9.1 Introduction

Water is essential to the environment, and to the social, economic and cultural wellbeing of people and communities in the Auckland Region. The demands on the Region's water resources are not easy to satisfy and may conflict with one another.

Demands to consume or use water include metropolitan bulk potable water supplies, industrial users, rural town use, agriculture, horticulture, individual domestic use and stock watering. Water is also used for its capacity to assimilate contaminants. Lakes and rivers are valued for the freshwater ecosystems they support, scenic values and for swimming, fishing and other forms of recreation which give them amenity value.

Water is of cultural and spiritual significance to Tangata Whenua. The importance of water to Tangata Whenua is referred to in Chapter 8 – Water Quality (8.2.4). In addition to those matters, Iwi have expressed concern that:

- the mixing of water from different sources is culturally and spiritually offensive to some Iwi;
- sufficient water levels should be retained in water bodies to ensure the protection of the mauri and mana of the water and associated ecology, and the mana of the Tangata Whenua;
- the customs and traditions of Tangata Whenua associated with water in relation to marae, papakainga and mahinga kai should be recognised;

  the passage of native fish should be provided for where structures are placed in waterways;
- recognition should be given to the use of geothermal water for tikanga Maori;
- significant cumulative adverse effects of taking Tainui ancestral water for Auckland municipal supply.

Because the Auckland Region straddles a narrow part of the North Island with few places more than 20 km from a harbour or the sea, river catchments and recharge zones of aquifers (rock formations from which water can be abstracted) are not extensive. The water bodies are often relatively limited in relation to the demands placed upon them by the large population and intensive use in the Region.

Conservation of water and its more efficient use by all water suppliers and users can reduce demand, diminish conflicts of use, and avoid or mitigate adverse environmental effects.

The management of water use has a strong regulatory focus. Part III of the RM Act establishes different presumptions to govern water use from those applying to the use of land. The taking, damming or diversion of water is prohibited unless allowed by a resource consent or by a rule in a regional plan. Exceptions to this include the taking of water for an individual's reasonable domestic and stock watering needs or for fire-fighting. The taking of geothermal water for use for tikanga Maori is also an exception. The exceptions however are subject to there being no adverse effects on the environment. The Resource Management Act defines water as including fresh water, coastal water (sea water) and geothermal water, but excluding water in any form while in any pipe, tank or cistern.

The ARC has the function under section 30(1) of the RM Act of:

"*(c) The control of the use of land for the purpose of:*

(iii) The maintenance of the quantity of water in water bodies and coastal water.

(e) The control of the taking, use, damming, and diversion of water, and the control of the quantity, level, and flow of water in any water body, including:

(i) The setting of any maximum or minimum levels or flows of water.

(ii) The control of the range, or rate of change, of levels or flows of water.

(iii) The control of the taking or use of geothermal energy."

TAs have the functions under section 31 of the RM Act of implementing policies to achieve integrated management of the effects of the use of land and associated natural and physical resources and for controlling effects of land use. Land uses may have effects on the demand for water, or the quantity of water in water bodies. TAs must be sensitive to these effects.

Managing the taking and use of water involves three related processes:

- quantifying how much water is in the lake, or naturally flowing in the stream or aquifer;
- determining how much water can be abstracted without adverse effects (water availability) and/or how much will be retained in the water body to protect instream values such as ecological, cultural, social and economic requirements;
- determining allocations for various users including resource consent applicants, based on water needs, efficiency and priority of use.

9.2 Issues

The limited nature of the Auckland Region's water bodies, in relation to the high abstractive demands placed upon them, creates four significant issues for management and allocation of these resources. These are:

9.2.1 Land use can affect the quantity of water in streams, lakes and aquifers, and largely influences the demand to take, divert or dam water

Land use changes and practices such as urbanisation, afforestation and major drainage works can reduce the quantity of water contributing to streams, lakes and aquifers, and can also affect water quality. In addition, the ways in which land is used largely determine the pressures to take water, to divert streams, and to impound water in dams.

Afforestation of pasture in a catchment may reduce stream flows by up to 50% depending on forest type, particularly in small catchments. Afforestation can also reduce recharge to aquifers. The reasons for these effects include interception of rainfall by, and evaporation from, the forest canopy, increased transpiration and changes to infiltration rates.

The extent of land covered by impervious surfaces, and different stormwater disposal methods affect how much rainwater infiltration recharges aquifers. This is especially significant in the urban areas of Auckland and Manukau cities where aquifers are utilised for water supply purposes (e.g., Onehunga, and Western Springs aquifers), and also in other parts of the Region. It is important that TAs give proper consideration to these matters when managing the effects of land use in an integrated manner, as required by section 31 of the RM Act.

Changing land uses can lead to demands for water which exceed the quantity that the stream or aquifer in the area can sustain. Failure to consider the likely future requirements of land use activities for water can result in demands to abstract unsustainable volumes from streams or aquifers, inefficient use of resources, and damage to natural values. It is therefore important to give consideration to water availability at an early stage in land use planning.

9.2.2 Demand for surface water equals or exceeds availability in parts of the Auckland Region

Use and development of surface waters can include abstraction of water, discharge of contaminants for assimilation by water bodies, damming, diversion and land drainage. Such changes can affect the values of water bodies which are to be protected in terms of Part II of the RM Act, including ecological, cultural, recreational and amenity values. Use and development of surface waters can cause changes in water levels and flows and can result in reductions to water depth, velocity, wetted area and assimilation capacity. These can, in turn, lead to increased algal growth, increased temperatures, oxygen depletion, changes in composition of ecosystems, loss of habitat and degradation of fisheries. The amount of surface water available for abstraction is determined from natural stream flow less a residual stream flow for instream uses.

In some surface water catchments of the Auckland Region, conflict arises between the competing demands for protection, use and development. For some streams and lakes in the Auckland Region (e.g., Kaipara River, Rangitopuni Stream, Waitakere River, Mauku Stream, Slipper and Spectacle lakes) current allocations are equivalent to the quantity available.

9.2.3 Demand for groundwater equals or exceeds availability in parts of the Auckland Region

In some aquifers of the Auckland Region conflict arises between the competing demands for abstractive use and for protection of spring flow, water levels, water quality and recharge of other aquifers. For some aquifers in the Auckland Region (such as Omaha and parts of the Kumeu sandstone aquifers) current allocations and abstraction are equivalent to the quantity available.

Water levels in unexploited aquifers are normally in a state of equilibrium. Recharge of aquifers occurs directly as a result of rainfall or by leakage from other aquifers which have a greater water pressure. Leakage to aquifers at lower pressure, discharge from springs to surface water or discharge to the sea at the coast are the outflows that balance recharge. In response to abstraction, a new equilibrium water level may be established in aquifers.

In the Auckland Region the main rock types which function as aquifers are greywacke, Waitemata Group sandstone, volcanic basalt, Kaawa Formation sand/shell, and recent sediments such as sand and gravels. The water storage and water yielding ability varies within and between aquifers.

Geothermal fields occur in the Region at Parakai, Waiwera, Whitford and Great Barrier Island. Hot water rapidly rises from depth through fractures in the rocks to provide bore production temperatures of up to 65°C.

Shallow volcanic aquifers are an important part of the entire groundwater/surface water system in Franklin district. Water levels in these unconfined (unpressurised) aquifers are the controlling influence on spring flow and on recharge of underlying deep volcanic and Kaawa Formation aquifers. The major streams are spring-fed from the shallow volcanic aquifer and during summer low flows are often in high demand.

Management of Auckland's aquifers (including those used for municipal supply) therefore includes the:

- protection of aquifer water quality, including prevention of salt-water intrusion at the coast;
- protection of geothermal aquifers from ingress of cold groundwater or seawater which would reduce bore production temperatures;
- prevention of long-term decline of aquifer water levels.

The quantity available for abstraction is determined from a portion of total aquifer recharge.

Where discrete aquifers overlie regional boundaries, as is the case with the Kaawa formation aquifer and Pukekohe plateau volcanic aquifer, both of which are in south Auckland, co-ordination is needed between the regional councils involved.

9.2.4 Competition for water between abstractive users has to be resolved where demand for water exceeds the quantity that the water body can sustain

This may be addressed by controlling increased demand for water, establishing priorities of water use, and improving efficiency of use. Abstraction of coastal water is not presently an issue for the Region.

Changing land uses can lead to demands for water which exceed the quantity that can be abstracted from local streams or aquifers on a sustained basis. It is therefore important to consider water availability at an early stage in land use planning.

To give effect to urban and rural development strategies, and make the most efficient use of existing infrastructure, services and natural resources, it may be necessary to establish priorities for allocation of water which give preference to some existing or potential users in particular catchments or aquifers. Water shortages in certain areas will have implications for future urban or rural development.

Water conservation is also an integral part of this issue. If efficient use and conservation of water is not practised, water users relying on their own supplies from streams, lakes or bores, and those on municipal supplies, may consume more water than necessary. This means that less water is available for other users. An important part of demand management is a knowledge of water needs. If accurate water needs are known, then water permit holders can be allocated no more water than is necessary.

9.3 Objectives

1. *To maintain water levels and flows sufficient to protect the:*

   (i) natural character,

   (ii) cultural, amenity and intrinsic values, and

   (iii) aquatic habitats and ecosystems,

   of streams, rivers, lakes and wetlands.

2. *To maintain water levels and flows of aquifers in the long term so as to retain adequate spring flow, prevent seawater intrusion at the coast, and to maintain temperatures in geothermal aquifers.*

3. *To manage the use of water so as to enable people and communities to provide for their present and future social, economic and cultural wellbeing, and for their health and safety, while being consistent with Objectives 9.3-1 and 9.3-2.*

9.4 Policies, Methods and Reasons

9.4.1 Policies: Land use and water resources

The following Policies and Methods give effect to Objectives 9.3-1 and -2.

1. *Land use activities that affect the quantity of water contributed to streams, rivers, lakes, wetlands or aquifers shall be managed so as to:*
   - *(i) protect the quantity of water in water bodies which have high amenity, cultural or ecological values;*
   - *(ii) avoid or mitigate flooding and erosion;*
   - *(iii) enhance water quality;*
   - *(iv) protect highly used water bodies.*
2. *Planning for changes or intensification of land use shall have particular regard to current water availability and priorities for allocation of available water resources.*

   See also Chapter 2 – Regional Overview and Strategic Direction, Policy 2.6.4-1 (iv).

9.4.2 Methods

1. *The ARC will give effect to Policy 9.4.1-1 and -2 by seeking the inclusion of appropriate provisions in district plans or, where desirable, through the provisions of regional plans.*
2. *The ARC will record and make available to the public, appropriate information on current water availability for significant or priority surface water catchments and aquifers.*
3. *TAs should give effect to Policies 9.4.1-1 and -2 by the inclusion of appropriate provisions in district plans.*

9.4.3 Reasons

Maintaining the quantity and quality of water in water bodies

Under section 30(1)(c)(iii) of the RM Act, regional councils have the function of controlling land use to maintain the quantity and quality of water in water bodies. This is best managed, however, through the exercise by TAs of their responsibilities to control the effects of the use, development or protection of land in terms of section 31 of the Act.

If the quantity of water in water bodies is not maintained by land use control, less water is available to users and for the protection of the water body.

A range of land use activities, including changes of primary production regimes, such as the replacement of pasture land with more dense vegetation (e.g. exotic or indigenous forest), urbanisation (resulting in increases to impervious surfaces), land drainage, and disposal of stormwater to the ground, can affect the quantity and quality of water which reaches streams, rivers, lakes, wetlands and aquifers. Areas of concern in the Auckland Region include significant wetland habitats (e.g., Te Henga wetland), lakes in the Kaipara peninsula and Mangawhai areas and some of the more highly used or valued surface water catchments and aquifers including, but not limited to, the Rangitopuni Stream and Clevedon Valley aquifer – Ardmore hills recharge area.

However, runoff from forest may be of better quality than that from agricultural land, and have less sediment and nutrients. Established forests attenuate flood flows.

For shallow volcanic aquifers (e.g., Auckland isthmus), disposal of stormwater to ground soakage increases the proportion of rainfall recharging the aquifer. However, the aquifers are susceptible to contamination from poor quality urban stormwater. The ARC is promoting treatment of all stormwater that is disposed of by ground soakage and containment of contaminants at source.

Control of the effects of land use in a manner which achieves integrated management of natural and physical resources may require consideration of a range of factors, including, for example, maintenance of the quantity of recharge to aquifers, and adverse effects such as degradation of the quality of groundwater.

Land use planning and demand for water

Changing land uses can lead to demand for water which exceeds the quantity that the stream or aquifer in the area can sustain.

The diverse water needs for urban development, industry and agricultural land uses must be taken into account in the processes of planning and managing the effects of land use.

In areas where groundwater and surface water is

approaching full allocation, there may be a need for a reticulated water supply from a distant source before urbanisation or rural land use intensification can occur. This situation exists in a number of areas such as Kumeu and Omaha. The productive potential of prime soils on rural land, such as those at Pukekohe, may be compromised due to a shortage of water if such land is further urbanised.

In order for TAs to give effect to the policies, the ARC must make available information on water availability for significant or priority water bodies which merit protection for their high values or which are highly used.

9.4.4 Policy: Water availability

The following Policy and Methods give effect to Objective 9.3-1 and -2.

The availability of water in water bodies and coastal water for taking, use, damming or diversion shall be determined on the following basis:

(i) A precautionary approach shall be taken.
(The precautionary approach is outlined in Chapter 1.)

(ii) The following matters shall be recognised and provided for:

(a) the ability of the water body to sustain the abstraction;

(b) the relationship of Tangata Whenua and their culture and traditions with their ancestral water, waahi tapu and other taonga;

(c) preservation of the natural character of the coastal environment, streams, rivers, lakes and wetlands and their margins;

(d) protection of indigenous vegetation and habitats of indigenous fauna in streams, rivers, lakes, wetlands and the coastal environment;

(e) maintenance of the natural flow variability in streams, rivers, lakes and wetlands.

(iii) Particular regard shall be had to the following matters:

(a) kaitiakitanga;

(b) maintenance and enhancement of the recreational, scenic, amenity and intrinsic values of streams, rivers, lakes and wetlands;

(c) maintenance of water quality including sufficient capacity for streams, rivers, lakes and wetlands to assimilate contaminants;

See also Chapter 8 – Water Quality policies.

(d) the security of a specific quantity of water being available in streams, rivers, lakes and wetlands during periods of low flow;

(e) estimates of aquifer recharge;

(f) maintenance of aquifer water levels adequate to ensure continued recharge between aquifers;

(g) maintenance of outflow from aquifers at the coast to prevent salt-water intrusion;

(h) retention of adequate spring flow from shallow aquifers which provide base flow for streams;

(i) avoidance of land subsidence and structural damage to aquifers;

(j) maintenance of geothermal aquifer water levels to prevent cold groundwater or seawater intrusion and reduction in aquifer temperatures;

(k) avoidance of long term decline of aquifer water levels;

(l) the extent of the overlap, if any, of catchments and aquifers with regional council boundaries.

(iv) The principles of the Treaty of Waitangi (Te Tiriti o Waitangi) shall be taken into account.
(Refer also to Chapter 3 – Matters of Significance to Iwi.)

9.4.5 Methods

1. The ARC will record and make available to the public, appropriate hydrological and other information such as the following:

(i) For selected surface water bodies: flow regimes, water levels, water quality, aquatic habitat, indigenous vegetation, indigenous fauna and other uses.

(ii) For selected aquifers: extent, thickness, water levels, transmissivity and storage coefficient parameters, chemical character and temperature.

2. The ARC may impose conditions on consents which require consent holders to record and forward to the ARC, as appropriate, information on water use and the effects of that use on the adjacent environment. Consent holders may also

be required to record water level, temperature, quality information, and other information as required by the ARC.

3. ***The ARC will identify in the ARC Annual Plan, those catchments and aquifers for priority investigation and ongoing monitoring within that year.***
4. ***The process for determining the availability of water for abstraction from a water body which is identified as having priority for investigation will be as follows:***
   - ***(i) A non-statutory Water Resource Assessment Report (WRAR), which is part of the catchment planning process, will be prepared (see Appendix A). In the process of preparing the WRAR the ARC will:***
     - ***(a) consult with the Tangata Whenua, and persons interested or affected (see Appendix D – for consultation);***
     - ***(b) refer any issues which are not resolved by consultation to a Hearings Commission, which will receive and hear submissions and evidence from any person interested, deliberate thereon, and recommend any changes which it considers should be made to the WRAR.***
   - ***(ii) If any issue then remains unresolved at the completion of the hearings process, either appropriate provisions will be included in a regional plan to give effect to the findings of the study or, any consent applications relevant to the study will be notified. The plan, provisions, or consents will proceed in accordance with the statutory processes set out in the RM Act.***
   - ***(iii) Where all issues are resolved by (i)(a) above, Water Resource Assessment Reports will be regarded in the resource consent process. Where the process proceeds to (b) the WRAR will be superseded by the provisions of any relevant regional plan.***
5. ***Non-statutory ARC Water Resource Assessment Reports will, as appropriate:***
   - ***(i) describe the area and water resource to which the assessment report applies;***
   - ***(ii) identify issues that affect the use, development or protection of the natural and physical resources;***
   - ***(iii) provide information on quantities of water available for abstraction including the setting of any minimum water levels or flow regimes;***
   - ***(iv) evaluate alternative strategies for addressing the issues including priorities of allocation, economic instruments, and assessment of efficient use;***
   - ***(v) propose ongoing monitoring or investigation of the water resource;***
   - ***(vi) have a review or expiry date on the assessment report.***

9.4.6 Reasons

Information

Assessment of water availability is an essential step in achieving sustainable management of the Region's water resources. Only when the amount of water that can be abstracted from a water body, without long term depletion of the resource or causing significant adverse effects to it, is known can prudent decisions be made about the granting of resource consents to take, divert or dam. Policy 9.4.4 identifies the factors which are to be taken into account in deciding how much water is available from any water body. This process of assessment is particularly important for those water bodies which are likely to be subject to greatest demand. Long-term stream flow records are necessary to estimate flows during droughts of particular recurrence intervals. Long-term records of aquifer water levels, as a response to use, are important to refine estimates of groundwater availability. Adequate and accurate hydrological and other information is essential for reliable estimates of water availability.

Section 35 of the RM Act requires the ARC to gather information and keep records on significant water resources of the Region to enable it to carry out its regulatory functions. The ARC maintains a network of automatic water level recorder stations for measuring stream flow, lake levels and aquifer water levels. The value of Tangata Whenua customary knowledge is recognised.

Sections 108(3) and (4) of the RM Act allow consent conditions which require holders to supply to the ARC

information relating to exercise of the consent.

In order for water permits to be effective management tools and for water to be allocated on the basis of efficient use, water use must be known. Compliance with permit conditions and allocations must be enforced. Accurate metering of water use is the only effective way of achieving this.

Water use information is also fundamental to refining water availability for aquifers. Holders of water permits may also have to make provision for the ARC to measure bore water levels and take water samples. They may also have to collect other information, such as temperature, if required.

Priority investigations

Some water resources need particular priority in terms of the resources of the ARC and other users. This is because the water resource is in high demand from abstractive users, or because a high value is placed on particular ecological, recreational or scenic features.

The preparation of the ARC Annual Plan, which sets budgets for the year, is a public process open to submissions before final decisions are made. It is an appropriate mechanism for prioritising the application of ARC resources.

Water Resource Assessment Reports

Once a catchment or aquifer has been identified for priority investigation it is necessary to identify the resource values to be conserved or protected, and the management problems of the catchment or aquifer. The controls on use that are necessary to avoid, remedy, or mitigate adverse effects must be formulated in an integrated and cost effective manner. This may be achieved through the preparation of a Water Resource Assessment Report (see Appendix A).

The process of consultation during preparation will enable Tangata Whenua and persons interested or likely to be affected to express their concerns about any particular water resource. These concerns can then be considered within the context of sustainable water resource management.

The outcome of the reports may be given effect in several ways. They may provide guidance in processing resource consent applications under section104(1)(i) of the RMA. They may also be used in applications for Heritage Protection Orders and Water Conservation Orders, in preparation and implementation of regional plans or be incorporated in district plans.

The ARC has completed Water Resource Assessment Reports for at least 15 surface water catchments and 14 groundwater aquifers. These reports will be reviewed prior to their expiry in order to assess their effectiveness and refine estimates of water availability.

Criteria

Some of the criteria in Policy 9.4.4 are mandatory by virtue of sections 5, 6, 7 and 8 of the RM Act.

Sustainable surface water availability must be determined from natural stream flow less a flow for instream values. These instream values include cultural and Tangata Whenua concerns, fisheries, recreation, the stream's natural character, indigenous vegetation and fauna, habitat, scenic, amenity and intrinsic values. Natural flow variability is important for stimulating migration of fish and maintaining acceptable ecological conditions in streams. All these values have different requirements of stream flow.

There is no simple method to relate instream values to actual stream flow requirement, which must be based on physical data and a process which takes into account intrinsic values of ecosystems and the non-consumptive values of the community. Availability assessments are subject to revision based on continually updated information and methodology.

Streams in the Auckland Region are quite variable in their flows, even from similar sized catchments. This is due to differences in rainfall, topography, geology, vegetation and physical characteristics.

Abstractive uses also vary considerably, for example, whether they are continuous or intermittent, for the irrigation season or for year round municipal supply. Similarly, the quantity of water stored in ponds or behind dams is also variable.

Any estimate of surface water availability should not be an arbitrary proportion of stream flow but must be determined by the criteria in Policy 9.4.4, if adverse effects are to be avoided. Changes in water levels or flows can lead to reduced water depth, velocity, wetted area and assimilation capacity. These can in turn encourage algal growth, increased temperatures, oxygen depletion, changes in composition of ecosystems, loss of habitat,

degradation to fisheries and loss of recreational opportunities.

Sustainable groundwater availability must be determined, not from aquifer storage but, from aquifer recharge less an allowance for spring flow, leakage to other aquifers and outflow at the coast.

Aquifers in the Auckland Region are often part of multi-aquifer/surface water systems and may be connected to the sea at the coast. Water levels in shallow unconfined (unpressurised) aquifers are the controlling influence on spring flow, which often provides a major proportion of summer stream base flow. Leakage from one aquifer to another may provide a major proportion of recharge. Aquifers display seasonal variations in water levels as a response to climate and abstraction.

Any estimate of groundwater availability must be determined by the criteria in Policy 9.4.4 if adverse effects are to be avoided. Such effects include perennial springs ceasing to flow in summer, salt-water intrusion in coastal aquifers, and long-term decline in bore water levels.

If the total allocation for a water body is in excess of sustainable water availability, then allocations will need to be reduced to comply with water availability.

Some catchments and discrete aquifers overlap regional council boundaries and co-ordination is therefore necessary between councils. Examples include the Kaawa Formation aquifer, Pukekohe plateau volcanic aquifer, and the catchments of the Mangatangi, Mangatawhiri and Tutaenui streams. These water bodies overlap the boundary between the Auckland and Waikato Regional councils.

9.4.7 Policies: Allocation and use of water

The following Policies and Methods give effect to Objectives 9.3-1, 2, and -3.

1. ***The conservation, efficient use and reuse of the Region's water shall be promoted.***
2. ***Priority shall be accorded to uses of water which give effect to the RPS strategic direction and the regional development policies (see Chapter 2).***
3. ***The taking, damming, diversion and use of available water as determined by Policy 9.4.4, shall be controlled so that:***
   - ***(i) Actual or potential adverse effects on the environment, including effects on other authorised water users, the water body, ecosystems, and amenity values, are avoided, remedied, or mitigated.***
   - ***(ii) The relationship of Tangata Whenua and their culture and traditions with their ancestral water, waahi tapu and other taonga is recognised and provided for.***
   - ***(iii) Particular regard is had to:***
     - ***(a) kaitiakitanga;***
     - ***(b) promoting efficient use of water;***
     - ***(c) avoiding, remedying, or mitigating adverse effects of dams, weirs and other instream structures on the environment including but not limited to reduction in flows, obstruction to the passage and migration of any indigenous fauna; bank or bed erosion or aggradation; flooding or restricting the drainage of any property;***
     - ***(d) providing, in the case of fresh water, for the individual's reasonable domestic needs and for the individual's animal's drinking water;***
     - ***(e) providing, in the case of geothermal water, for tikanga Maori for the communal benefit of the Tangata Whenua of the area;***
     - ***(f) encouraging multiple use of streams, rivers, lakes and aquifers.***
   - ***(iv) The principles of the Treaty of Waitangi (Te Tiriti o Waitangi) are taken into account.***

9.4.8 Methods

1. ***The ARC will promote the conservation, efficient distribution and use and reuse of water through:***
   - ***(i) the resource consent process,***
   - ***(ii) seeking provisions in district plans,***
   - ***(iii) public education programmes,***
   - ***(iv) the promotion of pricing mechanisms,***
   - ***(v) preparation of a regional strategy dealing with water availability and conservation.***

   (Refer also to Method 2.6.2-4 in Chapter 2 – Regional Overview and Strategic Direction.)
2. ***The ARC will control the taking, damming, diversion, use and allocation of water by means of:***

(i) The resource consent process, and consent transfer, having regard to Water Resource Assessment Reports where these are applicable (see Policy 9.4.4, Method 9.4.5 and Appendix A).

(ii) Regional plan provisions where appropriate.

(iii) Monitoring any taking of fresh water or geothermal water as provided for by Policies 9.4.7-3(iii)(d) and (e) to ensure that no adverse effects occur.

9.4.9 Reasons

Conservation and efficient water use

Conservation and efficient water use can apply to all water users. In promoting conservation and efficient use of water, not only must natural water bodies be considered, but also reticulated municipal supplies and use of rainwater in tanks. Encouraging the conservation and efficient use of water by domestic households, industry, agriculture and other consumers can reduce conflicts of use and increase the utilisation of the available water.

A significant proportion of municipal supply water is lost through leakage and this should be reduced. Water audits by major water users and suppliers will be encouraged, to identify areas of wastage and opportunities to conserve or use water more efficiently. The use of rain water in tanks should be considered, but with due regard given to any potential effects on public health.

Reuse of treated stormwater and wastewater for non-potable supply to industrial users and irrigators should be examined. A separate treated wastewater reticulation system may be developed for areas of largest demand in the vicinity of wastewater treatment facilities. If used for irrigation, potential surface water and groundwater contamination must be avoided. Appropriate discharge consents will be required.

Storage of winter runoff in off-stream dams makes more efficient use of annual rainfall than taking from run-of-stream flow, and is encouraged.

Efficient water use also leads to efficiencies in energy used to pump water and lower flows in waste treatment and disposal systems.

Activities which take or use water in order to produce goods or provide services will be expected to bear the costs of avoiding, remedying, or mitigating the effects of taking or using water. This should encourage users to take, or retain as an allocation, only the minimum quantity required for the activity. This should improve efficiency of water use.

Priority of water use

Management of water resources needs to integrate with other resource issues. The taking and use of water may give effect to the RPS strategic direction. The strategic objectives and policies provide the framework for this, and are further developed through specific policies on urban growth management (including defined metropolitan urban limits), countryside living, and on rural areas.

In particular, the policy on rural areas specifically includes reference to the management of the use of rural land with regard to the availability and sustainability of water resources. The same policy also states that consideration should be given to alternative locations (including locations in urban areas) for activities which give rise to adverse effects on the environment.

Any proposed or existing activity for which the allocation of water is sought should avoid, remedy or mitigate any adverse effects on the environmental values that the Strategic Direction of the RPS seeks to protect.

Control of water use

In managing and controlling water use, the ARC is required by sections 5, 6, 7 and 8 of the RM Act to consider effects on the environment, kaitiakitanga, Tangata Whenua values, instream values and uses, protection of indigenous fauna habitat and efficient use and development of water resources.

Policy 9.4.7-3(iii)(d) and (e) and Method 9.4.8-2(iii) acknowledge the provisions of section 14 (3) (b) and (c) of the RM Act, where a consent is not required to take and use water for an individual's reasonable domestic and stock drinking needs, or geothermal water in accordance with tikanga Maori, provided that there are no adverse effects on the environment. ARC monitoring and enforcement must ensure that no adverse effects occur.

To use and develop water resources in an efficient manner, and to avoid adverse effects upon the environment, regard must be had to residual flows/levels required to sustain the instream/groundwater management objectives. The quantities granted in

permits must be based on efficient use and must not exceed the quantity that the applicant requires on a daily and, where appropriate, annual basis.

If total allocation for a water body is in excess of sustainable water availability, allocations will need to be reduced to comply with water availability.

Conditions placed on water permits may specify the location of the activity, purpose of water use, and any monitoring of water use and its effects upon the water resource. Water permits for dams may have conditions regarding flood spillways, low flow bypasses and provision for passage of fish.

An assessment of effects for a consent to take groundwater may require an aquifer (pump) test on the bore to show that the bore can sustain the required yield in the long-term and that there are no unacceptable effects upon other authorised users or the aquifer as a whole.

Multiple use of water enables people and communities, rather than just individuals, to provide for their wellbeing, health and safety.

Economic instruments available for managing use of water resources include annual resource use charges to consent holders pursuant to section 36 of the RM Act and trading permits pursuant to transfer provisions of section 136 of the Act. Annual consent holder charges have the effect of encouraging users to relinquish unused water allocations making it available to other users. Transfer of permits between users in the same aquifer or catchment may also promote more efficient use of available water.

TAs should recognise the effects of demand for reticulated municipal supply on natural water bodies, and consider economic incentives for water conservation.

9.4.10 Policy: Significant resource management issues for Tangata Whenua

Maori cultural and traditional values shall be recognised and taken into account in the management of water conservation and allocation.

(Refer to Chapter 3 – Matters of Significance to Iwi for methods, reasons and other relevant provisions.)

9.5 Environmental Issues Anticipated

The following environmental results may be anticipated from implementation of the policy and methods.

(a) Sufficient water will be maintained in streams, rivers, lakes and wetlands to protect the ecosystems' natural character and intrinsic values, as well as the non-consumptive values that the community places on them.

(b) Aquifer water levels, temperature, spring flow and quality of groundwater at the coast are maintained at acceptable levels because the total quantity of water that may be used is based on natural replenishment of aquifers.

(c) Communities and people can provide for most of their present and future consumptive water needs because of efficient use of available water resources and appropriate land use and development.

(d) Maori cultural and traditional values are taken into account in the management of water conservation and allocation.

These results will mean the water resources in the Auckland Region will be maintained and enhanced in a sustainable manner.

9.6 Monitoring

The following monitoring is necessary in order to evaluate the suitability and effectiveness of the policies and methods.

(i) Groundwater static water levels in long-term monitoring bores measured continuously or manually.

(ii) Groundwater quality including bores near the coast.

(iii) Bore production temperatures in the case of geothermal groundwater.

(iv) Stream water levels from which flows can be calculated need to be measured continuously in key catchments.

(v) Surface water quality, indigenous vegetation, indigenous fauna and other uses of streams and lakes.

(vi) Metered water use records provided by consent holders.

(vii) Compliance of consent holders with consent conditions.

(viii) Maintenance of a register of complaints relating to the quantity of water in streams, lakes and bores.

(ix) Appropriate involvement of Tangata Whenua in the monitoring (a) to (h).