Wellington Financial District NZ

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Agenda

- About Wellington
- Hazards in the area
- Disaster Description
- Post disaster
  - a) What did telecom managers do to recover their communications?
  - b) What should they have planned for in advance to mitigate the situation? What issues should have been addressed.
- Conclussions

About Wellington

- Wellington, New Zealand's capital city.
- Wellington is a stunning and compact city.
- Population:
  - **Wellington City** 165,942
  - **Wellington Region** 424,461

- Country's business center.
- Gaining recognition as a brilliant conference destination

About Wellington

- Just over a third of the population in the Wellington region is aged between 15 and 64 years, which is the highest proportion of working age population for any region. As a consequence Wellington has a high labour force participation rate of 68.2%.
- Wellington people earn the highest median incomes in New Zealand. (1996 $50,998)
- Wellington contains the highest proportion of people working in communications services, finance and insurance, property and business services industries in New Zealand.

Interesting Facts 1

- Wellington is the world's most southern capital and the only capital in the "Roaring Forties" latitudes .
- Wellington was the first Capital City to see in the new millennium.
- Nearly all Wellington residents are within 3 km of the sea.
- Wellington has the greatest proportion of open space land per capita at 17.3 ha for every 1000 people.
- More Wellingtonians feel safe in their homes than in other cities. (Quality of Life Report commissioned by national City Councils 2001)

Interesting Facts 2

- Wellington is the most "fully wired" city in the most "fully wired" country in the world.
- It has one of the fastest and biggest fibre optic loops in the world providing the CBD with high-speed data transfer and Internet access.
- Wellington is the most connected city in New Zealand with 44% of households connected to the Internet.
- It boasts the highest Internet usage in New Zealand (48%).
- Wellington has the most intense concentration of software developers in New Zealand.
- Wellington had the best three web sites in a recent study of web sites of New Zealand museums and public art galleries.

National Headquarters

- High Court
- National Cricket Museum
- National War Memorial
- New Zealand Stock Exchange
- Parliament
- Reserve Bank

Telecommunications

- Wellington's telecommunications lead the world. In a country that is perhaps the most technologically aware in the world, Wellington stands out. The region's commitment to advanced technology, and the high capacity international links made possible by initiatives like the Southern Cross cable, mean more and more companies in globally competitive sectors like finance, information technology, software development and multi-media are choosing to base their operations here.
- The region boasts a high bandwidth infrastructure, with three-fibre optic cable loops and a range of national and international telecommunications providers. The country's three biggest telecommunications vendors all have a significant presence, and Wellington is the only city in the world to have two high capacity fibre optic networks for high speed data transmission. These networks offer the highest capacity available anywhere in the world.
- The region's highly educated workforce, internationally competitive labour market and attractive commercial property market also make this one of the most sought after locations for customer contact centres in the country.

Earthquakes

- Through its geographical location and seismic activity, Wellington Region has developed an international reputation for reconstruction and protection measures against damage from future earthquakes.
- Wellington Region companies succeed in this field winning contracts in Silicon Valley, working for major technology multi-nationals, Associates speaking at international conferences, and delivering services remotely from Wellington via the internet.
- While the individual companies achieve success, a group of over 30 consultants, service companies, manufacturers, universities and research establishments work together to lever overseas contracts from New Zealand's earthquake engineering expertise. The collaboration of the Earthquake Engineering Technology cluster can undertake projects of a scale they could not contemplate as individual companies.
- This combined collaborative approach means that the cluster's consortium now has over 4,000 specialist professional staff amongst its members thus making it a world class size enterprise and able to compete with major international engineering consultant and construction companies.
- Now they are bidding on projects around the world.
- Visit www.earthquakeengineering.com to find out more.

Climate

- **Introduction**
  New Zealand lies in the mid-latitude zone of westerly winds, in the path of an irregular succession of anticyclones, which migrate eastwards every six to seven days. The centres of these anticyclones generally track across the North Island, more northerly paths being followed in spring, and southerly paths in autumn and winter. Anticyclones are areas of descending air, and settled weather, with little or no rain, which may bring clear skies, or low cloud and fog.
- Between the anticyclones are troughs of low pressure, which extend northwards from low pressure depressions moving eastwards far to the south of New Zealand. Within these troughs there are often cold fronts, orientated northwest to southeast, which produce one of the commonest types of weather sequence over the country: as the front approaches from the west, northwesterly winds become stronger and cloud increases, followed by a period of rain for several hours as the front passes over, and then a change to cold showery southwesterly winds.
- The presence of a mountain chain extending the length of the country has a major effect on the climate of the various regions, and produces much sharper climatic contrasts from west to east, than from north to south. In some inland areas of the South Island, just east of the mountains, the climate is distinctly 'continental' in character -- with large daily and seasonal temperature extremes -- despite the fact that no part of the country is more than 130km from the sea. Ophir in Central Otago has the greatest temperature range of 55℃.
- **Winds**
  The prevailing wind direction is westerly, although in individual months easterlies may predominate, and north of Taranaki the general flow is southwesterly. In the North Island winds generally decrease for a period in the summer or early autumn, but in many parts of the South Island July and August are the least windy months.
- The blocking effect of the mountain ranges modifies the westerly wind pattern. Wind strength decreases on the western side, but increases through Cook Strait, Foveaux Strait, and about the Manawatu Gorge. Air is also forced upwards over the ranges, which results in a warm drying (föhn) wind in the lee areas to the east of both islands.
- Wellington averages 173 days a year with wind gusts greater than about 60 km/h, compared with 30 for Rotorua, 31 for Timaru, and 35 for Nelson.
- Sea breezes are the predominant winds in summer in many coastal places, such as Canterbury where the northeasterlies are almost as frequent as the predominant southwesterlies.
- **Rainfall**
  The distribution of rainfall is mainly controlled by mountain features, and the highest rainfalls occur where the mountains are exposed to the direct sweep of the westerly and northwesterly winds. The mean annual rainfall ranges from as little as 300mm in a small area of Central Otago to over 8000mm in the Southern Alps. The average for the whole country is high, but for the greater part lies between 600 and 1500mm. The only areas with average rainfalls under 600mm are found in the South Island to the east of the main ranges, and include most of Central and North Otago, and South Canterbury. In the North Island, the driest areas are central and southern Hawkes Bay, Wairarapa, and Manawatu, where the average rainfall is 700-1000mm a year. Of the remainder, much valuable farmland, chiefly in northern Taranaki and Northland, has upwards of 1500mm. Over a considerable area of both islands rainfall exceeds 2500mm a year.
- For a large part of the country the rainfall is spread evenly through the year. The greatest contrast is found in the north, where winter has almost twice as much rain as summer. However predominance of winter rainfall diminishes southwards: it is still discernible over the northern part of the South Island, but over the southern half, winter is the season with least rainfall, and a definite summer maximum is found inland due to the effect of convectional showers. Rainfall is also influenced by seasonal variations in the strength of the westerly winds. Spring rainfall is increased west of, and in, the ranges as the westerlies rise to their maximum about October, with a complementary decrease of rainfall in the lee of the ranges.
- Areas that are exposed to the west and southwest experience much showery weather, and rain falls on roughly half the days of the year. Over most of the North Island there are at least 130 rain days a year, (days with at least 1.0mm of rain) -- except to the east of the ranges where in places there are fewer than 110 rain days. These areas of the South Island with annual rainfall under 600mm generally have about 80 rain days a year. In the far south the frequency of rain increases sharply, rain-days exceeding 200 a year in Stewart Island and Fiordland.
- On the whole the seasonal rainfall does not vary greatly from year to year, the reliability in spring being particularly advantageous for agricultural purposes. It is least reliable in late summer and autumn, when very dry conditions may develop east of the ranges, particularly in Hawkes Bay.
- The highest daily rainfall on record is 682mm which occurred at Colliers Creek, Hokitika, where the mean annual rainfall exceeds 6000mm. Areas with a marked lower annual rainfall can be subject to very heavy daily falls: such areas are found in northern Hawkes Bay and northeastern districts in the Auckland province. By contrast, in the Manawatu district, Otago, and Southland, daily falls reaching 80mm are very rare.
- **Temperature**
  Mean temperatures at sea level decrease steadily southwards from about 15℃ in the far north to about 1 0℃ in the south of the South Island. Temperatures also drop, by about 2℃ per 300m, with altitude.
- January and February, with approximately the same mean temperature, are the warmest months of the year, and July is the coldest. Highest temperatures are recorded east of the main ranges, where they exceed 30℃ on a few afternoons in most summers.
- The extremes for New Zealand are 42℃. which has b een recorded in three places, in the Awatere Valley (Marlborough), Christchurch, and Rangiora (Canterbury); and -22℃ at Ophir (Central Otago). The annual range of mean temperature (the difference between the mean temperature of the warmest and coldest months) is small. In Northland and in western districts of both Islands it is about 8℃ and for t he remainder of the North Island and east coast districts of the South Island it is 9℃ to 10℃. Furth er inland the annual range exceeds 11℃ in places, reaching a maximum of 14℃ in Central Otago where there is an a pproach to a 'continental' type of climate.
- **Sunshine**
  The sunniest places are near Blenheim, the Nelson-Motueka area, and Whakatane, where the average duration of bright sunshine exceeds 2350 hours a year. The rest of the Bay of Plenty, and Napier are only slightly less sunny. A large portion of the country has at least 2000 hours, and even Westland, despite its high rainfall, has 1800 hours. Southland and coastal Otago, where sunshine drops sharply to about 1700 hours a year, lie on the northern fringe of a broad zone of increasing cloudiness.
- A pleasant feature of the New Zealand climate is the high proportion of sunshine during the winter months, although there is a marked increase in cloudiness in the North Island in winter -- but little seasonal change in the South Island, except in Southland.
- **Hail, Thunderstorms and Tornadoes**
  The number of severe hailstorms reported annually over the whole country averages 9, but this figure varies yearly from 4 to 20. Severe hailstorms occur widely throughout the country, but the areas most affected are Canterbury, the low country of central Hawkes Bay, and a small area south and west of Nelson. Most of the hail stones are small, but occasionally larger stones cause local damage to glasshouses and orchards.
- Thunderstorms are not numerous. Their frequency is greatest in the north and western side of the country, where thunder is heard on 15 to 20 days a year. On the east coast of the South Island the average is commonly less than 5.
- Tornadoes show a similar pattern to thunderstorms, apart from a maximum in the Waikato and Bay of Plenty. An average of about 20 tornadoes and water-spouts is reported each year, but most of these are small.
- **Frost and Snow**
  Local variations in frostiness are considerable, even within quite small areas. For example, at Albert Park, Auckland, the screen minimum thermometer has registered below 0℃ only once in 65 years, while further up the harbour at Whenuapai aerodrome there are on average eight screen frosts per annum. Favourable sites in coastal areas of Northland are free of frost, although further inland light frosts occur frequently in the winter months. Excluding the uninhabited mountainous areas, the coldest winter conditions are experienced in Central Otago and the Mackenzie Plains of inland Canterbury, and on the central plateau of the North Island, but even in these areas night temperatures as low as -12℃ are rarely recorded . Elsewhere over the North Island the winters are very mild, and in both islands sheep and cattle remain in the open all year round.
- The North Island has a small permanent snowfield above 2500m on the central plateau, but the snow line rarely descends below 600m even for brief periods in winter. In the South Island snow falls on a few days a year in eastern coastal districts, where in some years it may lie for a day or two even at sea level, but in Westland it does not lie at sea level. The snow line on the Southern Alps is about 2000m in summer, being slightly lower on the western side where the Franz Josef and Fox Glaciers descend through heavy bush to within 300m of sea level. In inland Canterbury and Otago, where there are considerable areas of grazing lands above 300m, snowfalls are heavier and more persistent and have caused serious sheep losses during severe winters. In that area, however it is rare for the winter snow line to remain below 1000m for extended periods.
- **Humidity**
  Mean relative humidity is often between 65 and 85 percent. However, much lower values (from 30 percent down to 5 percent) occur at times in the lee of the Southern Alps, where the föhn wind (the Canterbury nor-wester) is often very marked. Cool southwesterlies are also at times very dry when they reach eastern districts. In Northland the humid mid-summer conditions are inclined to be oppressive, although temperatures rarely reach 30C. Dull, humid spells are generally not prolonged anywhere, but their frequency shows a marked increase in the south.
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