



**A CASE STUDY ON ENVIRONMENTAL COSTS AND REPORTING IN ACCOMMODATION  
ENTERPRISES**

\* Ayşe KURTLU



\*\* Ercüment OKUTMUŞ



**ABSTRACT**

Due to economic development and growth, technological developments, rapid industrialization, and population growth, environmental problems such as water, air, and soil pollution create environmental issues. They even cause severe concerns about the world's sustainability. While enterprises are carrying out their activities, they consume natural resources and take measures to mitigate the damage they cause to the environment, but these measures bring an additional cost to the enterprises. The tourism sector, which allows reviving the economies of developed and developing countries, has both positive and negative effects on the environment. Environmental costs such as prevention, usage, and damage costs are significant in accommodation enterprises. The importance of environmental costs in the decision-making process has been increasing. Reporting environmental costs in accommodation enterprises enable better managerial decisions and managing of environmental costs. This study aims to report the environmental costs incurred by the accommodation enterprises to prevent environmental pollution and protect the environment. For this purpose, in this case study environmental cost data for 2021 were obtained from a hotel chain, and the environmental costs of the enterprise were reported hypothetically by making separate classification. Accordingly, the hotel group incurred an environmental cost of 515,600 TL in 2021.

**Yazar İletişim Bilgileri**

\* [aysekurtlu@karabuk.edu.tr](mailto:aysekurtlu@karabuk.edu.tr)

\*\* [ercument.okutmus@alanya.edu.tr](mailto:ercument.okutmus@alanya.edu.tr)

**Keywords:** Environmental Costs, Environmental Reporting, Accommodation Enterprises.



## 1. INTRODUCTION

The increase in production and consumption along with globalization, industrialization, and technological developments has caused vast depletion of natural resources and a great deal of environmental damage. The increase in environmental problems such as global warming, the depletion of the ozone layer, the gradual decrease in animal and plant diversity, and the increasingly negative consequences of air, water, and soil pollution have accelerated the search for solutions to environmental problems all over the world (Kıriloğlu and Zeytin, 2015). In response to the globalization of environmental pollution and its effects, studies and collaborations have started between organizations and countries to overcome environmental pollution and problems. These studies have continued with the Copenhagen, Basel, Montreal, Kyoto, Havana protocols, etc., which have put countries and enterprises under more binding obligations in recent years. (Okutmuş, 2019). Today, environmental costs in the accounting system have become inevitable.

Enterprises are open systems in that the organization must also deal with the outside environment. Organizations also have fundamental social responsibilities towards the environment and ecosystem. Because enterprises produce goods and services with scarce resources to meet the needs of society, they must use natural resources as production inputs (Akcınlı, 2010). There are many environmental resources among these inputs called production factors. As a result of the scarcity of resources environmental degradation occurs. Pollution of the environment occurs during the production of solid, liquid, and gaseous wastes (Alagöz and Yılmaz, 2001). In this sense, while meeting the needs of society, enterprises can cause various environmental problems (Akcınlı, 2010).

Considering the intensive use of environmental factors in the service production process, it is crucial to consider the environmental accounting practices of accommodation enterprises. The negative environmental effects caused by accommodation enterprises are increasing with the increase in the demand and the number of these enterprises. Solutions are sought in many branches of science for eliminating negative impacts on the environment. One of these fields is accounting. Accounting science carries out studies to solve environmental problems in terms of being socially responsible. Green or environmental accounting attempts to solve environmental problems by evaluating them in the context of an enterprise. In accommodation enterprises with significant environmental costs, poor managerial decisions may result from evaluating these costs in general production expenses without being subjected to a rigorous classification. Identifying, classifying, and reporting environmental costs in accommodation enterprises or in other words, through green accounting practices will help with managerial decision-making and minimizing the expenses.

In the study, answers were sought to the following questions: Does the accommodation enterprise classify its environmental separately? Does the hotel report its environmental costs separately from other reports? and Does it comply with the full disclosure principle in its environmental reports?

Therefore, it is aimed to report the environmental costs of a hotel group, which owns three hotels in the Mediterranean and Central Anatolia regions. The environmental cost data of the hotel chain were obtained from the management of the hotel and using the data environmental financial reports were prepared. As a result of the study, the environmental costs of the enterprise, whose environmental costs reached 515,600 TL, were reported in the detailed balance sheet and income statement.



## 2. ENVIRONMENTAL ACCOUNTING

The International Federation of Accountants defines environmental accounting, or green accounting, as follows: “the management of environmental and economic performance in line with appropriate environmental developments and practices associated with accounting systems and methods. In some enterprises, green accounting, which includes reporting and auditing, is often associated with product lifecycle costing, full cost accounting, benefit assessments, and strategic planning for environmental management” (Moorthy and Yacob, 2013). Environmental accounting is the definition, measurement, and reporting of environmental resources, costs, expenditures, and risks to various sector groups, private companies, or special departments within the company, projects, or processes (Gale and Stokoe, 2001).

Environmental accounting is studied from five interrelated perspectives in enterprises: (Özbirecikli, 2002):

- From the financial accounting point of view, accounting for the environmental impacts of the enterprise.
- From a cost accounting perspective, it makes cost information accessible and auditable such as environmental performance, control costs, investment in cleaner technologies, environmentally friendly products, and process development, product mix, product life cycle extension, and product pricing.
- From the perspective of management accounting, environmental cost information is submitted to managerial decision processes.
- According to the environmental report perspective, it reports environmental activities and performance.
- From the audit point of view, environmental performance is audited, certified, and presented to the public.

Apart from the benefits of tourism, there are also negative environmental effects. The natural environment, all living creatures, and people have encountered the negative environmental effects of accommodation enterprises involved in tourism activities (Büyükipekçi and Şimşek, 2018). The negative environmental impacts of accommodation enterprises are shown in Table 1 below:



**Table 1. Negative Environmental Impacts of Accommodation Enterprises**

<ul style="list-style-type: none"><li>• Damage and destruction of natural areas during the construction of accommodation enterprises</li><li>• The increase in reinforced concrete</li><li>• Destruction of forests during landscaping</li><li>• Debris and construction waste</li><li>• Deterioration of the landscape due to unplanned urbanization and destruction of archaeological and historical sites and green spaces</li><li>• Exhaust smokes emitted by transportation vehicles</li><li>• Decrease in underground water resources by excessive water withdrawal from artesian wells to fill pools and irrigation of green areas</li><li>• Harmful effects of chemical odors used in laundry</li><li>• Waste thrown away by customers</li></ul>	<ul style="list-style-type: none"><li>• Increase in the number of minibusses for transportation in tourism destinations</li><li>• Air pollution created by gases used for heating and cooling</li><li>• Increase in noise by increase of entertainment establishments</li><li>• Pollution during restoration process</li><li>• Infrastructure problems created by the increase of population in tourism destinations</li><li>• Destruction of breeding areas animals</li><li>• Environmental impact of chemicals used for cleaning</li><li>• Solid waste of accommodation enterprises</li><li>• Disposal of waste into the sea or rivers</li></ul>
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**Reference: Aslanertik and Özgel, 2007.**

Considering the environmental accounting literature, there are studies on economic data such as gas emission rates, impact assessment, and recycling. However there are very few environmental accounting studies in the literature. Today, enterprises have to change their environmental accounting practices at the enterprise level. Environmental accounting, which examines the environmental problems created by accommodation enterprises, refers to the determination, classification, accounting, and reporting of the environmental costs as mentioned above. By creating best practices for environmental accounting, accommodation enterprises will effectively control environmental costs, minimize costs and make the right decisions.

### 3. ENVIRONMENTAL COSTS

Enterprises have interactions with their environment due to their activities. This interaction causes environmental costs. The determination of the environmental costs is related to social responsibility (Lazol, Muğal and Yücel, 2008). In the study conducted by the Environmental Protection Agency (EPA), which was established in the United States to bring environmental regulations, the necessity of determining environmental costs is expressed as follows (EPA, 1995):

- By determining environmental costs, many environmental costs can be reduced or eliminated because a large proportion of these costs may not add value to the production process.
- Environmental costs may not be monitored directly and may be lost or ignored in general production expenses. This may lead to inaccurate reporting of costs..



- Proper management of environmental costs helps protect enterprise's interests and the interests and health of society and has an important role in increasing environmental performance.
- The production of environmental products and services provides a competitive advantage in meeting customer expectations.
- Accounting of environmental costs and performance will support the entire environmental management system. This system is essential for enterprises which aim to operate internationally, especially ISO 14001 standards.

Evaluating environmental costs together with other costs without making a separate classification does not comply with the principle of full disclosure in accounting. Because costs comprise information that will be helpful to managers in decision-making (Kurtlu, 2017; Okutmuş, 2019). Environmental costs, which are crucial in establishing an effective management system, are classified as follows (EPA, 1995):

- Conventional Costs: includes raw materials costs, and consumption of non-recyclable products.
- Potentially Hidden Costs: costs incurred due to past or ongoing activities that cannot be directly tracked in accounts and potentially hidden from management.
- Contingent Costs: Costs likely to occur in the future and are shown with their estimated or probable values.
- Image and Relationship Costs: These are the costs of preparing annual environmental and sustainable development reports, for example, reports prepared to create a company image.

Researchers (Dalğar and Yıldırım, 2016; Gökgöz, 2021; Özbirecikli, 2000) classified environmental costs into different categories. Some of these categories are explained below. Classifications by the EPA are shown in Table 2.



**Table 2: Classification of Environmental Costs**

<b>Conventional Costs</b>		
<ul style="list-style-type: none"> <li>• Capital equipment</li> <li>• Material</li> <li>• Labor</li> </ul>	<ul style="list-style-type: none"> <li>•Installation</li> <li>•Buildings</li> <li>•Salvage value</li> </ul>	<ul style="list-style-type: none"> <li>•External benefits and services</li> </ul>
<b>Potentially Hidden Costs</b>		
<b>Regulatory Costs</b> <ul style="list-style-type: none"> <li>• Communication</li> <li>• Reporting</li> <li>• Controlling/testing</li> <li>• Templating</li> <li>• Repair and maintenance</li> <li>• Record keeping</li> <li>• Planning</li> <li>• Controlling</li> <li>• Manifesting</li> <li>• Labeling</li> <li>• Preparation</li> <li>• Protective Equipment</li> <li>• Medical Surveillance</li> <li>• Environmental Insurance</li> <li>• Financial Insurance</li> <li>• Pollution control</li> <li>• Waste compensation</li> <li>• Waste management</li> <li>• Taxes and fees</li> </ul>	<b>Upfront Costs</b> <ul style="list-style-type: none"> <li>•Site remedies</li> <li>•Site preparation costs</li> <li>•Permit costs</li> <li>•R&amp;D costs</li> <li>•Engineering costs</li> <li>•Supply costs</li> </ul> <b>Invisible Costs</b> <ul style="list-style-type: none"> <li>•Waste stock disposal extraction</li> <li>•Facility maintenance costs</li> <li>•Regional research costs</li> </ul>	<b>Discretionary Costs</b> <ul style="list-style-type: none"> <li>•Training</li> <li>•Monitoring/testing</li> <li>•Audit</li> <li>•Qualifying Suppliers</li> <li>•Reports (annual environmental report)</li> <li>•Insurance</li> <li>•Planning</li> <li>•Feasibility studies</li> <li>•Prevention</li> <li>•Re-introducing the environmentally friendly product</li> <li>•Environmental studies</li> <li>•R&amp;D</li> <li>•Protection of plants and animals</li> <li>•wetlands preservation</li> <li>•Landscaping</li> <li>•Other environmental projects</li> <li>•Financial support to environmental groups and researchers</li> </ul>
<b>Contingent Costs</b>		
<ul style="list-style-type: none"> <li>• Error costs</li> <li>• Property Damage</li> <li>• Natural resource compensation</li> </ul>	<ul style="list-style-type: none"> <li>•Repair costs</li> <li>•Legal expenses</li> <li>•Future adaptation costs</li> </ul>	<ul style="list-style-type: none"> <li>• Economic registration compensation</li> <li>• Compensation for damage to personnel</li> <li>• Compensation for future emissions</li> </ul>
<b>Image and Relationship Costs</b>		
<ul style="list-style-type: none"> <li>• Corporate image</li> <li>• Relationships with customers</li> <li>• Relationships with investors</li> <li>• Relationships with insurers</li> </ul>	<ul style="list-style-type: none"> <li>•Relationships with professional staff</li> <li>•Relationships with suppliers</li> </ul>	<ul style="list-style-type: none"> <li>• Relationships with lenders</li> <li>• Relationships with environmental associations</li> <li>• Relationships with regulators</li> </ul>

Reference: EPA, 1995; Özbirecikli, 2000.

Although environmental costs can be classified into different categories, based on the explanations above, they can be classified into three basic categories: prevention, usage, and damage costs. Table 3 shows three categories of costs.



**Table 3. Types of Prevention-Usage-Damage Costs**

Prevention Costs	Usage Costs	Damage Costs
Environment planning costs	Air costs	Air pollution costs
Process control costs	Water costs	Water pollution costs
Emission measurement devices costs	Soil costs	Soil pollution costs
Harmless product design costs	Noise costs	Noise pollution costs
Recycling costs	Image costs	Image pollution costs
Harmless packaging design costs	Natural gas costs	Penalty– compensation costs
Environmental development costs	Oil costs	Environmental cleaning costs
Environmental training costs	Coal costs	Complaint costs
Lab services costs	Other energy costs	Guarantee costs
Environmental engineering services costs	Other usage costs	Sales reduction costs
Environmental reporting costs		Other damage costs
Environment labeling costs		
Environment reliability costs		
Environmental information system costs		
Environmental administration system costs		
Environmental control costs		
Environment handbook costs		
Product liability insurance costs		
Waste control costs		
Waste disposal costs		
Waste treatment costs		
Research development costs		
Other preventional costs		

**Reference: Gökgöz 2012.**

Costs incurred by accommodation enterprises can be categorized as internal or external environmental costs. These costs are shown below (Gale and Stokoe, 2001).

- Internal Environmental Costs
  - Direct or Indirect Environmental Costs
    - Waste management improvement costs
    - Environmental training costs
    - Environmental maintenance-repair costs
    - Penalty and legal costs
  - Contingent and Tangible Environmental Costs
    - Uncertain future remediation or compensation costs
    - Cost of raw material continuity
    - The cost of deteriorating natural assets
- External Environmental Costs
  - Depletion of natural resources



- Air, water, and soil pollution caused by wastes
- Long term waste disposal
- Negative effects on health
- Change in local quality of life

As shown above, internal environmental costs are related to the costs that environmentally-sensitive accommodation enterprises must endure to show their sensitivity in financial reports. These costs can be incurred in unexpected situations. Including contingent costs, calculations are the costs that prevent the accommodation enterprise from facing any financial problems in the future, and it is important for making the decisions about the future. On the other hand, external environmental costs are incurred in terms of maintaining a natural balance or minimizing the damage in return for the services they provide (Gale and Stokoe, 2001).

In the study by Dalğar and Yıldırım (2016) of an accommodation enterprise, the prevention, usage, and damage costs of the enterprise are classified as shown in Table 4:

**Table 4. Environmental Costs of Accommodation Enterprises**

	Environmental Cost Factors
<b>Prevention Costs</b>	Emission measurement device cost
	Cost of drinking water treatment system
	Hazardous waste disposal systems cost
	Drinking water treatment maintenance and repair costs
	Wastewater treatment cost
	Refrigerated trash room cost
	Waste separation station cost
	Recycling separation cost
	Environmental training cost
	Environmental handbook cost
	Environmental audit cost
	Energy-saving room sensor cost
	Savings bulb cost
	Saving shower head cost
	Sensor faucet cost
	Saving siphon cost
	Energy consulting cost
	Environmental consulting cost
	In-room environmental brochure cost
	Blue flag inspection cost
Environmental spraying cost	
Fire extinguisher maintenance cost	
Air conditioner maintenance and repair cost	
Generator maintenance cost	
Environmental cleaning tax	
<b>Usage Costs</b>	
	Water expenditure of drinking water treatment facility





	Electricity expenditure for drinking water treatment plants and the refrigerated waste room
	Fuel cost
	Cleaning materials expense
	Hotel guest amenities cost
	Pool chemicals cost
<b>Loss costs</b>	
	Environmental cleanup cost
	Noise pollution penalty cost

Reference: Dalğar and Yıldırım, 2016.

In addition, kitchen filter maintenance, repair, cleaning, and replacement expenses, solar energy system maintenance, and repair expenses in the accommodation enterprise, were evaluated as environmental costs in this study.

The American Hotel and Motel Association (AH&MA) determined which costs are the main issues in developing environmental management practices in hotels. Some cost-reducing environmental management measures in accommodation enterprises are shown in Table 5 (Mensah, 2004):

**Table. 5 Cost-Reducing Practices in Hotels**

Practices	Cost Impacts
Replacing packaging with energy-saving fluorescents	Up to 60% in energy costs reduction
Using wastewater from washing machines in cleaning the toilets	Reduction in water costs
Use of treated wastewater in garden irrigation	Significant reduction in water costs. Using city water is more expensive
Implementing a comprehensive waste reduction and recycling program	Reduction in waste disposal costs, earnings from the sale of recycled waste
Using heat-insulated glass in windows	Reduction in heating costs provide energy reduction
Implementation of environmental training programs for employees	Due to the increasing environmental awareness, reduction in damage costs (penalties, sanctions, etc.)

Reference: Mensah, 2004.

#### 4. ENVIRONMENTAL REPORTING

Due to increased concerns about the environment, enterprises make efforts to reduce the negative impacts of their activities on the environment and consider the protection of the environment. This caused reporting activities on the environment (Özçelik, 2017). Reporting is an important function of accounting in that financial reports are prepared and presented to potential users and stakeholders in the context of recorded and classified financial information. Reporting is also a prevailing aspect of environmental accounting information



(Haftacı and Soylu, 2008). In environmental accounting practices, unlike conventional accounting, the cost of protecting the environment during a company's activities and the benefit acquired from these activities are reported more effectively. While the cost-benefit analysis of environmental protection activities is carried out for the enterprise, on the other hand, the damage to the environment is measured (EPA, 1995). Thanks to environmental accounting, it is possible to determine and report environmental activities and their costs (Haftacı and Soylu, 2008).

The reporting of environmental costs is of great importance in terms of decision-making processes. It is important to consider current and potential environmental costs in decision-making to achieve managerial goals such as profitability, growth, and development (Solomon and Lewis, 2002). Ignoring these costs in the financial analysis of the enterprise may cause serious mistakes in the decision-making process. Environmental costs should be considered to minimize errors in the decision-making process (Brown and Fraser, 2006). Therefore, managers can categorize these costs separately at environmental decision making stage and will benefit from categorization in their decision-making process (Ergin and Okutmuş, 2007).

In terms of social responsibility, enterprises need to know the amount that they contribute to social and environmental activities voluntarily in terms of cost-benefit analysis of the market conditions (Lynes and Andrachuk, 2008). Environmental cost reports, in which detailed environmental and financial information is reported, will enable stakeholders to obtain information about the environmental costs of the enterprise more easily and faster (Altınbay, 2007). Reporting environmental accounting information is also important in order to disclose environmental protection policies to the public, and to determine and manage the cost incurred to protect the environment. By determining environmental costs and showing them separately in financial reports, these costs can be significantly reduced or eliminated, avoided from being overlooked in the decision-making process. It also contributes to the increase of environmental performance as well as the success of the enterprise, and provides significant benefits for human health. Moreover, prices become more accurate, while more environmentally-friendly processes, products, and services are designed. Thus competitive advantage is created (EPA, 1995).

Environmental reports, which generally do not have a fixed form, can be classified under two main headings according to the approaches of the enterprises. These are voluntary environmental reporting and obligatory environmental reporting (Ergin and Okutmuş, 2007). Environmental reports can be prepared separately from annual financial reports to consider enterprises' environmental activities (Altınbay, 2007). When preparing environmental reports, enterprises are not only using financial data but also non-financial data such as environmental compatibility rates, pollution emission rates and comparison with limits, waste amounts, and the amount of materials used for environmental improvement (Ergin and Okutmuş, 2007).

In accommodation enterprises, quantitative reports are focused on financing and marketing. Information on environmental performance is not included in these reports. It is necessary to calculate environmental costs and show them in management reports. Tourism organizations and hoteliers' associations envisage that the environmental costs of accommodation enterprises should be shown in statistical reports. Only occupancy rates, average room prices, and tourism statistics are shown in the tourism statistics, although



environmental costs can also be indicated in these quantitative reports (Chan and Lam, 2001).

Environmental costs of accommodation establishments have reached up to significant amounts. The company monitors and reports these costs within the general production expenses that may be misleading for internal and external users. Therefore, to reflect the real situation of the enterprise within the scope of environmental accounting and to facilitate environmental audits, environmental costs should be classified and reported through financial statements.

## **5. METHODOLOGY**

A case study is a method in which a single case or event is examined in depth longitudinally, data is collected systematically and what happens in the real environment. Using the results, it reveals why the event occurred in that way it did and which issues should be focused on in future studies (Davey, 1991). In the research, a case study was conducted in order to classify and report the environmental costs of the accommodation enterprise. The data were obtained from the environmental documents of the accommodation enterprise. By analyzing the documents, the environmental costs of the enterprise were classified and reported as environmental balance sheet and income statement.

## **6. FINDING OF THE STUDY<sup>1</sup>**

### **6.1. Basic Information About the Accommodation Enterprise**

The examined accommodation enterprise is a member of a hotel chain that owns three hotels operating in the Mediterranean and Central Anatolian regions. This chain is 30 years old and has 231 rooms which provide all-inclusive service to the customers. One of the hotels operating in the Mediterranean region is seasonal; the other and the hotel operating in the Central Anatolia region are all-year-round hotels.

All enterprises were constructed according to ISO 14001 Environmental Management System principles. All three enterprises have ISO 14001 Environmental Management System and ISO 22000 Food Safety Certificates. In addition, the two hotels operating in the Mediterranean Region received blue flag certificates in 2014.

### **6.2. Environmental Cost Data of the Examined Accommodation Enterprise**

Table 6 shows the environmental costs of the accommodation enterprise in 2021. The environmental costs of the enterprise are classified as prevention, usage, and damage costs. Prevention, usage, and damage costs are also divided into expense types: the cost of environmental assets, the environmental cost of service sold, and general administrative expenses of the environment. The enterprise has a total environmental cost of 515,600 TL in 2021.

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<sup>1</sup> The name of the enterprise has been kept confidential in terms of competition and security of commercial data at the request of the management.



**Table 6. Environmental Costs of Accommodation Enterprise in 2021**

ENVIRONMENTAL COSTS	TYPES OF ENVIRONMENTAL COST EXPENSE			
	Cost of Environmental Assets	Cost of Service Sold	General Administration Costs	TOTAL
<b>PREVENTION COSTS</b>				
Drinking water treatment	18,000			
Hazardous waste disposal	40,000			
Wastewater treatment	28,000			
Energy-saving room sensor	60,000			
Saving showerhead	9,000			
Saving siphon	18,000			
Accumulated depreciation of environmental features	(16,000)			
Drinking water treatment maintenance and repair costs		3,000		
Savings bulbs		16,000		
Disinfection expenses		22,000		
Fire extinguisher maintenance and repair costs		6,800		
Air conditioner maintenance and repair costs		8,000		
Kitchen filters maintenance repair costs		8,500		
Kitchen filter cleaning costs		4,000		
Kitchen filter change costs		9,000		
Solar energy system maintenance and repair costs		42,000		
Generator maintenance and repair costs		3,680	920	
Environmental training costs			8,000	
Environmental handbook costs			2,500	
Environmental inspection costs			3,800	
Energy consulting costs			18,000	
Environmental consultancy costs			6,000	
Blue flag inspection costs			3,000	



<b>Total Prevention Costs</b>				<b>322,200</b>
<b>USAGE COSTS</b>				
Water expenditure of drinking water treatment plant		14,000		
Electricity cost of drinking water treatment plant		6,000		
Fuel costs		29,280	7,320	
Cleaning material costs		46,000		
Guest amenities material costs		38,000		
Pool chemicals costs		36,000		
<b>Total Usage Costs</b>				<b>176,600</b>
<b>DAMAGE COSTS</b>				
Environmental cleanup costs			6,000	
Noise pollution penalty costs			6,800	
Environmental cleaning tax			4,000	
<b>Total Damage Costs</b>				<b>16,800</b>
<b>TOTAL</b>	157,000	292,260	66,340	<b>515,600</b>

The examined accommodation enterprise can classify between prevention, usage, and damage costs in the accounting of environmental costs. While the accommodation enterprise accounts for the fixed assets purchased to protect the environment and to prevent damage to the environment, it should be followed in the sub-accounts of the relevant account (Fixtures, Plant Machinery, and Equipment) from the Tangible Long Fixed Assets group No. 25 in the uniform chart of accounts. In cases where the qualifications of the accounts are not met, they should be followed in the sub-accounts of the Other Tangible Long Fixed Assets Account. The depreciation of environmental assets can be accounted for in the sub-accounts of Accumulated Depreciation Account No. 257. In addition, rights such as carbon emission certificates can be accounted for in the sub-accounts of Intangible Assets Group No. 26. Environmental marketing sales and distribution expenses can be accounted for in the sub-accounts of Marketing, Sales, and Distribution Expenses Account 760 in group 76. In the accounting of environmental asset purchases, for example, the wastewater treatment system of the accommodation enterprise shown in Table 6 can be followed in sub-accounts such as 253.10 Environmental Plant Machinery and Equipment Account 253.10.01 Wastewater Treatment System.

Usage costs arising from the use of environmental resources should be monitored in the sub-accounts of the 740 Cost of Service Sold Account. For example, pool chemicals shown in Table 6 are 740.10. Environmental Cost of Service Sold Account can be accounted for as 740.10.01 Pool Chemicals.



Damage costs, which represent the financial dimension of the damage caused by accommodation enterprises to the environment, can be followed in the 770 General Administration Expenses Account sub-accounts. For example, in Table 6, the noise pollution penalty can be accounted as 770.10 Environmental General Administration Expenses and 770.10.01 Noise pollution penalty.

### 6.3. Reporting the Environmental Costs of the Examined Accommodation Enterprise

The first of the financial statements used in reporting environmental costs is the balance sheet. In Table 7, the environmental type balance sheet of the accommodation enterprise is shown.

**Table 7. Environmental Type Balance Sheet of the Accommodation Enterprise in 2021**

HOTEL X's DETAILED BALANCE SHEET DATED 31/12/2021	
<b>ACTIVE</b>	
I CURRENT ASSETS	
.....	
TOTAL CURRENT ASSETS	
II FIXED ASSETS	
.....	
25 TANGIBLE ASSETS	
....	
253 PLANT MACHINERY AND EQUIPMENT	
...	
253.XX Environmental Plant Machinery and Equipment	
Drinking Water Treatment	18,000
Hazardous Waste Disposal	40,000
Wastewater Treatment	28,000
255 Fixtures	
....	
255.XX Environmental Fixtures	
Energy Saving Room Sensor	60,000
Saving Shower Head	9,000
Saving Siphon	18,000
.....	
257 Accumulated Depreciation Account (-)	
257.XX Accumulated Depreciation of Environmental Fixed Assets (-)	(16,000)
.....	
.....	
TOTAL FIXED ASSETS	
TOTAL ASSETS	



As shown in Table 7, the fixed assets of the accommodation enterprise purchased to prevent environmental pollution and protect the environment are followed in the sub-accounts of the relevant accounts. Accordingly, a total of 86,000 TL for plant machinery and devices, including drinking water treatment, wastewater treatment, and hazardous waste disposal system, was purchased to protect the environment; 87,000 TL prevention costs are incurred in fixtures such as energy-saving room sensors, showerheads, and siphons. In addition, these environmental assets have an accumulated depreciation of 16,000 TL. When the balance sheet is examined, the environmental costs of the enterprise are seen in detail in terms of both internal users and external information users.

The income statement is the other financial statement used in reporting environmental costs. Thus, to protect the environment, the number of costs incurred by the enterprise in both production and operating costs can be monitored in detail for information users. In Table 8, the environmental income statement of the examined accommodation enterprise is presented.

**Table 8. Environmental Type Income Statement of the Accommodation Enterprise in 2021**

<b>HOTEL X's DETAILED INCOME STATEMENT DATED 31/12/2021</b>	
A SALES	
B SALES DISCOUNTS (-)	
C NET SALES	
D COST OF SALES (-)	
3 COSTS OF SERVICE SOLD (-)	
Environmental Featured Service Production Costs	292,260
<b>GROSS SALES PROFIT OR LOSS</b>	
E – OPERATING COSTS (-)	
1 – Research and Development Costs (-)	
2 – Marketing Sales Distribution Costs (-)	
3 – General Administration Costs (-)	
a .....	
b Environmental General Administration Costs	66,340
<b>OPERATING PROFIT OR LOSS</b>	
F – ORDINARY INCOME AND PROFITS FROM OPERATIONS	
G – ORDINARY EXPENSES AND LOSSES FROM OTHER OPERATIONS (-)	
H – FINANCIAL EXPENSES (-)	
<b>ORDINARY PROFIT AND LOSS</b>	
<b>PROFIT OR LOSS FOR THE PERIOD</b>	
<b>NET PROFIT OR LOSS FOR THE PERIOD</b>	



As shown in Table 8, the environmental costs of the accommodation enterprise are 292,260 TL for cost of service sold and 66,340 TL for general administration costs. There are many environmental cost elements, such as prevention costs (maintenance, repair, cleaning, environmental education, environmental handbook, environmental audit, consultancy, etc.) and usage costs (pool chemicals, amenities, treatment plant water-electricity expenses, etc.), within the expenses of the enterprise. On the other hand, general administration costs consist of damage costs such as environmental cleaning, noise pollution penalty, and environmental cleaning tax caused by the accommodation enterprise to the environment.

In environmental accounting, financial, environmental information, and environmental costs are carried out in two ways: reporting in the balance sheet and income statement. Thanks to environmental reporting, interest groups receive information about the enterprise's environmental activities, especially managers who benefit from this information being effectively communicated as part of the decision-making process.

## **7. CONCLUSION**

Globalization, technological developments, a rapid increase in world population, production and consumption activities, wars, accidents, natural disasters, epidemics, global warming, depletion of the ozone layer, etc. have increased environmental problems. The natural environment, seen as a free good, is a limited resource. Accommodation enterprises benefit from the environment due to activities that have both positive and negative effects. If the accommodation enterprises having very high investment costs do not care for the environment, they will suffer the most. For this reason, it is even more important for accommodation enterprises to account for environmental costs arising from the use of environmental resources in their accounting information systems. In this respect, accommodation enterprises should adopt environmentally conscious approaches for reducing the use of environmental resources, preventing environmental pollution, recycling waste, and sharing the results related to environmental costs through financial statements or independent reports.

This study aims to report the environmental costs incurred by the accommodation enterprises that use the environment and environmental resources intensively in order to protect the environment through financial statements. For this purpose, the research was carried out in a hotel group, two in the Mediterranean and one in the Central Anatolia Region.

Results show that, the environmental costs of the accommodation enterprise reached a significant level, being 515,600 TL in 2021. According to the conventional accounting system, reporting the environmental costs without a separate classification may lead to poor managerial decisions. In their study, Chung and Parker (2010) point out that there is an important literature gap in environmental reporting and social responsibility. In addition, it is emphasized that although there are practices and studies on environmental reporting in the accommodation sector, there are no reporting standards. Studies on environmental reporting and environmental management should be increased (Chung and Parker, 2010). In this respect, the environmental costs of the accommodation enterprise are primarily classified as prevention, usage, and damage costs. Accordingly, the enterprise incurred 322,200 TL of prevention cost, 176,600 TL of usage cost, and 16,800 TL of damage cost in 2021. In addition, environmental asset purchases of the accommodation enterprise are recorded in the sub-accounts of the 25 Tangible Long Assets Group, the usage costs in the 740 Cost of Service Sold sub-accounts, and the damage costs in the 770 General Administration costs





sub-accounts. Similarly, Dalğar and Yıldırım (2016) classified the environmental costs of an accommodation enterprise as prevention, usage and damage costs and explained how they would be accounted for. In addition, it was emphasized that this classification allows for the preparation of environmental reports in a more reliable and appropriate way in the reporting of environmental costs (Dalğar and Yıldırım, 2016). Finally, the environmental costs of the enterprise are reported in the detailed balance sheet and income statement. According to the detailed environmental balance sheet, the company acquired assets worth 173,000 TL (including a - 16,000 TL loss accumulated by depreciation) to protect the environment; according to the detailed income statement with environmental features, the expenses are 358,600 TL.

Classifying and reporting environmental costs in accommodation enterprises allows existing and potential environmental costs to be seen clearly in the quality, accuracy, and cost-efficiency of managerial decisions. In addition, the detailed reporting of environmental costs for accommodation enterprises will make obtaining information about the environmental activities of the enterprise more easier and quicker. In the study, environmental costs of the accommodation enterprise were classified and environmental financial reports were prepared. In future studies, it is recommended to determine environmental costs using contemporary cost methods and to provide cost effectiveness.

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Gastroia: Journal of Gastronomy and Travel Research, Vol. 6, Issue 2, 379-397, 2022  
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