Bay of Plenty REGIONAL COUNCIL

versus RESEARCH LIMITED

Tauranga Harbour Catchment Research

QUANTITATIVE RESEARCH REPORT

PREPARED FOR:

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Bay of Plenty Regional Council

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A. EXECUTIVE SUMMARY

a. BACKGROUND AND PURPOSE

As part of their role Bay of Plenty Regional Council (Council) is responsible for the management, monitoring and maintenance of Tauranga Harbour. Currently, one of the biggest issues threatening the health of Tauranga Harbour is sedimentation; this issue is of concern to both the community and Council.

A previous study conducted by the National Institute of Water and Atmospheric Research (NIWA) identified that the greatest amount of sediment came from pastoral land surrounding Tauranga Harbour. Specifically, this type of land use created 64 per cent of the sediment, the next closest being land which is used for bush, scrub and native forest (28%).

Given this finding, Council commissioned Versus Research to undertake a study amongst land owners in the vicinity of Tauranga Harbour to determine the most appropriate ways to work with different land owners. Below are the specific measures that were taken into consideration with this study:

- Land owners' awareness and understanding of sedimentation in Tauranga Harbour
- Land owners' awareness of land use regulations, Council initiatives, and assistance options
- Current land use practices
- Land owners' attitudes to changing land use practices, i.e., motivators and barriers to change
- Land owners' media preferences
- A demographic profile of land owners in the area

Interviewing for this project involved a telephone survey of a sample within the catchment area of n=404 property owners. Interviewing was conducted between the 20th June and 7th of July 2011.

b. KEY FINDINGS

Land ownership profile

Sixty per cent of the total catchment area is currently used for commercial activities. Commercial land use of the catchment area is spread across a variety of farming and horticultural activities and thus the catchment is subject to diverse land use practices. Specifically, commercial farmers (44%) and lifestyle block owners who make some commercial use of the property (49%) are predominantly situated in the upper catchment area; while kiwifruit orchard owners (61%), avocado orchard owners (44%) and orchard owners who grow multiple horticultural produce (44%) are primarily located in the lower catchment.

Properties in the catchment also have some distinct characteristics that require specific land use practices. Forty-five per cent of the properties feature waterbodies, 44 per cent of the properties have an area of bush or gully, and 36 per cent of the properties have significant sloping areas on the property. Furthermore, only 24 per cent of the properties have only one of these characteristics; while, 41 per cent of the properties have two or (all) three of these characteristics. Especially, properties in the upper catchment are much more likely to be complex (have all three of the property characteristics that require sustainable land use practices) and thus property owners in this sub-catchment may require greater attention and guidance.

Property owners' awareness and understanding of sedimentation in Tauranga Harbour

Property owners have mixed perceptions of the environmental issues affecting Tauranga Harbour and the surrounding waterways. They perceive farm run-off (21%), mangroves (20%) and growth of invasive weed / pests (18%) as the primary environmental issues that affect the waterways. In general, unsustainable farming practices (generic) (24%), lack of support / maintenance from Council (17%) and general ignorance towards the harbour environment (17%) are some of the commonly perceived factors that trigger these environmental issues. However, a few property owners are unsure of the factors that contribute towards these environmental problems (19% of the property owners mentioned that they are unsure what these may be).

Sixty-nine per cent of the property owners agree that land use practices have a substantial influence on the surrounding waterways. However, only 52 per cent of the property owners agree that what they do on their land has a direct effect on the surrounding waterways. Seventy-one per cent of property owners agree that activities of land owners in high country are as important as those in low lying fields, and 62 per cent of the property owners agree that activities of urban residents have a significant impact on surrounding waterways.

In terms of responsibility towards maintenance of waterways, property owners predominantly consider Bay of Plenty Regional Council (82%) and local district councils (78%) to be primarily responsible for waterways maintenance. Whereas, 62 per cent of the property owners consider themselves greatly responsible; 57 per cent consider their neighbours to be greatly responsible; while, 41 per cent consider community care groups to be greatly responsible for waterways maintenance.

Property owners' awareness of initiatives offered by Council for Tauranga Harbour management

Uptake of environmental or land management plans appears to be considerably low and only 14 per cent of the property owners mentioned that they have an environmental or land management plan in place. Personal initiative to implement an environmental or land management plan (23%) appears to be the key driver for its uptake. However, those property owners who have implemented an environmental or land management plan find it helpful (44%) or very helpful (33%).

Property owners are neither seeking nor receiving substantial external assistance (excluding that from BOPRC) as only ten per cent of the property owners mentioned that they received external assistance with any improvements they made on their property. Seventy-four per cent of the property owners mentioned that they do not see any need to seek external help and they can carry out these activities on their own. Amongst those property owners who received external assistance, 26 per cent received it from local / district councils; while 24 per cent had a consultant to assist them with any activities relating to the improvements on the property.

Furthermore, awareness of the council support options for activities to improve land use is moderate to low, and being able to obtain aerial photos or maps of the property (58%) is the activity that most property owners are aware of. Additionally, uptake of these support options is significantly low and 76 per cent of the property owners who are aware of at least one of these support options haven't used any of these options.

Property owners' attitudes towards land use practices corresponding with the property characteristics i.e. waterbodies, area of bush or gully and significant sloping areas

Overall, there is considerable uptake of land use improvement activities and 94 per cent of the property owners (who have an area on their property covered with bush or gully) have implemented at least one of the corresponding improvement activities. Similarly, eighty-three per cent of the property owners (who have a waterbody on their property) have implemented at least one improvement activity.

A common thread across all those who have undertaken land improvements is empathy towards the environment, and motivation and awareness of the benefits as a result of engaging in these activities. In comparison, the greatest barrier to uptake of these activities appears to be lack of perceived need.

Furthermore, property owners who are actively engaging in these activities appear to have done so for a substantial number of years and the majority of these property owners mentioned that they have seen improvements on the property area as a result of these activities. According to these property owners, these land improvement activities help to nurture native bio-diversity and improve stability of the ground.

Fifty-eight per cent of the property owners who have a significant sloping area on their property mentioned that they have undertaken activities such as the tree planting to stabilise or protect the slope from erosion.

Commercial farmers are more likely to make use of the area that is on a slope and 40 per cent of the commercial farmers who have a sloping area on the property mentioned that they use all of the area.

They predominantly use this area for grazing stock (77%). Planting trees is the most popular activity amongst property owners in order to stabilise or protect the slope from erosion.

Media preference

Thirty-five per cent of the property owners mentioned that they prefer to receive information about land use practices or support options from BOPRC by post / mail. Other mediums such as online communication, phone, and local newspapers have much lower preference ratings. However, it is noteworthy that eleven per cent of the property owners mentioned their willingness to receive face-to-face consultation on this subject.

Concluding Comments

Property owners in the catchment area appear to be reasonably aware about prevalent environmental issues surrounding waterways and Tauranga Harbour.

There appears to be a lack of personal relevance towards the environmental issues amongst many property owners. Furthermore, it seems that this lack of personal relevance influences the uptake of sustainable land use practices.

With regards to land management plans, property owners appear to have very low awareness and uptake levels for environmental or land management plans and Council support options for land improvements.

Considering the above points, Council should place greater prominence on making prevalent environmental issues and subsequent sustainable practices 'personally relevant' to the community. We also suggest that Council should consider a proactive approach for this communication in order to 'reach out' to the property owners. In order to achieve this, Council may consider executing a communication campaign.

B. TABLE OF CONTENTS

C. METHOD

a. OVERVIEW

Data collection for this study was undertaken through a quantitative telephone survey. Interviewing was conducted between 20th June and 7th of July 2011, between the hours of 4.30pm and 8.30pm. A total of 404 surveys of property owners were completed across the catchment area. The sample for this survey was provided by Bay of Plenty Regional Council. Quotas were placed according to the geographic locations across the catchment area, i.e., upper catchment, middle catchment and lower catchment.

b. QUESTIONNAIRE CONSTRUCTION AND PILOT SURVEY

The questionnaire was constructed by Versus in conjunction with the Bay of Plenty Regional Council. A pilot survey was completed on the 20th of June to check questionnaire flow and ensure any potential areas for confusion were eliminated and / or technical issues removed prior to the fieldwork. This was conducted with a small sample of 22 property owners.

c. SAMPLE

The sample was formed from property owners in the catchment. The sample is proportionate to sub-catchments, i.e., upper catchment, middle catchment and lower catchment. To ensure this, quotas were applied on these sub-catchments and the sample was randomly selected within a sub-catchment. The contact details for this property owner sample were provided by the Bay of Plenty Regional Council.

d. MARGIN OF ERROR

Margin of error (MOE) is a statistic used to express the amount of random sampling error there is in a survey's results. The final sample size for this survey is n=404, which gives a maximum MOE of +/- 4.88 per cent at the 95 per cent confidence interval. That is, if the observed result on the total sample of 404 respondents was 50 per cent (point of maximum margin of error), then there is a 95 per cent probability that the true answer falls between 45.12 per cent and 54.88 per cent.

Margin of error for different sample sizes reported in this report are given in the table below:

SUBGROUP	SAMPLE SIZE (N=)	MAXIMUM MARGIN OF ERROR
Commercial farming	75	11.32
Lifestyle properties with some commercial use	61	12.55
Kiwifruit orchards	46	14.45
Avocado orchards	27	18.86
Properties with multiple horticulture produce	32	17.32
Residential properties	163	7.68
Upper catchment properties	166	7.61
Middle catchment properties	98	9.9
Lower catchment properties	140	8.28

D. ANALYSIS AND REPORTING OF RESULTS

All interviewing was completed in-house at Versus Research on the Versus CATI (computer assisted telephone interviewing) system. Survey data was checked and audited upon the completion of the survey process.

Subgroups

The results are primarily analysed and displayed at the total level and primarily by property type as per below:

- Commercial farming: Property owners with dry and dairy farms in the catchment
- Lifestyle (commercial use): Lifestyle block owners in the catchment who make some commercial use of the property, i.e., earn some income from the property.
- Kiwifruit: Kiwifruit orchard owners in the catchment
- Avocado: Avocado orchard owners in the catchment
- Multiple horticulture produce: Orchard owners in the catchment who grow multiple horticulture produce
- Residential: Residential property owners in the catchment

Significance testing

Significance testing has been conducted between the results of the subgroups and the total result to determine whether differences shown are statistically significant, i.e., to assess if variations in a subgroup's answer are due to talking to only a sample of farmers, rather than all farmers (random sampling error). Within the body of the report, statistical differences are indicated by shading as follows:

Green squares indicate that a result is significantly *greater* than the total result at the 95 per cent or 99 per cent confidence level.

Light purple squares indicate that a result is significantly *lower* than the total result at the 95 per cent or 99 per cent confidence level.

Display of data

For ease of interpretation, charts are used to display most data in this report (at the total level). Labels on charts for very small proportions (e.g., 1%) may not be shown as they can extend beyond their segment and overlap with numbers from other segments, making the labels unreadable.

The question asked in the survey and the relevant base size (that is, the number of residents who answered the question) are both shown as footnotes at the end of each page on which the result being referred to is charted.

Percentages

Please note that not all percentages shown add up to 100 per cent. This is due to rounding and / or questions that allow multiple responses (rather than a single response).

Abbreviations

For ease of reporting the following abbreviations have been used in this report:

- Commercial farmers: Dairy and dry farmers in the catchment area
- BOPRC: Bay of Plenty Regional Council

RESULTS IN DETAIL

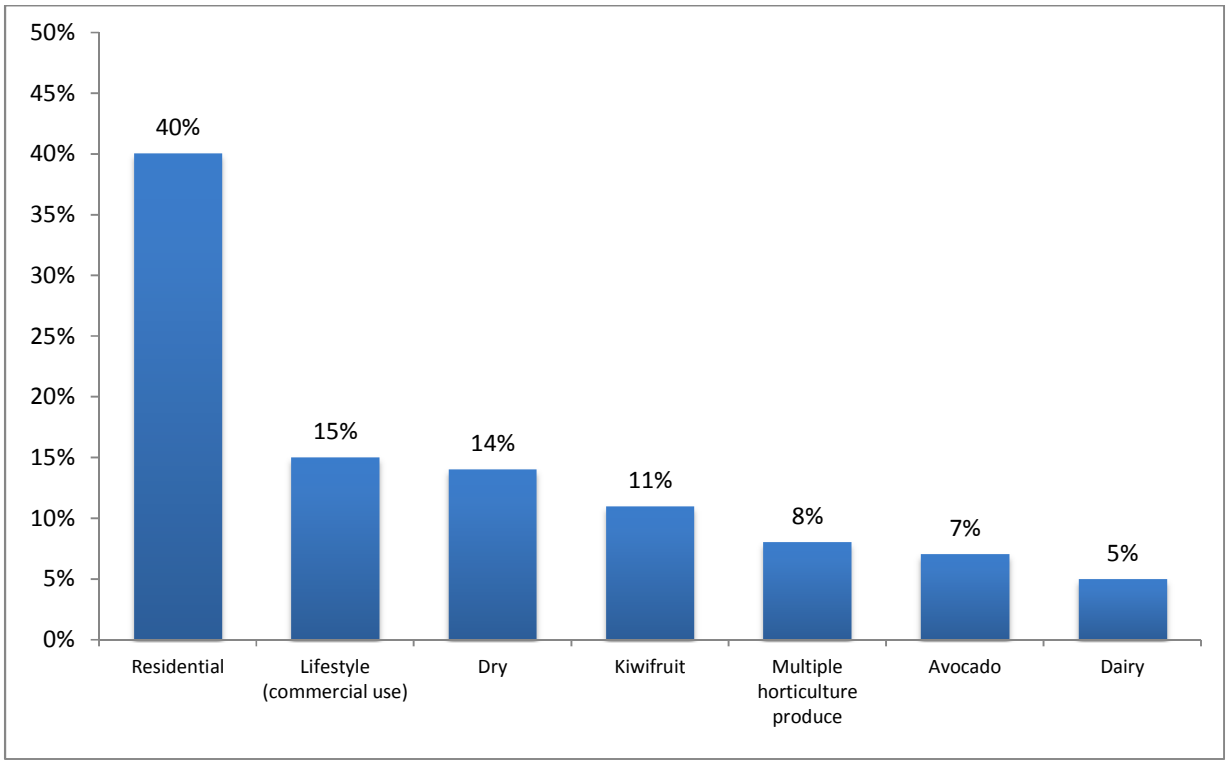
a. LAND-OWNERSHIP PROFILE

This section outlines the different segments of land-owners within the catchment area and profiles their property types.

Characteristics are displayed at a total level, i.e., all property owners, and then segmented at a property use level, i.e., the activity the property is predominantly used for. These segments were selected as they display the greatest variation across the measures.

Property description[1] (Overall results)

Results show that 60 per cent of the land use in the catchment area is related to commercial use. Fifteen per cent of the properties are lifestyle blocks with some commercial use; 14 per cent are dry farms; 11 per cent are kiwifruit orchards; 8 per cent are orchards with multiple horticulture produce; 7 per cent are avocado orchards and 5 per cent are dairy farms. Forty per cent of the properties in the catchment area are residential, with no commercial use of the land.

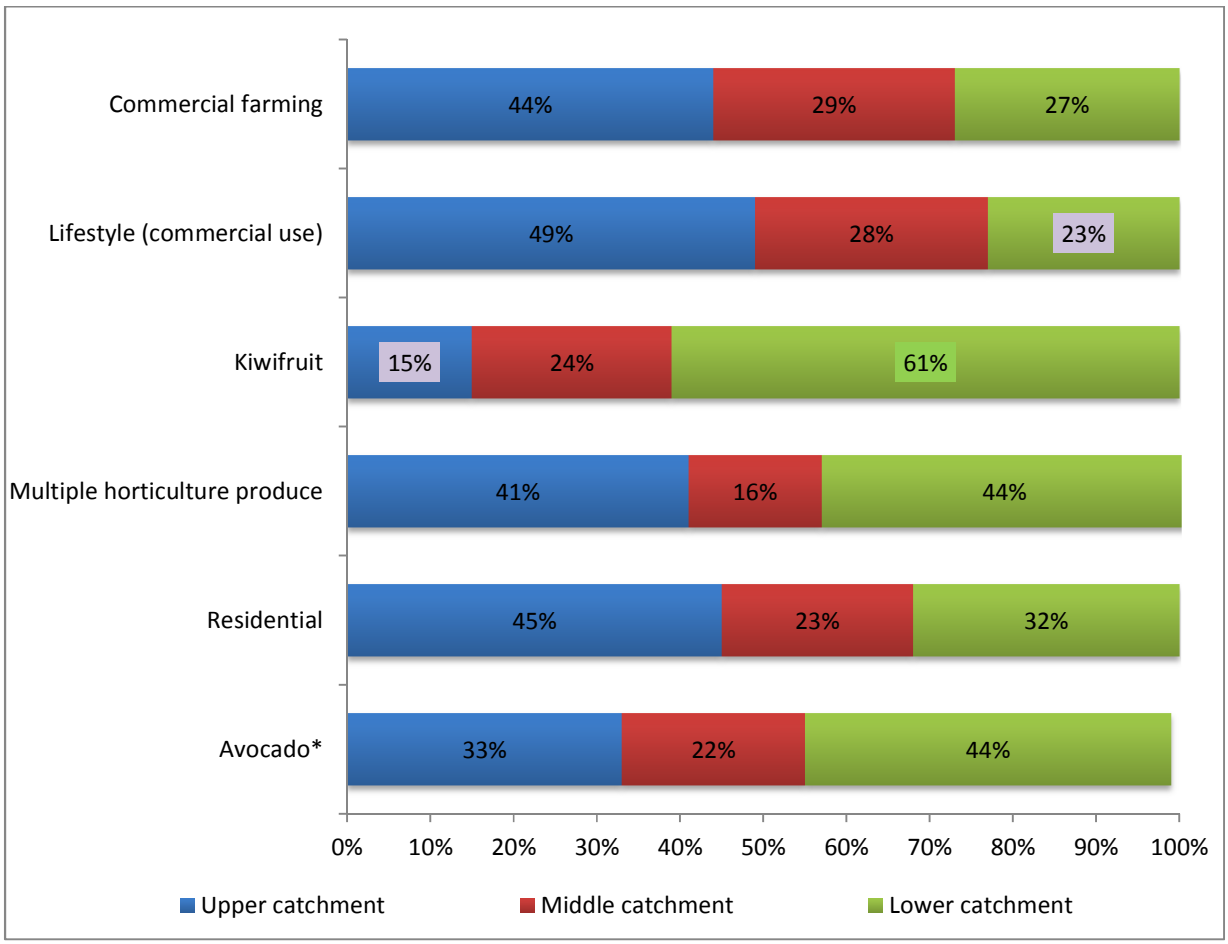


[1] *Q: Which of the following best describes your property? B: All respondents. n=404.*

Property description[2] (results by catchment type)

Overall, commercial farming (44%), lifestyle blocks with some commercial use (49%) and residential properties (45%) are predominantly situated in the upper catchment area.

Kiwifruit orchards are much more likely to be in the lower catchment area (61%) and are much less likely to be in the upper catchment area (15%). Orchards that have multiple horticulture produce types are evenly split between the upper (41%) and lower (44%) catchments. Forty-four per cent of avocado orchards are in the lower catchment; 22 per cent in the middle and 33 per cent are in the upper catchment.

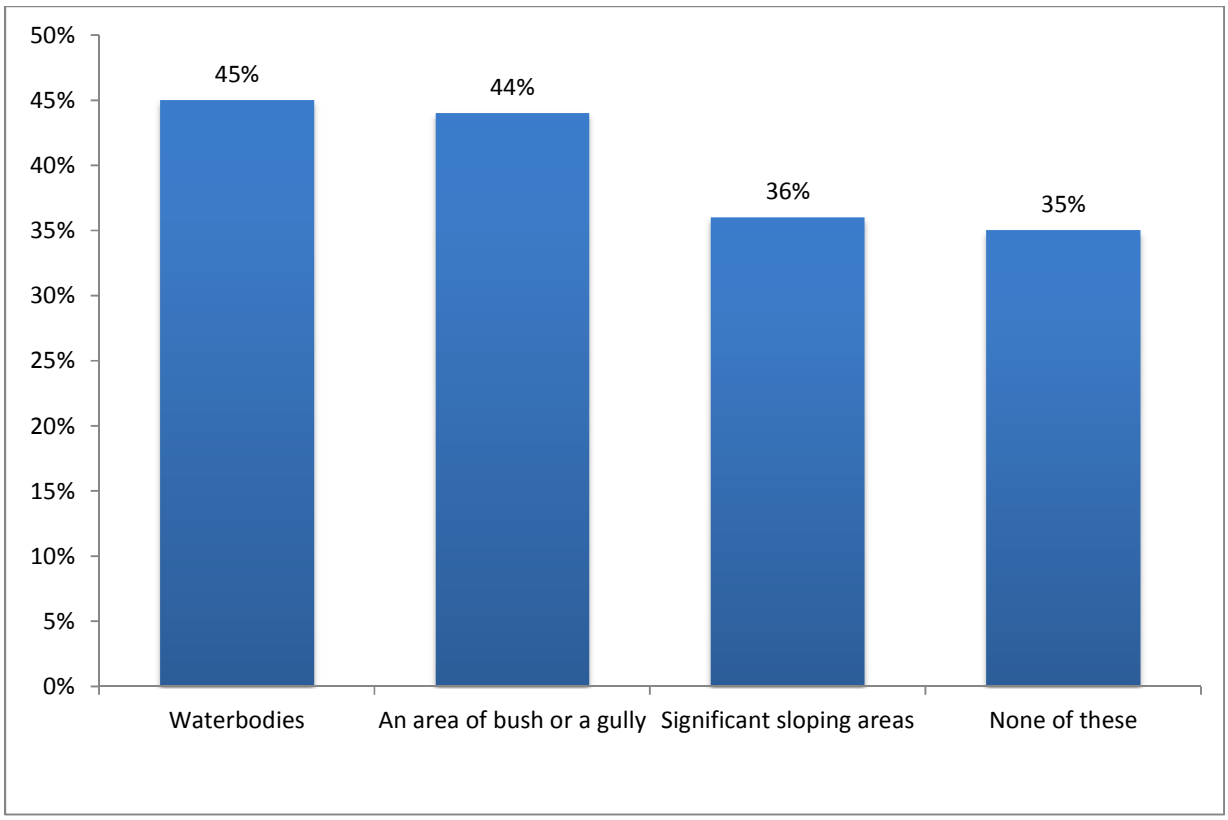


[2] *Q: Which of the following best describes your property? B: All respondents. n=404; commercial farms n=75; Lifestyle (commercial use) n=61; Kiwifruit n=46, Avocado n=27; Multiple horticulture produce n=32; Residential n=163.*

**indicates small base size, results indicative only.*

Property characteristics[3] (overall results)

On the whole, 45 per cent of all properties have permanent or seasonal water-bodies such as streams, lakes, or rivers. Forty-four per cent of the properties have an area of native or planted bush or a gully, and 36 per cent have significant sloping areas. Thirty-five per cent of the properties do not have any of these characteristics.

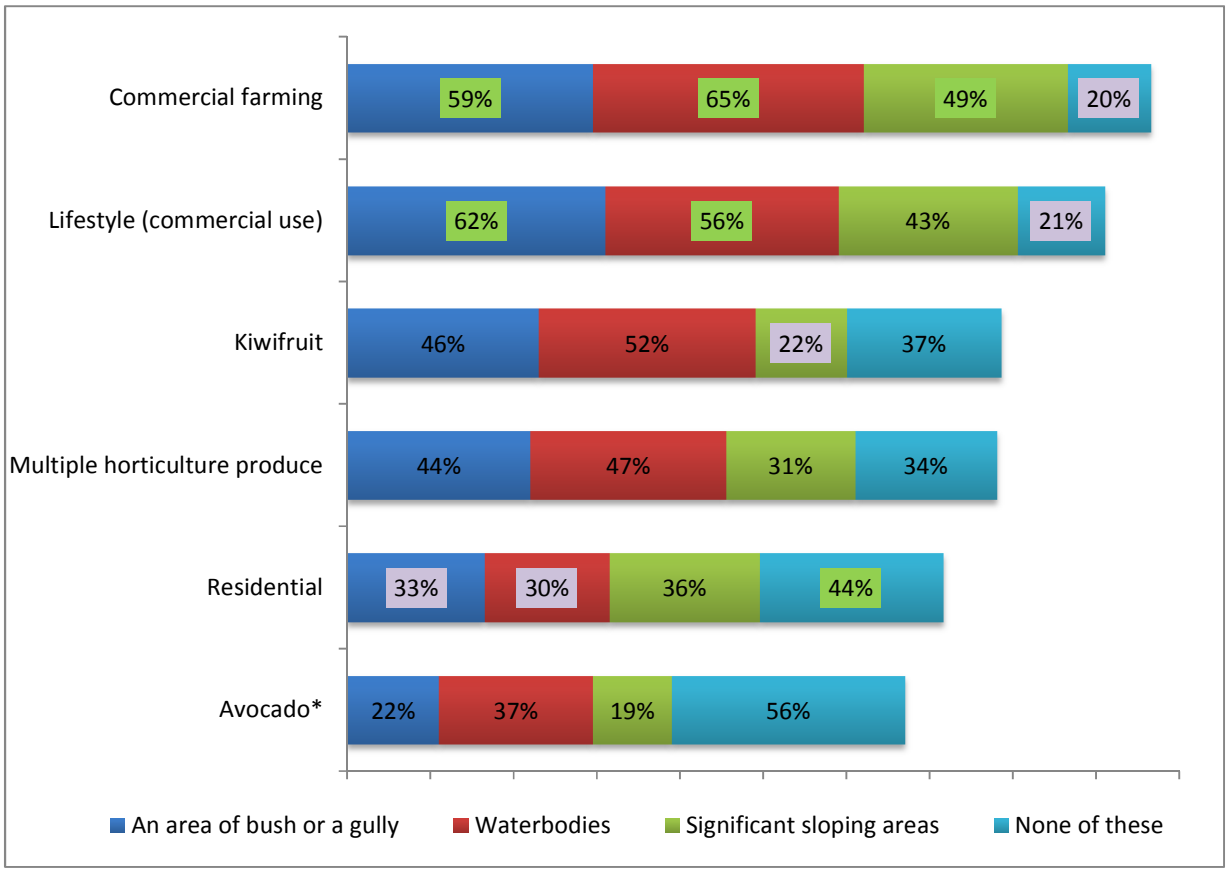


[3] *Does your property have...? B: All respondents. n=404*

Property characteristics[4] (results by property description)

Results show that commercial farms (dairy and dry) are much more likely to have an area of bush or a gully (59%), permanent or seasonal water-bodies (65%), and significant sloping areas (49%). Similarly, lifestyle blocks are much more likely to have an area of bush or a gully (62%) and are slightly more likely to have water-bodies on the property.

Kiwifruit orchards are less likely to have a significant sloping area on the property. Residential properties are much less likely to have an area of bush, or a gully, or water-bodies on the property, and are much more likely to have none of these property features.

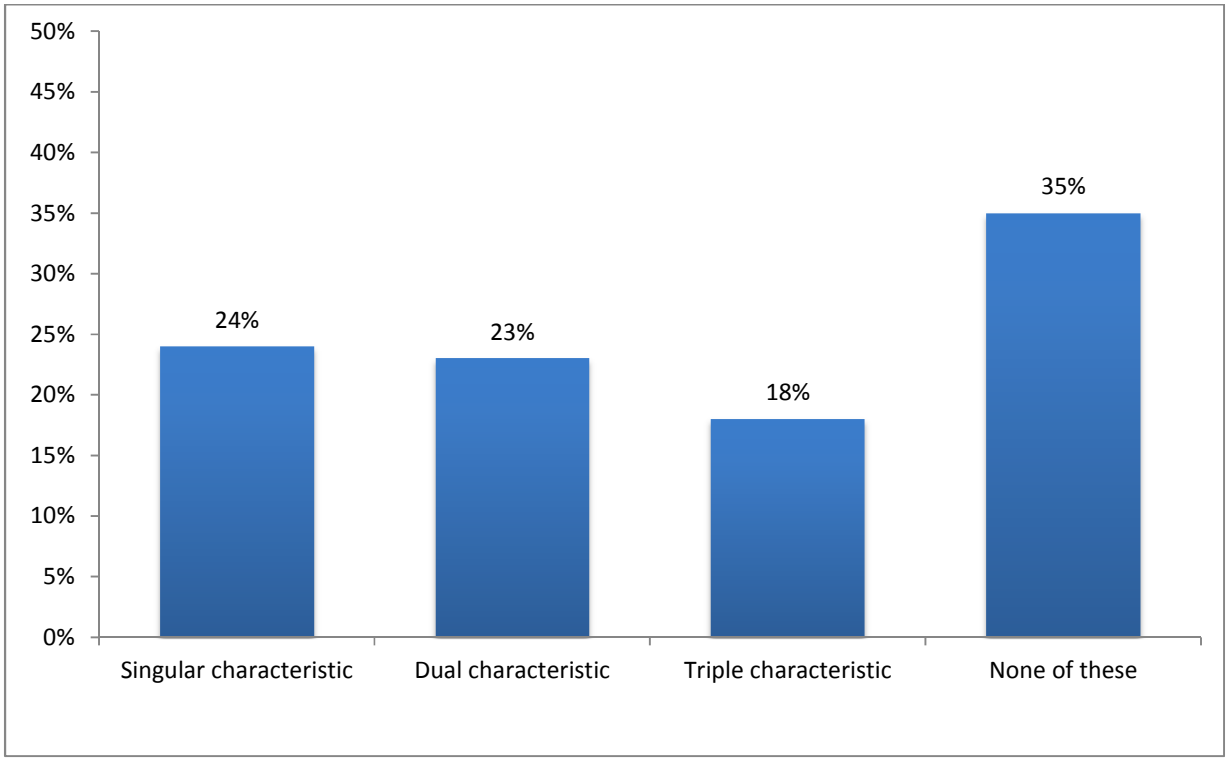


[4]*Does your property have...? B: All respondents. n=404; commercial farms n=75; Lifestyle (commercial use) n=61; Kiwifruit n=46, Avocado n=27; Multiple horticulture produce n=32; Residential n=163.*
**indicates small base size, results indicative only.*

Property characteristics II[5] (overall results)

The following chart depicts the proportion of properties that have none, one, two, or all of the land characteristics, i.e., an area of bush or a gully, water-bodies or a significant sloping area.

Twenty-four per cent of the properties in the catchment area have only one land characteristic; 23 per cent of the properties have at least two land characteristics; while 18 per cent of the properties have all three characteristics, i.e., an area of bush or a gully, water-bodies and significant sloping area. Thirty five per cent of the properties have none of these land characteristics.



Variation in the results by catchment type[6]

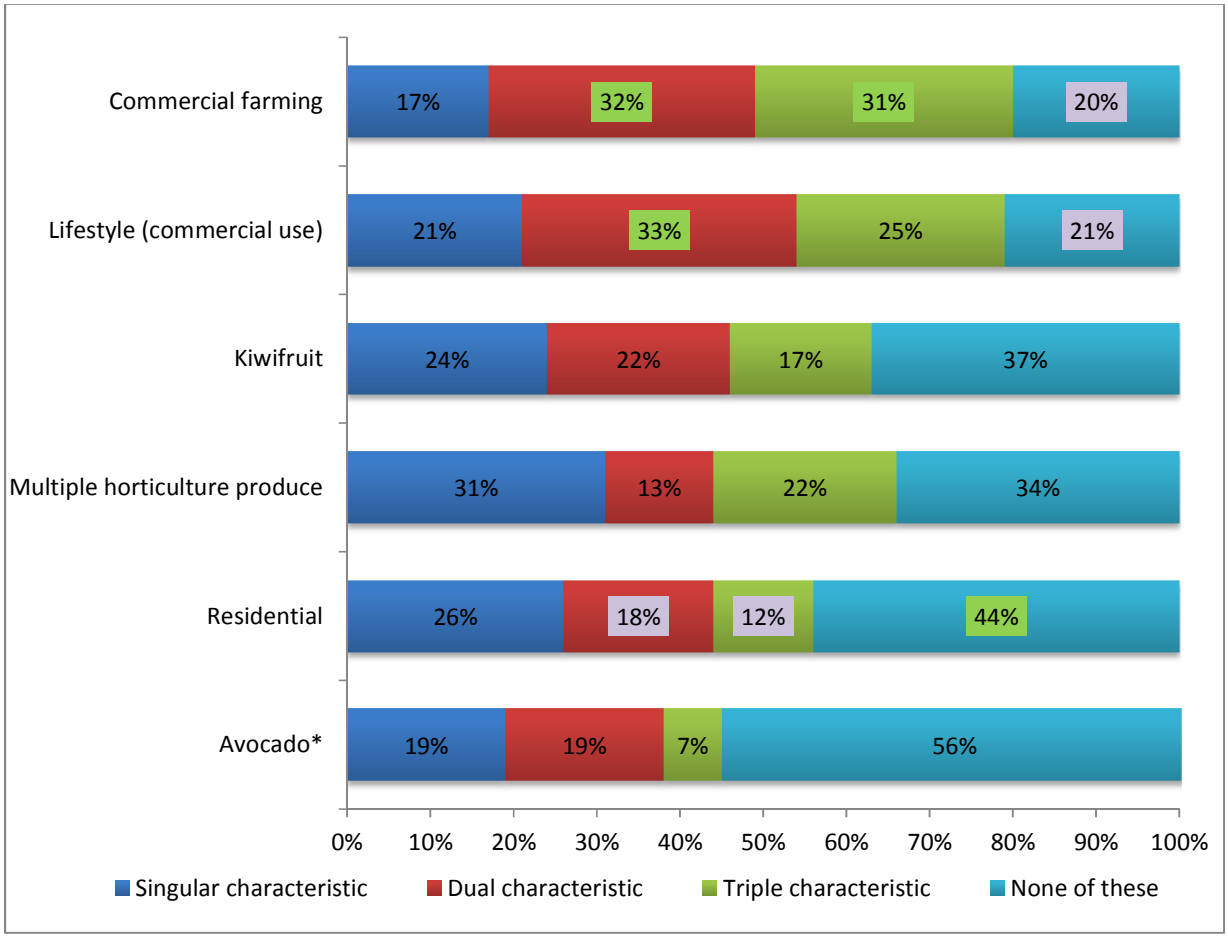
- Properties in the upper catchment are much more likely to be triple characteristic (25% compared to 18% for all properties that are triple characteristic).
- Properties in the lower catchment area are less likely to be triple characteristic (13% compared to 18% for all triple characteristic properties).

[5] *Does your property have...? B: All respondents. n=404*
[6] *Base size: Upper catchment n=166; Middle catchment n=98, Lower catchment n=140.*

Property characteristics II[7] (results by property description)

Commercial farming properties are much more likely to have two or three land characteristics (i.e., an area of bush or a gully, water-bodies or a significant sloping area) and are much less likely to have none of the three characteristics.

Lifestyle blocks that make commercial use of the land are more likely to be dual characteristic and less likely to have none of these property features. Residential properties are much more likely to have none of these features.



[7] *Does your property have...? B: All respondents. n=404; commercial farms n=75; Lifestyle (commercial use) n=61; Kiwifruit n=46, Avocado n=27; Multiple horticulture produce n=32; Residential n=163.*
**indicates small base size, results indicative only.*

Section summary: Land ownership profile

Overall, the catchment area includes a variety of farming and horticulture activities. This indicates the possible diversity in land use.

- Specifically, commercial farming is more prevalent in the upper catchment (44%); while horticulture and kiwifruit orchards are predominantly situated in the lower catchment (61%).

Specifically, commercial farmers and lifestyle block owners who make some commercial use of the property are more likely to have properties that have multiple land characteristics (i.e., an area of bush or a gully, waterbodies, or significant sloping areas). Given the complex nature of their properties, these segments of the property owners may require a special focus in order to reassess their land use practices and scope for any improvements on their property.

- Commercial farmers are more likely to have:
    - An area of bush or a gully (59% compared to 44% for all property owners who have an area of bush or a gully on their property).
    - Waterbodies (65% compared to 45% for all property owners who have waterbodies on their property).
    - Significant sloping area(s) (49% compared to 36% for all property owners who have significant sloping area(s) on their property).
- Lifestyle block owners who make some commercial use of the property are more likely to have:
    - An area of bush or a gully (62% compared to 44% for all property owners who have an area of bush or a gully on their property).
    - Waterbodies (56% compared to 45% for all property owners who have waterbodies on their property).
- Residential property owners are more likely to have:
    - None of these property features i.e., an area of bush or a gully, waterbodies, or significant sloping areas (44% compared to 35% for all property owners who have none of these property features).

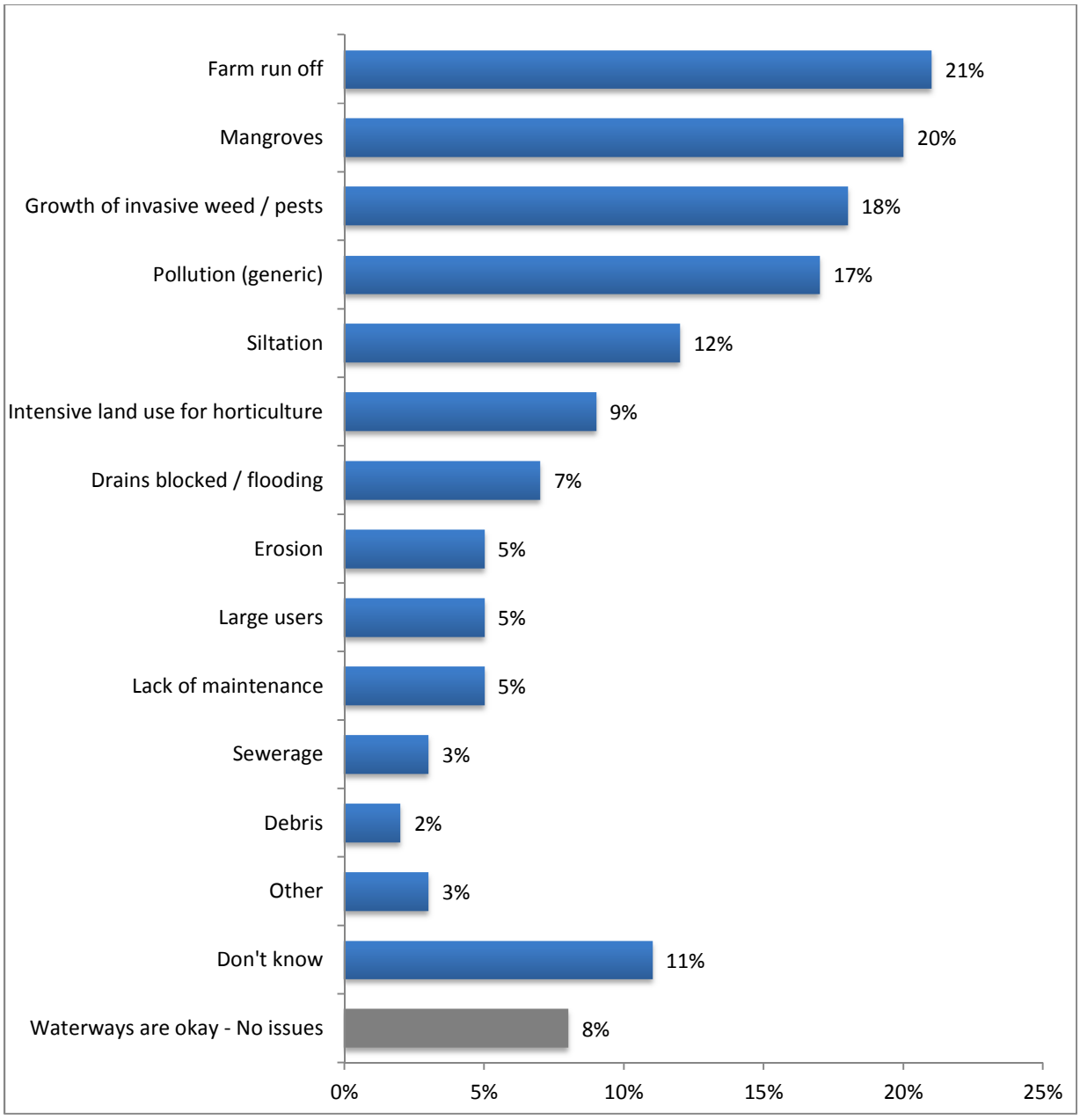
Properties in the catchment area are multifaceted and this requires property owners to have a better understanding of the implications of their land use practices and of subsequent environmental issues concerning waterways and Tauranga Harbour.

- Only 35 per cent of the properties in the catchment area do not have any of the property features such as an area of bush or a gully, waterbodies, or significant sloping areas.
- Forty-one per cent of the properties consist of at least one of these three features (23% of properties are dual characteristic and 18% are triple characteristic) which has greater implications on the land use practices and their effect on the surrounding waterways.

b. PROPERTY OWNERS' AWARENESS AND UNDERSTANDING OF SEDIMENTATION IN TAURANGA HARBOUR

Main environmental issues surrounding health of Tauranga Harbour[8]

Results show that property owners have a varied perception of the environmental issues affecting Tauranga Harbour and the surrounding waterways. Specifically, 'farm run-off' (21%), 'mangroves' (20%), and the 'growth of invasive weed / pests' (18%) are the top three issues mentioned by the property owners. Eight per cent of the property owners mentioned that the waterways are okay and have no issues.

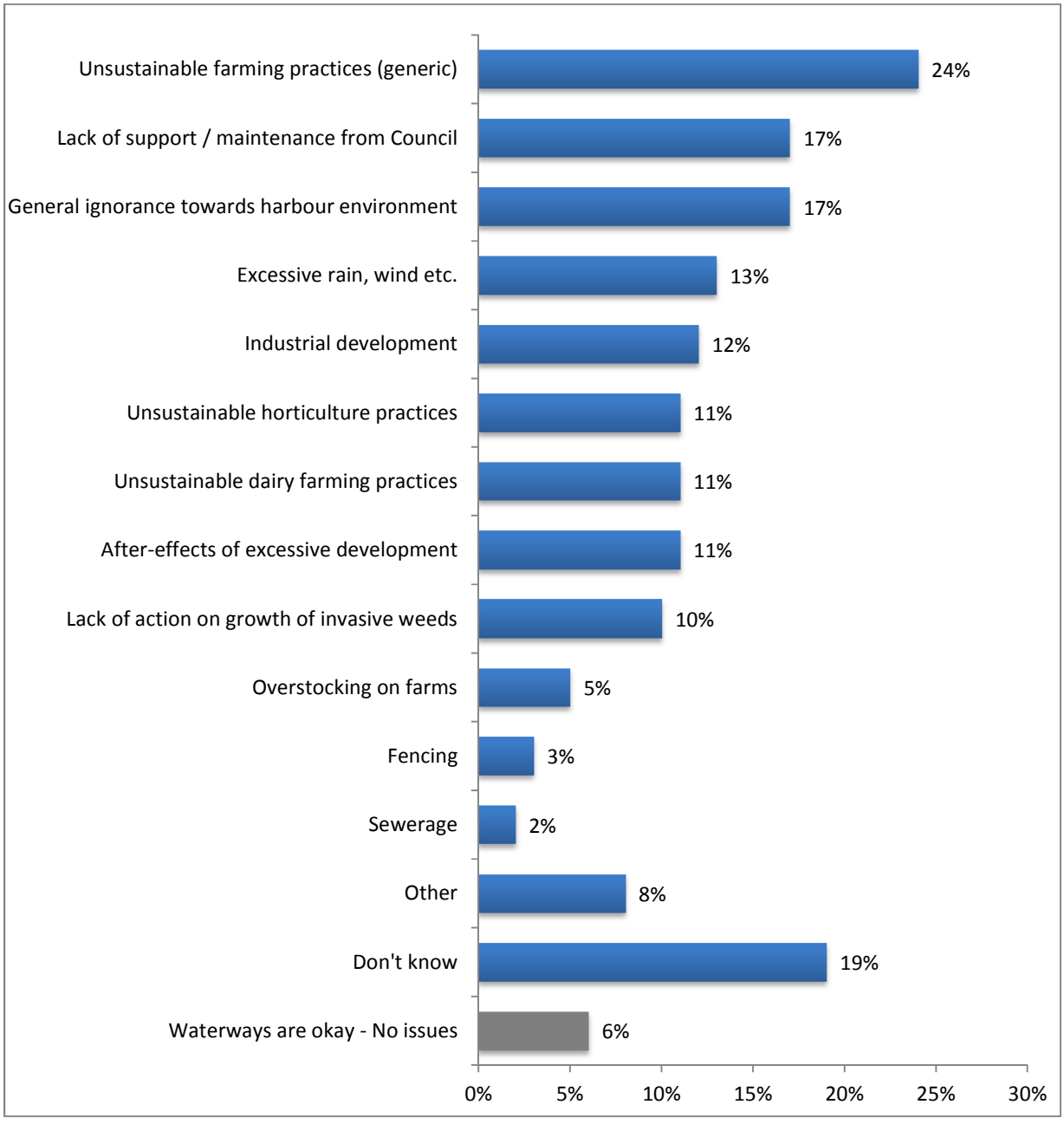


[8] *Can you please tell me what you think are the main environmental issues the waterways in your area face at the moment? B: All respondents. n=404*

Factors that trigger environmental issues affecting the waterways and Tauranga Harbour [9]

Unsustainable farming practices (generic) (24%), lack of support / maintenance from Council (17%), and general ignorance towards the harbour environment (17%) are the top three factors that property owners hold accountable for the environmental issues that are currently affecting the waterways.

It is noteworthy that 19 per cent of the land owners are unsure about what factors trigger environmental issues in the waterways and harbour.

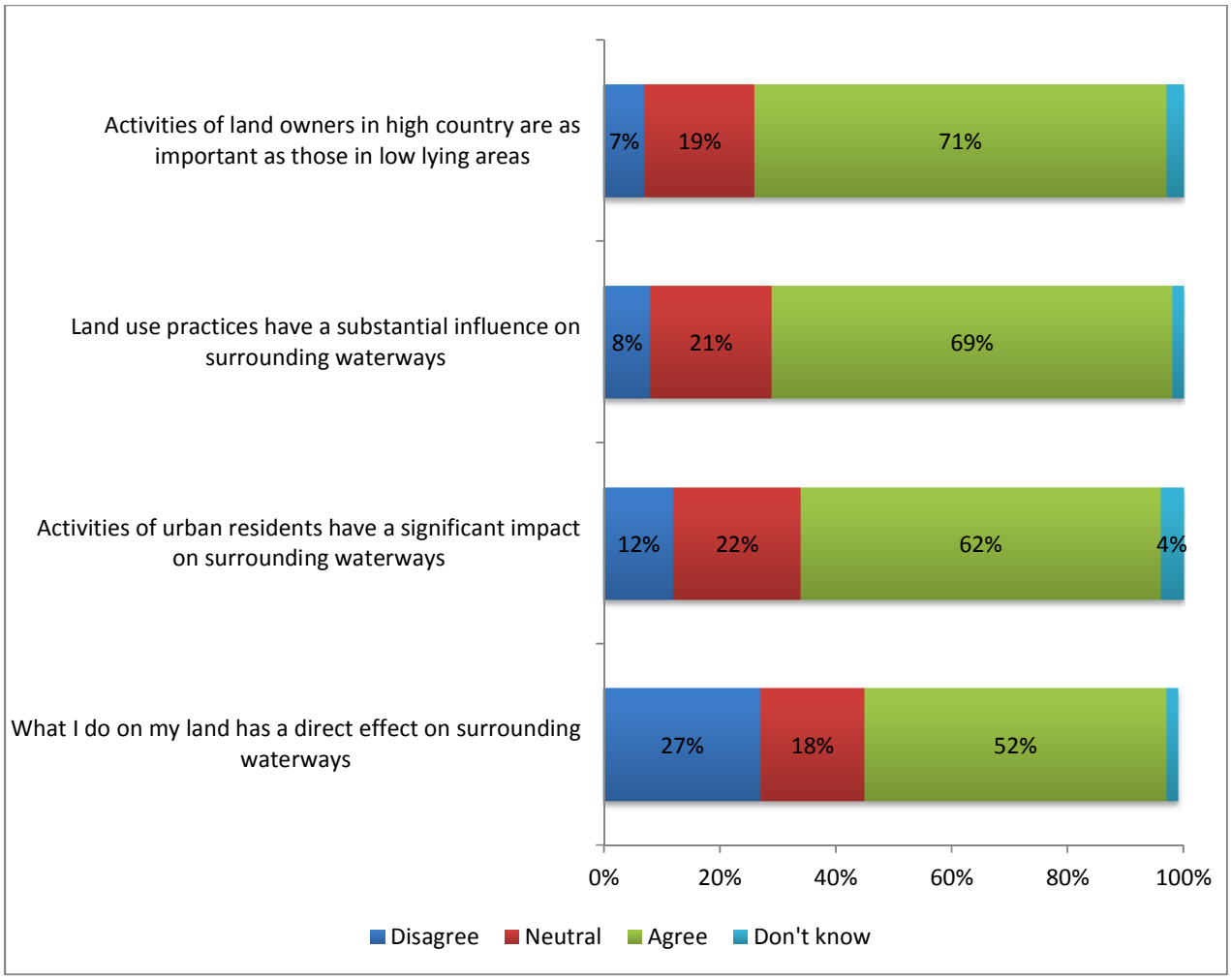


[9] *What do you think are the main causes of these (environmental) issues? B: All respondents. n=404*

Land use practices and its perceived effect on waterways[10]

Seventy-one per cent of the property owners agree with 'activities of land owners in high country are as important as those in low lying areas'; 19 per cent remain neutral; while only 7 per cent disagree with this statement. Also, 69 per cent of the property owners in the catchment area agree that 'land use practices have a substantial influence on the surrounding waterways'; 21 per cent remain neutral; while only 8 per cent do not agree with this statement. Furthermore, 62 per cent of the property owners agree that 'activities of urban residents have significant impact on the surrounding waterways'; 22 per cent remain neutral and 12 per cent disagree with this statement.

However, property owners are less likely to agree that 'what I do on my land has a direct effect on surrounding waterways' as only 52 per cent of the property owners agree; 18 per cent remain neutral and 27 per cent of the property owners disagree with this statement.



[10] *I am going to read out a few statements about how people use their land. As I read these out can you please tell me how much you agree or disagree with each statement using a 1 - 10 scale where 1 is completely disagree and 10 is completely agree? B: All respondents. n=404*

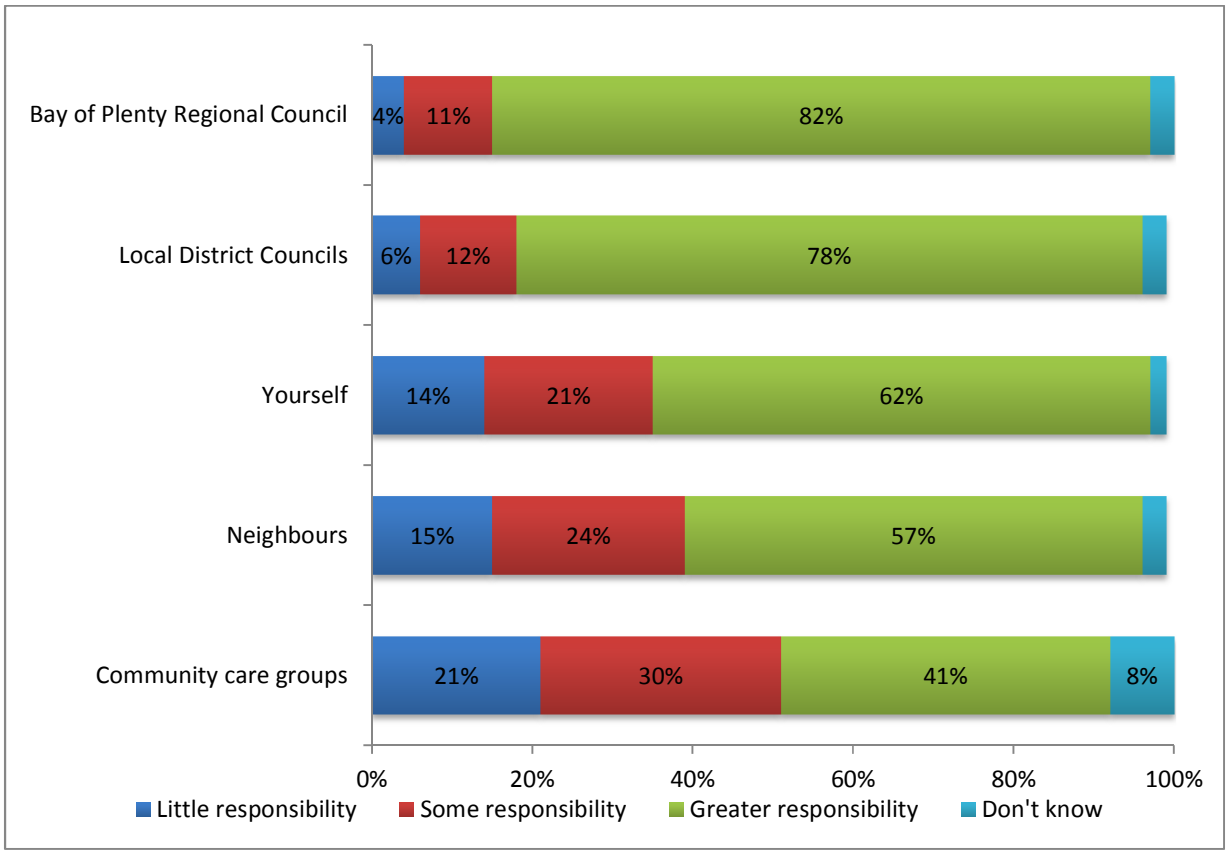
Perceived responsibility of different groups towards maintenance of waterways[11]

Property owners in the catchment area perceive that BOPRC and local district councils have greater accountability for the maintenance of the waterways while a relatively smaller proportion of property owners personally take onus with regards to the upkeep of the waterways.

Specifically, 82 per cent of the property owners said that BOPRC has a greater responsibility; 11 per cent said BOPRC has some responsibility; while four per cent said BOPRC has little responsibility for the maintenance of waterways. Seventy-eight per cent of the property owners said that the local district councils have a greater responsibility; 12 per cent said local councils have some responsibility while 6 per cent feel they have little responsibility for the upkeep of waterways.

When asked about themselves, 62 per cent of property owners said that they personally have a greater responsibility; 21 per cent said they have some responsibility; and 14 per cent said they have a little responsibility for the maintenance of waterways.

Furthermore, 57 per cent of the property owners said that their neighbours have a greater responsibility; and 41 per cent of the property owners said that the community care groups have a greater responsibility for the maintenance of waterways.



[11] *I am going to read out a list of different groups who may or may not have a responsibility for the maintenance of waterways. As I read these out, can you please in tell me how much responsibility each group has using a 1 - 10 scale where 1 is no responsibility at all and 10 means a lot of responsibility? B: All respondents. n=404*

Section summary: Property owners' awareness and understanding of sedimentation in Tauranga Harbour

Property owners in the catchment area have varied perceptions of the key environmental issues surrounding waterways and the main causes for these issues. Furthermore, there appears to be disparity amongst different subgroups of the property owners based on the property (farm) type.

- Commercial farmers in the catchment:
    - Are slightly less likely to regard farm runoff as a key issue affecting the waterways (13% compared to 21% for all property owners who regard farm runoff as a key issue).
    - Are much more likely to regard siltation as a key issue affecting the waterways (23% compared to 12% for all property owners who regard siltation as a key issue).
- Residential property owners:
    - Are much less likely to mention siltation as a main environmental issue (7% compared to 12% for all property owners who regard siltation as a key issue).
    - Are more likely to be unsure about the environmental issues affecting the waterways (15% compared to 11% for all property owners who mentioned don't know).
- Lifestyle block owners who make commercial use of the land:
    - Are more likely to regard pollution (generic) as a key issue affecting the waterways (26% compared to 17% for all property owners who regard pollution (generic) as a key issue).
- Property owners with multiple horticulture produce:
    - Are more likely to believe that growth in mangroves in the catchment area is a key issue affecting the waterways (38% compared to 20% for all property owners who regard mangroves as a key issue).

There is a general agreement over the uniformity in level of importance of land use practices regardless of the property location, i.e., high country or low lying land.

- Overall, 71 per cent of the property owners agree that activities of land owners in the high country are as important as those in low lying areas.
    - There are no statistically significant differences on this measure across different subgroups based on catchment location i.e., upper, middle or lower catchments.
    - However, commercial farmers are slightly less likely to agree that activities of land owners in the high country are as important as those in low lying land (61% compared 71% for all property owners who agree with this statement).

- A total 62 per cent of the property owners agree that urban residents have a significant impact on the surrounding waterways.

Property owners appear to understand the implications that land use has on the surrounding waterways. However, there is lesser acknowledgement of personal accountability towards the problem.

- It is notable that by and large, property owners in the catchment acknowledge the significant influence that land use practices have on the surrounding waterways with 69 per cent of the property owners agreeing with this.
    - Although, commercial farmers in the catchment area are slightly more likely to remain neutral about the degree of influence land use practices have on the surrounding waterways (31% compared to 21% for all property owners who remained neutral on this measure).
- However, fewer property owners agree (52%) that their own land use practices (i.e. what they do on their land) has a direct effect on the surrounding waterways.
    - A total of 27 per cent of property owners disagree that their own land use practices have a direct effect on the surrounding waterways.

The disparity in results across various subgroups signifies a lack of personal accountability and also indicates a tendency to state that the practices of other property owners (farmers) cause the issues that affect the waterways. Factors which are considered 'outside of their control', e.g., weather conditions were also cited.

- Kiwifruit orchard owners:
    - Are more likely to believe that unsustainable dairy farm practices are the main cause of the environmental issues affecting the waterways (22% compared to 11% for all property owners who mentioned unsustainable dairy farming practices).
- However, commercial farmers:
    - Are more likely to cite natural factors like excessive rain or wind as a cause of these environmental issues (20% compared to 13% for all property owners who mentioned natural factors i.e. excessive rain or wind).
- While Kiwifruit orchard owners:
    - Are slightly less likely to believe that natural factors are the main cause of these environmental issues (4% compared to 13% for all property owners who mentioned natural factors i.e. excessive rain or wind).
    - They are also more likely to believe that lack of action over growth of invasive weeds is the main cause of the environmental issues affecting the waterways (20% compared to

10% for all property owners who mentioned lack of action over growth of invasive weeds).

- Lifestyle block owners who make some commercial use of their property:
    - Are less likely to believe that lack of action over growth of invasive weeds is the main cause of the environmental issues affecting the waterways (3% compared to 10% for all property owners who mentioned lack of action over growth of invasive weeds).
    - They are more likely to believe that sewerage is the main cause of the environmental issues affecting the waterways (7% compared to 2% for all property owners who mentioned sewerage).
- Residential property owners:
    - Are slightly more likely to believe that general ignorance towards the harbour environment is a key cause of these environmental issues (21% compared to 17% for all property owners who mentioned general ignorance towards the harbour environment).

The majority of property owners perceive themselves and the local community as relatively detached from the responsibility of waterway maintenance and believe that the onus is on BOPRC and local district councils.

- The majority of property owners in the catchment believe that the BOPRC (82%), and local district councils (78%), have a greater responsibility towards the maintenance of waterways compared to themselves (property owners) (62%) and their neighbours (57%).
- However, lifestyle block owners who make some commercial use of their property appear to be more conscious about the local community's responsibility towards maintenance of waterways.
    - They are much more likely to say that they (themselves) are greatly responsible (78% compared to 62% for all the property owners who said that they themselves are greatly responsible for maintenance of waterways).
    - They are also much more likely to say that their neighbours are greatly responsible (77% compared 57% for all the property owners who said their neighbours are greatly responsible for maintenance of waterways).
- Commercial farmers in the catchment appear to be slightly more passive when it comes to attributing the responsibility of maintenance of waterways to a specific group.
    - They are much less likely to say that BOPRC has a greater responsibility for maintenance of waterways (70% compared to 82% for all property owners who said that BOPRC have a greater responsibility for maintenance of waterways).
    - They are much less likely to say that the local district councils have a greater responsibility for maintenance of waterways (62% compared to 78% for all property

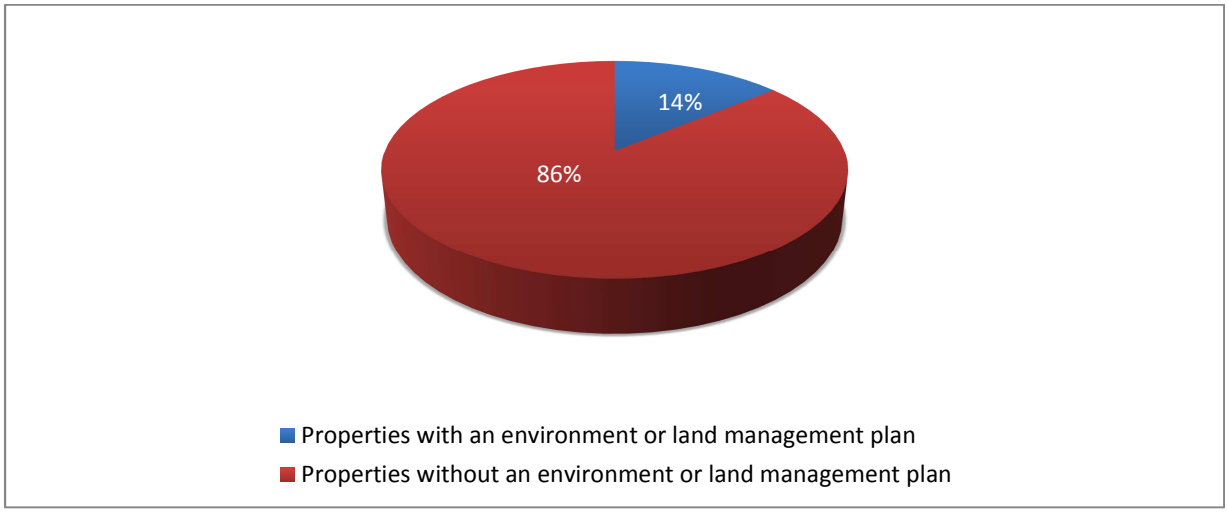
owners who said that the local district councils have a greater responsibility for maintenance of waterways).

- They are much less likely to say that community care groups have a greater responsibility for maintenance of waterways (26% compared to 41% for all property owners who said that the community care groups have a greater responsibility for maintenance of waterways).

c. PROPERTY OWNERS' AWARENESS OF INITIATIVES OFFERED BY COUNCIL

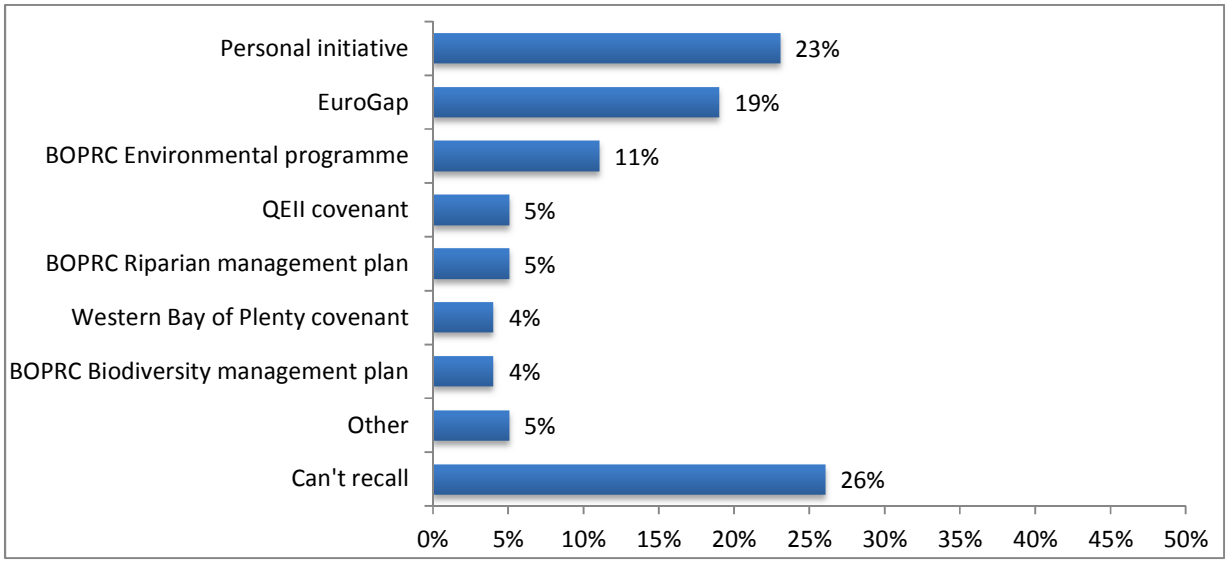
Implementation of environmental or land management plan[12]

Overall, only 14 per cent of the properties have an environmental or land management plan in place.



Type of environmental or land management plan[13]

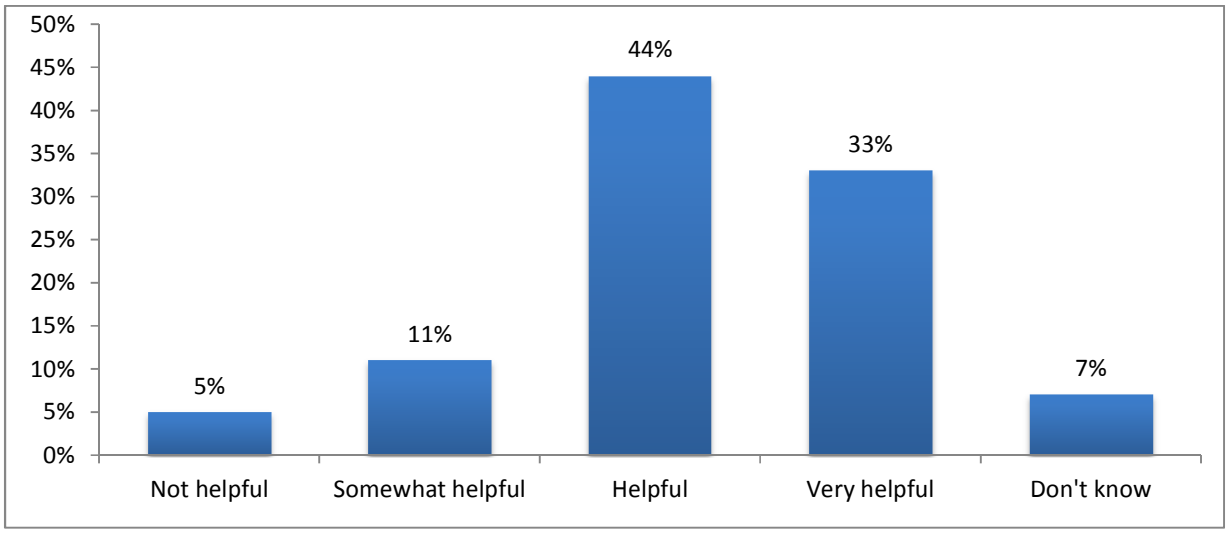
Of the14 per cent of property owners who have an environmental or land management plan in place; 23 per cent said it is a personal initiative without any consultation with other agencies. Nineteen per cent have a EuroGap plan and 11 per cent have a BOPRC environmental plan on their property. It is noteworthy that 26 per cent of the property owners with an environmental or land management plan cannot recall the type of the plan they have on their property.



[12] *Do you have an environmental or land management plan in place for your property? B: All respondents. n=404*
[13] *What type of plan is it? B: All respondents who have a plan. n=57*

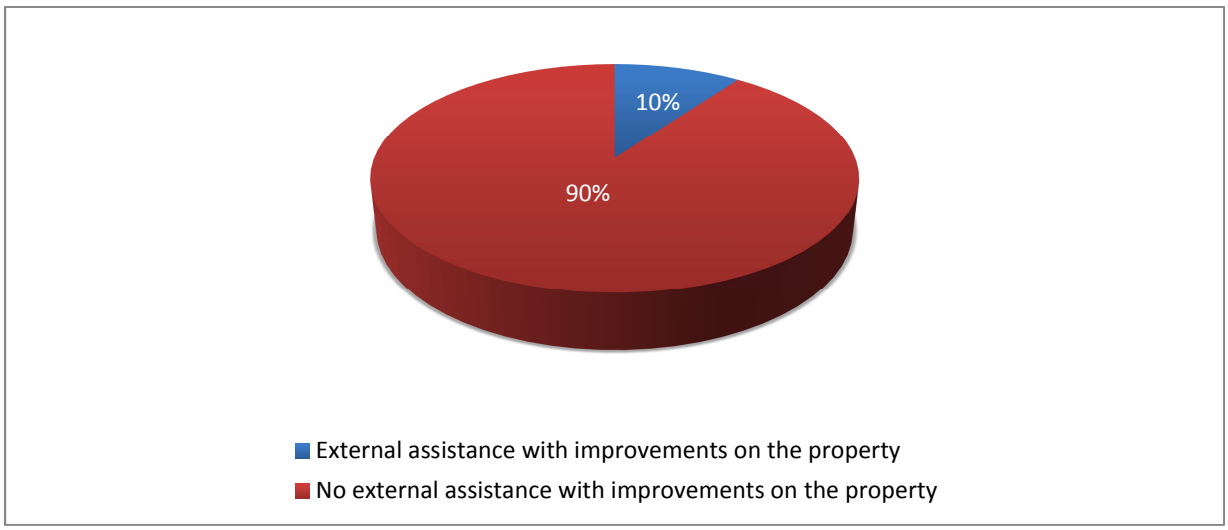
Perceived helpfulness of the environmental or land management plan[14]

Of the 14 per cent property owners who have an environmental or land management plan on their property; 77 per cent said that the plan has been helpful (44%) or very helpful (33%); 11 per cent said it has been somewhat helpful; 5 per cent said it has not been helpful and 7 per cent were unsure.



External assistance (excluding BOPRC) with any improvements on the property[15]

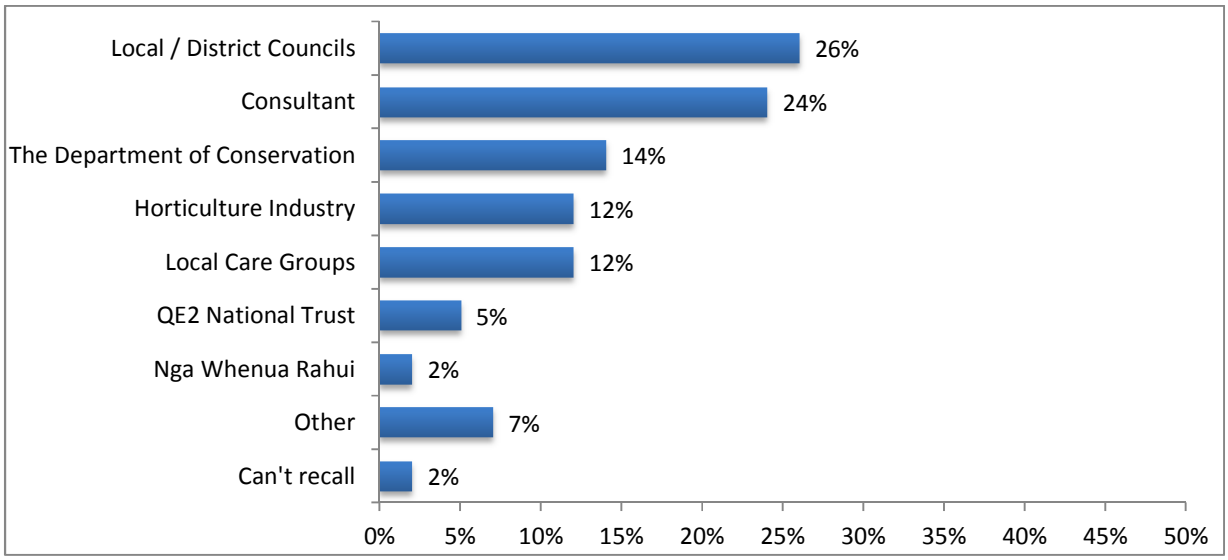
Overall, only 10 per cent of the property owners mentioned that they received assistance from any external groups or organisations (other than BOPRC) with the implementation of any improvements they had made on their property.



[14] *Would you say that the plan has been…? B: All respondents who have a plan. n=57*
[15] *Did you get any help with implementing these activities from any external groups or organisations, other than Bay of Plenty Regional Council? B: All respondents. n=404*

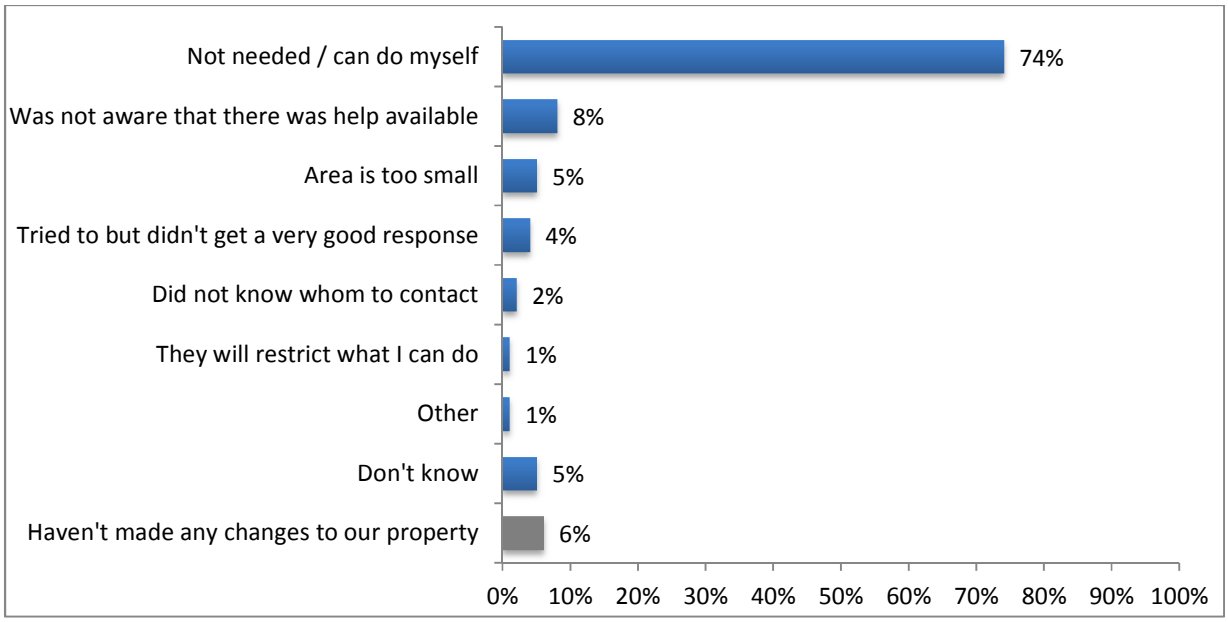
Groups or organisations that assisted with any improvements on the property[16]

A total of 10 per cent property owners received external assistance (excluding any assistance from BOPRC) with the improvements they had made to their property. These property owners predominantly received this assistance from their respective local / district councils (26%) or from consultants (24%).



Reasons for not seeking any help with property improvements[17]

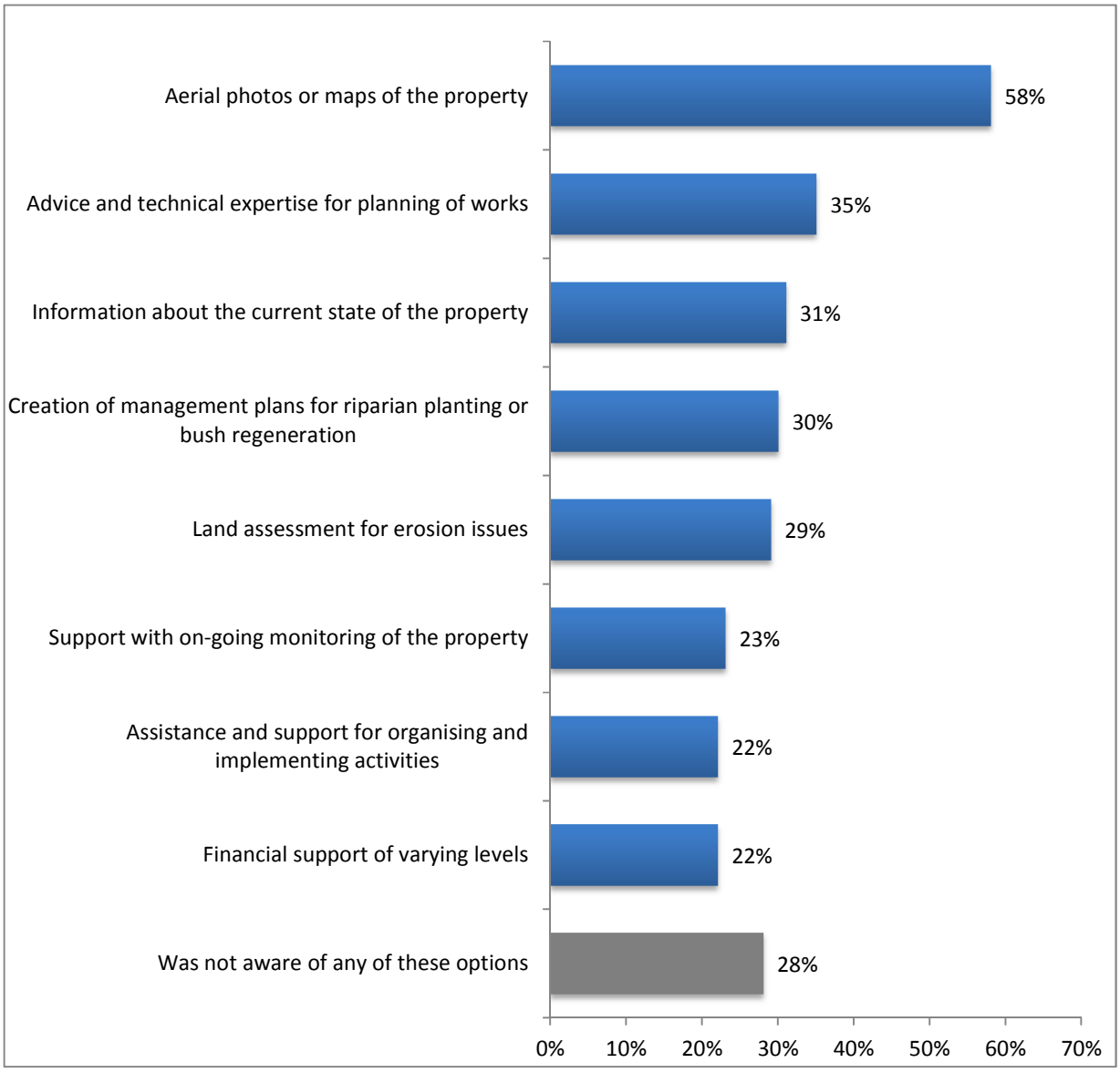
Seventy-four per cent of the property owners who did not seek any external assistance with property improvements did not perceive any necessity for such assistance.



[16] *Which groups or organisations helped you with these activities? B: Respondents who received external help n=42.*
[17] *What was the main reason you didn't seek any help with these activities? B: All respondents who did not receive external help. n=362*

Awareness of Council's support options for activities to improve the property[18]

Results show that community awareness of the support options offered by BOPRC to improve the property is moderate to low. Barring the option of 'aerial photos or maps of the property' (58%) all other support activities show awareness proportions in the range of 22 to 35 per cent. It is noteworthy that 28 per cent of the property owners are unaware of any of the support options provided by BOPRC for activities to improve the land.

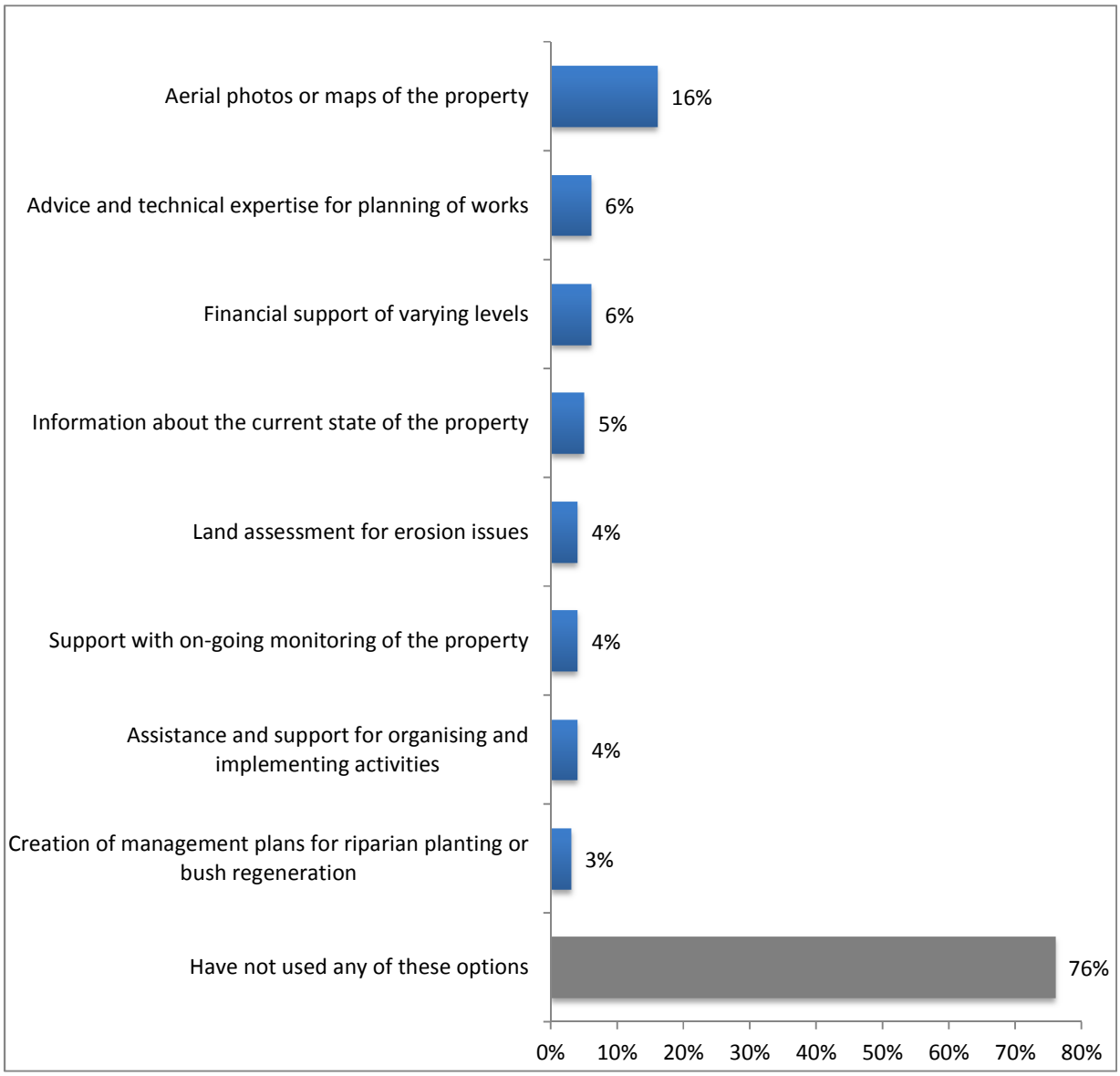


[18] *Bay of Plenty Regional Council is able to provide a range of support for activities to improve land use. Before this survey, were you aware that the following options were available? B: All respondents. n=404*

Uptake of Council's support options for activities to improve the property[19]

This chart illustrates the uptake of Council's land improvement support options amongst the property owners who are aware of at least one of these support options.

Uptake of Council's support options is fairly low with 76 per cent of the property owners who are aware of at least one of these options not using any of these options. Only 16 per cent of the property owners who are aware of the facility of obtaining aerial photos or maps of the property have used it; six per cent have obtained advice and technical expertise for planning of works; six per cent have used financial support, and five per cent have obtained information about the current state of their property.



[19] *Which, if any of these support options have you used? B: All respondents who are aware of at least one of the support option provided by Council. n=289.*

Section summary: property owners' awareness of initiatives offered by Council for Tauranga Harbour

Overall, results show a low level of uptake with environmental or land management plans on behalf of property owners. Furthermore, personal initiative is the key driver for implementing these plans, those who have implemented a plan perceive it to be helpful.

- Overall, only 14 per cent of the property owners (57 property owners) have an environmental or land management plan in place.
    - Twenty-three per cent of those 14 per cent of property owners implemented a plan as a personal initiative to improve their property / surroundings or out of empathy for the environment.
    - A total of 77 per cent of property owners who have an environmental or land management plan feel the plan has been helpful (25%) or very helpful (19%).
- It is notable that kiwifruit orchard owners are more likely to have an environmental or land management plan in place (26% compared to 14% for all property owners who have an environmental or land management plan on their property). However, it may be a reflection of the management plan that orchard owners ought to have as a part of the horticulture industry regulations.

Property owners appear to have low engagement with external agencies that offer assistance for property improvements and largely have a perception that they do not require such assistance and can manage these activities on their own.

- Overall, only 10 per cent of the property owners (42 property owners) received assistance from an external group or organisation (excluding BOPRC) for any improvement on the property.
- However, property owners in the upper catchment are more likely to have received such assistance from an external group or organisation (14% compared to 10% for all the property owners who mentioned that they received external assistance for improvements on their property).

Land owners have moderate to low awareness of initiatives offered by Council for land improvement. Subsequently, uptake of these support options is significantly low.

- Overall 28 per cent of the property owners are unaware of any of the support options offered by Council to improve land use. However, commercial farmers are more aware of, and are more likely to have used, some of these support options.
- **Awareness of Council support options**
    - Commercial farmers are more likely to be aware of:
        - Financial support of varying levels (41% compared to 22% for all property owners who are aware of financial support of varying levels).

- Assistance and support for organising and implementing activities (33% compared to 22% for all property owners who are aware of assistance and support for organising and implementing activities).
- Support for on-going monitoring of the property (36% compared to 23% for all property owners who are aware of support for on-going monitoring of the property).

- Residential property owners are less likely to be aware of:
  - Financial support of varying levels (10%), assistance and support for organising and implementing activities (15%), and support for on-going monitoring of the property(15%). However, they are also less likely to require these services given that many residential property owners have very few land characteristics which would require these support services.

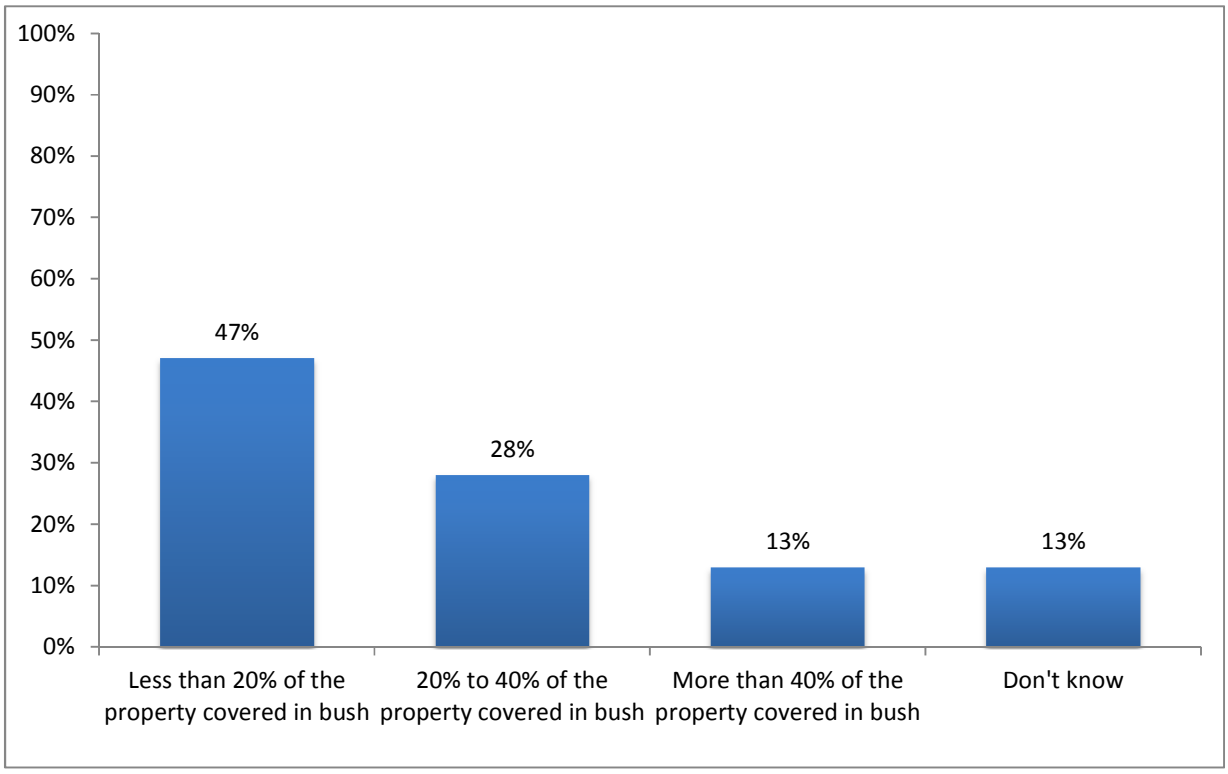
- **Uptake of Council support options**
  - Commercial farmers are more likely to have used:
    - Financial support of varying levels (16% compared to 6% for all property owners who have used financial support of varying levels).
    - Assistance and support for organising and implementing activities (33% compared to 22% for all property owners who have used assistance and support for organising and implementing activities).
    - Support for on-going monitoring of the property (10% compared to 4% for all property owners who have used support for on-going monitoring of the property).
    - Land assessment service for erosion issues (12% compared to 4% for all property owners who have used land assessment service for erosion issues).
    - Aerial photos or maps of their property (24% compared to 16% for all property owners who have obtained aerial photos or maps of their property).

d. LAND USE PRACTICES (I): PROPERTIES WITH AN AREA OF NATIVE OR PLANTED BUSH OR A GULLY

This section covers the land use practices and attitudes of the property owners who have an area of native or planted bush or a gully on their property.

Property area covered in bush[20]

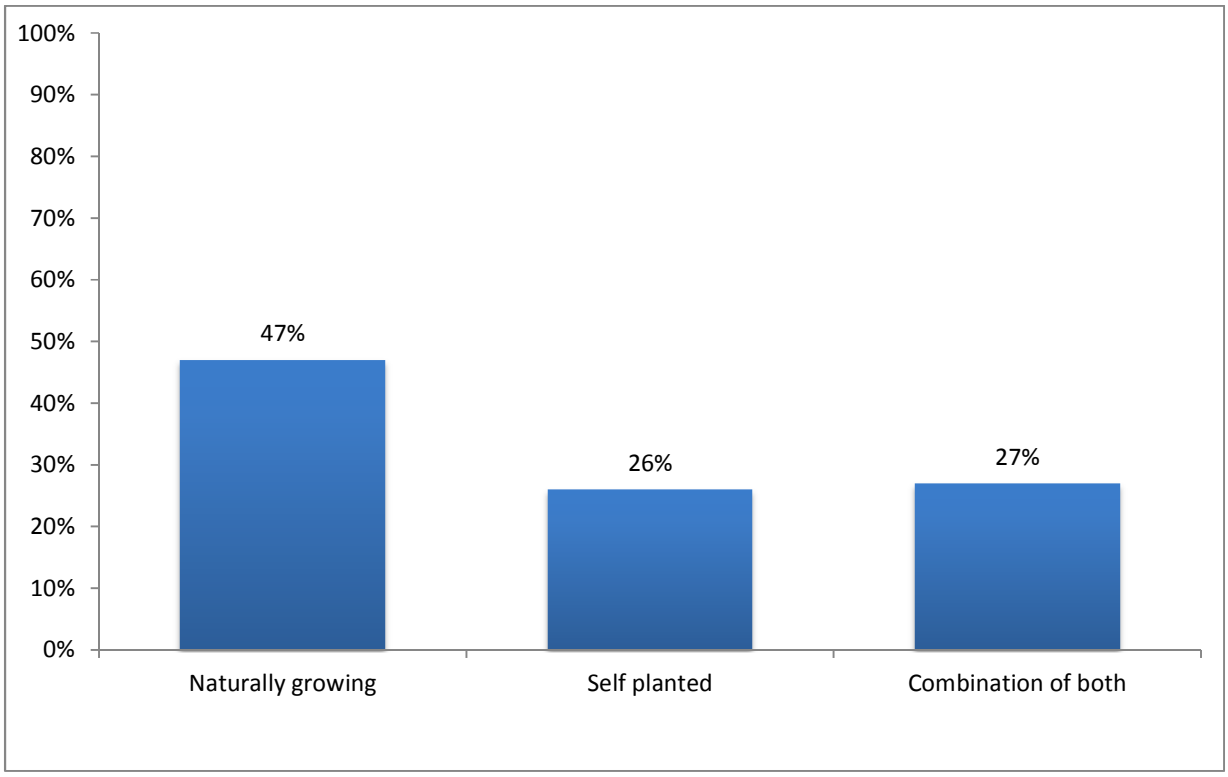
Of those properties that have an area of native or planted bush or a gully, 47 per cent of these properties have less than 20 per cent of the property covered in bush; 28 per cent of the properties have 20 – 40 per cent of the property covered in bush; and 13 per cent of properties have more than 40 per cent of the property covered in bush. Thirteen per cent of property owners are unsure about the proportion of their property that is covered in bush.



[20] *Approximately, how many acres of your property is covered in bush? B: All respondents with a property area covered with bush or a gully. n=176.*

Naturally growing / self-planted bush or a gully area[21]

Forty-seven per cent of the properties that have an area of bush or a gully have naturally growing bush; 26 per cent of the properties have self-planted bush, and 27 per cent of the properties have a combination of both.



[21] *Is this naturally growing or is it an area that you have planted yourself? B: All respondents with a property area covered with bush or a gully. n=176.*

Uptake of land use improvement activities related to the properties with an area of bush or a gully[22]

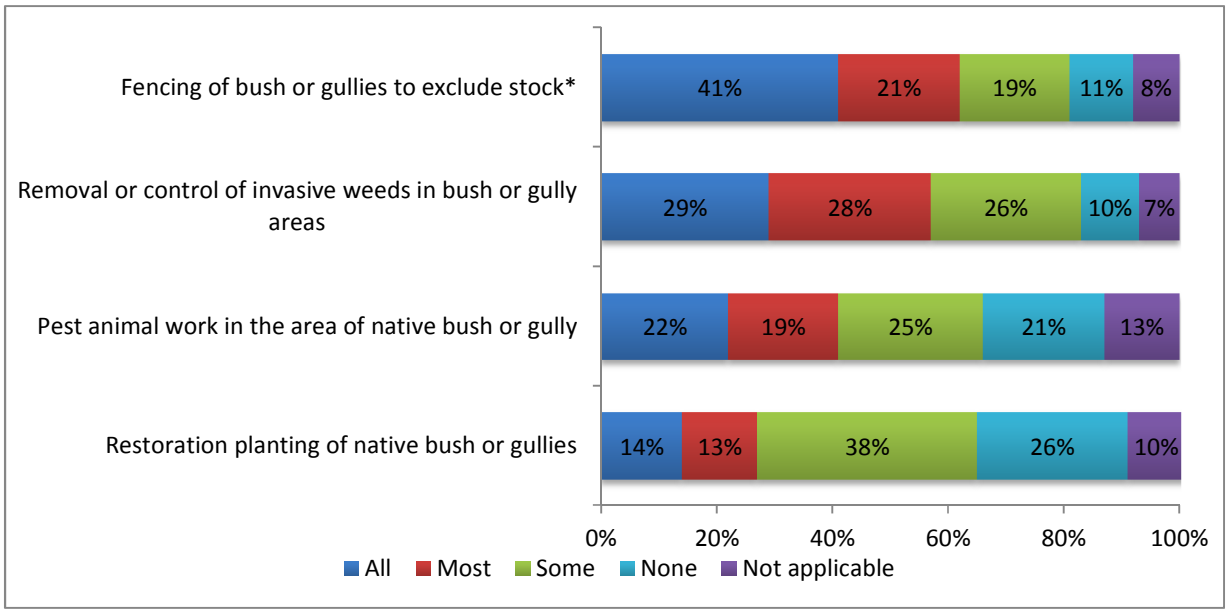
Results show that property owners are fairly attentive to their property area that is covered with bush or gully as 94 per cent of the property owners who have a property area covered with bush or gully have used at least one of the corresponding land improvement activities. Also, at least 65 per cent of the property owners have adapted these practices on all, most, or some of the property area that is covered in bush. Uptake of each of these activities is discussed below.

Forty-one per cent of the property owners (who have any stock on their property and an area of bush or a gully) have fenced bush or gullies to exclude stock on all the area; 21 per cent have fencing on most of the area; 19 per cent have fencing on some of the area; while only 11 per cent of these property owners have not fenced bush or gullies to exclude stock.

Twenty-nine per cent of the property owners (with area of bush or a gully on their property) have undertaken removal or control of invasive weeds in all of the bush or gully areas; 28 per cent have done this in most of the area; 26 per cent have done this in some area; while only 10 per cent have not undertaken this activity.

Twenty-two per cent of the property owners have undertaken pest animal work in all of the area of native bush or gully, 19 per cent have undertaken such work in most of the area; 25 per cent have done this in some of the area; while 21 per cent have not undertaken this activity at all.

Lastly, only 14 per cent of the property owners have undertaken restoration planting of native bush or gullies, 13 per cent have done this in most of the area, 38 per cent have undertaken this activity in some of the area; while 26 per cent of property owners have not undertaken this activity at all.

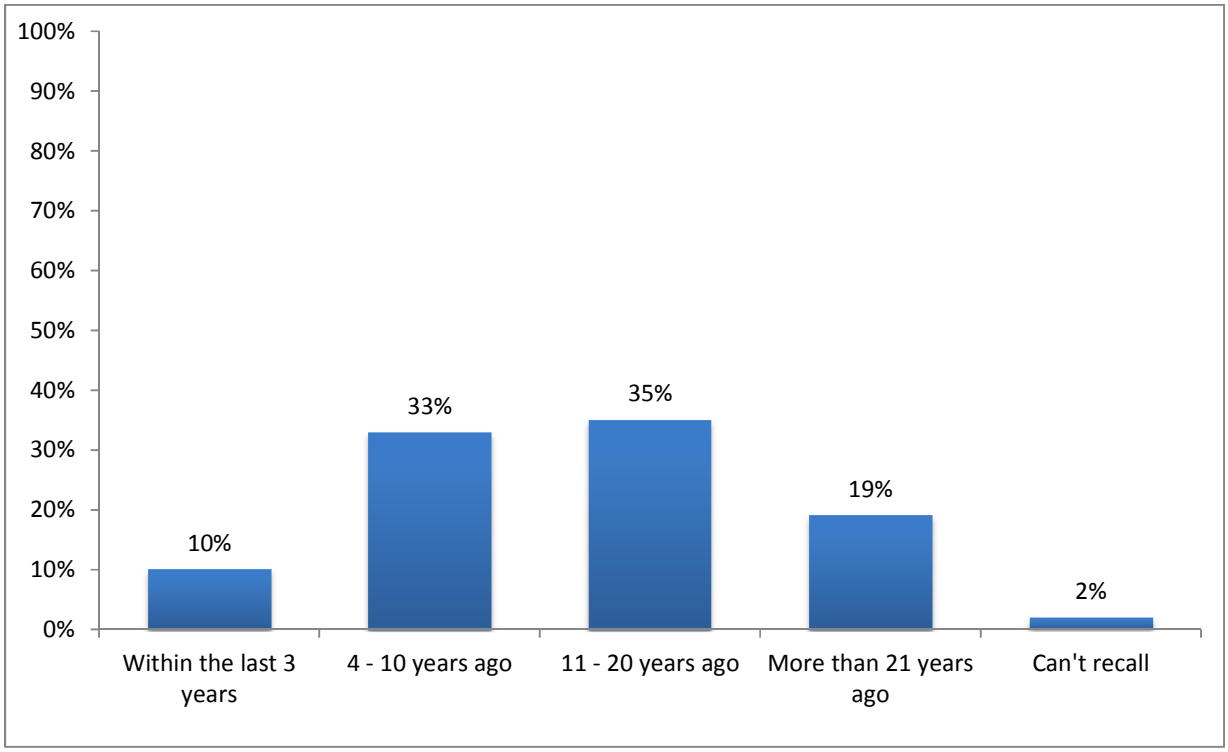


[22] *Can you please tell me if you have undertaken any of these activities on your property? B: All respondents with property area covered with bush or a gully. n=176.*
**Asked only to those property owners with a property area of bush or a gully and who have stock on their property. N=110.*

Length of time since these activities have been implemented[23]

The majority of property owners in the catchment have undertaken improvements to their land for a significant number of years.

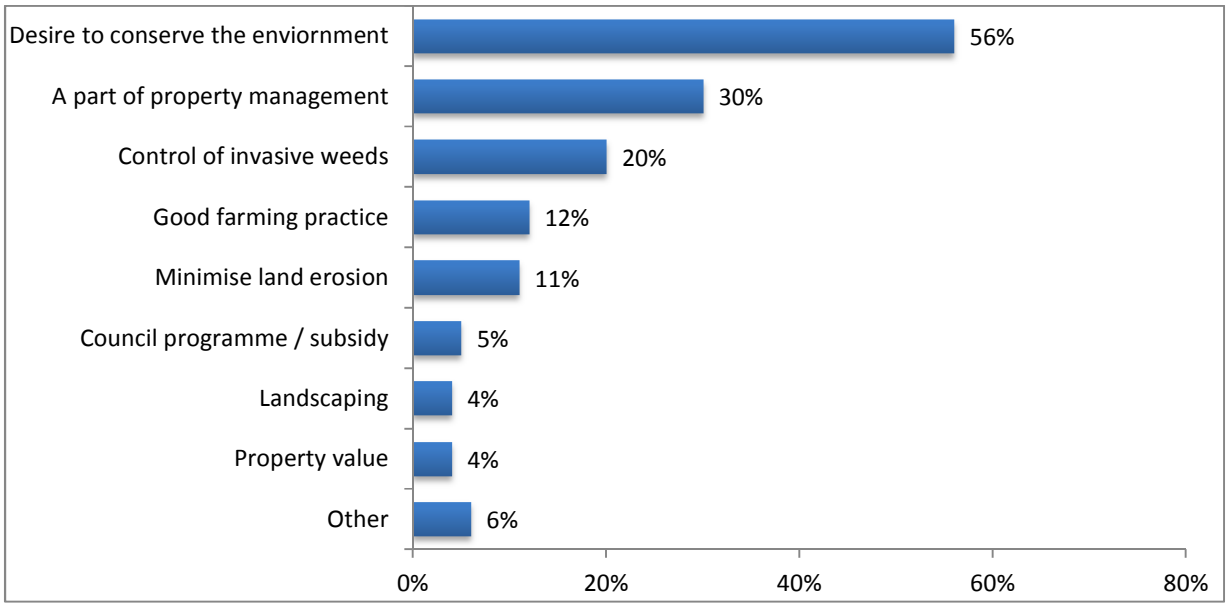
Specifically, 19 per cent of the property owners started undertaking these activities more than 21 years ago; 35 per cent have started 11 – 20 years ago; 33 per cent have started 4 -10 years ago; and only 10 per cent of the property owners started undertaking these activities within the last three years.



[23] *When did you start undertaking these activities? B: Respondents with a property area of bush or a gully and has undertaken at least one of the respective land use practices. n=167.*

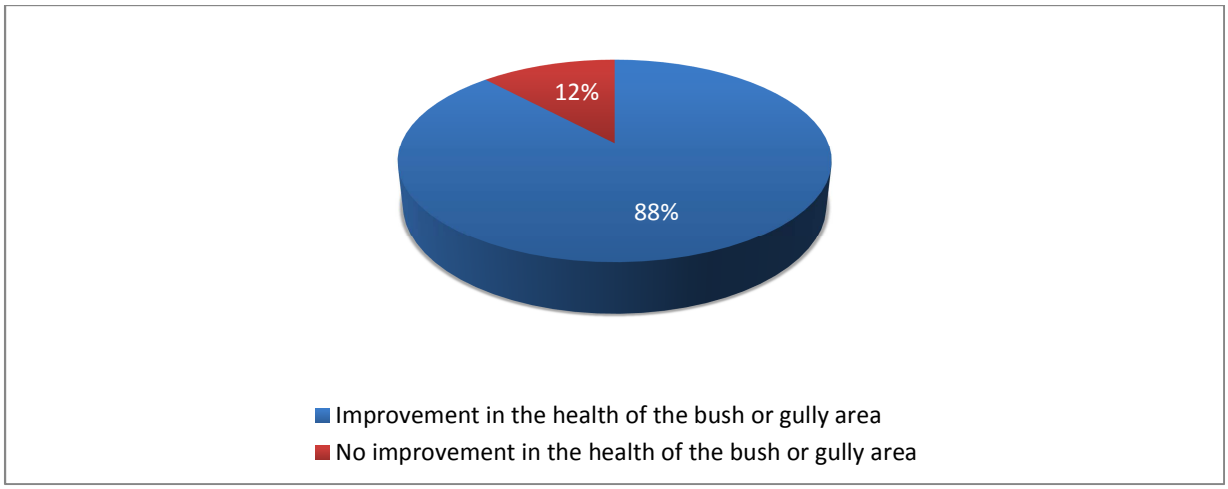
Factors that influence implementation of these activities[24]

Desire to conserve the environment (56%), a part of the property management (30%), and control of invasive weeds (20%), are the top three factors that influence uptake of the land improvement activities relating to the property area that is covered in bush or gully.



Improvement in the health of the bush or gully area as a result of undertaking these activities[25]

Eighty-eight per cent of the property owners who have undertaken land use improvement activities believe that these actions have led to an improvement in the health of the bush or gully area on their property.

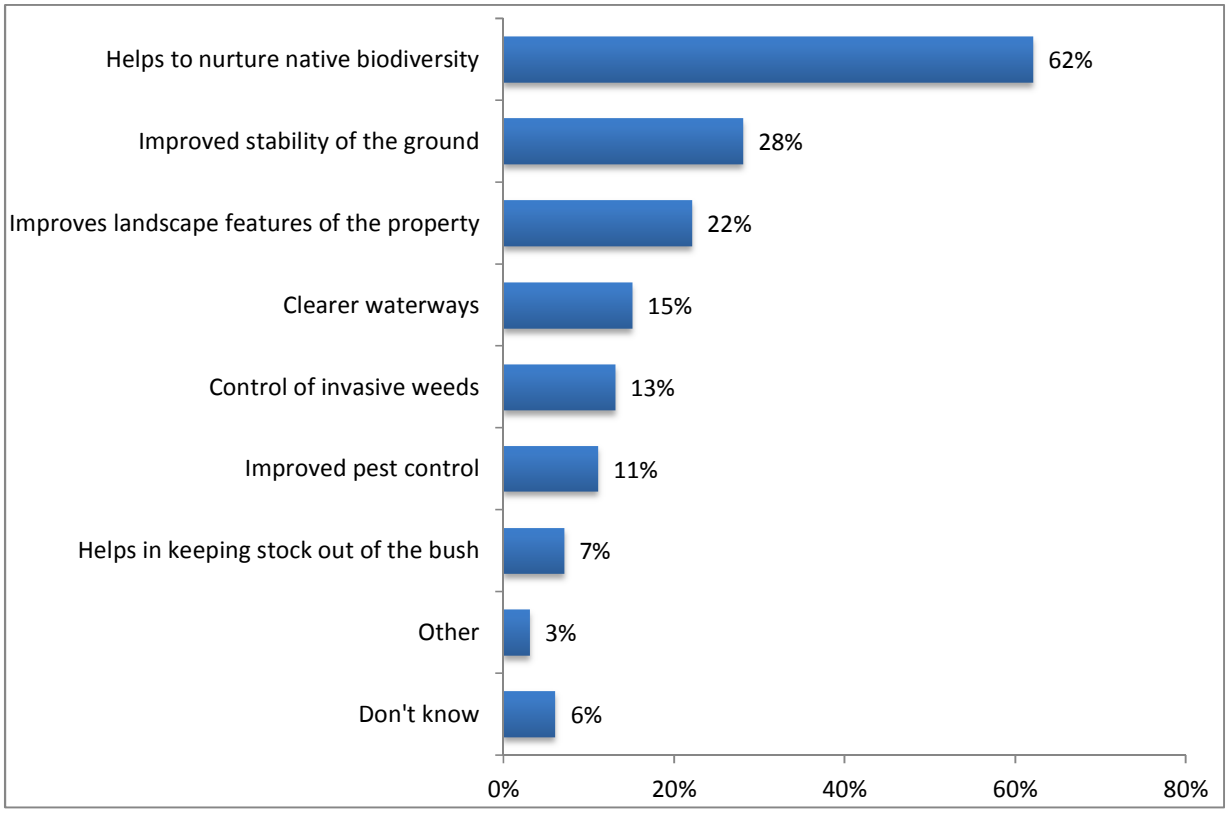


[24] *What made you decide to undertake these activities on your property? B: Respondents who have an area of bush or a gully and has undertaken at least one of the respective land use practices. n=167.*

[25] *Do you think that undertaking these actions has led to an improvement in the health of the bush or gully area on your property? B: Respondents who have an area of bush or a gully and has undertaken at least one of the respective land use practices. n=167.*

Improvements in the health of the bush or gully area as a result of undertaking these activities[26]

Sixty-two per cent of the property owners believe that implementation of land improvement activities helps to nurture native biodiversity and 28 per cent mentioned that these activities have improved the stability of the ground. Furthermore, improvements in landscape features of the property (22%); clearer waterways (15%); control of invasive weeds (13%); and improved pest control (11%) are some of the other improvements mentioned by property owners.



Factors that prevent property owners from undertaking land use improvement activities relating to the property area that is covered in bush or gully[27]

A total of 9 property owners who have a property with bush or gully did not undertake any of the land improvement activities. Eight cited 'no perceived need to engage in these activities' while only one of these property owners mentioned 'lack of time' as a factor for not implementing these land improvements.

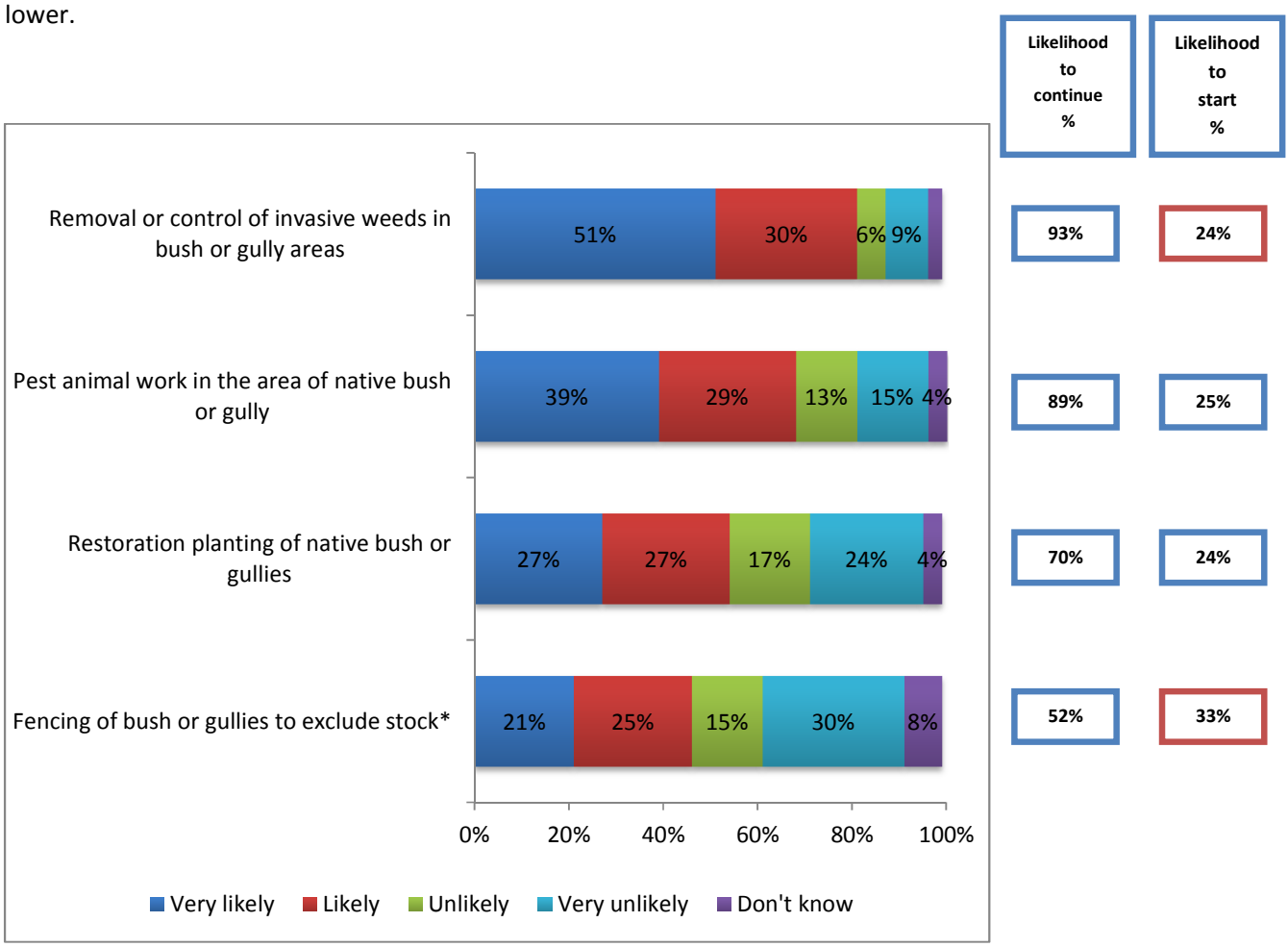
[26] *What improvements have you seen to the area since undertaking these activities?? B: Respondents who have an area of bush or a gully; has undertaken at least one of the respective land use practices and seen an improvement on the property. n=147.*

[27] *What's the main thing that is stopping you from undertaking these activities? B: Respondents who have an area of bush or a gully; has undertaken at least one of the respective land use practices. n=147.*

Likelihood to start or continue to undertake land use improvement activities[28]

Eighty-one per cent of the property owners who have a property area that is covered with bush or gully are either very likely (51%) or likely (30%) to start or to continue the removal or control of invasive weeds in bush or gully areas of their property. Also, 68 per cent of these property owners are either very likely (39%) or likely (29%) to start or to continue pest control work in the area of native bush or gully. However, only 54 per cent of these property owners are either very likely (27%) or likely (27%) to undertake restoration planting of native bush or gullies. Furthermore, of these property owners who have any stock on their property, only 46 per cent of these property owners are either very likely (21%) or likely (25%) to start or to continue fencing of bush or gullies to exclude stock. However, this might be a reflection of those property owners who have only a few animals on their property and are not commercially farming.

It is notable that those property owners who are already undertaking land improvements are much more likely to continue; while the likelihood of property owners to start these activities is considerably lower.



[28] *How likely are you to start, or continue, the following activities in the next 12 months? B: All respondents with property area covered with bush or a gully. n=176.*

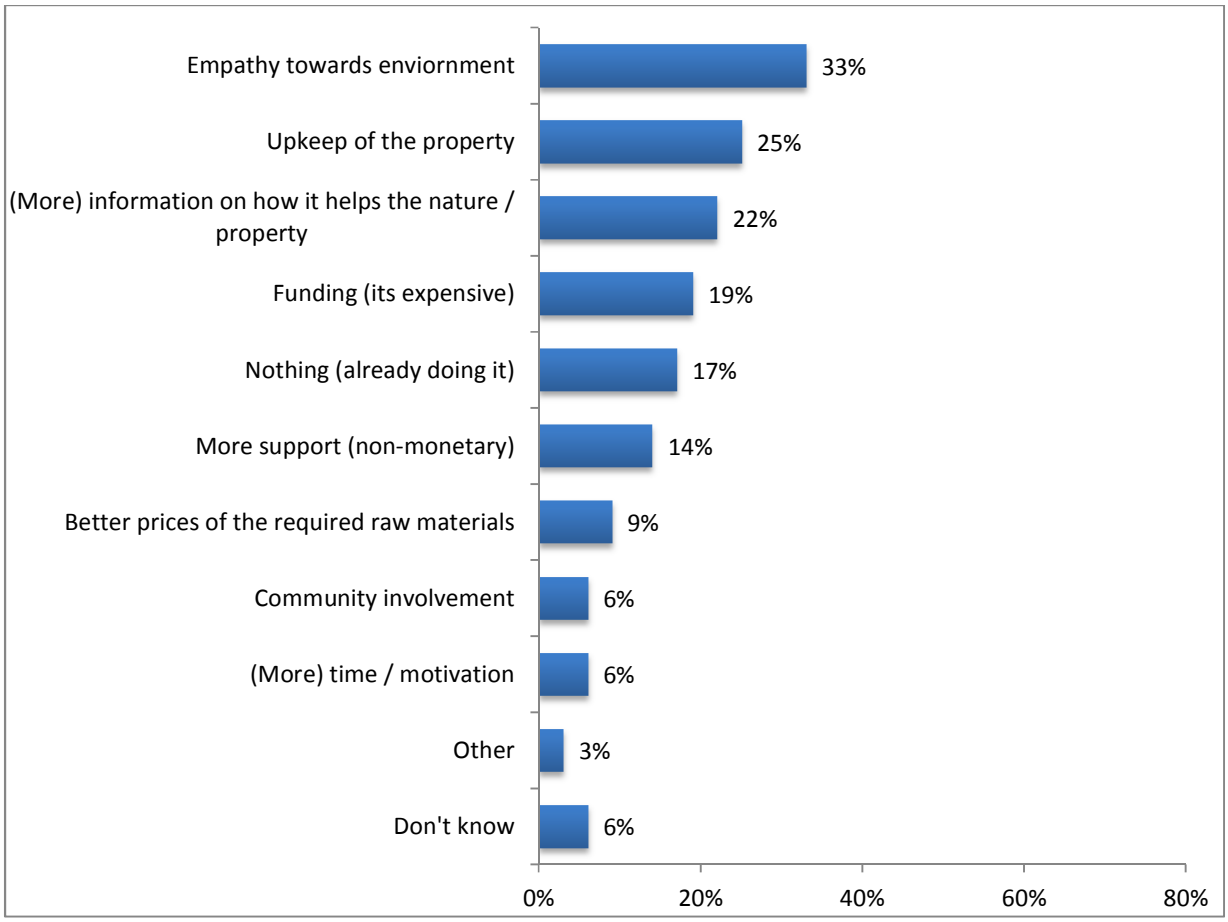
**Asked only to those property owners with a property area of bush or a gully and has any stock on their property. N=110.*

Figures in red box indicate small base sizes and results are indicative only.

Factors that would encourage property owners to undertake land use improvement activities in the future[29]

According to the property owners who have a property area that is covered with bush or gully and are likely to start or to continue undertaking specific land improvement activities, empathy towards environment (33%); upkeep of the property (25%); and (more) information on how these activities help the nature of their property (22%) are the three key factors that would encourage them to undertake these activities in future.

Considerable proportions of the property owners also require more information (22%), funding (19%), and more (non-monetary) support (14%) in order to undertake these activities in the future.



[29] *What would encourage you to undertake these activities in the future? B: All respondents who with property area covered with bush or a gully who are either very likely or likely to start or to continue at least one of respective land use improvement activities. n=64.*

Section summary: land use practices (I) Properties with an area of native or planted bush or a gully

Properties that have an area that is covered with bush or gully predominantly have naturally growing bush (47%). This implies more vigilance on behalf of the property owners as compared to those properties that have self-planted (26%) bush or a combination of both of these (27%). Especially, residential property owners in the catchment have a greater property area covered with bush or gully and are a key audience for more information on relevant land use practices.

- Residential property owners:
    - Are more likely to have more than 40 per cent of the property area covered with bush or gully (21% compared to 13% for all property owners who have more than 40% of the property area covered with bush or gully).
- Whereas, commercial farmers:
    - Are much more likely to have less than 20 per cent of the property area covered with bush or gully (66% compared to 47% for all property owners who have less than 20 per cent of the property area covered with bush or gully).

Overall, uptake of land improvement activities relevant to the area of bush or gully is fairly promising. However, fewer property owners are engaging in restoration planting of native bush or gullies.

- Ninety-four per cent of the property owners have undertaken at least one of the four bush or gully improvement activities.
- Restoration planting of native bush or gullies shows the lowest uptake proportion[30] (65%) amongst these activities.
    - Commercial farmers are more likely to have undertaken this activity on none of their property (39% compared to 26% for all property owners who have undertaken this activity on none of their property area).

Desire to conserve the environment is the primary influencer for undertaking land improvements. As those property owners who are actively undertaking these activities have been doing so for a significant duration of time and the majority are able to identify specific improvements on their property.

- Fifty-four per cent of the property owners have undertaken these activities for the last 11 years or more; 33 per cent of the property owners have undertaken these activities in the last 4 to 10 years; while only 10 per cent have started undertaking these activities in last 3 years.
- Fifty-six per cent of the property owners (who undertake these activities) mentioned that desire to conserve the environment is the main factor that encourages them to undertake these activities.

[30] This is a sum of the proportions of the property owners who have undertaken this activity on all, most or some of the property area (covered with bush or gully).

- Eighty-eight per cent of the property owners (who undertake these activities) mentioned that these activities have led to an improvement in the health of bush or gully areas on their property.
- Sixty-two per cent of the property owners (who mentioned that these activities have led to an improvement) mentioned that these land use improvement activities help to nurture native biodiversity.
- One third of the property owners who have a property area that is covered with bush or gully and are likely to start or continue to undertake these activities mentioned that empathy towards the environment is a factor that would encourage them to engage in these activities.

Corresponding with its current uptake, restoration planting of native bush or gullies is a land use improvement activity that has a greater potential for improvement in prospects of its uptake. As noted earlier, large parts of residential properties are covered with bush or gullies and these property owners appear to be a key sub-group of property owners for this activity.

- Residential property owners:
    - Are very unlikely to undertake restoration planting of native bush or gullies (45% compared to 24% for all property owners who are very unlikely to undertake restoration planting of native bush or gullies).
- Commercial farmers:
    - Are very likely to undertake restoration planting of native bush or gullies (42% compared to 27% for all property owners who are very likely to undertake restoration planting of native bush or gullies).

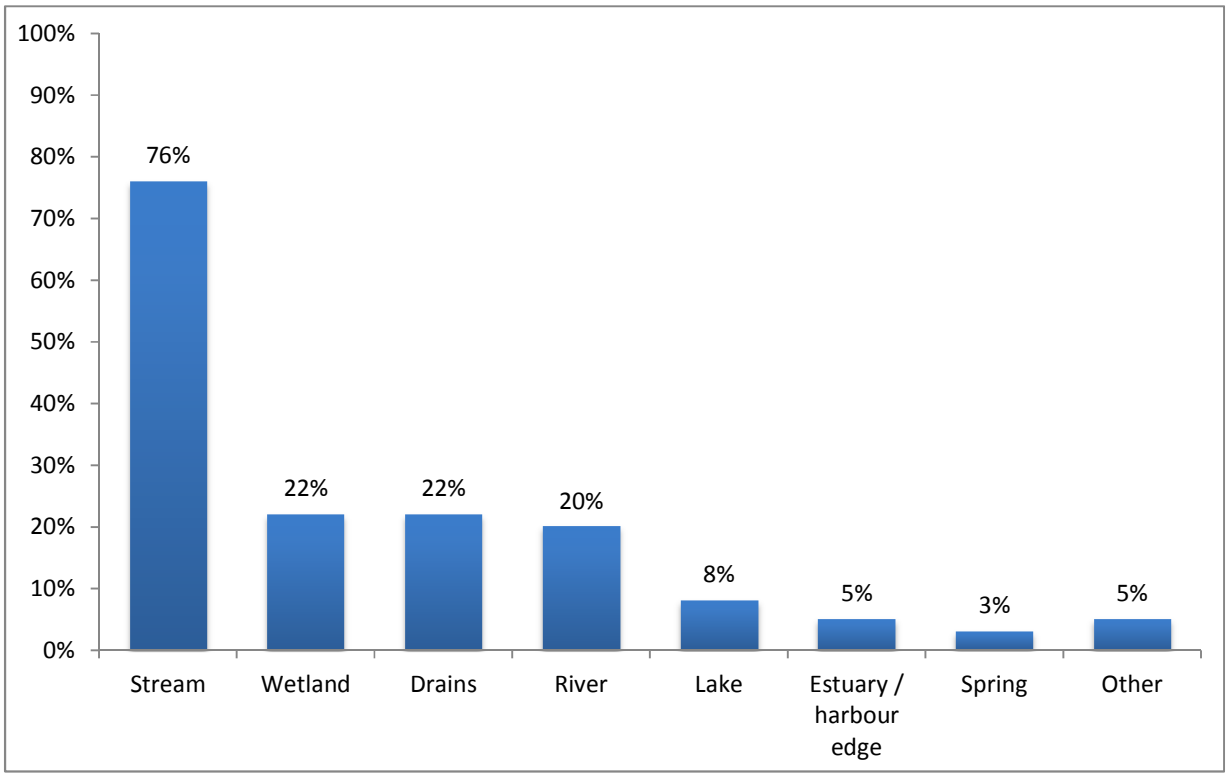
Property owners who are <u>currently undertaking</u> land improvements are <u>much more likely to continue</u> undertaking these activities. However, the likelihood of property owners to start land improvements is considerable lower.

e. LAND USE PRACTICES (II): PROPERTIES WITH PERMANENT OR SEASONAL WATERBODIES SUCH AS STREAMS, LAKES, RIVERS, WETLANDS OR ESTUARIES

This section specifically covers the land practices and attitudes of the property owners who have permanent or seasonal waterbodies such as streams, lakes, rivers, wetlands or estuaries on their property.

Types of waterbodies on the property[31]

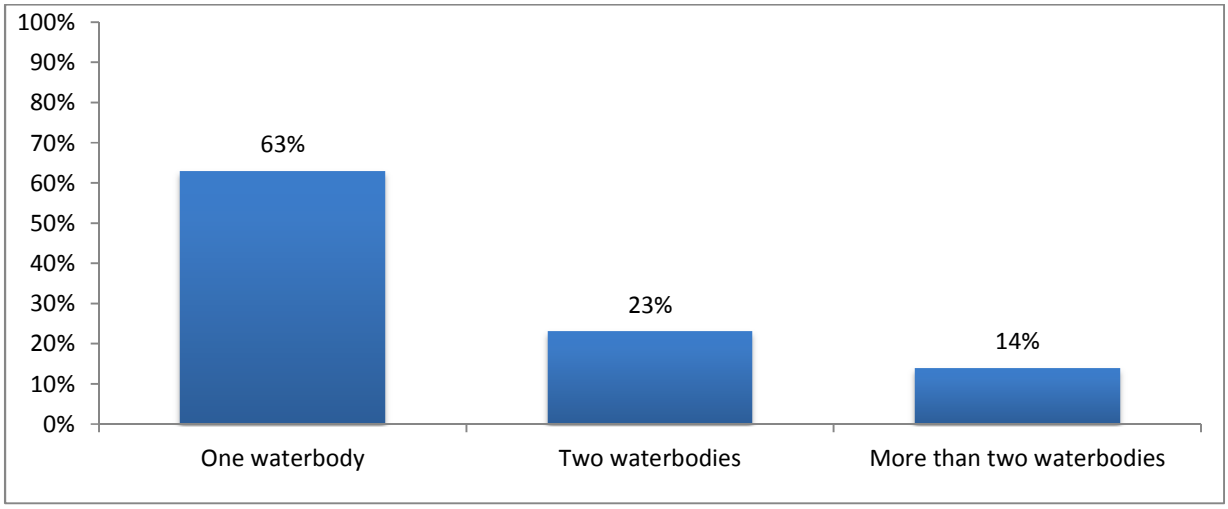
Results show that streams are the most prevalent type of waterbodies in the catchment area and 76 per cent of the property owners who have any of the waterbodies on their property have a stream(s). Besides this, 22 per cent of the property owners (who have waterbodies on their property) have a wetland; an identical proportion has drains and 20 per cent river access on their property.



[31] *I'd like you to think now water bodies on your property. Do you have a… B: All respondents with waterbodies on the property. n=181.*

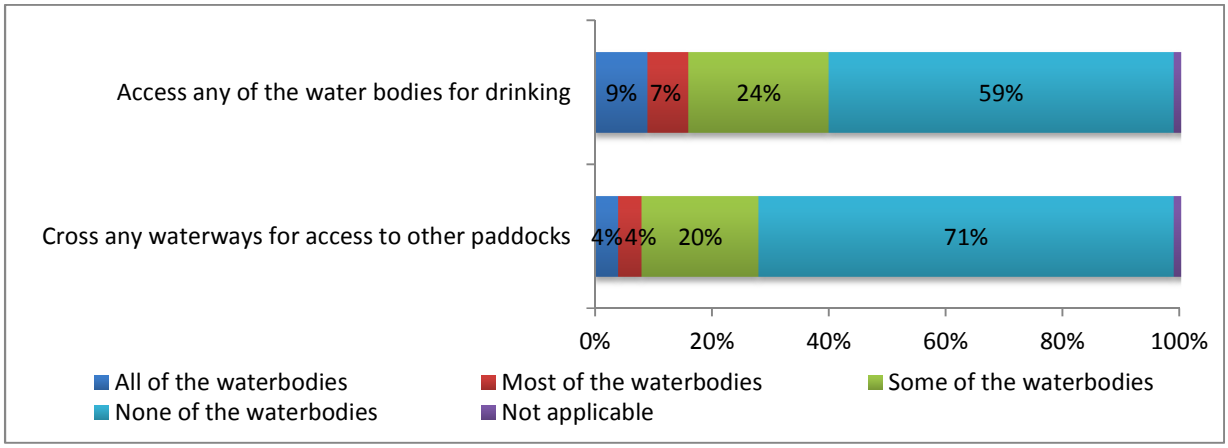
Number of waterbodies on the property[32]

Results show that 63 per cent of property owners have at least one type of waterbody on their property. However, 37 per cent of the property owners have at least two (23%) waterbodies.



Access to the stock of the waterbodies[33]

It appears that stock have some access to the waterbodies on the properties. Specifically, 40 per cent of the property owners said that their stock have access to either all (9%), or most (7%), or some (24%), of the waterbodies. Furthermore, 28 per cent of the property owners mentioned that their stock cross either all (4%), most (4%), or some (20%), of the waterbodies on their property.



[32] *I'd like you to think now water bodies on your property. Do you have a… B: All respondents with waterbodies on the property. n=181.*

[33] *Thinking about the stock you have on your property, do any of them…B: All respondents with waterbodies and any stock on the property. n=123.*

Overall uptake of land use improvement activities relating to the waterways on the properties[34]

Overall, eighty-three per cent of the property owners (with any waterways on their property) said that they have undertaken at least one improvement activity relating to the waterways on the property. Uptake of each of these activities is detailed further.

Specifically, 26 per cent of property owners (who have any stock on their property and have any waterbodies on the property) have fenced waterbodies to exclude stock from the area; 20 per cent have fenced most of the waterbody; 20 per cent have fenced some of the waterbody; while 20 per cent have not fenced any waterbodies to exclude stock.

Fifty-six per cent of property owners (with waterbodies on their property) have undertaken activities to clear overgrown vegetation on all (17%), most (15%), or some (24%) of the waterbodies on the property. Twenty-eight per cent of the property owners have not cleared any overgrown vegetation on waterways.

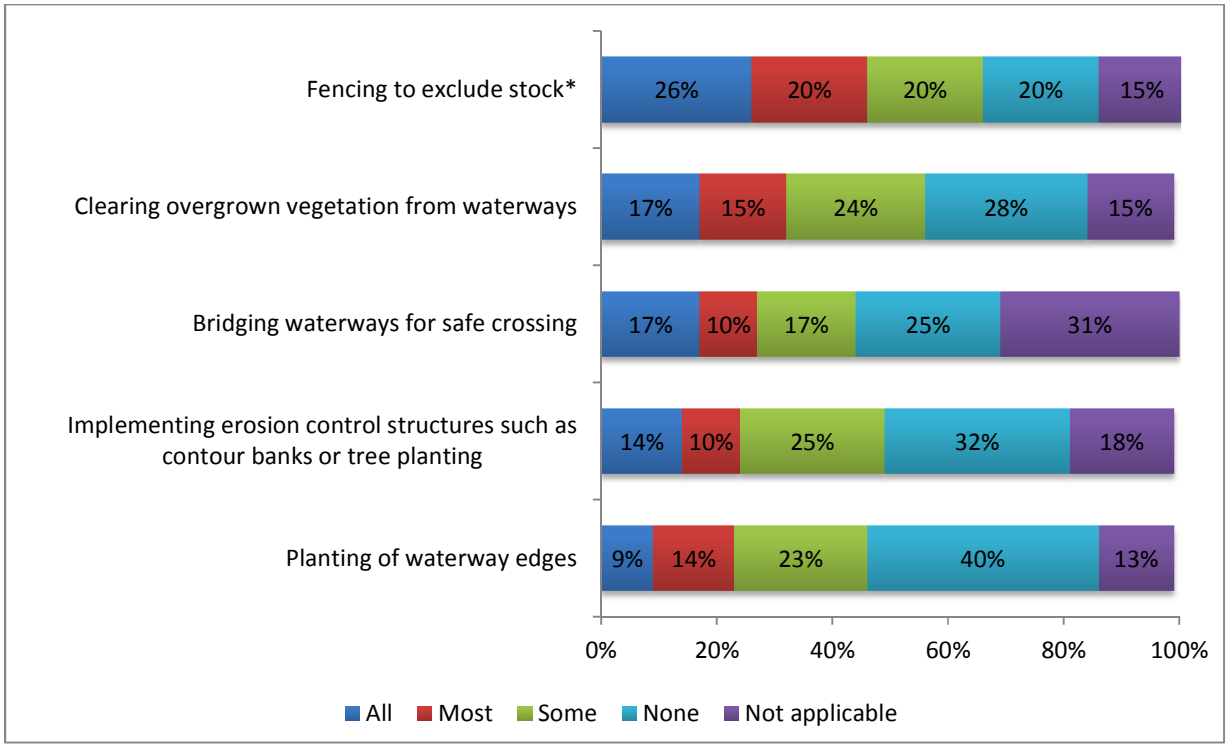
Furthermore, 49 per cent of the property owners (with waterbodies on their property) said they have implemented erosion control structures such as contour banks or tree planting on all (14%), or most (10%), or some (25%) of the waterways that are on their property. However, a considerable proportion of property owners have not undertaken such activities on any of the waterways (32%); while 18 per cent said it is not applicable to the waterbodies that are on their property.

Similarly, 44 per cent of the property owners (with waterbodies on their property) said they have bridged the waterways on their property for safe crossing on all (17%), most (10%), or some (17%), of the waterways. Twenty-five per cent mentioned that they have bridged none of the waterways on the property for safe crossing, and 31 per cent said it is not applicable for the type of waterbodies they have on their property.

Planting of waterway edges is an activity that shows particularly low uptake and only 43 per cent of the property owners said they have undertaken planting of waterway edges on all (9%), most (14%), or some (23%) of the waterways; 40 per cent of property owners mentioned that they have not undertaken planting of any of the waterway edges.

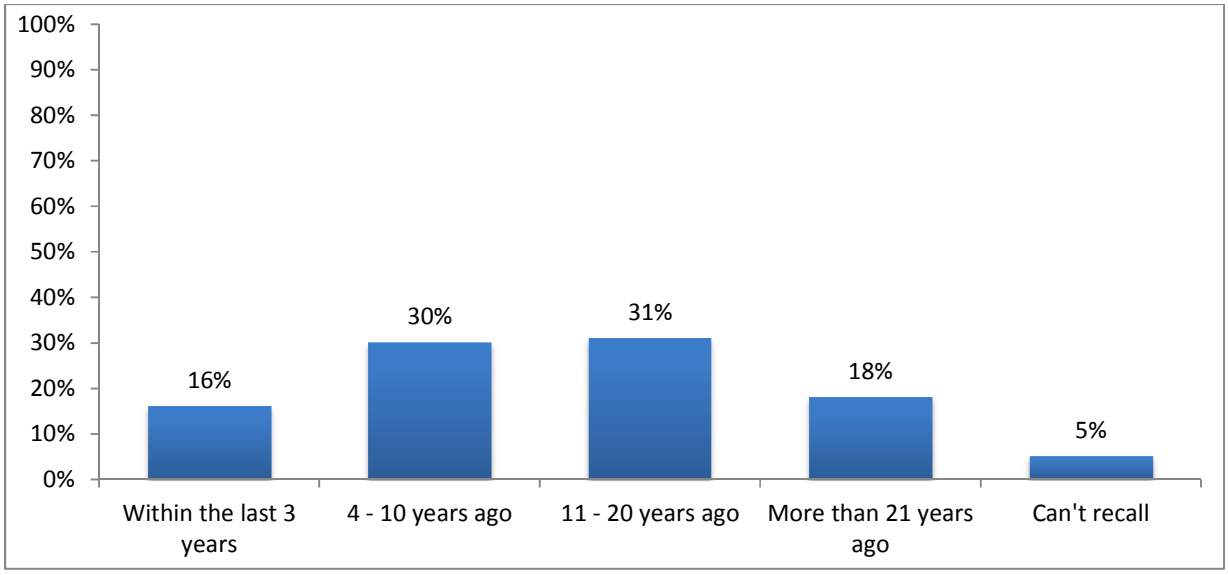
Chart: (page over)

[34] *Can you please tell me if you have undertaken any of these activities on your property? B: All respondents with waterbodies on the property. n=181.*
**Asked only to those property owners with any waterbodies on and any stock on their property. N=123.*



Length of time since these activities have been implemented[35]

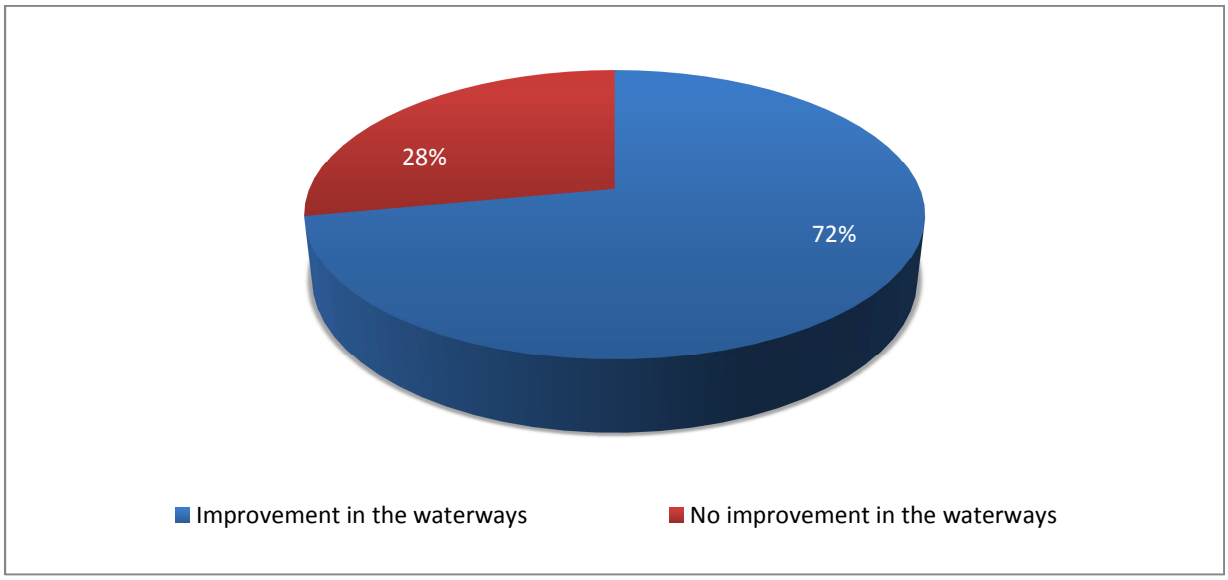
Property owners who have undertaken improvements specific to the waterways on their property have been doing it for a substantial number of years. Specifically, 18 per cent started undertaking these activities more than 21 years ago; 31 per cent started 11- 20 years ago; 30 per cent have started 4-10 years ago, and only 16 per cent started to undertake these activities within the last 3 years.



[35] *When did you start undertaking these activities on your property? B: All respondents with waterbodies on their property who have undertaken any of the land use improvement activity relating to the waterbodies on the property. n=152.*

Improvement in the waterways on the property as a result of undertaking these activities[36]

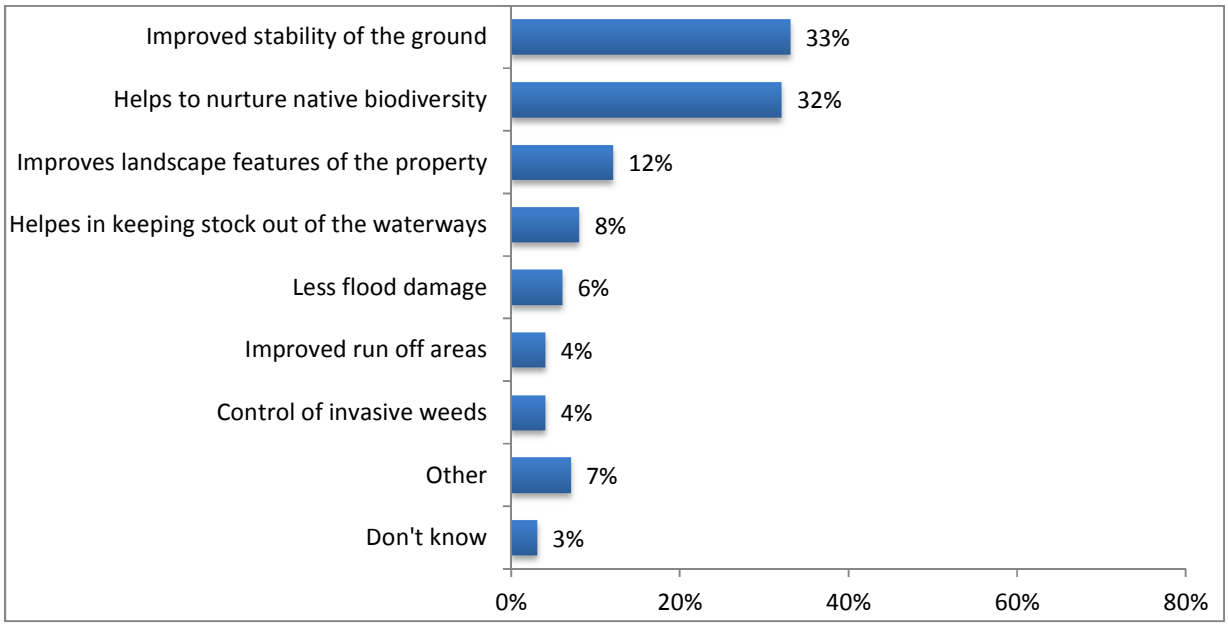
Seventy-two per cent of the property owners who have undertaken at least one improvement activity to the waterbodies on their property said that these actions had led to an improvement in the waterways on their property.



[36] *Do you think that undertaking these actions has led to an improvement in the waterways on your property? B: All respondents with waterbodies on the property who have undertaken any of the land use improvement activity relating to the waterbodies on the property. n=152.*

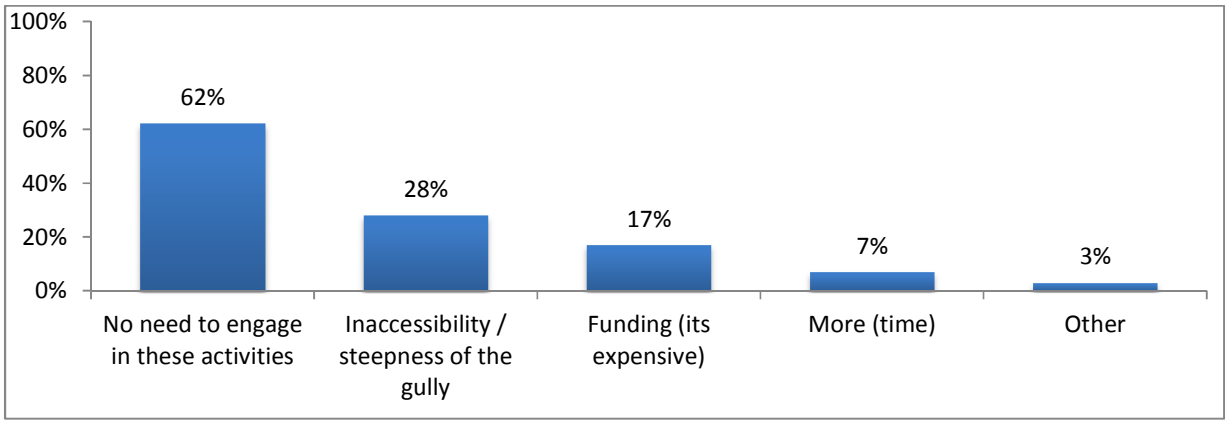
Improvements in the waterways area as a result of undertaking these activities[37]

Improved stability of the ground (33%) and help to nurture biodiversity (32%) are the two prominent improvements that property owners have seen in the waterways on their property since undertaking these land use improvement activities.



Factors that prevent property owners from undertaking land use improvement activities relating to the waterways on the property[38]

According to the property owners who have not undertaken any of the land use improvement activities that are relevant to the waterways on their property; no perceived necessity to engage in these activities (62%), and inaccessibility / steepness of the gully (28%), are the two major factors that prevent them from undertaking these land use improvement activities.



[37] *What improvements have you seen to the area since undertaking these activities?? B: All respondents with waterbodies on the property who have undertaken any of the land use improvement activity relating to the waterbodies and seen an improvement on the property. n=109.*

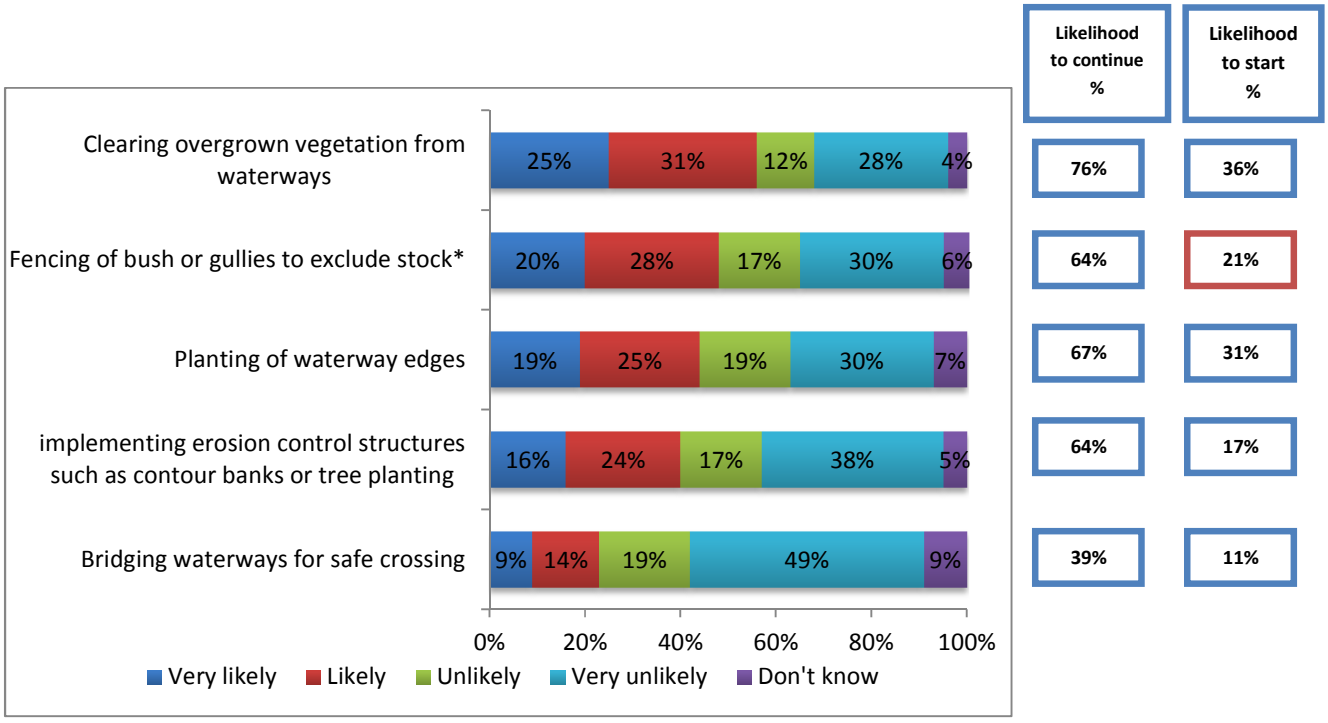
[38] *What's the main thing that is stopping you from undertaking these activities? B: All respondents with waterways on the property; and has not undertaken any of the respective land use practices. n=29.*

Likelihood to start or continue to undertake these land use improvement activities[39]

Of those property owners who have waterway(s) on their property, 56 per cent are very likely (25%) or likely (31%) to start or continue to clear overgrown vegetation from waterways. This activity reflects the highest proportion of property owners who are likely to start or continue to undertake any of the land use improvement activities corresponding with waterbodies.

Furthermore, 48 per cent of the property owners are very likely (20%) or likely (28%) to start or continue to fence the waterways to exclude stock. Similarly, 44 per cent of the property owners are very likely (19%) or likely (25%) to start or continue to plant waterway edges. Also, 40 per cent of the property owners are very likely (16%) or likely (24%) to start or continue to implement erosion control structures such as contour banks or tree planting. Only 23 per cent of the property owners are very likely (9%) or likely (14%) to start or continue to bridge waterways for safe crossing. However, these moderate proportions of property owners who are likely to start or to continue these activities maybe a reflection of diverse types of waterbodies that property owners may have on their property as discussed earlier in this section, to which some or most of these activities may not be applicable.

Similar to the likelihood of improvements specific to bush or gully areas, those property owners who are already undertaking waterway improvements are much more likely to continue; while the likelihood of property owners to start these activities is substantially lower.

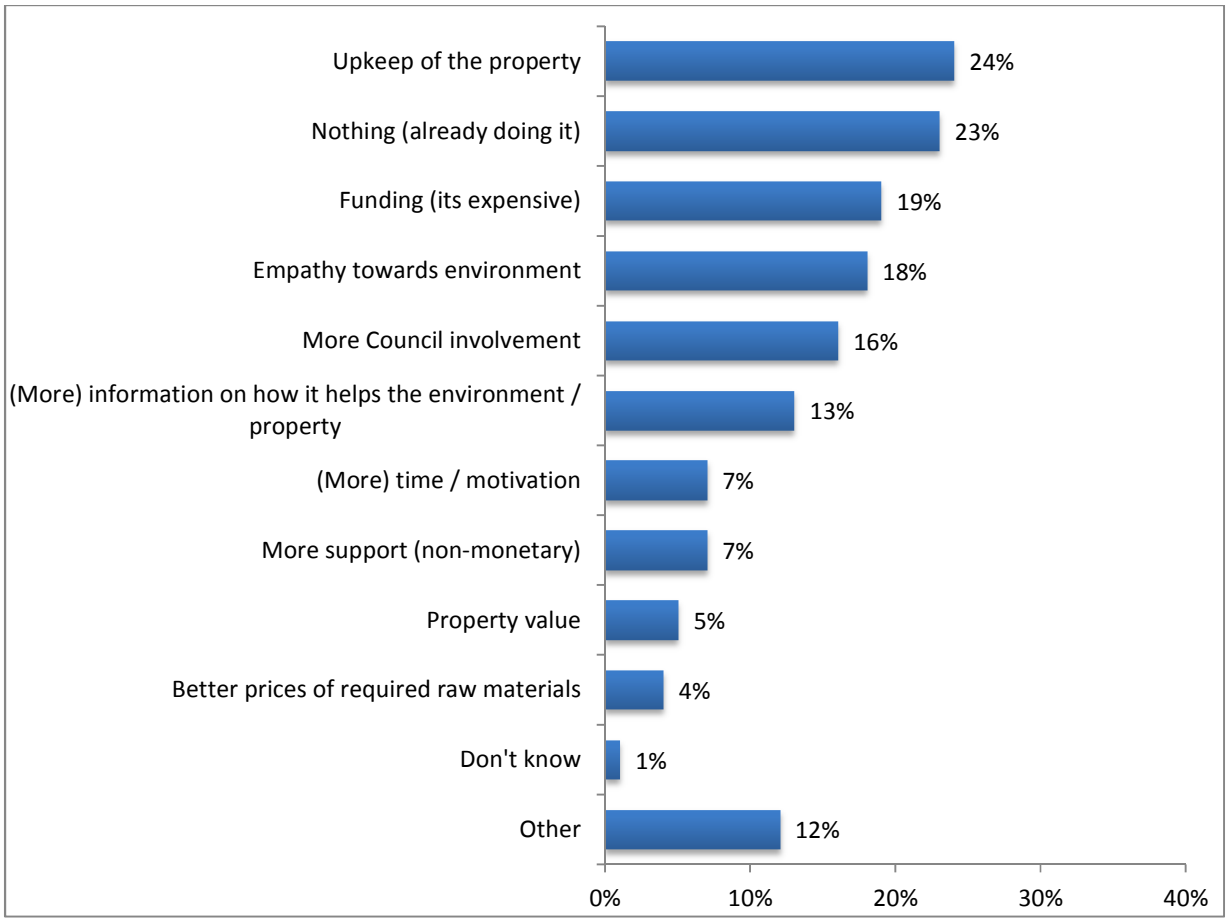


[39] *How likely are you to start, or continue, the following activities in the next 12 months? B: All respondents with waterbodies on the property. n=181.*
**Asked only to those property owners with waterbodies and any stock on their property. N=123.*
Figures in red box indicate small base sizes and results are indicative only.

Factors that would encourage property owners to undertake improvement activities in the future[40]

Results show that those property owners who are likely or very likely to start or continue to undertake these activities largely consider these activities as a part of their property maintenance. Specifically, 24 per cent of the property owners mentioned upkeep of the property as a factor that would encourage them to undertake these activities, and 23 per cent of property owners mentioned that as they are already doing it there is nothing else that can encourage them to undertake these activities.

Apart from these factors; funding (18%), empathy towards environment (18%); more BOPRC / Council involvement (16%) and more information on how these activities helps the environment and the properties (13%) are some of the factors mentioned by the property owners.



[40] *What would encourage you to undertake these activities in the future? B: All respondents with waterbodies on the property who are either very likely or likely to start or to continue at least one of respective land use improvement activities. n=130.*

Section summary: land use practices (II): Properties with permanent or seasonal waterbodies such as streams, lakes, rivers, wetlands or estuaries

On the whole, property owners in the catchment primarily have only one waterbody (63%) on their property; streams (76%) are the most prevalent type of the waterbody. Commercial farmers in the catchment are an important subgroup when it comes to waterbodies.

- Commercial farmers:
    - Are much more likely to have more than two waterbodies on their property (29% compared to 14% for all property owners who have more than 2 waterbodies on their property).
    - Are much more likely to have drains (35% compared to 22% for all property owners who have drains on their property).
    - Are much more likely to have river access (43% compared to 20% for all property owners who have drains on their property).
- Results show that stock have a considerable amount of access to the waterbodies that are on the properties.
    - Forty per cent of the property owners (who have any stock on their property) mentioned that their stock have access to all (9%), or most (7%), or some (24%), of the waterbodies.

Overall, uptake of waterway improvement activities on the property is high, especially when there is a sizeable proportion of property owners' who said that a given activity is not applicable to their property. This may be a reflection of the diverse types of waterbodies that property owners have on their property, and the limited application of these activities to each type of waterbody. However, planting of waterway edges is an activity that shows scope for improvement in uptake.

- Forty per cent of the property owners (who have any waterbodies on their property) mentioned that they have undertaken planting of waterway edges on <u>none</u> of their waterbodies.
    - Lifestyle block owners who make some commercial use of their land are slightly more likely to have not undertaken planting of waterway edges on any part of their waterbodies (53% compared to 40% for all property owners who did not undertake this activity on any part of their waterbodies).

Property owners who are undertaking these improvements (specific to waterways) have done so for a considerable duration of time and the majority of them (72%) believe that implementing these activities has led to an improvement in the waterways on their property.

- Thirty per cent of the property owners who have undertaken any of these land use improvement activities started between 4 to 10 years ago and a further 31 per cent of the property owners started 11 to 20 years ago.

Similar to the improvements made to bush or gully areas, waterway improvements are influenced by awareness of the impact these practices have on the surrounding environment, and property owners who are currently undertaking land improvements are much more likely to continue undertaking these activities. The likelihood of property owners to start these activities is significantly low and no perceived necessity to engage in these activities is the primary barrier for undertaking these activities.

- Improved stability of the ground (33%) and help to nurture native bio-diversity (32%) are the two most prominent improvements property owners have seen as a result of undertaking these improvements.
- Of those property owners who did not undertake any improvements 62 per cent mentioned that they don't have a requirement to engage in these activities.

Property maintenance and personal motivation is a key driver for implementing on-going improvements.

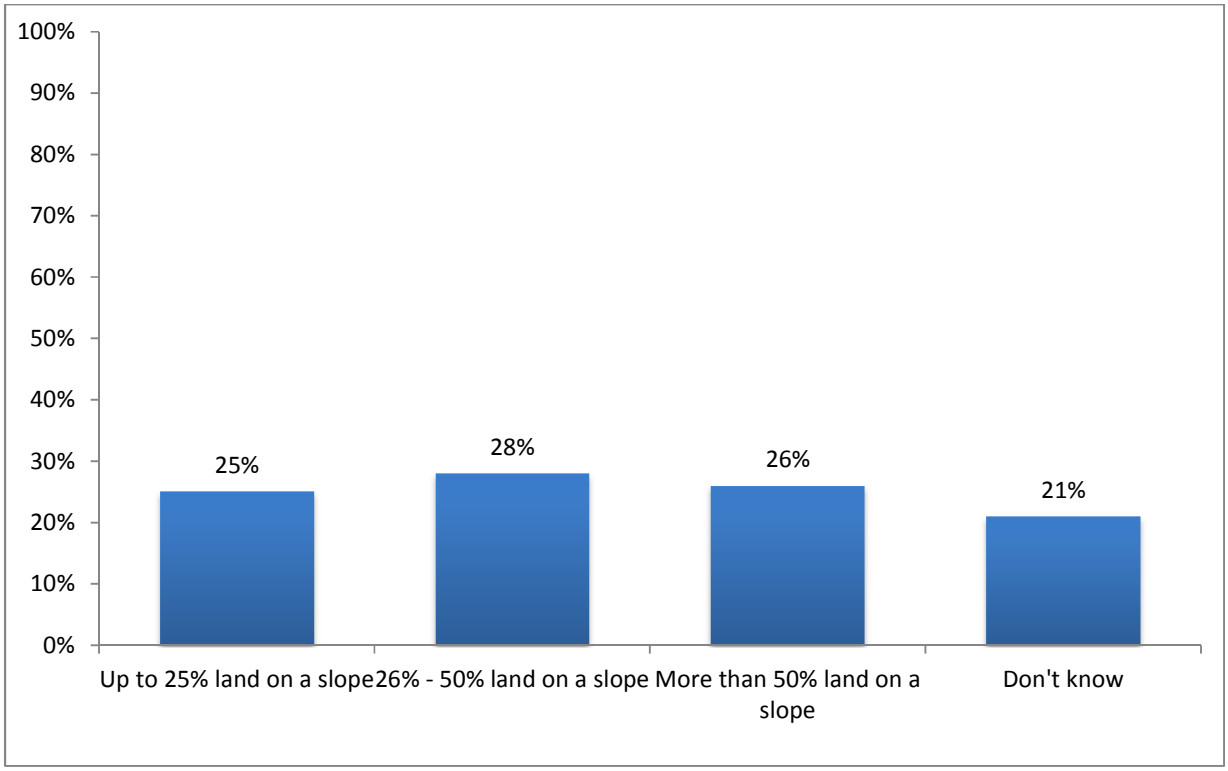
- Twenty-four per cent of the property owners who undertake these activities consider them to be a part of their upkeep schedule of the property, and 23 per cent of the property owners said that nothing else would encourage them to continue to undertake these activities in future apart from the fact that they are already doing it.

f. LAND USE PRACTICES (III): PROPERTIES WITH SIGNIFICANT SLOPING AREAS

This section specifically covers the land use practices and attitudes of the property owners who have significant sloping areas on their property.

Proportion of property land on a slope[41]

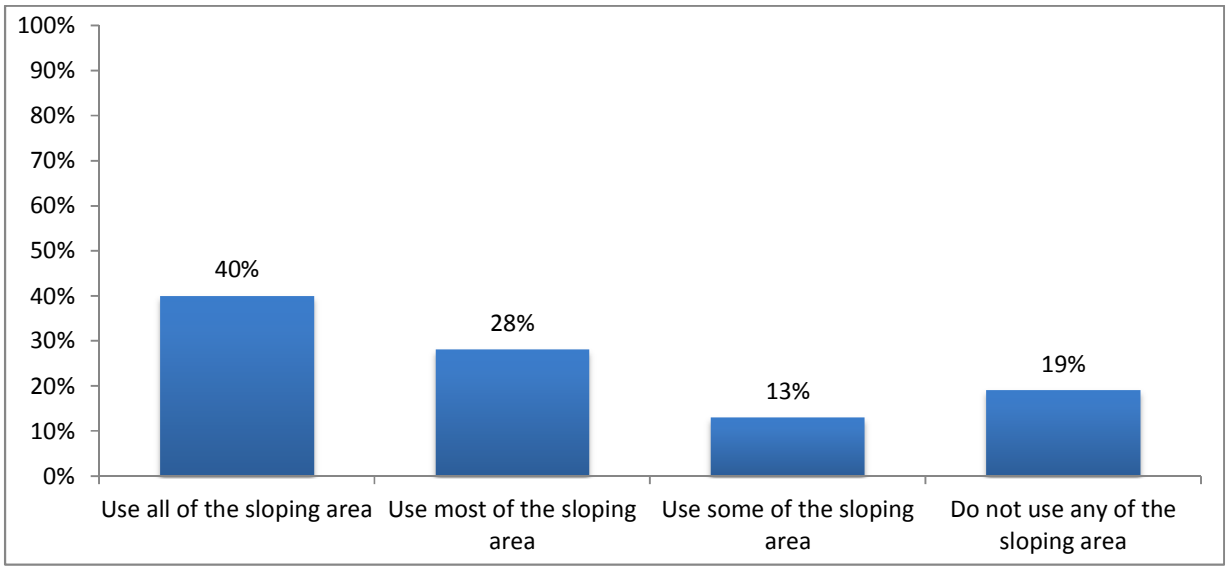
Properties with significant sloping areas are evenly spread across different segments based on the proportion of property land that is on a slope, that is 25 per cent of those interviewed have up to 25 per cent of the property on a slope; 28 per cent have 26 to 50 per cent of their property on a slope; and 26 per cent have more than 50 per cent of their property on a slope. Twenty-one per cent of the property owners are unsure about what proportion of their property is on a slope.



[41] *I'd like you to think now about the significant sloping areas on your property. How much of your land is on a slope? : All respondents with a significant sloping area on the property. n=146.*

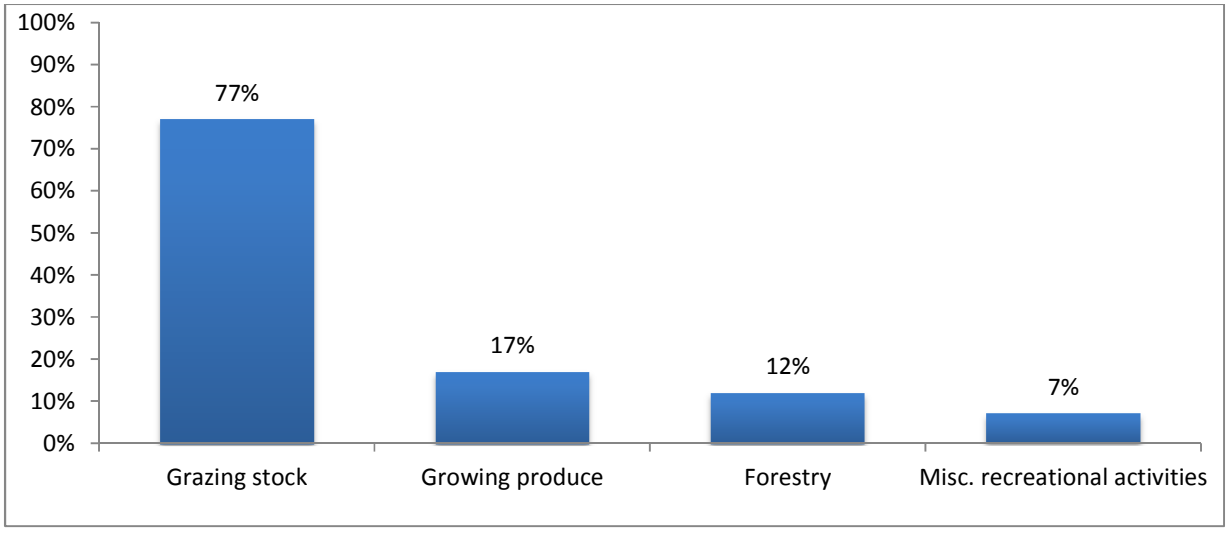
Use of the property land that is on a slope[42]

Results show that the majority of the property owners use the sloping area on their property. Specifically, 81 per cent of the property owners use all (40%), most (28%), or some (13%) of the sloping area. However, 19 per cent of the property owners make no use of the sloping area.



Activities undertaken on the sloping area[43]

Of those property owners who use the sloping area, 77 per cent use it for grazing their stock; 17 per cent use it for growing produce; 12 per cent use it for forestry; and the remaining 7 per cent use this area for miscellaneous recreational activities such as bush / garden walks.

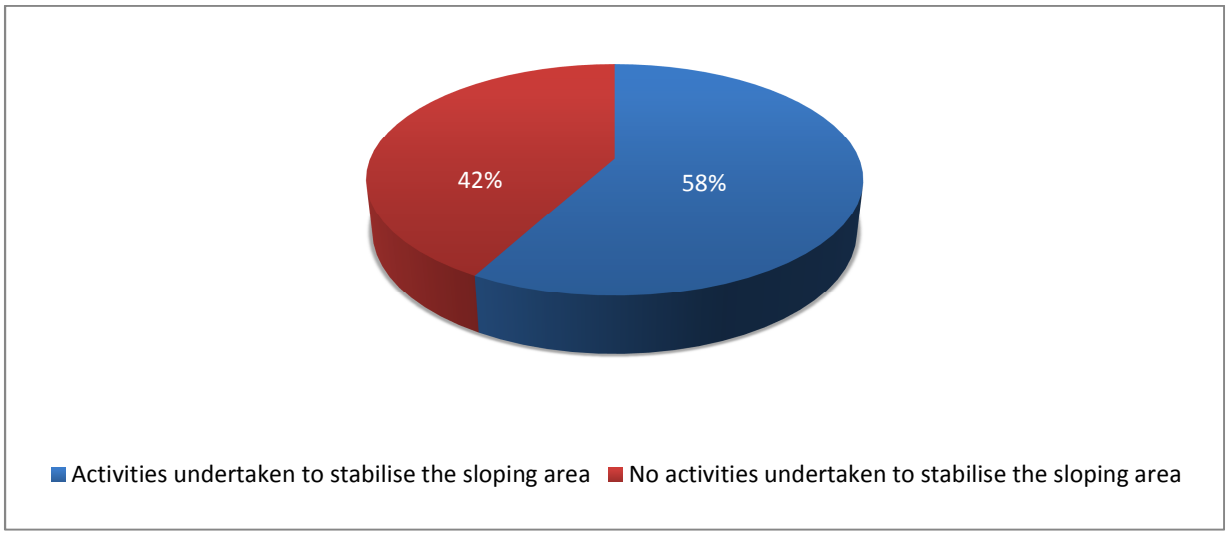


[42] *Do you use this land at all? B: All respondents with a significant sloping area on the property. n=146.*

[43] *What do you use it for? B: All respondents with a significant sloping area on the property who make use of the sloping land. n=118.*

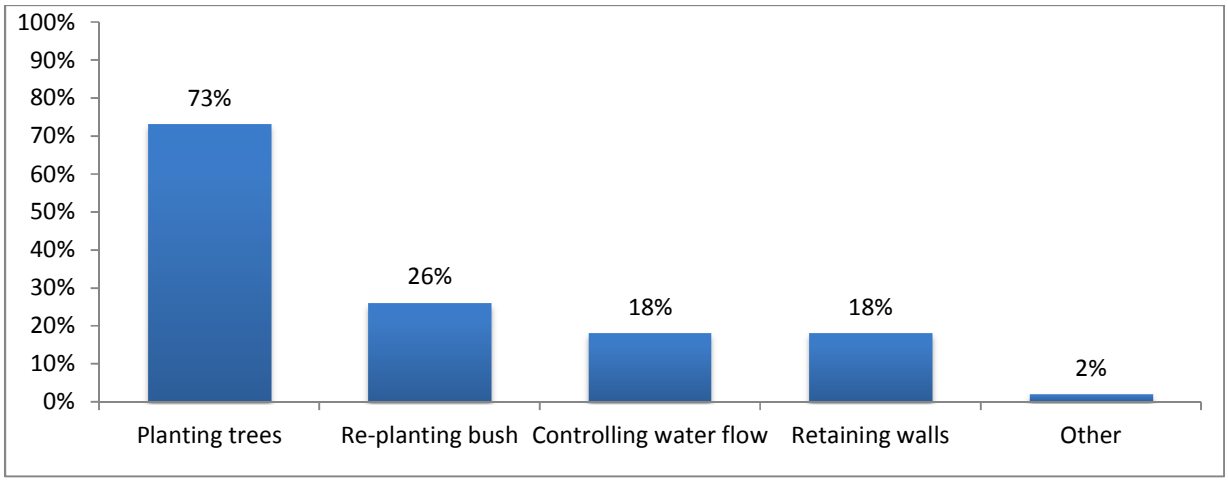
Incidence of activities undertaken to protect the slope from erosion[44]

Fifty-eight per cent of the property owners who have a sloping area on their property mentioned that they have undertaken works to stabilise or protect the slope from erosion. However, 42 per cent of property owners haven't engaged in such activities.



Activities undertaken to prevent slope erosion[45]

Amongst property owners who have undertaken activities to stabilise or prevent slope from erosion; 73 per cent said that they have planted trees; 26 per cent mentioned that they have replanted bush; 18 per cent mentioned they are controlling water flow; and 18 per cent of the property owners also mentioned they have built retaining walls to stabilise the sloping area.



[44] *Have you undertaken any works to stabilise or look after this slope from erosion? B: All respondents with significant sloping area on the property. n=146.*

[45] *What have you undertaken? B: All respondents with significant sloping area on the property who have undertaken any activity to stabilise or look after the slope from erosion. n=83.*

Section summary: land use practices (III): Properties with significant sloping areas

Overall, use of the property that is on a slope is considerably high and commercial farmers are a key subgroup.

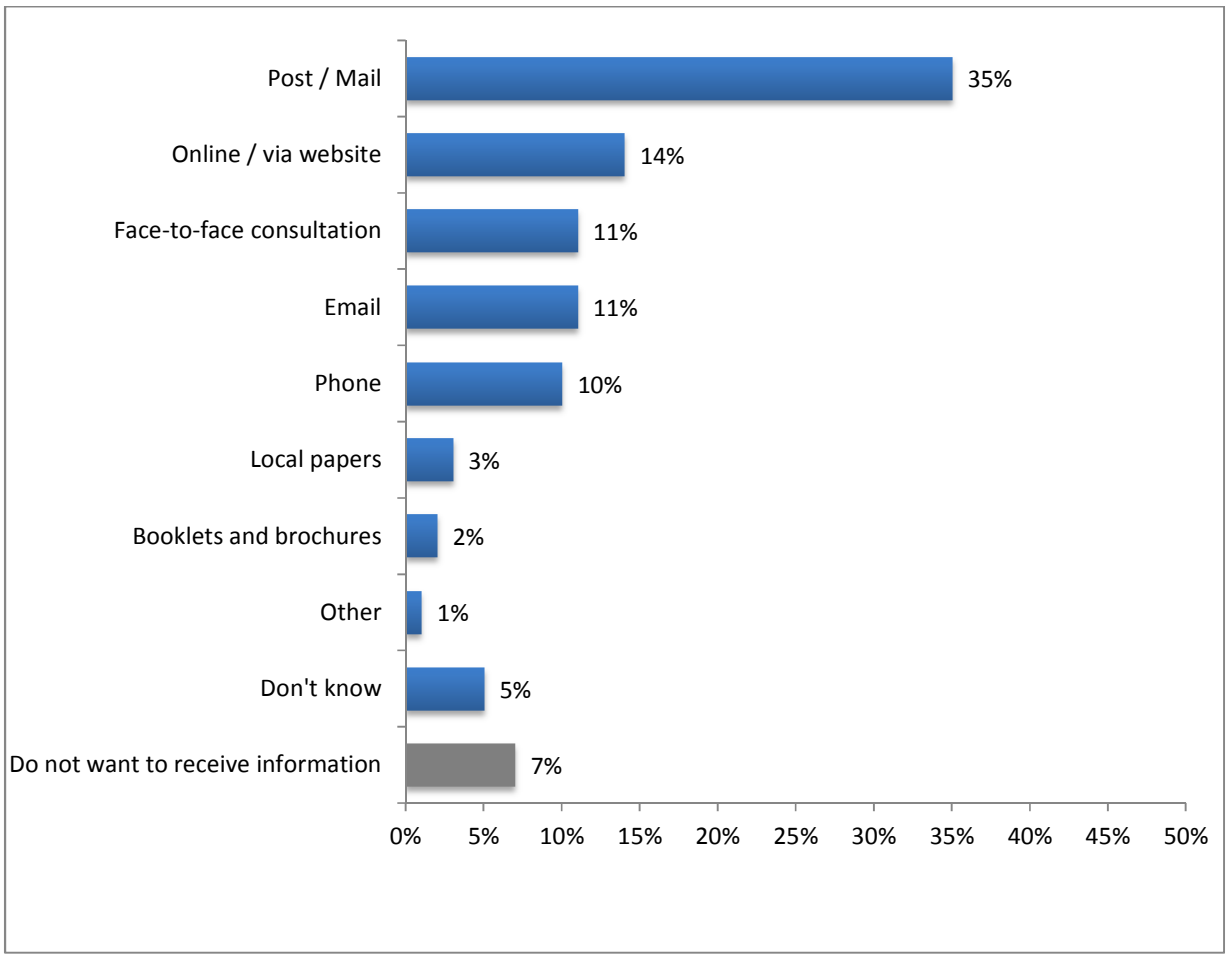
- Commercial farmers are more likely to use all of the land that is on a slope (57% compared to 40% for all property owners who said that they use all of the property land that is on a slope).
- Whereas, residential property owners are more likely not to use any of the land that is on a slope (29% compared to 19% for all property owners who do not use any of their property land that is on a slope).
- Stock grazing (77%) is the main activity that property owners undertake on the sloping area.
    - 100% of the commercial farmers mentioned that they use their sloping area to graze stock.
- Overall, 52 per cent of the property owners (who have a significant sloping area on their property) mentioned that they have undertaken works to stabilise the slope from erosion.
    - However, commercial farmers are less likely to have undertaken any works to stabilise the slope (41% compared to 52% of the property owners who have undertaken any works to stabilise slope).

Tree planting is the most common activity to stabilise sloping areas.

g. MEDIA PREFERENCES

Preferred media platforms to receive information about land use practices or support options from Bay of Plenty Regional Council[46]

Property owners are primarily interested in receiving communication by post / mail (35%). Also, some property owners mentioned that they would prefer to receive information from the Council's website (14%), through face-to-face consultation (11%), by email (11%), and by phone (10%). Interestingly, only 3 per cent of the property owners mentioned that they prefer local newspapers to receive information about land use practices or support options from Council.



[46] *How would you most prefer to get information about land use practices or support options from Bay of Plenty Regional Council? B: All respondents. n=404*

h. DISCUSSION

Based on the above findings, we recommend the following points for further consideration.

Property owners in the catchment area appear to be reasonably aware about prevalent environmental issues surrounding waterways and Tauranga Harbour.

- They have an awareness of the implications that land use practices have on surrounding waterways, but not necessarily a clear understanding of the issues of the key environmental issues surrounding waterways; differences in perceptions appear to be related to the type of property they own.
- **There appears to be a lack of personal relevance towards the environmental issues amongst many property owners. Furthermore, it seems that this lack of personal relevance influences the uptake of sustainable land use practices.**
- **Property owners in the catchment area appear to be reasonably aware about prevalent environmental issues surrounding waterways and Tauranga Harbour.**
- While property owners acknowledge the implications land practices in general have on surrounding waterways and Tauranga Harbour; there is lesser acknowledgement of personal accountability towards these environmental issues and very few property owners are actively seeking external assistance from agencies to support property improvements.
- Property owners who do undertake land improvement activities are doing so primarily because of (i) empathy towards the environment and (ii) awareness of the benefits as a result of engaging in these activities. Furthermore, property owners who undertake these activities have done so for a considerable span of time, i.e., 10 years or more, and the majority of property owners have seen specific improvements on their properties as a result of these activities.
- Property owners who undertake land improvements are much more likely to continue to do so. This indicates that over a period of time, endorsement of land improvements develops a loyalty amongst property owners towards these activities. However the likelihood of property owners to start undertaking land improvements is very low. Majority of these property owners do not perceive a need to engage in these activities; outlining a lack of personal relevance.
- Property owners who are likely to start or to continue undertaking any land improvement practices would like to obtain:
    - (More) information on how land improvement activities help nature and their property
    - Funding options
    - Non-monetary support
    - BOPRC involvement

With regards to land management plans, property owners appear to have very low awareness and uptake levels for environmental or land management plans and Council support options for land improvements.

- However, it is interesting to note that the majority of property owners who have an environmental or land management plan in place find it to be helpful.

- Self-motivation to implement such a plan out of empathy towards the environment or as a part of a property upkeep schedule are the two primary drivers for the implementation of environmental or land management plans. While the primary barrier for implementing an environmental / land management plan or any land improvement activities is 'no perceived requirement to engage in such activities'.

Considering the above points, Council should place greater prominence on making prevalent environmental issues and subsequent sustainable practices 'personally relevant' to the community. We also suggest that Council should consider a proactive approach for this communication in order to 'reach out' to the property owners. In order to achieve this, Council may consider executing a communication campaign.

- Communication for this campaign should be devised keeping in mind the diverse segments of property owners based on their property description, i.e., commercial farming, horticulture orchard owners, residential property owners etc. as such an approach in communication design may help to make it more 'personally relevant' and specific.

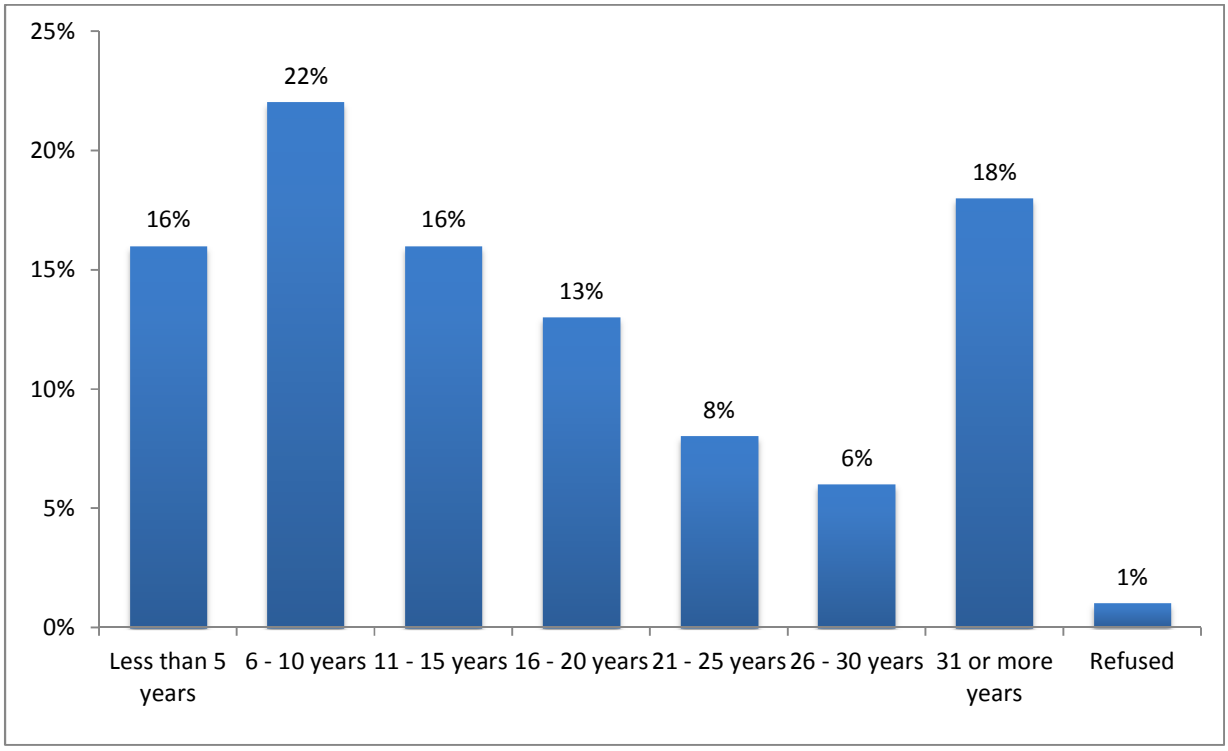
    - An approach based on property type rather than sub-catchment is recommended as there were no significant differences between the attitudes or actions of residents in different sub-catchment areas. In comparison, there are several significant differences between those who own different property types.

- Primarily, communication should be sent through post / mail as this is the most preferred medium amongst property owners in the catchment, although this is also one of the most passive approaches. As such, we suggest including consultation as a follow-up on the communication campaign. Consultation around specific land improvement activities with appropriate guidance and support may be more effective in developing a better understanding of the issues amongst property owners.

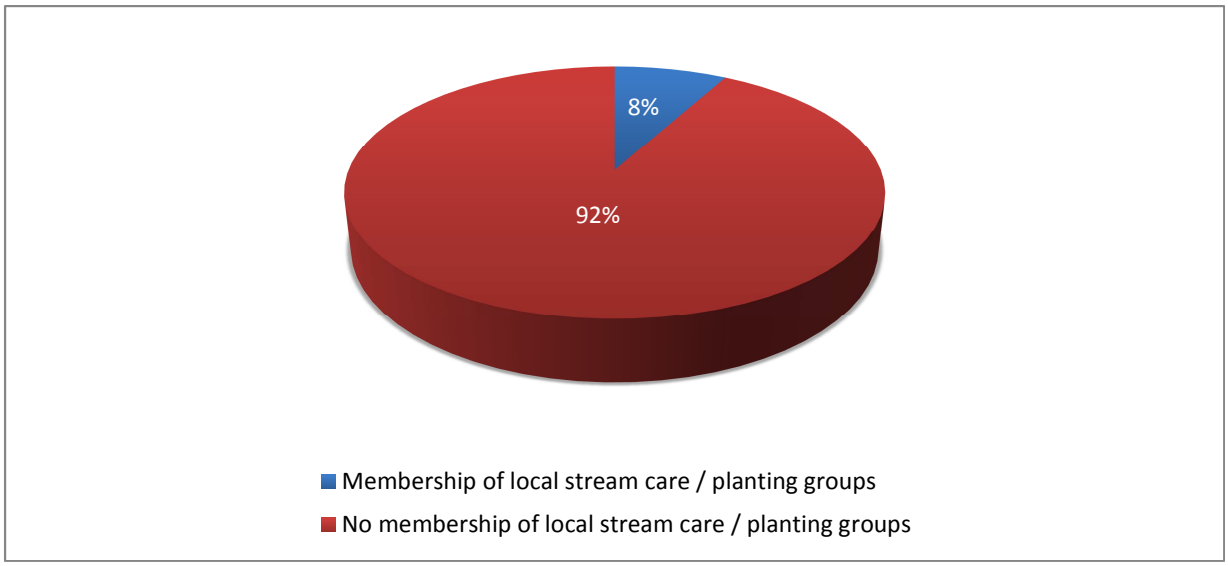
- Also, this research signifies a scope for further qualitative investigation to better understand barriers for uptake of Council and other external support options as well as factors that disengage property owners from environmental issues surrounding waterways and sustainable land use practices.

i. SAMPLE PROFILE

Duration of residence at the property[47]

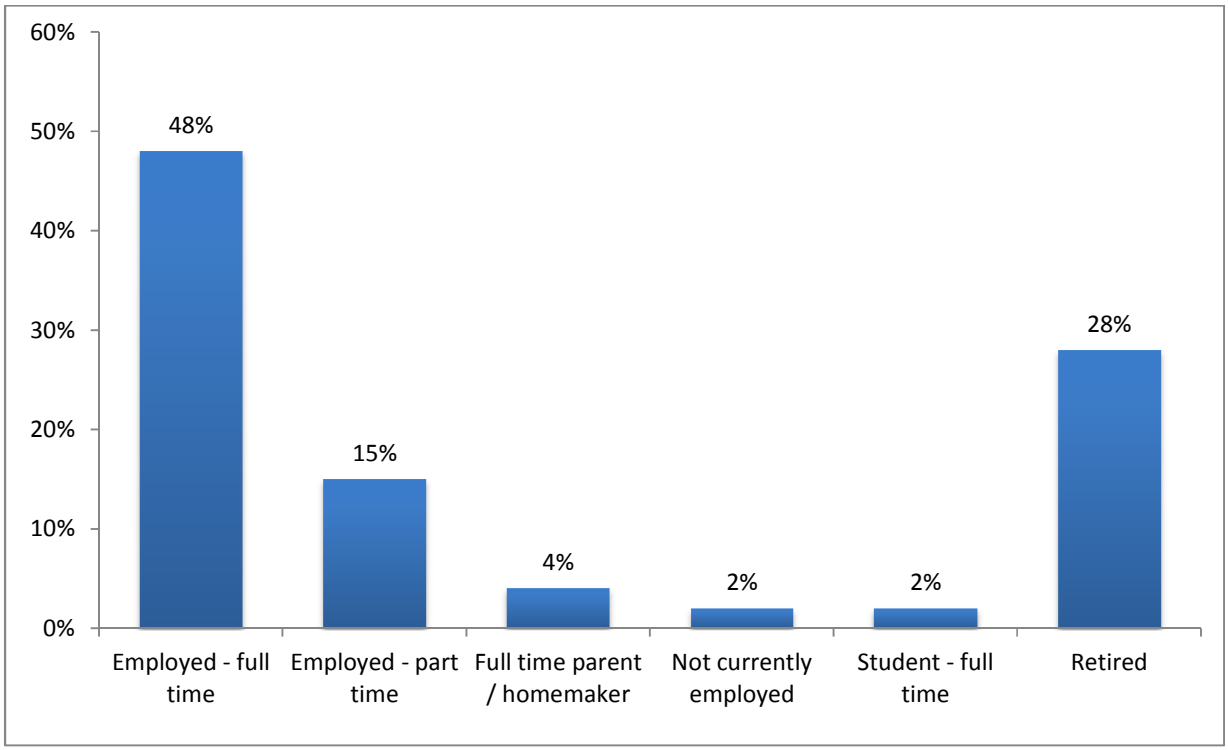


Membership of local stream care or planting groups[48]

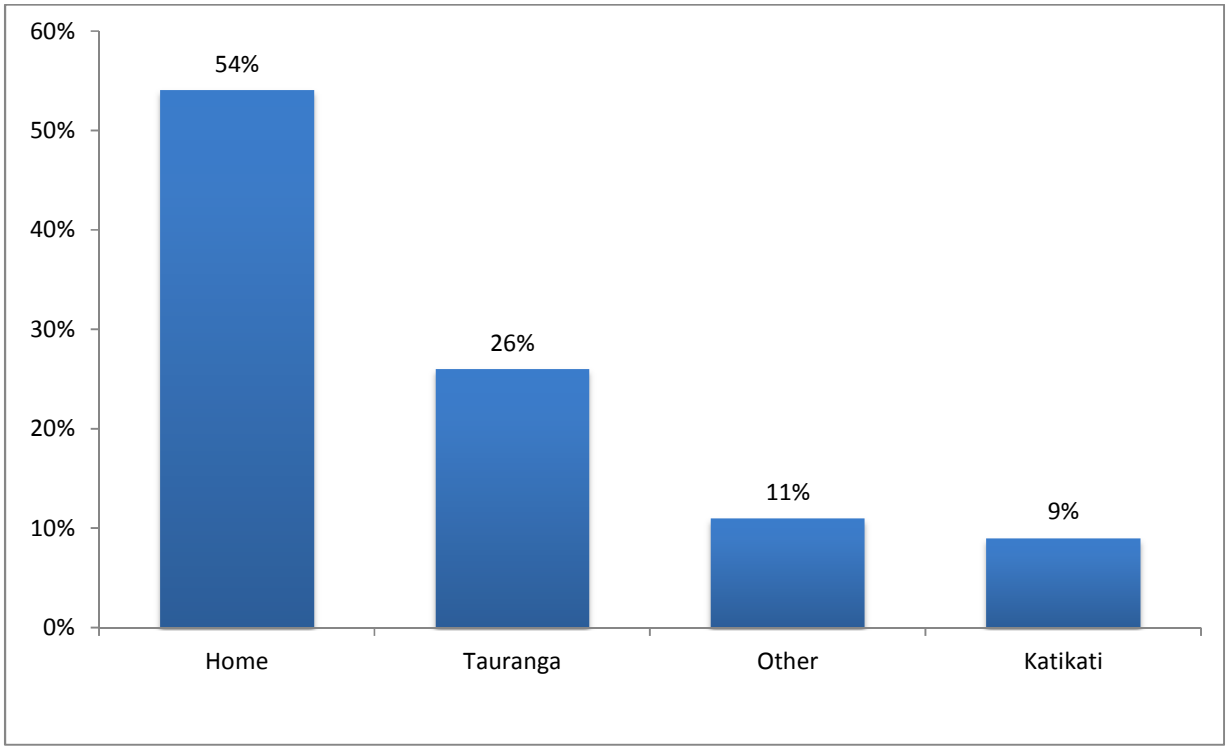


[47] *How long have you lived on your property? B: All respondents. n=404*
[48] *Are you a member of any local stream care or planting groups? B: All respondents. n=404*

Employment situation[49]

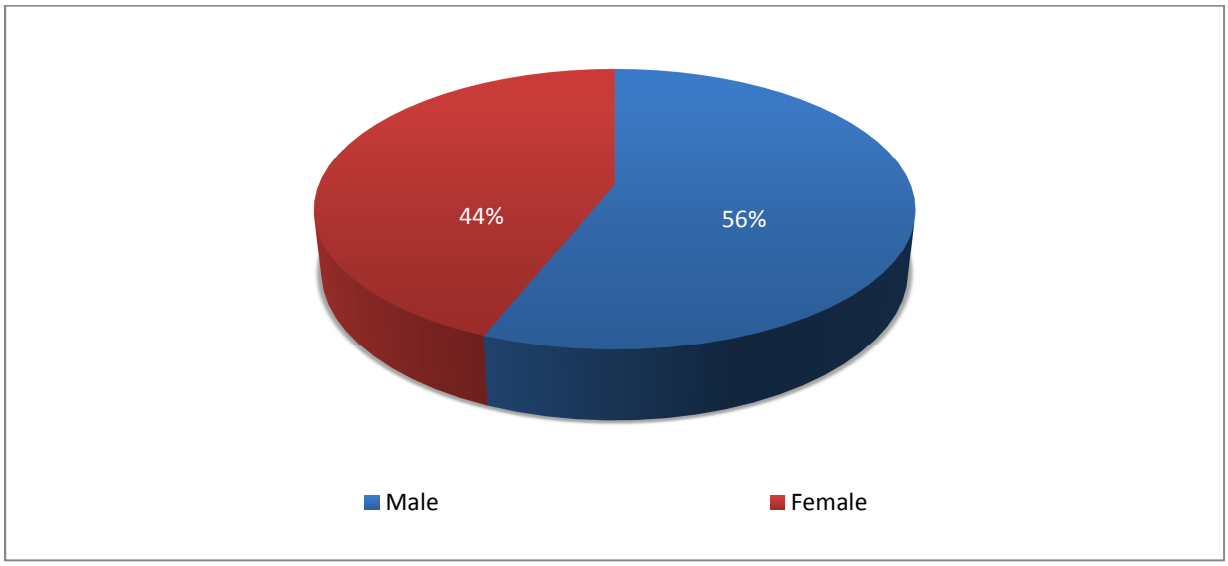


Employment location[50]

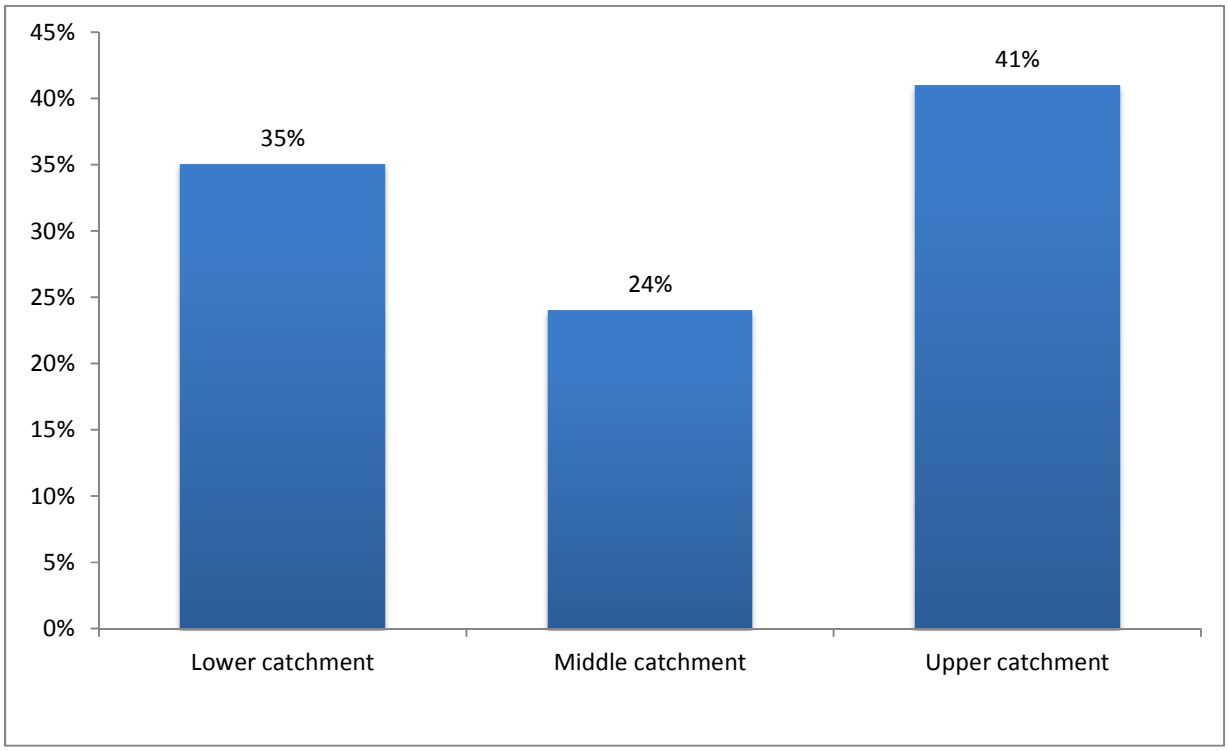


[49] *Which of the following best describes you…? B: All respondents. n=404*
[50] *Whereabouts do you work? B: All respondents. n=404*

Gender[51]



Catchment area[52]



[51] *Gender recorded B: All respondents. n=404*
[52] *Catchment groupings B: All respondents. n=404*