

5 Land

5.1 Scope and Background

Land management issues stem mainly from the effects of human activities on land. Potential for adverse environmental effects depends upon two factors: the capability of the land and soil to support particular uses and the effects of a given activity on different land and soil types. Mismanagement of the land resource has major implications for water quality and aquatic ~~biodiversity~~ biological diversity in terms of sediment and nutrient inputs. These implications stem from the very strong links that exist between the land and water resources.

Agriculture, particularly pasture-based farming, is the foundation of the Region's economy and is one of the key elements that ~~has~~ have defined ~~the Region's~~ our social and visual landscape. However, in some areas, past and present agricultural practices have damaged the very resource upon which the agricultural sector is based – the land and soil. Future land management ~~agricultural~~ practices have the potential to increase the rate of damage if they do not take the natural limitations of the land into account.

5.1.1 Chapter Content

This chapter covers accelerated erosion*, including the management of vegetation clearance*, land disturbance*, forestry* and cultivation*, and ~~agricultural practices on Highly Erodeable Land* (HEL).~~

Activities related to land management which are covered in other chapters, include:

- (a) discharges of agrichemicals*, agricultural wastes* and other contaminants onto or into land, addressed in Chapter 6
- (b) activities involving the beds of rivers and lakes, addressed in Chapter 6
- (c) clearance of indigenous vegetation and drainage of significant wetlands, addressed in Chapter 7.

5.1.2 Accelerated Erosion*

Accelerated erosion* is often caused by historical and current clearance of woody vegetation* and earthworks such as tracking, particularly on land use capability classes* VII and VIII land. The Region has approximately 274,000 ~~300,000~~ ha of hill country land at risk of moderate-severe erosion (Figure 5.1A), 116,000 ~~100,000~~ ha of which were affected by the storms of 2004. Approximately 200 million tonnes of soil was eroded during the February 2004 storm, causing approximately 30 million tonnes of sediment to enter the Region's rivers. The sediment discharged by rivers in the Region during this single storm event was likely to be several times the average annual sediment discharge for the Region.

The Region's western coast, particularly the foredune and associated inland soils, is easily eroded when the protective vegetation cover is removed as part of coastal development, and as a consequence of activities such as land recontouring and vehicle movement. Vegetation clearance* and land disturbance* expose these fragile soils to wind erosion.

The present extent of erosion has occurred despite the work by catchment boards and other individuals and organisations to manage soil erosion since the 1940s.



Where these activities brought about meaningful land use change, the results have been successful in decreasing erosion rates. For instance, in steep hill country, tree cover has reduced erosion rates by approximately 75% when compared with grass (~~Horizons Regional Council, 2005~~). However, the size and scale of the erosion issue is such that to date no agency has been able to deal with all erosion-prone land. Further, in some areas, large-scale land use changes are likely to be required, to which there is understandable landowner resistance.

Accelerated erosion^{*} can cause a number of on-site and off-site impacts:

- (a) to the landowner – loss of soil and productive capability, reduced stock-carrying capacity, impacts on property and assets such as *tracks*^{*}, *fences* and buildings, and the costs of carrying out repairs
- (b) to the environment – reduced water quality in terms of nutrient loads (much of the phosphate load in *waterways* is the result of sediment run-off), reduced water ~~turbidity~~/clarity, and major impacts on instream life
- (c) to others in the Region – damage to infrastructure^{*} and loss of flood protection to lowland communities as river beds within river and drainage schemes fill up with silt.

Soils that are damaged by slipping take a very long time to recover. Studies have shown it can take in the order of 20 years to regain 80% of pre-erosion productivity levels, and more than 100 years to achieve near-full recovery (~~Blaschke et al., 1992~~)^{*}. Some soil types may never fully recover. Efforts to maintain farm productivity on land that has been ~~affected~~ impacted by slipping generally increases pressure on less damaged parts of the *property*^{*}, thereby increasing the likelihood of further erosion and the loss of nutrients from increased *fertiliser*^{*} use.

Disturbed sandy soils can take many years to revegetate and stabilise naturally. In the interim, large quantities of sand can be eroded by the wind, threatening buildings and property and causing the inundation of productive land.

In addition to the damage that can be caused to the Region's fragile land types and soils discussed above, erosion rates and sediment run-off from other parts of the Region can be increased through activities that involve significant *vegetation clearance*^{*} and *land disturbance*^{*}. Such activities are typically involved with major ~~infrastructural~~ infrastructure development (for example, road construction and upgrades or energy projects such as windfarm development), land development (such as new residential or industrial subdivisions on the edge of urban centres or recontouring of land associated with dairy conversions or intensification), or aggregate extraction (for example, gravel pits or quarries).

Insufficient attention to batter slopes, stormwater management, fill compaction, ~~spill/overburden~~ containment, *debris clearance* and ~~site regressing~~/revegetation can significantly increase sediment loads in adjoining streams or sediment discharges onto neighbouring properties.



Figure 5.1 — Distribution of land with a high potential for accelerated erosion (Highly Erodible Land)

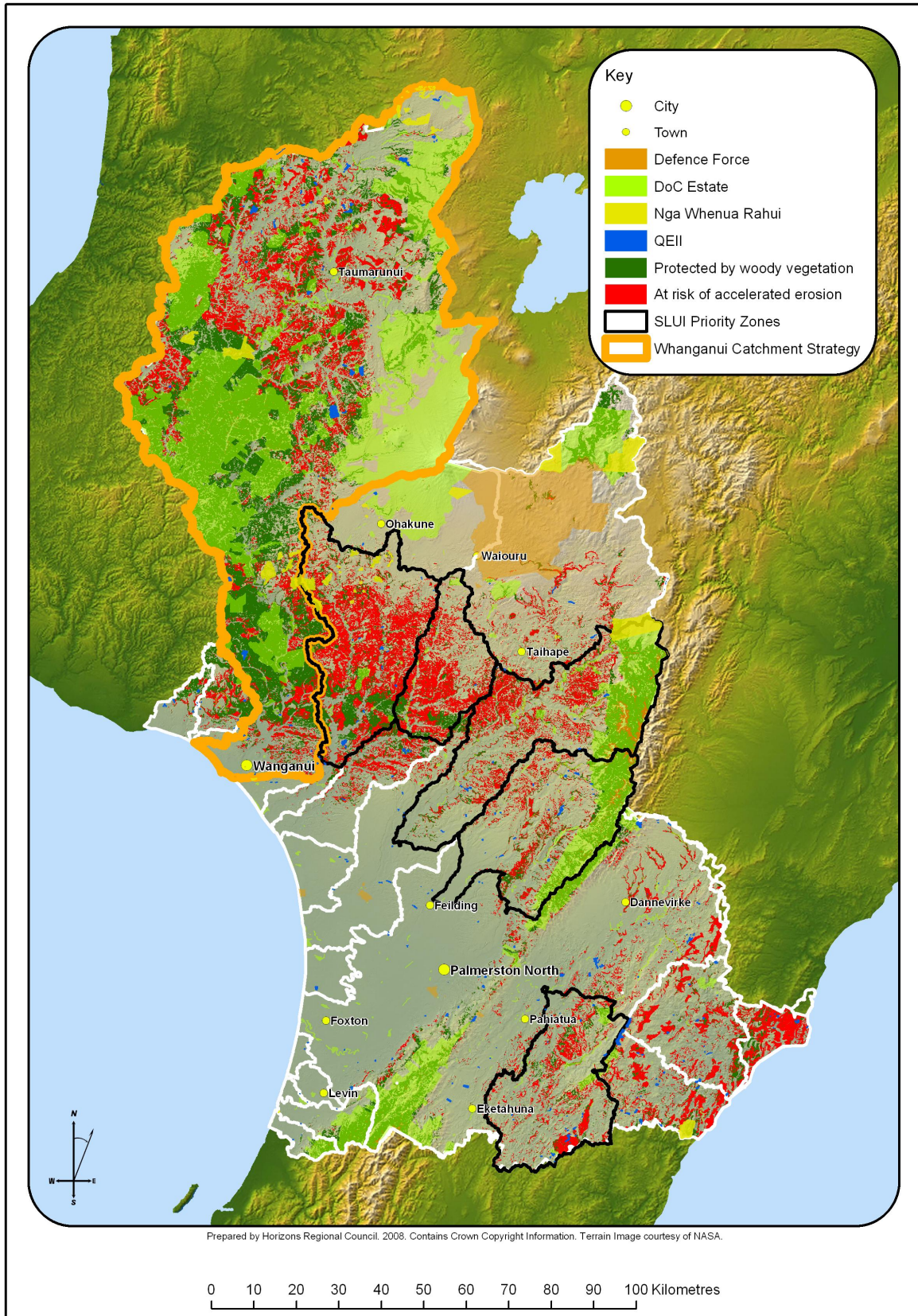


Figure 5.1A Distribution of hill country land subject to an elevated risk of *accelerated erosion**



5.1.3 Land and Soil Management

This section focuses on ~~the~~ reducing *accelerated erosion**.

The Regional Council's focus continues to be largely non-regulatory, with ~~whole farm business plans*~~ the Council's Sustainable Land Use Initiative and Whanganui Catchment Strategy programmes being critical components of this approach.

The Regional Council's regulatory focus for land centres on protecting the stability of the Region's soil and maintaining or enhancing water quality, ~~by controlling elements of:~~

- ~~• vegetation clearance located on Highly Erodible Land (HEL) in both coastal and hillcountry areas~~
- ~~• forestry production~~
- ~~• large scale land disturbance~~
- ~~• land or vegetation disturbance near water bodies.~~

~~However, the Regional Council has sought to permit activities that:~~

- ~~• have only minor environmental impacts, or~~
- ~~• are carried out in accordance with a recognised/Horizons' endorsed industry developed code of practice or similar.~~

This regulatory focus recognises that under s9(2) of the RMA, the use of land can occur as of right unless a rule in a plan states otherwise. Therefore, the Regional Council does not require rules allowing the use of land unless it wishes to control the way in which that use of land occurs.

Under this Plan, the majority of activities involving the use of land can continue to occur as of right provided they are not within a *rare habitat**, *threatened habitat** or *at-risk habitat**. However, three specific activities can only continue to be undertaken without the need for a resource consent if conditions are met. These activities are:

- (a) large-scale *land disturbance**, including earthworks,
- (b) *forestry**, and
- (c) *cultivation** occurring adjacent to certain water bodies.

These activities are permitted by Rules 12-1, 12-2 and 12-3 respectively.

*Vegetation clearance** and *land disturbance** require a resource consent if they are undertaken adjacent to some water bodies in *Hill Country Erosion Management Areas** or *coastal foredune** areas subject to an elevated risk of *accelerated erosion**. Removal of some *woody vegetation** and the construction of *new tracking** anywhere in those elevated risk areas also requires a resource consent. These specific activities are the subject of Rule 12-4.

5.2 Significant Resource Management Issues

Issue 5-1: *Accelerated erosion**

- (a) **Hillcountry Farming and other land uses in hill country**
Some aspects of current farming and other land use practices in the Region's hill country and adjacent to water bodies along streams are unsustainable. Where *vegetation clearance** (~~forestry or scrub~~), roading, tracking or other types of *land disturbance** (including filling) are carried



out in hill country or adjacent to water bodies waterways, there is potential to destabilise slopes, causing *accelerated erosion**. *Accelerated erosion** is often causing:

- (i) a significant reduction in the productive capability of land
 - (ii) increased high sediment loads in water bodies waterways which are reducing water quality, smothering aquatic ecosystems, infilling rivers, lakes and estuaries, and increasing flood risk to lowland communities
 - (iii) land stability hazards, particularly in steep hill country, which threaten people, buildings property and infrastructure*.
- (b) **Coastal foredune* activities**
Vegetation and soil disturbance associated with vehicle movement, tracking, coastal protection works and land recontouring ~~as part of agricultural development~~ have the great potential to destabilise fragile coastal foredunes* sand soils if not well managed.
- (c) **Large-scale land disturbance* including earthworks from urban development**
Most other land use activities are not of a sufficient scale to have significant regional adverse effects. However, large-scale earthworks related to urban expansion and other development can have significant ~~local~~ adverse effects on water bodies waterways if sediment from these earthworks is poorly managed.
- (d) **Forestry***
Forestry* is considered to be a generally beneficial land use in the Region's hill country due to its ability to facilitate the long-term stabilisation of land subject to an elevated risk of *accelerated erosion**. However, forestry* needs to be prudently managed, in a manner consistent with industry best practice, to ensure that sustainable land use is realised and off-site adverse effects are minimised.
- (e) **Cultivation***
Cultivation* does not generally cause soil erosion problems within the Region. However, cultivation* undertaken adjacent to water bodies has the potential to result in increased sediment loads to those water bodies unless appropriate industry best practice sediment run-off control measures are implemented.

5.3

Objectives

Objective 5-1: **Managing accelerated erosion***

~~Land is used in a manner that ensures:~~

- (a) By the year 2017, 50% of farms within hill country land^ subject to an elevated risk of *accelerated erosion** with Highly Erodible Land* (see Schedule A) are either being sustainably managed, or will have a whole farm business plan* in place, by 2017 or be in the process of putting in place, farm-wide sustainable land^ management practices to minimise *accelerated erosion**.
- (b) ~~sediment loads entering waterways as a result of accelerated erosion are reduced to the extent required to be consistent with the water management objectives and policies set out in Chapter 6 of this Plan and the targets established in Schedule D for those water management zones with elevated sediment levels~~



- (c) ~~accelerated erosion caused by vegetation clearance* and land disturbance* is minimised~~
- (d) ~~the damage to roads and other infrastructure* caused by landslides and sediment run-off from hill country is minimised~~
- (e) ~~the damage to property, infrastructure* and significant habitat areas caused by accelerated wind erosion of coastal sand is minimised.~~

Whāinga 5-1: Te tere whakahoro whenua

Ka whakamahia te whenua kia hua ai:

- (a) ~~hei mua mai i te tau 2017 e 50% o ngā pāmu whenua horo nui (tirohia Schedule A) ka āta whakahaeretia i runga i te tikanga tauwhiro rānei, e whai ana rānei i tētahi mahere pāmu katoa~~
- (b) ~~ka whakaitingia ngā kuhunga paru, nā te tere whakahoro whenua, ki roto i ngā rerenga wai kia hāngai tonu ki ngā whāinga whakahaere wai, pūrongo hoki kei roto i Chapter 6 Water o tōnei mahere me ngā keonga i whakatauria i roto o Schedule D e pā ana ki aua rohe whakahaere wai nui kē ngā taunga paru~~
- (c) ~~ka whakaitingia te tere whakahoro whenua nā te whakapara tipu me te raweke whenua~~
- (d) ~~ka whakaitingia te pakaru o ngā huarahi me kaupapa o raro kē nā te horowhenua me te rerenga parataiao i ngā puke, ā~~
- (e) ~~ka whakaitingia te pakaru o ngā rawa, ngā kaupapa o raro, me ngā wāhi noho whakahirahira nā te tere whakahoro ā hau o ngā oneone takutai moana.~~

Whāinga 5-1: Te whakahaere horo whenua tere

Ā te tau 2017 kia 50% o ngā pāmu kei ngā puke teitei ka whai tūponotanga nui ka pāngia pea e te horo whenua tere kua whakarite kē – kei te whakarite rānei – i ētahi tikanga whakauka mō te whakahaere whenua kei te pāmu katoa hei whakaiti i te horo whenua tere.

Objective 5-2: Regulating potential causes of accelerated erosion*

Land[^] is used in a manner that ensures accelerated erosion* and increased sedimentation in water bodies[^] (with resultant adverse effects[^] on people, buildings and infrastructure[^]) caused by vegetation clearance*, land disturbance*, forestry*, or cultivation* are avoided as far as reasonably practicable, or otherwise remedied or mitigated.

Whāinga 5-2: Te whakahaere pitomata e takea mai ai horo whenua tere

Ka whakamahia te whenua kia hua ai te horo whenua tere, ā, ka piki haere te parahanga ā-matū i roto i ngā wai (me te hua ko ngā pānga kino ki te tangata, ngā whare, me ngā kaupapa o raro) nā te whakapara tupu, te raweke whenua, te mahi rākau, te mahi mārā – i ngā wā e tika ana ka parea, ka whakapaingia rānei, ka whakamemehatia rānei ēnei.



5.4 Policies

5.4.1 Accelerated Erosion

Policy 5-1: Sustainable management of Highly Erodible Land – whole farm business plans Encouraging and supporting sustainable *land*[^] management

The Regional Council will encourage and support the adoption of sustainable *land*[^] management practices on all farms identified as Highly Erodible Land* (as shown in Schedule A) by working with relevant landowners/occupiers to prepare a whole farm business plan* identifying sustainable land management practices for each farm and programmes for implementing any required changes by:

- (a) The Regional Council aims to have 50% of farms with Highly Erodible Land* covered by a whole farm business plan* by 2017.
- (a) working with relevant owners and occupiers of farms within hill country *land*[^] subject to an elevated risk of *accelerated erosion** to prepare voluntary management plans under the Council's Sustainable Land Use Initiative or Whanganui Catchment Strategy, which identify sustainable *land*[^] management practices for each farm and work programmes for implementing any agreed changes,
- (b) The Regional Council will monitoring the implementation of sustainable *land*[^] management practices on Highly Erodible Land* within hill country *land*[^] subject to an elevated risk of *accelerated erosion** and reporting this information on a two-yearly basis, and
- (c) A non-regulatory approach has been adopted to encourage the use and uptake of whole farm business plans* to achieve sustainable land use on Highly Erodible Land*. If, however, monitoring indicates that this approach is not achieving sustainable land use, other methods to achieve the outcome will need to be considered.
- (c) responding to requests from owners or occupiers of *land*[^] that is not within hill country *land*[^] subject to an elevated risk of *accelerated erosion** to prepare a management plan, provided this does not impede the achievement of (a).

Policy 5-2: Sustainable management of other land – whole farm business plans

The Regional Council will respond to requests from owners/occupiers of land that is not Highly Erodible Land* to prepare a whole farm business plan*, provided this does not impede the achievement of Policy 5-1.

Policy 5-2A: Regulation of *land*[^] use activities

- (a) The Regional Council must regulate *vegetation clearance**, *land disturbance**, *forestry** and *cultivation** through *rules*[^] in this Plan and decisions on *resource consents*[^], in order to achieve Objective 5-2.
- (b) *Territorial Authorities*[^] may regulate, through *rules*[^] in *district plans*[^] and decisions on *resource consents*[^], the actual or potential *effects*[^] of the use, development, or protection of *land*[^], in order to achieve Objective 5-2. However, *Territorial Authorities*[^] must not have *rules*[^] that are contradictory to the *rules*[^] in this Plan that control the use of *land*[^].



- (c) The Regional Council will generally allow *vegetation clearance**, *land disturbance**, *forestry** and *cultivation** to be undertaken without the need for a *resource consent*[^] if *conditions*[^] are met. *Vegetation clearance** and *land disturbance** require a *resource consent*[^] if they are undertaken adjacent to some *water bodies*[^] (including certain *wetlands*[^]) in *Hill Country Erosion Management Areas** or in *coastal foredune** areas. Removal of some *woody vegetation** and the formation of *new tracking** in *Hill Country Erosion Management Areas** also require a *resource consent*[^].

~~Policy 5-3: Regulation of vegetation clearance and land disturbance on Highly Erodible Land~~

- (a) ~~Vegetation clearance* and land disturbance*, including excavation, filling, tracking and soil cultivation, shall generally not be allowed on Highly Erodible Land* unless:~~
- ~~(i) the activity will result in an environmental benefit, including improved land stability, enhanced water quality, or the establishment of indigenous plant species, or~~
 - ~~(ii) the activity is undertaken in accordance with a whole farm business plan*, or~~
 - ~~(iii) the activity is for the purpose of establishing or maintaining a fenceline or other infrastructure* and there is no reasonable alternative location, or~~
 - ~~(iv) the activity is for the purpose of harvesting trees that were planted for commercial purposes prior to this plan becoming operative and the area will be replanted in production forestry species, or left to revert to indigenous vegetation cover, or~~
 - ~~(v) the activity is for the purpose of establishing a commercial forestry operation that will operate in accordance with accepted industry standards, or~~
 - ~~(vi) other exceptional circumstances apply.~~
- (b) ~~Any vegetation clearance* or land disturbance* that is allowed on Highly Erodible Land* shall not significantly increase the risk of erosion or land instability.~~

~~Policy 5-4: Regulation of significant land disturbance on land that is not Highly Erodible Land~~

~~Land disturbance* on land that is not Highly Erodible Land* shall be regulated in order to avoid any significant increases in the risk of erosion, land instability, or sediment discharges to waterways.~~

~~5.4.2 Codes of Practice and Best Management Practices~~

Policy 5-5: Supporting codes of practice, standards, guidelines, environmental management plans and providing information on best management practices

The Regional Council must, and *Territorial Authorities*[^] may:

- (a) support the development of codes of practice, standards, guidelines and other sector-based initiatives targeted at achieving sustainable *land*[^] use will be supported,
- (b) Where possible, recognise appropriately developed and administered codes of practice, standards, guidelines or environmental management plans targeted at achieving sustainable *land*[^] use, will be recognised and



incorporated and incorporate them within the regulatory framework where applicable, and

- (c) make information describing best management practices for reducing erosion and maintaining water quality and soil health ~~will be made~~ available to all relevant landowners, occupiers, asset owners, consultants, developers and contractors.

5.5

Methods

Managing activities on land is a mix of regulatory and non-regulatory approaches. Part II of this Plan contains regional rules relating to the activities described in this chapter.

<u>Project Name</u> <u>Method 5-1</u>	<u>Sustainable Land Use Initiative – Hill Country Erosion</u>
Project Description	The aim of this <u>project method</u> is to reduce accelerated <u>accelerated</u> hill country accelerated erosion . While the emphasis will be on Highly Erodible Land* <u>hill country</u> , all land at risk of erosion will be eligible for assistance under this programme. Staff from Horizons <u>the Regional Council</u> and other agencies will work with landowners <u>and occupiers</u> to develop whole farm business plans* <u>voluntary management plans</u> . These plans will provide the blueprint for long-term environmental, economic, and social sustainability. Research, publicity, education, information, incentives, joint ventures and land purchase will be used to encourage the landowner / or occupier to <u>manage their land in a change to more sustainable manner farming practices</u> .
Who	<u>Regional Council, central government, departments and ministries, Horizons Regional Council and Territorial Authorities, District Councils, Federated Farmers, Crown Research Institutes, Farm Forestry Association, landowners or occupiers, recognised organisations representing farmers, and farm consultants will work together to develop, manage, fund and implement this programme.</u>
Links to Policy	This project links to <u>method implements</u> Policy 5-1.
Targets	50% of properties with Highly Erodible Land* <u>within hill country land subject to an elevated risk of accelerated erosion*</u> will have an operative whole farm business plan* <u>a voluntary management plan</u> in place by 2017.

<u>Project Name</u> <u>Method 5-2</u>	<u>Whanganui Catchment Strategy</u>
Project Description	The aim of this <u>project method</u> is to reduce accelerated <u>accelerated</u> hill country <u>accelerated erosion*</u> within the Whanganui catchment. Whilst the emphasis will be on Highly Erodible Land* <u>hill country land subject to an elevated risk of accelerated erosion*</u> , all land at risk of erosion within the catchment will be eligible for assistance under this programme. Staff from Horizons <u>the Regional Council</u> and consultants will work with landowners <u>and occupiers</u> to develop whole farm business plans* <u>management plans</u> . These plans will provide the blueprint for long-term environmental, economic, and social sustainability. Research, publicity, education, information, and incentives will be used to encourage the landowner/ or occupier to change to <u>manage their land in a more sustainable manner farming practices</u> . The Whanganui Catchment <u>project method</u> is a pilot for the much larger Sustainable Land Use Initiative – Hill Country Erosion <u>project method (Method 5-1)</u> . Eventually, the Whanganui Catchment Strategy <u>project method</u> will be integrated with this <u>project method</u> .



Project Name <u>Method 5-2</u>	Whanganui Catchment Strategy
Who	Horizons Regional Council, Ruapehu and Wanganui District Councils, landowners or occupiers, Whanganui relevant hapū* and iwi*, and the Whanganui River Enhancement Trust, Department of Conservation, recognised organisations representing farmers and farm consultants will work with landowners to fund and implement this programme.
Links to Policy	This project links to Policies method implements Policy 5-1 and 5-2.
Targets	50% of properties within hill country land subject to an elevated risk of accelerated erosion* in within the Whanganui Catchment with Highly Erodible Land* will have operative whole farm business plans* a voluntary management plan in place by 2015.

Project Name <u>Method 5-3</u>	Sustainable Land Use Initiative – Soil Health
Project Description	The aim of this project method is to reduce the impact of horticulture, cropping and intensive farming activities on soil health, and the consequent off-site environmental impacts. Education on best management practices will be made available to landowners through a variety of means to encourage the adoption of sustainable land use practices. Research and monitoring will be used to identify and fine-tune best practice. This project method includes the provision of advice and information to owners of land in the fragile sand country along the Region's west coast.
Who	The Regional Council, wishes to work with landowners or occupiers, Landwise, VegFed Horticulture New Zealand, Dexcel, Federated Farmers, agricultural contractors, fertiliser* companies and research institutes to develop a programme of action.
Links to Policy	This project links to method implements Policy 5-5(c).
Targets	<ul style="list-style-type: none"> • All major croppers/horticulturists in the Region are operating under best management practice regimes by 2017. • All major agricultural contractors are operating under industry standards regimes by 2010. • All pasture-based farms are being managed in accordance with the relevant sector-based best management practice, by the agreed target dates.

Project Name <u>Method 5-4</u>	Sustainable Land Use Codes of Practice and Best Management Practices
Project Description	<p>This project method will provide support for the development of codes of practice, best management practices and other sector-based initiatives for sustainable land use, construction, production and operating methods on all types of land within the Region – hill country, plains, sand country and along the coast.</p> <p>This project method will also recognise, and where appropriate support, initiatives that raise awareness of sustainable land use. Examples include the monitor farm programme, sustainable farming and management funds, and Ballance Farm Environment Awards.</p>
Who	Participation in this project is very much dependent upon approaches from industry and sector groups.
Links to Policy	This project links to method implements Policy 5-5.
Targets	<ul style="list-style-type: none"> • All approaches for Regional Council assistance are seriously will be considered.



Project Name Method 5-4	Sustainable Land Use Codes of Practice and Best Management Practices
	<ul style="list-style-type: none"> Where proposals are aligned with <u>Regional Council</u> objectives, assistance will be provided where possible. Codes of practice are integrated into the regulatory framework, where appropriate.

Project Name Method 5-5	Land Research, Monitoring and Reporting Programme
Project Description	The aim of this <u>project method</u> is to develop an integrated research, monitoring and reporting programme that supports delivery and refinement of existing policies and methods, guides implementation planning, and allows implementation effectiveness to be assessed. A key area includes: <u>This will include</u> a five-yearly assessment of the effectiveness of the above <u>projects methods</u> , particularly the Sustainable Land Use <u>Initiative</u> – Hill Country Erosion <u>Method project</u> .
Who	Predominantly <u>Horizons Regional Council, with assistance from landowners and occupiers, research institutes, universities, and non-government agencies and community groups as required.</u>
Links to Policy	This project links to Policies 5-1 to 5-5. This method implements Policies 5-1, 5-2A and 5-5.
Target	A research, monitoring and reporting programme that supports delivery and refinement of existing policies and methods, and guides and assesses implementation.

Project Name Method 5-6	Infrastructure[±] Protection
Project Description	<p>The aim of this <u>project method</u> is to reduce the erosion risk to, and caused by, <u>the provision, maintenance* or upgrade* of infrastructure*</u>. construction and maintenance. Infrastructure*, such as roading, is a contributor to erosion, particularly through poor stormwater management, and is put at risk from erosion.</p> <p>Advice and information will be provided to infrastructure[±] owners in the planning stages of new works, the carrying out of <u>maintenance* or upgrade*</u>, and protection of existing networks from erosion risks. This project applies to all land types – hill country, plains, sand country and the coast.</p>
Who	Horizons Regional Council, Territorial Authorities network owners (e.g., Transit) and owners of major infrastructure District Councils, forestry owners, landowners, power generators, and developers.
Links to Policy	This project links to Policies 5-4 and 5-5 method implements Policy 5-5.
Target	The Regional Council will have formed working partnerships with all major infrastructure [±] owners for the purposes of assessing and identifying options to avoid, reduce or mitigate <u>manage</u> erosion risks.

Project Name Method 5-7	Education in Schools – Land
Project Description	The aim of this <u>project method</u> is to <u>implement a range of initiatives to raise awareness amongst the youth of the Region of the significance of our the land and soil resource, the threats to it, and what they can do to protect/restore it.</u> This will be achieved through various environmental education programmes/initiatives eg., Green RIG, Trees for Survival etc.

Project Name <u>Method 5-7</u>	Education in Schools – Land
Who	Horizons Regional Council, and various national and local environmental education providers and youth organisations.
Links to Policy	This project links to Objective 5-1 and Policy 7-5 method implements Policy 5-5.
Targets	The Regional Council develops and delivers will develop and implement a land and soil related environmental education programme.

5.6 Anticipated Environmental Results

Anticipated Environmental Result	Link to Policy	Indicator	Data Source
By 2017, there will be a net reduction in the damage to <u>adverse effects on</u> water quality, <u>people, buildings property and critical infrastructure</u> caused by hill country and <u>coastal foredune*</u> wind erosion in the Region.	Land Policies: 5-1, 5-2, 5-3, 5-4 and 5-5 <u>Policies 5-1, 5-2A and 5-5</u>	<ul style="list-style-type: none"> Water quality monitoring results management zone standards, especially indicators for “muddy waterways” in the Whanganui and Rangitikei Rivers Rate of deposition of sediment in coastal river reaches, focusing on the Whanganui, Rangitikei and Manawatu Rivers Costs of storm damage Costs of wind erosion in coastal environment % of Region’s land being used in accordance with sustainable use guidelines % of Highly Erodible Land identified in Schedule A being used in accordance with sustainable use guidelines 	<ul style="list-style-type: none"> Regional Council’s Horizons’ state of environment water quality monitoring programme Regional Council’s Horizons’ and Territorial Authority Authorities’ incidents databases Regional Council’s Horizons’ river bed level survey results Regional Council’s Horizons’ and Territorial Authority Authorities’ storm damage reports Land use mapping Regional Council’s Horizons’ Sustainable Land Use Initiative implementation reports

5.7 Explanations and Principal Reasons

~~A single Objectives for land management are is~~ presented in this Plan to encourage sustainable land use and minimise erosion. ~~These~~ This focuses on responding to the fact that 65% of the ~~Manawatu-Wanganui~~ Region consists of ~~highly erodible gullies and hillsides subject to accelerated erosion* and gullies (HRC, 2004b)~~. A target has been introduced into the Objective 5-1 to ensure that the progress toward sustainable hill country land use can be measured. This is particularly important because the policy platform that underpins this objective is largely non-regulatory.

Policy 5-1 recognises that regulation is not the appropriate tool to encourage change toward sustainable land management practices. Instead it uses non-regulatory farm plans that contain a programme of works involving requiring the landowner’s active participation. Policy 5-1 and associated methods acknowledge that the achievement of sustainable farming practices on ~~highly erodible~~ hill



country land subject to an elevated risk of *accelerated erosion** is a complex task. There are three reasons for this.

1. Recognition that sustainable land use means changing from unsustainable farming practices. This may mean the introduction of new practices such as employing different stocking rates, introducing *forestry** or retirement of land and fencing water bodies ways.
2. Commitment to implementing new land management practices will require capital outlay and most importantly require a willingness from the landowner to introduce change.
3. Sustainable land management practices need to be tailored to the specific land capability of an individual holding, which means a blanket approach introducing one solution for all hill country farming will probably fail.

~~Policy 5-32A recognises that *vegetation clearance** and *soil land disturbance** are two of the main contributors to *accelerating accelerated erosion**. Accordingly, this policy seeks to address these matters for land holdings on highly erodible land without farm plans. The policy describes the regulation of land use activities to provide guidance to regional and district plan preparation.~~

~~Policy 5-5 states the Regional Council's support for codes of practice, standards, guidelines and environmental management plans as these can assist with reducing *accelerated erosion**~~.

~~Policy 5-4 ensures that the effects of major earthworks on land outside of the highly erodible land area are managed through regulation.~~