

FRESHWATER COUNTRY PROFILE

NEW ZEALAND

Decision-Making

Programmes and Projects

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- B. Water Resources Assessment
- C. Protection of Water Resources
- D. Drinking Water Supply and Sanitation
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- F. Water for Sustainable Food Production and Rural Development
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Status

Capacity-Building, Education, Training and Awareness-Raising

Information

Research and Technologies

Financing

Cooperation

Decision-Making: *Environmental protection:* Both central and local government in New Zealand have important and complementary responsibilities in implementing sustainable resource management through their planning and management responsibilities under New Zealand's Resource Management Act 1991 and its amendments. Related legislation includes: the Forests Amendment Act 1993, the Biosecurity Act 1993, the Fisheries Act 1996, the Hazardous Substances and New Organisms Act 1996, and the Ozone Layer Protection Act 1996. Along with this legislation, the Government has developed a number of strategies and policies that contribute to the achievement of sustainable development. These include: the Research Science and Technology 2010 Strategy, and the New Zealand Coastal Policy Statement (NZCPS), among others. Most recently, as part of the New Zealand response to the WSSD, New Zealand has developed a Sustainable Development Programme of Action available at <http://www.mfe.govt.nz/issues/susdev/programme.html> and referred to in the New Zealand response to the reformed CSD, available as background document 1 to CSD 12 at <http://www.un.org/esa/sustdev/csd/csd12/Background1.pdf>

Central to the development of the plans is consultation with regional government's constituent stakeholders. Regional government has a significant and key role in implementing the Resource Management Act. In planning for resource management, regional councils must prepare policy statements specifying policies and objectives for the management of resources in the region and the methods by which these will be achieved. Regional councils may also prepare regional plans which further detail the use of specific resources. Territorial authorities must prepare district plans which include controlling the effects of land use, controlling noise, and protecting rivers and lakes. The Treaty of Waitangi, signed in 1840 between Maori tribes and the British Crown, provides the basis from which Maori interests are expressed and can be realised. Existing mechanisms for resolving claims by Maori include the Waitangi Tribunal. The Minister of Maori Affairs is required to report to Parliament on an annual basis on progress made by the Government on implementation of Waitangi Tribunal recommendations. Quality decision making practice obliges Government to consult widely when making decisions affecting the environment and, more particularly, the Principles of the Treaty of Waitangi require that iwi (Maori tribes) are consulted.

There is no government policy on assistance to major groups but major groups participate in follow-up through their own specific networks, and those that they have with relevant government agencies. Several of the major groups have their own coordination networks. Major groups participate in the design of national policies through the open consultative process of policy formulation. This includes the use of discussion papers, open to public submissions, in the development of policies (e.g. Environment 2010 Strategy). It also includes the opportunity to make submissions to local government on the formulation of their statutory planning documents (e.g. District Plans), and to government during the development of legislation. New Zealand's preparation for CSD meetings is an open process, which, following the WSSD has relied on the processes, which form part of our Sustainable Development Programme of action. Delegations to CSD meetings have been small.

Water resource management: Generally water management in New Zealand is devolved to Regional and District Councils, although over the last year the government has put in place a special process to consider and resolve conflicting interests in water use in the lower Waitaki river in the South Island. Details of the development of that process can be found at <http://www.mfe.govt.nz/issues/water/freshwater/waitaki/index.html>

Domestic water supply is a local government responsibility. Some irrigation schemes are owned by the private sector, for example the Rangitata Diversion Race is a share holding of local farmers. New Zealand complies with virtually all the relevant recommendations for activities in relation to water management. Fish and Game Council controls and permit/licenses for freshwater fish, including salmon. Major groups

in the scientific and technological community also participate in the design of national sustainable development projects and policies. Examples include the maintenance of clean water supplies.

Day-to-day water management is the responsibility of regional, city and district councils. The use of all natural water in New Zealand is vested in the Crown. Regional councils control all activities relating to freshwater, including land use and the taking of, and discharges into, water. They are also responsible for flood protection and erosion control. City and district councils provide services such as water supply, sewage reticulation and disposal and storm-water reticulation.

This is primarily due to the infrastructure established under the Soil Conservation and Rivers Control Act 1941 and the Resource Management Act, (RMA) (and its amendments 1994, 1996, 1997). The latter also governs the use of water by agriculture, by industry and by households. The New Zealand Drinking Water Standards (Ministry of Health) and the bylaws of Territorial Authorities (e.g. District Councils) also apply to households.

A variety of legislation, strategies and practical guidance measures are in place, or being developed, to prevent pollution of, and conserve freshwater supplies. These include the Resource Management Act (RMA), and Health Act 1956 (drinking water standards). Policies vary according to specific regional conditions. No pricing policy is implemented at the national level. Few regional-level pricing policies are being developed. District and City Council rates (local taxes) pay for water infrastructure. Rates are subject to fairly regular review. Specific policies relevant to local circumstances are being developed at the regional level to encourage the efficient allocation of water, for example tradeable permit regimes for large irrigation schemes. The Soil Conservation and Rivers Control Act 1941 contains provisions with respect to flooding. There is no specific policy to cover droughts, but situations are dealt with in an ad hoc way on a case by case basis.

The Resource Management Act allows for consultation with all parties (e.g. private sector) on resource management issues. Local government contracts private sector expertise on a variety of water management issues. Policy formulation often includes the release of discussion documents accompanied by a call for public submissions. The analysis of submissions received is taken into account in the iteration of policy. Public submissions, both written and oral, to parliamentary committees is also part of the process of developing legislation.

Conflict resolution is conducted through the procedures of the Resource Management Act and Environment Court.

Programmes and Projects:

A. Integrated Water Resources Development and Management: The Water Programme of Action in the Sustainable Development Programme of Action is consistent with integrated catchment management. Further details are set out in the New Zealand response to the reformed CSD available as background document 1 to CSD 12 at <http://www.un.org/esa/sustdev/csd/csd12/Background1.pdf>

Integrated management of land: The Resource Management Act requires regional, city and district councils to ensure that natural and physical resources, including ecosystems and biodiversity, are managed sustainably. While central government financial support for farmers has largely ended, many councils operate extension advisory services on resource management issues and may contribute financial assistance for farm and riparian erosion control schemes. Regional and district councils have developed policies and rules to address the effects of sustainable land use. Most monitor compliance with resource consents. Farm or property plans can play a useful part in the process of obtaining resource consent. While priority issues vary, reflecting regional concerns, accelerated soil erosion and degradation of elite

soils are frequently raised. Several councils operate ratepayer funded programmes to assist farm soil conservation and sustainable land management activities.

Partnerships of one kind or another have been a feature of land use management over the past fifty years. The New Zealand Landcare Trust fosters sustainable land and biodiversity management by working with community groups. Land users work on many projects in partnership with local authorities and research agencies. Farm discussion groups and industry groups provide additional fora for sustainable land use debates.

B. Water Resources Assessment: New Zealand has a Water Quality Laboratory Registration System for drinking water supplies, based on best international practise. Every year the Ministry of Health surveys the quality of drinking water across the country to establish the degree of microbial contamination.

C. Protection of Water Resources, Water Quality and Aquatic Ecosystems: Since the late 19th century over 90 per cent of wetlands have been drained to provide fertile agricultural land. Some of the remaining wetlands are now filling with sediment at a rate faster than would happen naturally. A recent report by the Controller and Auditor-General concluded that while New Zealand is generally meeting obligations under the Ramsar Convention, measures have failed to stop degradation or to stem progressive encroachment on, and the loss of, wetlands especially in respect of privately owned land. Relevant government agencies are currently looking at how to address these questions.

D. Drinking Water Supply and Sanitation: Under the Building Act 1991 all dwellings must have potable water supplies and satisfactory sanitary facilities. Where necessary, all drinking water is treated before use. The purity of some sources is such that treatment is not required (e.g. some aquifer sourced drinking water supplying 25% of the population). Almost all towns and cities and many smaller communities have reticulated water supplies, largely reliant on groundwater aquifers or storage reservoirs in nearby catchments. New Zealand is developing drinking water standards as part of measure to maintain and improve drinking water quality – for further details see the section under Paragraph 7 in the New Zealand response to the reformed CSD, available as background document 1 to CSD 12 at <http://www.un.org/esa/sustdev/csd/csd12/Background1.pdf>

New Zealand has a Water Quality Laboratory Registration System for drinking water supplies, based on best international practice.

E. Water and Sustainable Urban Development: No information available.

F. Water for Sustainable Food Production and Rural Development: See under G. Impacts of Climate Change on Water Resources. See also information presented in the New Zealand response to the reformed CSD, available as background document 1 to CSD 12 at <http://www.un.org/esa/sustdev/csd/csd12/Background1.pdf>, and in particular the items in relation to JPoI paragraphs 26, 28 and 40.

G. Impacts of Climate Change on Water Resources: Research on global climate change (information and implications) is given priority. New Zealand spends around 23 million dollars on climate and climate change research. Although the 1994 New Zealand Coastal Policy Statement provided a framework for an adaptive response to sea level rise, there is no national sea level database for scientific purposes, notwithstanding national tidal data for hydrographic and geodetic purposes.

Climate variability: Government help is available to respond to climatic disasters. A recovery plan was established in 1993 setting down guidelines, including on financial assistance for adverse events beyond

the handling capacity of regional bodies or local communities. Financial assistance is available to replace community infrastructural assets. Individuals are expected to insure themselves against personal losses.

Farmers on dry east coast regions respond to drought either by destocking, or by investing in irrigation or drought-tolerant pasture plants. More than 470,000 hectares are currently irrigated and, potentially, that area could be doubled. Dairy farming is expanding in the drought-prone regions and irrigation is usually required for this change of land use. Irrigation is used to support viticulture, horticulture, dairying, sheep, beef and cropping. The net benefit of irrigation in terms of the at-the-farm-gate value of production in Canterbury during the 1997-99 drought years was estimated at \$365 million

Government and industry grants have been made available to these groups including through the Sustainable Farming Fund. However, neither central nor local government gives financial assistance for constructing or maintaining irrigation schemes.

Status: *Socio-economic aspects:* New Zealand is fortunate that absolute poverty, as defined in the Programme of Action of the Copenhagen World Summit for Social Development, 1995 is not part of its economic and social environment. Consequently, the Government has stated that there has been no need to develop a plan and a target date for the eradication of absolute poverty. However, New Zealand experienced a rise in the proportion of people with low incomes from 1990 to 1994, reflecting unemployment trends and reductions in the rates of social welfare assistance. From 1994 to 1998 the trend reversed - associated with a general improvement in New Zealand's economic performance over the latter part of the 1990s. Direct measures of poverty confirm that people aged 65 years or over are less likely to experience material restrictions or difficulties than working aged people. Approximately 5 per cent of older people experienced marked material hardship and a further 5-10 per cent had some difficulties. However, Maori and Pacific peoples and families with children are more likely to be at risk. In 1997 13 per cent of surveyed households said they could only afford to eat properly "sometimes". In 2000 8 per cent of the population rated their own standard of living as either "low" or "fairly low" on a 5 point scale.

At the time of the 2001 Census there were 3.7 million people living in New Zealand, an increase of 10.8 per cent since 1991. New Zealand is highly urbanised; 86 per cent of its residents live in urban areas. Most New Zealanders live in the North Island (76 per cent) with almost one in three people living in the Auckland region. New Zealand's population is ageing; the median age is now almost 35 years compared with 31 years in 1991. The population is becoming more diverse. 70 per cent identify as European only. Maori make up almost 15 per cent of the population (526,000 people). Almost 1 in 5 New Zealand residents was born overseas compared with 1 in 6 in 1991. New migrants from Africa and the Middle East also contributed to the growing ethnic mix of the population. By the beginning of the 20th century, the Maori population had suffered a dramatic decrease in size. Within 100 years the situation had been reversed. In 2001 those identifying as Maori comprised 15 per cent of the population and are projected to reach 21 per cent by 2051. The Maori population is comparatively young, with a median age of 22 years. It is also increasingly urban.

Ecosystem aspects: New Zealand comprises two main and a number of smaller islands. Their combined area of 270,500 square kilometres. New Zealand is 1,600 kilometres long, and 450 kilometres wide at its widest point. It has a long coastline for its area, the coast is very indented in places and it has many natural harbours. The current major uses of its coast are multiple. They include the location of major population centres, fishing, recreation, tourism, mining and oil exploration, and a variety of industries. New Zealand's forests cover about 28% (or 7.5 million hectares) of the country's land area. Of this, 6.2 million hectares is natural forest, and 1.3 million hectares, planted forest. The area of planted forest is currently increasing at about 80,000 hectares per annum, and this rate may be maintained for the next 20 to 30 years. If this happens, New Zealand's planted forests would account for more than 4 million hectares

by 2020. The State owns 4.9 million hectares of the country's natural forest. Most of this is managed for conservation values. Only 164,000 hectares of it is managed for wood production.

As prolonged droughts are relatively uncommon in New Zealand, there is no specific legislation related to desertification and drought. Climate is influenced by the country's latitude, shape, geographical isolation, and topography, resulting in mild temperatures and year-round wind and rainfall in most areas. Two areas of New Zealand, the east coast of the North Island and the South Island high country, however, are prone to drought. The dry tussock grasslands of the South island high country, characterized by high rugged mountains, extensive basins and river flats, have a "continental", highly variable climate, with extremes of heat and cold, and some parts are in danger of becoming a desert. This is due to a combination of factors including climate, the invasion of hawkweeds, high rabbit populations, and the inappropriate use of some land. This area is classified as semi-arid.

As part of New Zealand's preparations for the World Summit on Sustainable Development, Hon Marian Hobbs, Minister for the Environment, and the Ministry for the Environment consulted the community about progress in dealing with environmental issues and priorities for the future. More than 3500 responses were received from a wide range of New Zealanders, including young people. More than three-quarters of those people said that New Zealand's environment was not as healthy as they would like it to be. Two-thirds felt that New Zealand had not made enough progress in dealing with environmental issues over the past decade, especially with climate change, healthy waterways, clean air, and clean beaches and coastal waters. Their priorities for future action were healthy waterways, reducing waste, and clean beaches and coastal waters. People said that central and local government, business and households all needed to do more.

Desertification and drought: On average New Zealand enjoys good rainfall,. Rainfall varies from month to month, so short-term droughts are not uncommon. Individual land holders accept that they must manage climatic risks. Livestock farmers, for instance, rely on matching stock numbers and feed demands with seasonal grass growth, taking care to ensure continued production that does not degrade the land.

Two regions of New Zealand - the east coast of both islands and the high country to the east of the mountains in the South Island - are prone to drought and face specific problems in finding alternative water supplies. The dry tussock grasslands of the South Island high country have had the added pressure of feral rabbit populations, which accentuated grazing pressures in summer and led to a gradual invasion of weed species that are not palatable to livestock, particularly *Hieracium sp.*

Aspects of water resources: Pollution of rivers and coastal waters from point sources (i.e. specific sites such as dairy sheds, factories, sewer pipes) has declined over the last 20 to 30 years as treatment systems have been upgraded and alternative disposal methods are developed. Pollution from non-point sources (i.e. diffuse sites such as roads and paddocks) is still a major problem, particularly on pastoral and horticultural land where organic matter, and sediments wash into waterways or nitrates leach into ground water.

While pollution from point sources has declined since the 1970s, non-point or diffuse sources are now a major source of freshwater pollution, exacerbated by land use intensification. The dairy industry's expansion, both through greater intensification in traditional dairying areas and expansion into new areas, is one example of potentially higher risks of enrichment of surface waters, degradation of riparian margins, nitrate contamination of shallow groundwater, and contamination by pathogens. The industry is proactive in researching and promoting best management practices to ensure that this does not happen. Few traces of pesticide or herbicide contaminants have been found in groundwater and most are at very low levels. Few traces of pesticide or herbicide contaminants have been found in groundwater and most are at very low levels.

Every year the Ministry of Health surveys the quality of drinking water across the country to establish the degree of microbial contamination. In 2000 about 4 per cent of surveyed communities had unacceptable levels of faecal contamination and about 10 per cent more had water that for technical reasons did not comply with the Ministry's levels of acceptability.

Almost all towns and cities and many smaller communities have reticulated water supplies, largely reliant on groundwater aquifers or storage reservoirs in nearby catchments.

Some urban estuaries are heavily contaminated by the ongoing discharge of untreated stormwater. In Auckland, substantial progress is being made towards treating stormwater to reduce adverse effects in estuaries, harbours, and coastal waters. Industries are reducing the quantity of waste discharged. Geothermal and pulp mill discharges to the Waikato River have halved in the last decade.

Although there has been some protection of freshwater areas, particularly in remote mountainous regions, highly modified lowland areas remain vulnerable. Stream beds and river banks remain prone to livestock grazing and trampling. But the aesthetic and natural habitat values of lowland streams is increasingly being recognised and latest management techniques are encouraging an increase in riparian planting and restoration.

Regional councils, particularly in drought-prone eastern areas, continue to manage demand for water supplies, and in particular to balance rural irrigation and urban uses. Dilemmas arise in allocating groundwater because a paucity of long-term monitoring information makes sustainable management decisions difficult. There are also competing demands between water supplies to cities and towns and crop irrigation.

Lake Taupo, which covers an area of 623 square kilometres, is an internationally renowned trout fishery. It has exceptionally clear water, with an average Secchi disk clarity of 14 metres. The level of clarity is forecast to drop if trends in nutrient use in the catchment area continue. There is strong community interest in ensuring that this does not happen. Taupo's sewage is now discharged onto land in recognition of these concerns. In addition the Sustainable Development Plan of Action is focusing on Lake Taupo as case study of management of land use to maintain water see the New Zealand response to the reformed CSD, available as background document 1 to CSD 12 at <http://www.un.org/esa/sustdev/csd/csd12/Background1.pdf>, and in particular the section relating to paragraph 40 of the JPOI.

The Manawatu Plains: In the last 10-15 years the number of dairy farms in the Manawatu increased from about 800 to 1,000. At the same time dairy cattle numbers are estimated to have doubled to about 250,000. Expansion has been accompanied by improved treatment of point source discharges of dairy waste:

- 10 years ago about only one-third of farm dairy sheds discharged to land. Now almost three-quarters do;
- community sewage treatment has similarly improved;
- farmers have taken steps to keep cattle out of watercourses by fencing and riparian management, with support of the local regional council.

Despite this, stream and river water quality has not improved, due to greater pollution loadings from diffuse sources.

Capacity-Building, Education, Training and Awareness-Raising: Some awareness campaigns are operating at the local government level. An example is the Wellington Regional Council's water conservation awareness campaign.

The Ministry of Agriculture has a Sustainable Agriculture Programme, which aims to raise the awareness of the farming community of sustainable agriculture and related issues. MAF also produces school

education kits on sustainable agriculture which seek to educate young people about New Zealand's agriculture and to survey changes in land management and planning. Aside from this programme there are other innovative education activities related to sustainable development such as the "Land care Trust" initiative, administered by the Ministry for the Environment which provides information and training to people interested in establishing land-care groups.

Information: Information on water management and development in the agricultural sector is regularly collected by the regional and district councils. Some organisations, such as the Ministry of Agriculture, use information obtained from studies on water management and development in relation to agriculture to publish occasional reports on water issues. For the household sector, usage statistics and water quality data are collected by local authorities and provided to the Ministry of Health for storage on a national database. Regional Councils collect abstraction and discharge data on the industrial sector that are available on request but are not widely distributed on a regular basis.

The Ministry for the Environment has recently completed a national landcover database that utilises satellite images and GIS technology to map landcover at the hectare scale. It is a key tool in monitoring the state of the environment, including sustainable land use practices.

National level indicators of the state of New Zealand's environment are currently being developed and trialed as part of the Ministry for the Environment's environmental performance indicators programme. The current priority is to pilot and implement indicators for freshwater.

Information on consumption and production patterns in New Zealand revealed in The State of New Zealand's Environment includes information on water consumption.

Research and Technologies: Research is conducted largely by Crown Research Institutes, particularly the National Institute of Water and Atmospheric Research Ltd, and the Institute of Geological and Nuclear Sciences Ltd and by Regional Councils. The research is largely funded through contestable programme contracts with the Foundation for Research, Science and Technology, which is the premier funding council for public good research in New Zealand. Smaller amounts of research are funded through the Ministry for the Environment and the Ministry of Health. There is limited research on water technologies, which rely largely on research from the rest of the world.

The dairy industry is funding research to adopting countermeasures including upgrading of farm dairy effluent treatment and the planting of riparian buffer strips. A 5-year Microbiological Freshwater Research Programme, which began in 1997, has now been completed.

Financing: The Sustainable Management Fund was established in 1995 to support a broad range of resource management activities, with available funding of around \$5 million a year. The water and soil component is aimed specifically at community projects for sustainable land use and reducing non-point source water pollution. The Sustainable Farming Fund, introduced in 2000, supports community-driven programmes tackling barriers to environmental, social and economic viability. See also under G. Impacts of Climate Change on Water Resources.

Cooperation: New Zealand is an active participant in international legal fora, including those developing environmental law. It is party to over a 1000 multilateral treaties including a large number of environmental treaties. Twenty treaties to which New Zealand is party have been identified by the UN Secretary-General as "core treaties". It endorsed 7 United Nations treaties at the Millennium Summit.

Through Official Development Assistance (ODA) New Zealand makes a major contribution to building a better world that reflects the nation's commitment to be a good international citizen and New Zealanders'

humanitarian concerns. The New Zealand Agency for International Development (NZAID), formed on 1 July 2002 as a semi-autonomous agency within the Ministry of Foreign Affairs and Trade, is the primary agency for New Zealand's international development policy and programming. NZAID has as its central focus the elimination of poverty in developing countries through working with partners to achieve sustainable and equitable development for those most in need. Total budget for 2002/03 is NZ\$230 million. NZAID has a core geographical focus on New Zealand's immediate neighbourhood, the Pacific region, with which we have close historical and human links. Within the region the ODA programme supports New Zealand's special relationships with the Cook Islands, Niue and Tokelau and is the principal mechanism for fulfilling New Zealand's constitutional obligations to assist Niue and Tokelau.

NZAID continues the work of New Zealand Official Development Assistance (NZODA) to meet the principles of Agenda 21 and the Barbados Programme of Action. This is achieved through technical assistance and co-operation across the board.

Actions continue to be taken at the regional level to further sustainable development objectives. Over the last decade New Zealand has continued long-standing policies to promote regional institutions, especially in the Pacific. It also supports the Barbados Programme of Action for Small Island States.

Approximately 1% of NZODA bilateral assistance can be specifically identified for water resource management and development in the 1997/98 financial year. However, much assistance to regional and multilateral agencies, as well as a significant allocation within the bilateral programme is made to more general programme areas, or to rural/village development, small project, or volunteer assistance schemes within which local allocation decisions are made. These cannot be readily assessed for application to water resource management and development. New Zealand is a Party to the Convention and Statute on the Regime of Navigable Waterways of International Concern 1921 and Additional Protocol 1921. NZ has not entered into or is not taking part in any bilateral, sub-regional or regional agreements concerning the use of international watercourses, lakes, or groundwater.

Rural Water and Sanitation Schools Project: Solomon Islands - design and training in the use of water and sanitation teaching resources for primary school and kindergarten teachers as part of a joint SIGOV/NZAID/AusAID Rural Water Supply and Sanitation project. Objective to increase access to drinkable water, sanitary facilities and information about sanitation for rural men and women.

For additional and more recent information on New Zealand's work with its development partners see the New Zealand International Development Assistance sections of the New Zealand response to the reformed CSD, available as background document 1 to CSD 12 at <http://www.un.org/esa/sustdev/csd/csd12/Background1.pdf>

In May 1997 the UN General Assembly adopted the Convention on the Law of Non Navigational Uses of International Watercourses. NZ voted in favour of the Resolution adopting the Convention on the basis that it represents an important development in international law. However, as an island nation, NZ is not a "watercourse State" as it has no "international watercourses" as those terms are defined in the Convention. NZ has made no decision as to whether it will sign the Convention or become Party to it. New Zealand is a Party to RAMSAR. New Zealand ratified the Ramsar Convention on Wetlands in 1976.

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