

2. Background and overview

2.1 Reasons for review

Gisborne District Council staff identified the following matters as compromising the overall efficiency and effectiveness of Chapter 7 of the RPDW.

There is growing awareness nationwide about best practice for design and maintenance of on-site wastewater systems. Since the Plan was first written in 1997, there have been significant advancements in technology and valid options available for treating wastewater on-site which is not provided for in the current Plan without automatically triggering resource consent. There is now a better understanding of environmental constraints for on-site wastewater treatment systems and the plan should manage these constraints more effectively. These constraints include:

- high-density of on-site wastewater systems and limited land area on sections for on-site systems
- shallow groundwater or elevated seasonal ground water
- surface flooding
- unsuitable soil types and steep unstable slopes
- poor drainage.

Currently there are no requirements for setback and clearance distances between discharges and water bodies or other sensitive environments and limited control for systems in difficult terrain. The Plan does not address nutrient inputs to soils. These inputs can result in adverse cumulative effects on soil and water quality.

Compliance with the permitted activity conditions in the operative RPDW does not necessarily protect the environment. Situations that require consent may be missed and conversely some systems are assessed unnecessarily, for example, larger systems remote rural systems with no environmental constraints on large sites. Attention is not focussed on systems with the greatest potential for harm to public health and the environment. Some common situations that have the potential to generate adverse environmental effects are not provided for, for example where more than one building uses a single system.

The Plan only focuses on domestic on-site wastewater systems, where there are other unreticulated land uses that produce wastewater from human activities that needs to be managed. Reserve, commercial, and community land uses in the District also rely on on-site wastewater systems, including schools and marae. Large numbers of people may use these systems, thereby putting pressure on the environment. Public health impacts are also an important consideration, especially where large numbers of people are using a system.

The Plan currently has statements that suggest that no adverse effect on the environment is acceptable in respect of discharges, where as the Act specifies in Section 70 the types of effects arising from discharges to water via land, or discharges to water, that are not acceptable. This makes assessing and granting consents difficult. In reality, discharges do not have a nil effect on the environment. However, minimal effects can be expected when systems are well designed and regularly maintained.

Ageing septic tanks represent the majority of on-site systems currently in use in the District. The numbers of ageing systems for each unreticulated township are contained in **Appendix 4**.

Ageing systems are often not equipped with devices such as effluent outlet filters and extensions (also known as risers/collars and lids). These devices make maintenance easier. A number of early model advanced treatment systems are showing inadequate performance. Poor treatment, tank failures, pump failures and damaged or faulty irrigation systems are documented problems. Poor management and maintenance of systems is an issue causing non-compliance with some discharge to land resource consents. Complaints and issues relating to sewage system failures or system management are regularly received and investigated by Council. It is unclear at what point systems should be upgraded.

The Ministry for the Environment (MfE) estimates of failure rates of on-site systems range from 15% to 50% of systems nationally. The large amount of variability in these estimates is due to the variation in local factors, including, geology, climate, design and installation, lot size, and the age of the community. It is estimated that there are at least 5065 tanks in the Gisborne District. Therefore it is anticipated that between 760 and 2,533 tanks are failing in the District. Many of the tanks in the Gisborne District are traditional single tanks. Of the tanks in unreticulated townships, 33% of tanks were consented to before 1998 and there is no information on 48% of tanks where dwellings exist. Where there is no information it is assumed that the tanks will be old. It is expected that older tanks are more likely to be subject to failure. Auckland Regional Council in TP58 state that subsurface systems have a lifetime of 10-25 years. Other information suggests that well designed, located and maintained on-site effluent treatment systems should be capable of operating indefinitely with minimal off-site effects.

Advanced Treatment Systems must be regularly serviced to continue operating effectively. There are large gaps in service record database held by Council. Systems may not be serviced or may not be serviced by a suitable person. There are different brands of advanced treatment plants and not all are suitable to be installed in the District due to specific environmental constraints and system performance. There are no criteria for systems to be installed in the Gisborne District. There are also no servicing requirements in the Plan. Although required as a condition of resource consent, many advanced treatment plant systems are overdue for inspection.

The current plan methods state that Council will investigate and where appropriate implement options for ensuring that septic tanks are emptied regularly. Council staff are aware that some people do not maintain their systems as often or as well as they should and that for some, knowledge of systems is lacking. There is currently no mechanism at the local, regional or national level for mandatory management of systems for ensuring adequate performance of systems other than under specific discharge consents. MfE have formally withdrawn a proposed NES for mandatory warrants of fitness for on-site wastewater systems. It is important to maintain on-site wastewater systems, particularly in areas where there are environment constraints present. People do not always have the knowledge or find it difficult to find the means to maintain their tanks. Some of the community have told Council that they would like more education about design, installation, operation and maintenance of on-site wastewater treatment and disposal systems, and other systems that deal with wastewater/greywater.

Monitoring of groundwater continues in the townships of Makaraka, Tolaga Bay, Wainui and Makorori for assessment of cumulative effect from septic discharges on groundwater quality in areas zoned residential. Contaminants continue being measurable in the groundwater.

In bores between the housing and the sea at Wainui Beach, the levels and frequency of contaminants measured indicate that septic tank discharges are reaching the groundwater.

Sample bores along SH35 show contamination could be from farm animals or septic systems reaching groundwater. The presence of bacteria and nutrients indicate that the groundwater is unsuitable for consumption or human contact. The source of contaminants has not been scientifically confirmed, although Council has interim results that show that human faecal contamination has been detected in initial tests of water samples in the Hamanatua Stream.

The overall formatting and user-friendliness of the plan needs to be improved. There are a number of minor errors and terminology needs to be used consistently. Terms need to be defined for best implementation of the plan.

2.2 Environmental impact - previous studies

Wainui Ground and Surface Water Quality Report

A report on Wainui ground and surface water quality was prepared in 2005. The report stated that the data showed that Wainui groundwater was not suitable for drinking if untreated. Bacteria, nitrates and ammonia were present in groundwater but nitrates and ammonia did not show significant levels. Bacteria appeared to have an increasing trend. The report concluded that groundwater and surface water quality in Wainui is being affected by local activities both rural and domestic, and that septic tank discharges are likely to be contributing to this affect. The total degree of effect and the proportion of effect attributable to septic tanks was not determined. The report also concluded that monitoring had not been focussed in the past.

Other studies

Council officers have commissioned two Land Capability Assessments (LCA) to model sustainable septic system densities at two Wainui locations subject to development pressures (Lloyd George Road and Scarly's Way).

The recommended minimum lot size for Scarly's Way is 1800m² and other recommendations include retaining a 600m² absorption area per lot and 6 to 9 metre setbacks. The LCA for Lloyd George Road is still in progress. These studies are not readily transferrable across sites as they depend on site specific criteria but provide an indication of the land area and mitigation required on land with drainage impediments.

Modelling on-site Wastewater Management Sustainability May 2008

Modelling was done to show if each property has a replacement on-site solution at Wainui Beach and Makorori. The model was applied to 554 existing buildings. For 86% (475 buildings) replacement on-site solutions could be accommodated. Because of a lack of available land area or poor soakage conditions advanced treatment systems were modelled for 56% (310 buildings) and primary treatment for 30% (165 buildings). Modelling showed 14% (79 buildings) where on-site replacement solutions were uncertain and unlikely. Council has wastewater system design information for about 51% (283) of established properties within the modelling area. About 80% of systems in Wainui/Okitu and 75% in Makorori are more than 10 years old.

Assessment of Water and Sanitary Services for Gisborne District 2005 ("Three Waters")

An assessment of Water & Sanitary Services was carried out in 2005 to meet the requirements of the Local Government Act 2002. The Medical Officer of Health (MOH) and Council's Environmental Health section believed there were higher health risks than identified in the study due to the lack of maintenance and failure of existing systems. The MOH supported the development a process to check adequacy of existing systems in all non-reticulated communities in Gisborne District.

It was also recommended by Council that a strategy be developed to ensure on-site wastewater systems are meeting minimum standards on an ongoing basis. All townships gave a clear preference for maintaining the status quo in terms of wastewater i.e. no reticulation and it was recommended that no community based reticulation be required for water and wastewater.

Envirolink Grants

An Envirolink grant was approved in 2010 for research that identified:

- the sources and quantities of microbial contamination (using Faecal Sterol and PCR Marker analyses) in the Hamanatua Stream in Wainui and Wharekopae River at the Rere Rock Slide;
- the environmental impact and risks to human health of the different types and levels of faecal contaminants; and
- the potential uses and limitations of faecal source tracking and how the data gathered can be used to inform robust management responses.

This research has not yet been completed. Council has interim results that show that human faecal contamination has been detected in initial tests of water samples. The final outcome of the study will inform future monitoring programmes and the usefulness of this tool will be explored for an Environmental Monitoring Strategy.

An Envirolink grant was exercised in 2010 to provide advice to enable GDC staff to apply guidelines for separation distances from septic system discharges to wells based on virus migration through soils within our district. It was found that adequate separation distances would often not be met in some unreticulated townships due to existing property sizes.

Design guidelines for on-site constructed wetland treatment of household wastewater have been prepared in 2011 for situations where conventional septic tank treatment and soil infiltration trenches cause problems, e.g. heavy clay soils and high water tables. Constructed wetlands have the potential to provide secondary treatment of septic tank pre-treated domestic wastewater, reducing the area required for sustainable land application, and the human health and environmental risks associated with effluent disposal under difficult site conditions.

Greywater Guidelines

Greywater Guidelines have been prepared for the Gisborne District and these are available on a dedicated website.