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The green game: investigating golf management practices

Bianca de Klerk
Department: Tourism & Event Management,
Central University of Technology, Bloemfontein, South Africa

Dr René Haarhoff*
Head of Department: Department: Tourism and Event Management,
Central University of Technology, Bloemfontein, South Africa
Tel: 051 507 3849
Email: rnel@cut.ac.za

Corresponding author*

Abstract

Worldwide, golf is the largest sports-related travel market segment showing tremendous economic growth. Unfortunately, tourism and the so-called 'green game' contribute to environmental damage. Golf tourism is a rapidly expanding special interest activity linked to tourism. With a degraded physical environment, a destination may be in danger of losing its original appeal, which may force 'nature-based' tourists to move on to other destinations. The private sector, governments and the environment will benefit from responsible and sustainable practices including the management of golf courses. This will ensure that destinations continue to attract tourists for future generations. Therefore, green golf tourism is the only logical option placing the responsibility on golf course management to take a second look at the nature of this game. The study focused on the effects that golf course management might have on the environment and the adaptation methods implemented to reduce environmental damage. The management of George Golf Club and Pinnacle Point, located along the Garden Route, one of South Africa's prime attractions were included in the study. Results indicated that management did not specifically monitor the impact of the golf course on the environment and did not educate golf tourists about environmental friendly practices on golf courses. Little was also done to motivate golf tourists to demand environmental friendly golf courses.

Key phrases: Golf course management, green tourism, golf tourism, environmental sustainability

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1. Introduction

Golf course developments are renowned for their beautiful surroundings, impeccable groomed greens and exquisite locations. However, the pristine settings of golf courses often conceal their true impact on the environment. The relationship between golf and nature is long-standing, as golf courses are often integrated with the surrounding landscapes, wildlife and vegetation. However, the topic of golf courses may

elicit different responses from various people. Golf course projects may have the potential to harm both the environment and local communities. Such projects may violate human rights where disruption of rural lifestyles and forceful eviction of villagers take place (Pleumarom, 2007). Furthermore, golf course construction devours vast stretches of land. This may lead to a whole range of serious problems, such as deforestation, waste or scarce water resources to keep the turf green, and contamination resulting from the excessive application of chemical fertilizers and pesticides used for the maintenance of the courses (Environment South Africa, 2005). Ling states that the golfing industry is no longer about the golf game, but rather about the development of land into resorts and luxury housing (Ling, 2009).

In many cases the environment may have to pay the price for daily maintenance on golf courses in order to contribute towards the enjoyment of the game (Wheeler and Nauright, 2006:431). It becomes important to explore the effects that golf courses may have on the environment, and investigate possible ways for golf courses to be in harmony with the environment.

There are various international organisations, such as the Golf Environment Organisation (GEO), Audubon International Cooperative Sanctuary Programme and the Green Star certification project assisting golf courses to be sustainable (Collier, 2011:personal communication). Such organisations trust that golf has a unique opportunity to make a powerful difference when it comes to protecting the environment and that golf developments can be responsible, resource efficient businesses in an ecologically rich landscape and that each golf event can be a showcase for sustainability (Golf Environment Organisation, 2014).

Although it is not compulsory for golf courses to become part of such international environmental organisations, the onus lies on golf course owners and management to incorporate environmental values and sustainability into their management roles and responsibilities so that it becomes second nature when it comes to the operating of their 'businesses'. The responsibility starts with golf course management and should be communicated effectively to staff and golfers alike.

2. BACKGROUND

The topic of golf courses may elicit different responses from various people. Some will highlight the enjoyment of a game played outdoors in pristine environments while others may criticise them for polluting and disrupting the environment. The researchers acknowledge the positive economic value of golf tourism however this paper will have an environmental focus on the positive and negative impacts that a golf course may have on their immediate environment.

2.1 Positive effects of golf courses on the environment

Golf courses are generally a refuge for threatened birds and mammals (Higginson and McMaugh, 2008). A golf course where invasive trees, like the black wattle, are removed and replaced with indigenous trees has the ability to attract and sustain wildlife. Developing wetlands on golf courses with suitable indigenous plant species and veld grasses may attract and support water-loving wildlife species as well as seed-eating birds and mongooses (Rand Water, 2010). Golf courses can protect water resources by looking for alternative supplies of water to maintain greens and fairways. These alternative supplies of water may include groundwater, bore water, storm water, recycled water and treated water from external sources such as sewage treatment works and other industrial sources (Higginson and McMaugh, 2008).

Golf courses can play a significant role in storm water management by using storm water to incorporate a series of artificial wetlands on the golf course that serve as both water hazards and water quality

management tools (Reicher, Kohler, Poole and Turco, 2005:19 - 24). Golf courses provide an avenue to convert unsightly degraded lands into areas of useful and aesthetic value. An example how this may be done is by using old landfills for water storage or for the creation of spectacular golf holes. Creating wetlands on degraded tip sites and incorporating this into the natural wetlands and swamps in a responsible way may also help rehabilitate degraded landscapes (Higginson and McMaugh, 2008).
Contact with the natural environment has the ability to affect human health and wellbeing such as to foster psychological wellbeing, reduce stress, boost immunity and promote healing (Maller, Townsend, Pryor, Brown and Leger, 2002:45 - 54). People usually think of trees when they think about carbon, but in fact 82% of carbon in the terrestrial biosphere is found in soil (Jones, 2007:37). Over a 100 times more carbon is found in the soil of healthy grasslands than on it. This makes well-administered perennial grass the fastest and most effective way to repair degraded land (Jones, 2007:37).

It is important that golfers are educated by adopting programmes where they can be made aware of environmental etiquette on golf courses. These include being sensitive towards the course by restoring ball marks and replacing divots to help maintain playability; instead of using a cart, rather walk; play only on the course and keep out of natural areas; respect environmentally sensitive areas and wildlife habitats within the course; make use of trash and recycling containers (Audubon International, 2006).

2.2 Negative effects of golf courses on the environment

Water is considered to be an extremely important resource especially in a country with draught stricken areas. Many golf courses consume more than a million litres of water a day during summer (Tame, 2010:6) whilst average water use per golf course vary from 1.2 – 3 million litres per day (Rudin, 2011). 1.2 Million litres per day can supply 3.4 million households using 6 000 litres of free basic water a month (Taylor, 2010c:17). Golf courses receive water from various sources including municipal water, boreholes and recycled water. Therefore, it is impossible to determine the exact amount of water consumed per golf course.

Water consumption at golf courses depend on soil type and vegetation on golf courses, total area requiring irrigation, water lost by evaporation and turf type (Rand Water, 2010). The turf used on golf courses may vary from artificial to living turf. Most golf courses have living turf. In most cases these turf grasses need regular water to look their best. If turf grasses are not adapted to the local environmental conditions, it is less drought-tolerant and requires more water. When inadequate calcium and high levels of sodium compromise soil structure, it might result in poor infiltration of water and an increase in the evaporation of water lying on or close to the surface (Tame, 2010:13).

Golf course managers often mismanage this natural source of water. Storm water originates during precipitation and runoff water from overwatering. Storm water flows directly into storm sewers. This eventually discharges to surface waters (North Carolina. Department of Environment and Natural Resources, 2011).

Factors that lead to storm water mismanagement are due to design elements and unprotected storm water drains (Wiese, 2011:personal communication). Golf courses with many impervious surfaces avert the natural penetration of rainwater into the soil. This reduces ground water recharge and the pollutant removal that occurs when runoff water moves through the soil. With less infiltration occurring, both the volume and flow rate of surface runoff increase. Development also reduces the amount of land available for vegetation, which would normally slow the flow of water and help filter contaminants. These changes have negative effects on nearby wetlands or

rivers (United States. Environmental Protection Agency, 2010:2).

A strategy that many golf course managers implement to save water is to recycle effluent water. Using sewage water for irrigation may resolve the water problem, but it inserts more nutrients into the soil system which may encourage the growth of alien plant species (Cape Nature Conservation, 2007). Unfortunately, the nutrient enrichment of soil will be detrimental to some indigenous plant species such as the fynbos growing in or near most golf courses along the Southern Cape coast (Nevill, 2006). Incorrect effluent treatment and recycling relate very closely to habitat destruction. This may take the form of deforestation and clearing natural vegetation (Wheeler and Nauright, 2006:431). Golf courses take up large areas of land and the conversion of natural habitats into developments may fragment the natural vegetation. These conversions may result in a large, direct loss of habitat for indigenous plants and animals if the area where the golf course is located was previously a forest or a natural ecosystem (Book Rags, 2002).

The management of putting greens may cause environmental damage. They are severely managed to maintain an even and consistent lawn surface. These include everyday mowing, application of fertiliser and the use of a various pesticides to deal with the variety of pests affecting the turf grass. The use of pesticides and fertilisers alters the quality of ground and surface water (Sanchez-Medina, Romero-Quintero and Gutierrez-Padron, 2008:16).

Poor water quality exerts pressure on the fauna and flora of a region that is dependent on the natural water bodies and wetlands. This leads to loss of biodiversity, changes in species composition and numbers and, where contamination or toxicity is severe due to pesticides and fertilisers, to physiological deformities and even mortalities. Changes in water quality, resulting from contaminated run-off, may increase the possibility of exotic invasion of wetlands (South Africa. Ekurhuleni Metropolitan Municipality, 2008:30-32).

Erosion at golf courses can lead to poor plant growth because it is stripped of its valuable top layer containing a variety of essential nutrients. Eroded topsoil may also be transferred into rivers, streams, and lakes. These excess sediments containing fertilisers or toxic materials can threaten the wellbeing of aquatic organisms. It can harm the commercial, recreational and aesthetic value of the water resources (United States. Environmental Protection Agency, 1997:1). The clearing of trees and vegetation leads to erosion that can increase sediment loads in runoff to nearby bodies of water (Chatterjee, 1993). The flora and fauna of lakes and streams can be damaged by erosion caused during course construction or alterations (Wheeler and Nauright, 2006:436).

The choice of grasses, shrubs and trees grown on a golf course contribute to the amount of golf course labour and management required. It also determines the total water requirement of the operation (Sorour, 2010:personal communication). Generally, alien tree varieties are faster growing and picturesque, but tend to have a high water requirement, whereas indigenous species are slower growing and need less water. Grasses that are more exotic tend to need more water and fertiliser.

The use of toxic chemicals is the biggest single factor contributing to the pollution of ground water and the disturbing of soil pH levels (Kotze, 2010:10). Important nutrients become bound to the soil and are unavailable to the root system when pH levels are incorrect. The obvious response to poor growth is to apply more fertiliser, but this exacerbates the problem. Chemical fertilisers tend to be water soluble, meaning they dissolve fully during irrigation, and if not absorbed whilst in the root zone, leach into the ground water system and are lost to the plant (Kotze, 2010:10).

Another danger of applying excessive amounts of fertilisers and pesticides is the higher health risk to the public. These chemicals are not only a health risk to the employees of golf courses or golfers, but also to the neighbouring areas. Airborne drift and runoff transfer the chemicals to nearby neighbourhoods and water sources and cause health threats such as vomiting, light-headedness, headaches, skin complaints, birth defects, learning disabilities, sterility, leukaemia, a variety of cancers and non-Hodgkin's lymphoma (Feldman, 2008). Other species negatively affected by using these chemicals include birds, fish, aquatic organisms and bees. On average, an 18-hole course requires seven times more chemical treatments per hectare than industrial farming (Monbiot, 2007). A golf course can use up to eight litres of pesticides per acre, per year, whereby a farm uses approximately one litre of pesticide per acre, per year (Matters of scale: Planet Golf, 2004).

Pressure from the media and golfers force golf course managers to overwater their playing areas (turf) to shape their public image and global exposure. Famous golf courses, such as Augusta National in Georgia, United States of America, are carefully monitored and treated throughout the year for the four days of global exposure each year. These golf courses will close for up to four months immediately after the event to repair the damage. During these closed periods, golf course management and superintendents turn to their trusted allies – water and chemicals – in an effort to produce the best course possible for the next major event (Wheeler & Nauright, 2006:429-430). This creates a destructive cycle of overwatering leading to environmental damage.

Controlling the negative environmental impacts of golf courses on the environment and sustaining the positive impacts requires genuine commitment from golf course management. Golf courses may receive various benefits such as improved aesthetic beauty of the golf course and a reduction in management costs (Rand Water, 2010). As the global community become more environmentally conscious, these benefits might distinguish golf courses from one another.

3. METHOD OF RESEARCH

The Garden Route was chosen as the location of this study due to its status as one of the top ten attractions of South Africa (South African Tourism, 2010) and houses four of the top twenty golf courses in South Africa namely George Golf Club and Fancourt in George, Simola in Knysna and Pinnacle Point in Mossel Bay (Golf Direct, 2011). Permission for the research could only be obtained from two of the identified golf courses namely George Golf Club in George and Pinnacle Point in Mossel Bay.

3.1 Study focus

The managers of George Golf Club and Pinnacle Point were interviewed to determine the adaptation methods they have implemented at their golf courses to make golf more responsible and sustainable. The club managers were chosen due to their involvement and roles in decisions that is made at the golf course which could have a potential impact on the environment.

3.2 The checklist

A generic checklist on sustainable tourism practices was developed to evaluate the two sampled golf courses as well as a questionnaire to interview the management of both golf courses to determine the adaptation methods they have implemented to make golf more responsible and sustainable towards the environment. The checklist included a list of 34 aspects that contribute towards the environmental friendliness of golf courses (see table 4). The club managers of both George Golf Club and Pinnacle Point had to indicate, with the assistance of their superintendents at the course, whether they have implemented the aspects at their golf course and which they plan to implement. The data was collected by means of a personal interview with the management of both golf courses.

3.3 Data collection

A qualitative and quantitative research approach was used to gather information by means of personal interview with the general manager of George Golf Club and club manager of Pinnacle Point. The main aim of these interviews was to determine their professional views about 'green' golf tourism and its role in an eco-friendly tourism industry. Both respondents were willing to share their views and agreed that the golfing industry must co-exist with the environment in a mutually beneficial manner.

3.4 Statistical analysis

The data was analysed by comparing the information gathered from the management of George Golf Club and Pinnacle Point in order to identify various similarities and differences in the environmental management of these golf courses.

4. RESULTS

4.1 The profiles of the golf courses

The survey document made provision for obtaining biographical, demographical and other information of both the golf courses. Both interviews were conducted in person and feedback was given in the form of a questionnaire. The representatives were interviewed separately.

The biographical and demographical information of the golf courses are indicated in Table 1.

TABLE 1: Profiles of George Golf Club and Pinnacle Point

	George Golf Club	Pinnacle Point
Age of course	105 years	7 years
Ownership of course	Municipality	Home Owners Association
Location of course	George, Western Cape	Mossel Bay, Western Cape
Number of holes	18 holes	18 holes
Number of members	1 376 (including locals, golfers from other parts of S.A. and foreigners)	200 (locals) 400 (golfers: other parts of S.A.) 250 (foreigners)
Average local tourist numbers at course annually	4 810	7 000
Average foreign tourist numbers at course annually	1 784	3 000
Total number of rounds played per year	29 392 (members) 19 954 (local and foreign tourists)	10 000 (members) 6 000 (local tourists) 4 000 (foreign tourists)

Source: Empirical research data 2012

Both golf courses are in the fortunate position to be situated in beautiful natural surroundings on the Garden Route. George Golf Club has the Outeniqua Mountains as its backdrop and Pinnacle Point looks out over the Atlantic Ocean. Therefore, it is evident from the interviews that effective environmental management on these golf courses are a priority, but approached differently to cater for the environmental needs of both golf courses' unique natural habitats.

4.2 Environmental issues concerning golf courses

Due to the controversy about the impact of golf courses on the environment, it was both interesting and necessary to gain insight into the views of the golf course

management regarding these issues. Both representatives considered golf to be an eco-friendly sport. The general manager at George Golf Club stated that golf courses use natural habitat, include fauna and flora of the area and serve as habitat for bird species. The club manager at Pinnacle Point indicated that golf is a game played close to nature and therefore golfers will care for the environment to keep the golf course attractive.

The representatives indicated the positive and negative effects of golf courses on the environment and these are indicated in Table 2.

TABLE 2: Positive and negative effects of golf courses on the environment

	Positive	Negative
George Golf Club	• Golf courses maintain their natural habitats as far as possible	• Water usage is high
Pinnacle Point	• Plant grass and trees • Outdoor sport that is good for people	• Water usage is high • Pesticides and fertilisers are not good

Source: Empirical research data 2012

It is evident that the excessive use of water on golf courses is recognised by the management of golf courses. Both representatives agreed that golf courses need to become eco-friendly to reduce the pressure it places on the environment and natural resources such as water. Both managers added that the recent emphasis

on sustainability and green initiatives does not threaten their respective golf courses. Both felt that golf courses should embrace and take on the responsibility to follow 'green' practices.

4.3 Environmental policies and certification at golf courses

Environmental policies are based on the environmental laws, regulations and certified programmes in place when developing and managing a golf course. Both the general manager at George Golf Club and club manager at Pinnacle Point confirmed that golf courses have to abide by the environmental laws as determined by the government of South Africa. Both respondents agreed that it is necessary that golf courses should adopt 'green' policies in an effort to operate in an eco-friendly manner. Their reasons were that golf courses must all contribute towards looking after the environment and that these policies would improve the green keeping practices at golf courses. Both agreed that golf courses are increasingly adopting 'green' policies in an effort to operate in an eco-friendly manner. These are enforced by government policies and legislation, especially in areas where there are restrictions on water resources. The club manager at Pinnacle Point added that the golf industry should work with nature and therefore needs to protect it.

Responses in terms of whether their golf courses have implemented 'green' policies in an effort to operate in an eco-friendly manner differed. George Golf Club has not yet implemented such policies due to financial constraints. The costs involved to implement these policies are very high but they will consider implementing policies in future. The general manager at George Golf Club stated that their board of control will only implement green initiatives as soon as it becomes financially possible. Pinnacle Point has implemented some green policies. The implication of this was that they had to eradicate foreign grass and weeds on the golf course and use grey water for irrigation. Their board of

control embraces the idea to implement some green initiatives at the golf course. Both members of management agreed that the implementation of 'green' policies would influence the perception that golfers have of their golf courses. The club manager at Pinnacle Point mentioned that golfers are increasingly becoming more aware of 'go green' initiatives. The general manager at George Golf Club disagreed when asked whether 'green' policies would give the golf course a competitive advantage. The manager stated that many golf courses are only implementing these policies for marketing purposes and not so much to protect the environment. The club manager at Pinnacle Point, on the other hand, agreed that this initiative would definitely give this golf course a competitive advantage. The manager said that golfers are becoming more sensitive towards this type of environmental protection and that the implementation of 'green' policies is not only to gain publicity. When the respondents were asked whether they think that the implementation of 'green' policies at a golf course would have a positive effect on the golf industry, their replies differed. The general manager at George Golf Club was unsure, but the club manager at Pinnacle Point was convinced that it would be positive, especially when it comes to saving water. Both respondents agreed that South Africa is not on par with overseas golf courses when it comes to the implementation of 'green' policies, green certification and green laws. They said that it is a new concept in South Africa with high financial implications. Neither George Golf Club nor Pinnacle Point is affiliated to any green accreditation scheme because it is too expensive. The management of both golf courses agreed that these accreditation schemes would not necessarily attract golf members and tourists to their golf courses

4.4 Eco-friendliness of the golf courses

When the management members of both golf courses were asked about the environmentally friendly practices at their golf courses, their replies are indicated in Table 3.

TABLE 3: Environmentally friendly practises at George Golf Club and Pinnacle Point

	George Golf Club	Pinnacle Point
Is it important to your course to improve its environmental performance?	Yes	Yes
Are you concerned about the impact of your golf course on the environment?	Yes	Yes
Would you consider your golf course as being eco-friendly?	Yes, as far as possible	Yes
Adaptation methods implemented at your golf course to make it eco-friendly	• Monitor water usage • Planting trees • Keep fauna/flora in its natural surroundings (no artificial landscaping)	• Eradication of weeds and foreign trees • Use sewerage/treated water on the golf course • Protect the fynbos species
Was it expensive to implement these adaptation methods at your golf course?	No	Yes (about R5 million)

Both representatives were given a list of environmentally friendly practices (refer to Addendum A) that may be implemented at a golf course. Both were asked to indicate which of the practices were already implemented at their golf course and which ones they would consider implementing. George Golf Club has implemented 79% of the environmentally friendly practices whilst 83% were implemented at Pinnacle Point. The rest of the practices are still under consideration at both golf courses. The previous two statements contradict the previous statement that George Golf Club has not yet implemented 'green' policies and that Pinnacle Point has implemented some 'green' policies. The reason for this might be that the management at golf courses does not fully understand the concept of 'green' golf and its relation to environmentally friendly practices.

The general manager at George Golf Club stated that high cost is the only aspect that prevents George Golf Club from being eco-friendly. The club manager from Pinnacle Point said that this course is in the very fortunate position that nothing can prevent the golf course from being eco-friendly. Both representatives replied affirmatively when asked whether they encourage their golfers to be more environmentally conscious while playing on the golf courses. They agreed that golfers should be reminded to keep the course clean by avoiding littering and to look after the fauna and flora of the golf course. When golf course management comply with the demand of encouraging golfers to be environmentally conscious while playing golf, it will improve the image and revenue of their golf courses.

4.5 Preferences and perceptions of golfers toward eco-friendly golf courses

Neither golf course has noticed that golfers are increasingly requesting to play golf on golf courses that are eco-friendly. Both representatives believe that the demand by golfers to play on an eco-friendly golf course will definitely not be an increasing trend due to a lack of interest shown by the visitors and members at their respective golf courses. According to them golfers continue to have traditional golfing preferences such as a quality golf course and reasonable green fees. The general manager at George Golf Club had not heard of such a trend anywhere else in the country or world.

The club manager from Pinnacle Point stated that he was aware of this trend in other parts of the world and that though he did not believe that it would become an increasing trend, it might be worthwhile for golf courses to explore the trend of golfers preferring to play on an eco-friendly golf course. The general manager of George Golf Club is less convinced about this matter. The club manager at Pinnacle Point stated that this golf course would want to attract environmentally conscious golfers, while the general manager of George Golf Club stated that all golfers are welcome. Both representatives welcomed the idea of learning more about green golf tourism initiatives.

4.6 Checklist on sustainable tourism practice at the golf course

A generic checklist on sustainable tourism practices was adapted from literature to evaluate George Golf Club and Pinnacle Point. The representatives of both golf courses received this checklist and had to indicate which of the variables had been implemented at their golf courses by means of a tick and which they would consider implementing. George Golf Club has implemented 80% of the sustainable practices at the golf course and 86% was implemented at Pinnacle Point. The rest of the practices were considered at both golf courses.

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TABLE 4: Sustainable practices at George Golf Club and Pinnacle Point

	George GC	Pinnacle Point
Understand the interaction between the various living communities on the golf course.	✓	✓
Protect natural resources.	✓	✓
Limit the area of closely mown turf to provide the maximum area available for wildlife.	✓	✓
Manage habitats sensitively but positively, in order to promote biodiversity	✓	✓
Avoid actions that disturb soil function, such as erosion or biological degradation	✓	✓
Avoid actions that damage water quality or disrupt water flow through your property	✓	✓
Co-operate with local nature conservation groups or similar organisations to identify and monitor the wildlife on your course	✓	✓
Produce habitat management plans and implementing their recommendations	**Will consider it**	**Will consider it**
Monitor and keep records on the quality of water bodies on your course and on water flowing in and out of the property	✓	✓
Is aware of, and complying with, all environmental legislation	**Will consider it**	**Will consider it**
Adhere to the philosophy of drier, firmer and healthier turf	✓	**Will consider it**
Prioritise areas to receive water, such as greens	✓	✓
Have the latest irrigation technology to ensure efficient and effective application of water	**Will consider it**	✓
Incorporate hand watering into your irrigation programme	✓	✓
Utilise appropriate aeration and wetting agent programmes to ensure that water applied actually penetrates into the soil	✓	✓
Investigate alternative sources to the drinking water supply (water harvesting, recycling and de-salination are possibilities).	**Will consider it**	✓
Avoid applying water to habitats that will be adversely affected by irrigation	✓	✓
Aware of and comply with relevant legislation	**Will consider it**	✓
Provide adequate training for staff in the efficient and effective use of water	✓	✓
Regularly monitor soil profiles to irrigated areas with a moisture meter to ensure effective watering is achieved.	✓	✓
Aware of the legislation that exists governing the handling, storage and use of pesticides in your locality	✓	✓
Fully understand the cause and nature of the problems you are dealing with	✓	✓
Seek specialist advice for proper identification of problems so that the most sustainable approach to managing them can be achieved	✓	✓
Implement a programme of cultural control that aims to minimise the likelihood of problems requiring the use of a pesticide	✓	✓

Make sure your management programme is not contributing to the problem by creating conditions that favour diseases, pests or weeds	✓	✓
Alleviate turf stress caused by climatic or environmental conditions	✓	✓
Set tolerance levels and implementing a regular monitoring programme to catch problems early on in their development.	✓	✓
Base fertiliser need on the desire to produce firm and healthy turf	✓	✓
Routinely undertaking soil and tissue testing to determine trends of nutrient uptake and availability	✓	✓
Develop a programme which provides enough nutrients for consistent growth and recovery from traffic	✓	✓
Monitor the volume of grass clippings being removed when mowing	✓	**Will consider it**
Timing applications carefully to avoid run-off or pick-up by traffic	✓	✓
Select the most appropriate form of fertiliser for your needs, which may vary through the season	✓	✓
Comply with all statutory regulations.	**Will consider it**	✓

From the above checklist it was found that George Golf Club comply with 82% and Pinnacle Point with 88% of the suggested sustainable practices. Both courses are only considering habit management plans as well as becoming fully compliant and aware of environmental legislation.

5. FINDINGS AND IMPLICATIONS

5.1 Preferences of golfers toward eco-friendly golf courses

When golfers realise that the natural environment and the quality of a golf course cannot be separated, it might be easier for them to prefer eco-friendly golf courses, which could lead to an increase in the excellence of both the golf course and the natural environment. Golf course management may contribute to raising awareness and understanding by communicating it to golfers by means of newsletters, meetings and/or signage on the golf course.

It is therefore recommended that golf course management firstly investigate how the golf course and its operations can be altered by using environmentally friendly substitutes. For example, if golfers prefer to play on a course with beautiful natural surroundings, replace alien trees with indigenous trees that will enhance the aesthetic beauty of the course and in turn reduce water consumption and support plants growing in the vicinity. Building dams on the course may enhance a tranquil atmosphere on the course and at the same time be used to store water and develop an eco-system for various species.

It is recommended that golf course management discuss and inform members of appropriate environmentally friendly alternatives during club meetings or annual award functions. Members may willingly contribute or provide business contacts in support of the installation and implementation of such practices. Including members in the decisions lead towards financial contributions and a positive attitude in this regard. Such practices may contribute towards the golfer's experience at the golf course as they might feel that they have contributed towards the quality and aesthetic natural beauty of the golf course whilst looking after the environment.

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It is also recommended that golf course managers develop activities and facilities for family members and spouses such as putt-putt, family entertainment and a spa to give the golf course a competitive advantage in terms of choice. In order to meet minimum requirements it is recommended that facilities are provided at the golf course that do only entertain and occupy the entire family, but should receive sustainable tourism certification from an organisation such as The Sustainable Tourism Network South Africa. This will contribute towards awareness and educating the golfer and family members about environmentally friendly practices while on holiday.

5.2 Golfers perceptions toward eco-friendly golf courses

Golf course management should actively involve themselves in educating golfers about 'green' golf. This could be done by golf course management offering information sessions, programmes, posters, signage in public places at the course such as the club house and enough exposure about the topic on their websites. Awareness campaigns may even be incorporated into events held at a golf course such as the New Year's celebrations during peak holiday periods when large audiences attend such events. Green awareness will also provide the destination (South Africa) with a competitive advantage which may lead to increased revenue.

The following recommendations may lead to increased tourism revenue:

- Effective marketing of green golf courses.
- Activities and facilities for family members at green golf courses.
- Golf operators providing products that allow golfers the freedom to build their own golf holidays.
- Combine the game of golf with nature's offerings such as wildlife and safari experiences.
- Develop a reward system where golfers earn points each time they play at the golf course, which could earn them free entrances and discounts at the golf course.
- Discounts to senior citizens who play at green golf courses as they have more time to play golf, according to results during the empirical research of this study.

5.3 Eco-friendliness of the golf courses

It is suggested that golf course management should investigate ways of converting to greener business principles which would in the long run lead to financial benefits. It is a known fact that something as small as the replacement of the showerheads in the locker rooms, can save a golf course a massive 50% in water consumption, and changing to energy-saving light bulbs could substantially reduce energy bills each month (Embracing eco-conscience, 2012:43). Such eco-improvements should not impact financially on the golfer but will save the golf course management money. Golfers should be educated that 'green' does not necessarily mean price increases or higher prices.

Golfers should be taught that 'green' golf and eco-friendly practices at golf courses do not necessarily lead to increased course fees. Such improvements and practices may lead to the benefit of the golfer, golf course and the environment. Saving water and electricity may decrease operational costs at the golf course that could in turn be re-invested in the golf course leading to (financial) benefits for all. It is further recommended that the management of golf courses develop and implement a 'green' activity such as a golf tournament whereby golfers could for instance play their normal game of golf as well as identify the various tree types whilst playing. This could be turned into a competition or eco-friendly status recognition. Golfers could even be approached to adopt a tree whereby a plaque or sign could be placed on the tree to indicate its species and the name(s) of the golfer/s who adopted the tree. Golf courses could even give each member and/or visitor a packet of indigenous tree

seeds that they can plant at their homes as a reminder of being eco-friendly.

6. CONCLUSION

Green golf tourism provides a unique opportunity to combine an environmentally friendly lifestyle with the enjoyment of playing golf. Tourists are already choosing greener options while travelling, such as eco-friendly accommodation and transportation. It is time that golf course management also choose the greener option when taking care of the business side of golf. The time is here to manage our golf courses sustainable and responsible to embrace the 'green' trend and at the same time protect our most valuable resource – Mother Earth.

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