000 Pubs, Taverns and Bars Total of Selected Codes

G512510 Fish and Chips, Hamburger and Ethnic Food, Takeaway Stores

G512520 Chicken Takeaway Stores

G512530 Ice-Cream Parlours and Mobile Ice-Cream Vendors

G512540 Pizza Takeaway Stores

G512590 Other Takeaway Food Stores (including sandwiches and savouries)

meshblock data used for developing community profiles, which was all sourced from Statistics New Zealand and available by CD supplied by the Ministry of Health.

Key data was:

2001 meshblock Population Usually resident

2001 meshblock Age Profiles

2001 meshblock Ethnicity

2001 NZ Deprivation Index

Analysis involved joining deprivation by meshblock, to basic statistics data and joined meshblock business data to this combined data.

Further analysis involved calculating rates of liquor, gambling and fast food outlets per meshblock. Correlations were investigated with population groups including self identified Māori, youth under 20 years, and proximity to schools. A per capita rate analysis of each TLA was also conducted, and comparisons made with the national average.

Consultation

All Territorial Local Authorities within the Bay of Plenty and Lakes region were informed of the project, and some provided input and feedback, which was of great value. Other relevant stakeholders such as Alcohol Advisory Council (ALAC), Alcohol Health Watch and Gambling Watch were also involved as appropriate. Due to the nature of the information required, community members were not consulted.

Limitations

The size of our region is recognised as a possible limitation of this research

The GIS analysis completed for gambling was based on June 2003 figures, subsequent changes to the Gambling Act has resulted in some small differences to the overall number of pokies throughout the region, refer to the table below for a comparison.

TLA	Pokie Machines in June 03	Pokie machines as of Dec 2003
Whakatane	218	251
Opotiki	60	72
Kawerau	73	73
Tauranga	737	684
WBOP	196	173
Rotorua	553	517
Taupo	248	249

Appendix 2: Bay of Plenty and Lakes District Profile

Figure 10: Frequency of Takeaways, Gaming and Liquor Outlets Versus Youth in the Bay of Plenty Overall

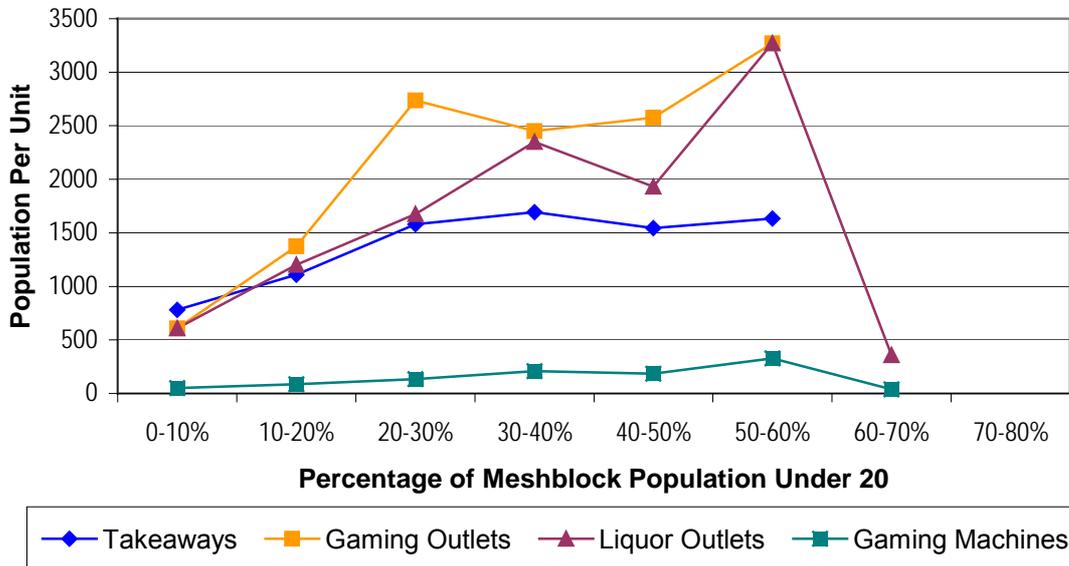
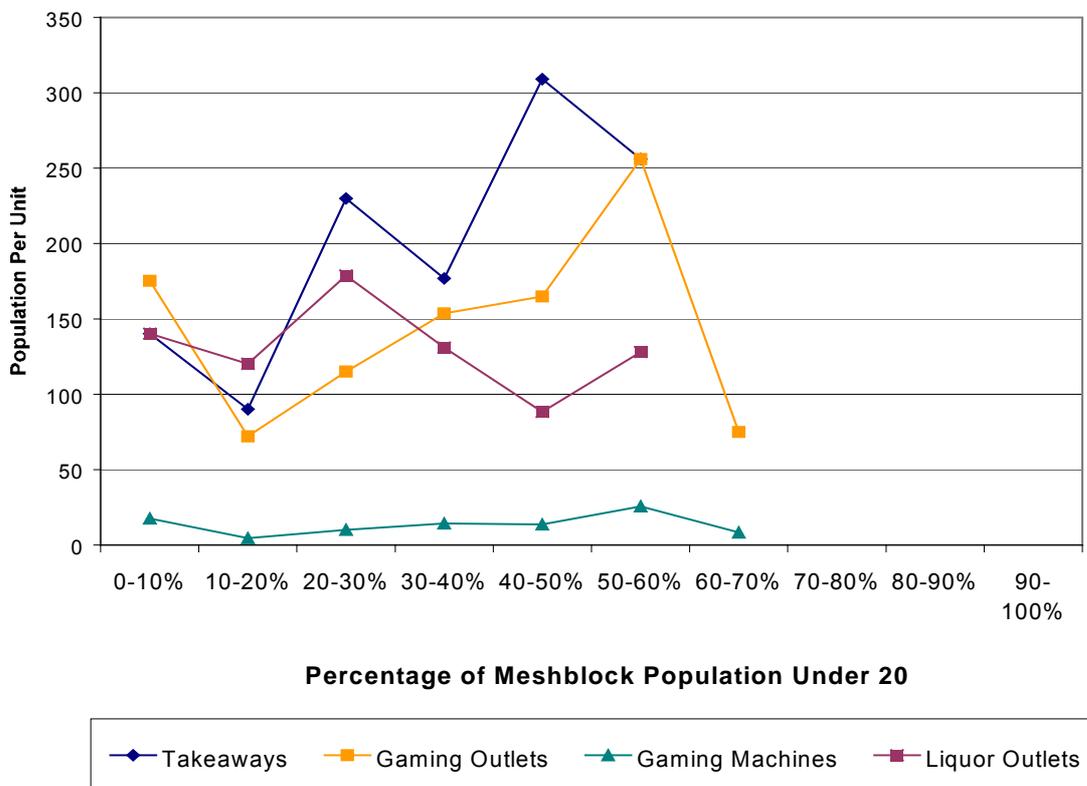
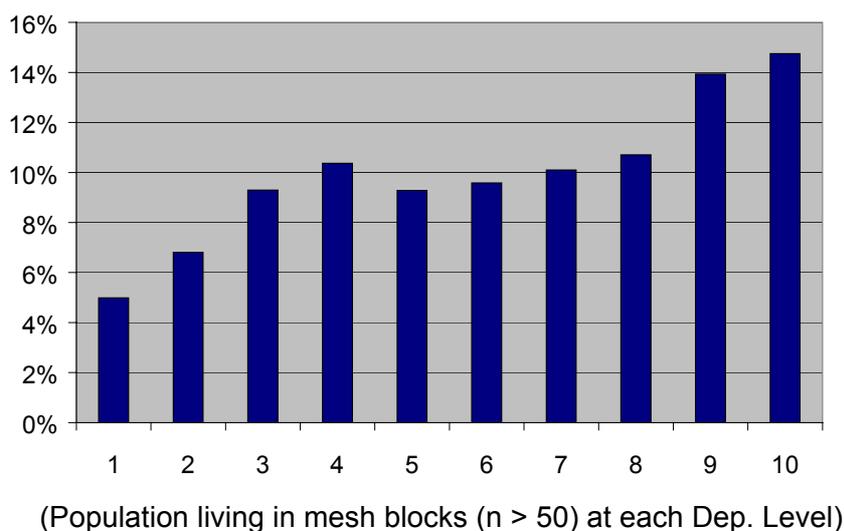


Figure 11: Frequency of Takeaways, Gaming and Liquor Outlets Versus Youth in the Bay of Plenty Meshblocks of Index of Deprivation Score Eight or Greater



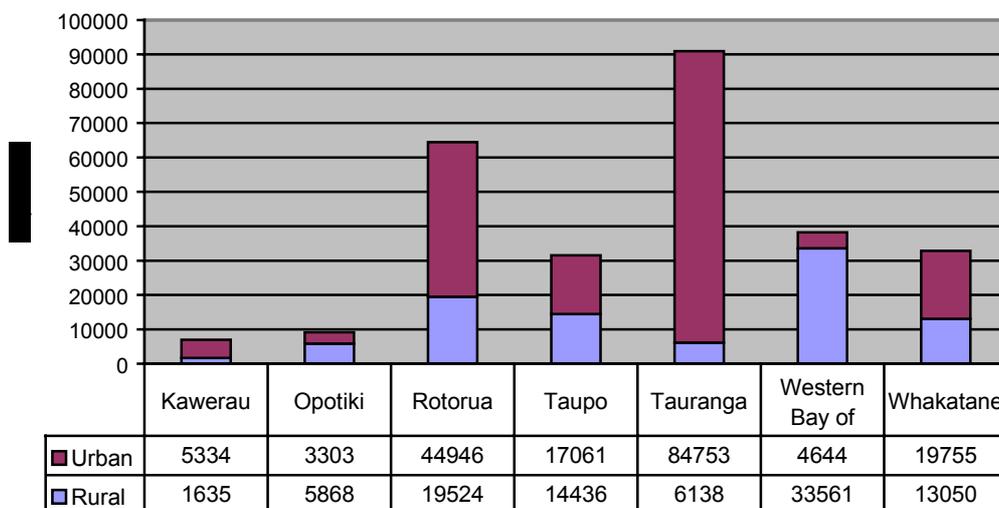
This graph shows the number of people living in meshblocks at the different Deprivation Levels. Meshblocks containing less than 50 People are excluded. Data is for the entire Bay of Plenty and Lakes Region. These graphs should be used as basis for comparing other subsets of the data.

Figure 12: Deprivation – Profile for Study Area



This next graph shows the proportions of each Territorial Local Authority population residing within rural or urban communities.

Figure 13: Rural Urban Split Profile for Study Area



Appendix 3: Co-Location of Outlets and Schools

Table 1: Schools within 100 metres of Liquor Outlet

School Name	Schools Within 100m Liquor Outlet					
	City/Town	Decile	European	Maori	Pacific	Other
Katikati Primary School	Katikati	5	416	100	15	9
Kea Street Specialist School	Rotorua	3	12	10	7	0
Malfroy School	Rotorua	3	105	192	13	9
Mangakino Area School	Mangakino	1	13	178	1	1
Maungatapu School	Tauranga	5	270	170	7	6
Merivale School	Tauranga	1	40	143	6	6
Ohope Beach School	Whakatane	9	192	59	1	7
Otumoetai School	Tauranga	8	446	83	1	14
Reporoa College	Reporoa	7	194	80	0	3
Reporoa School	Reporoa	7	97	56	0	0
Rotorua School	Rotorua	2	3	287	2	1
St Joseph's Catholic School (Matata)	Matata	2	0	47	0	0
St Joseph's Catholic School (Opotiki)	Opotiki	1	72	112	10	2
Tauhara School	Taupo	3	111	96	13	0
Taupo School	Taupo	5	258	135	10	5
Tauranga Adventist School	Tauranga	8	64	0	0	0
Tauranga Boys' College	Tauranga	5	1097	276	14	44
Te Kura Kaupapa Maori O Te Koutu	Rotorua	1	0	104	0	0
Tongariro High School	Turangi	1	30	166	0	0
Waihi Beach School	Waihi Beach	5	181	47	2	0
Westbrook School	Rotorua	5	398	125	14	22
Western Heights High School	Rotorua	2	446	583	36	27

Table 2: Co-Location of Gambling and Schools in the Bay of Plenty/Lakes Region

School Name	Schools within 300m Gambling Outlet					
	City/Town	Decile	European	Maori	Pacific	Other
Mt Maunganui College	Mt Maunganui	4	695	255	13	48
Tauranga Boys' College	Tauranga	5	1097	276	14	44
Tauranga Girls' College	Tauranga	6	1153	282	12	52
Mangakino Area School	Mangakino	1	13	178	1	1
Wickham Private School	Tauranga	8	60	0	0	7
Greerton Village School	Tauranga	3	217	140	24	15
Katikati Primary School	Katikati	5	416	100	15	9
Kea Street Specialist School	Rotorua	3	12	10	7	0
Malfroy School	Rotorua	3	105	192	13	9
Matua School	Tauranga	10	378	30	3	1
Mt Maunganui Intermediate	Mt Maunganui	4	360	150	12	16
Murupara School	Murupara	1	2	265	1	0
Ngongotaha School	Rotorua	2	154	207	8	7
Otumoetai School	Tauranga	8	446	83	1	14
Rotorua School	Rotorua	2	3	287	2	1
Selwyn School	Rotorua	2	140	324	11	6
St Joseph's Catholic School (Opotiki)	Opotiki	1	72	112	10	2
St Joseph's Catholic School (Whakatane)	Whakatane	4	132	72	2	14
St Michael's Catholic School (Rotorua)	Rotorua	3	113	74	13	0
Taupo School	Taupo	5	258	135	10	5
Tauranga Intermediate	Tauranga	4	845	246	8	25
Gate Pa School	Tauranga	2	146	124	8	12
Turangi School	Turangi	2	74	150	0	2
Wairakei School	Taupo	3	104	102	2	2
Rotorua S D A School	Rotorua	6	30	6	1	0

Table 3: Schools within 100 metres of Fast Food Outlets

School Name	Schools Within 100m of Fast Food Outlet					
	City/Town	Decile	European	Maori	Pacific	Other
Mt Maunganui College	Mt Maunganui	4	695	255	13	48
Otumoetai College	Tauranga	8	1113	231	13	87
Tauranga Boys' College	Tauranga	5	1097	276	14	44
Tauranga Girls' College	Tauranga	6	1153	282	12	52
Whakatane High School	Whakatane	5	542	437	11	25
Opotiki College	Opotiki	1	133	344	6	7
Western Heights High School	Rotorua	2	446	583	36	27
Mangakino Area School	Mangakino	1	13	178	1	1
Aorangi School (Rotorua)	Rotorua	2	75	192	6	7
Apanui School	Whakatane	5	210	169	3	9
Glenholme School	Rotorua	3	212	173	13	10
Greerton Village School	Tauranga	3	217	140	24	15
Katikati Primary School	Katikati	5	416	100	15	9
Kawaha Point School	Rotorua	3	146	184	19	17
Kea Street Specialist School	Rotorua	3	12	10	7	0
Malfroy School	Rotorua	3	105	192	13	9
Maungatapu School	Tauranga	5	270	170	7	6
Merivale School	Tauranga	1	40	143	6	6
Omokoroa Point School	Omokoroa	8	126	20	1	0
Opotiki School	Opotiki	1	19	198	6	0
Otumoetai Intermediate	Tauranga	8	579	121	3	18
Paengaroa School	Paengaroa	4	160	97	3	5
St Joseph's Catholic School (Opotiki)	Opotiki	1	72	112	10	2
Tauhara School	Taupo	3	111	96	13	0
Taupo School	Taupo	5	258	135	10	5
Gate Pa School	Tauranga	2	146	124	8	12
Te Kura Maori-a-Rohe o Waiohau	Whakatane	1	0	24	0	0
Waipahihi School	Taupo	7	344	77	6	18
Westbrook School	Rotorua	5	398	125	14	22
Rotorua S D A School	Rotorua	6	30	6	1	0

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