Environmental Cost Accounting Implications on Timber Company Productivity in Cameroon

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Abstract

Cameroon like many countries in the world pursues the achievement of sustainable development, positive relationship with the community, and effective and efficient environmental conservation activities. Organisations are expected to identify and incorporate costs of safeguarding the environment into their financial statements. The objective of this study was to identify the implications of some environmental costs prevention variables on the productivity of timber production companies in Cameroon. Specifically, it examined the effect of cost accounting for pollution prevention, global environmental conservation, and resource recycle on the output of timber companies. Through a survey, data was collected and analysed using the Ordinary Least Square (OLS) estimation technique. The empirical results revealed that it is cost-saving and profitable to carry out cost accounting for pollution prevention, contribution to global environmental conservation, and resource recycling by environmental stakeholders. An increase in the cost accounting for any of these independent variables significantly improves the productivity of timber companies, since a more work-friendly environment is created for optimum production than if these costs were not accounted for. All environmental stakeholders should be adequately sensitised by the government and professional accounting bodies on the benefits accruing from incorporating realistic values of natural resources and the costs of environmental conservation in their financial records and statements. The government in its effort to make a realistic assessment of the income of the country should ensure that accountability is given for both operational contributions and operational impact on the environment.

Keywords

Environmental Accounting, Productivity, Costing, Pollution Prevention,

Global Environmental Conservation, Resource Recycling

1. Introduction

Environmental cost accounting is an expansion of traditional cost accounting. It is based on costs-and-effect examination. It allocates to environmental exploitation entities the costs of their impacts on the environment. Environmental accounting defines, measures, and reports on the use of environmental resources, costs sustained to reduce or prevent the impact on the environment, and benefits generated by various environmental stakeholders in the course of their operations. The traditional accounting practice conceals such environmental overheads, thus making financial statements short of full disclosure of an entity's costs. Environmental accounting, otherwise called Green accounting comes in to bridge this gap.

Environmental accounting refers to the modified system of accounting that incorporates the use or depletion of natural resources. It is an important management tool of environmental and operational costs of natural resources (Muralikrishna & Manickam, 2017). Environmental accounting pursues the attainment of sustainable development, positive relationship with the community, and ensuring effectiveness and efficiency in environmental conservation activities. With these accounting procedures, a company can identify the cost of conserving the environment during the normal course of business. The company can also recognise the benefit gained from such activities, and give quantitative measurements (financial value and/or physical units) in the reporting.

Cameroon like many other African countries faces important challenges concerning its environment: air, land, and water. Consequently, Cameroon partners with other countries and local and international non-governmental organisations on issues such as air pollution, wildlife trafficking, illegal logging, and unsustainable commercialisation of meat from endangered animals. Like all forward-looking countries, Cameroon has an obligation to the next generation to preserve the environment where businesses operate. However, most of these businesses operating in the environment face the challenge of deteriorating the natural resources as they carry out their economic activities.

According to Pramanik, Shil, and Das (2007) these deteriorations have reached alarming levels and should be halted. These businesses are expected to make reparations on the environment where they operate. Consequently, they are under increased pressure to reduce such environmental costs, and also lessen the environmental impacts of their operations (Abiola & Ashamu, 2012). This probably explains why Cameroon partners with other countries to promote the conservation and sustainable management of the Congo River Basin ecosystem.

Environmental costs could be internal costs when borne by the organisation, or external costs when incurred by the society. Internal environmental costs include direct, indirect, and contingent costs, linked to remediation or restoration

costs, waste management costs, or other compliance and environmental management costs. These costs should be reasonably estimated or measured and allocated. On the other hand, external costs refer to costs external to a firm, concerning its environmental damages and should be given monetary value to reflect the maximum amount of damage if it is to be avoided, or the minimum amount of compensation if the damage is to be sustained by the inhabitants (Gale & Stokoe, 2001).

In national environmental accounting, inputs, outputs and environmental impacts are added up and combined into environmentally adjusted ("greened") indicators. Both monetary and physical weights are used. Some environmentalists disapprove that market values be used for "pricing the priceless" categories of nature. According to them, measuring environmental assets and their services in financial terms "commodifies" nature, thus subjecting its intrinsic value to market preferences. However, calculating environmental impacts by physical indicators and aggregating material flows in material flow accounts as they suggest could be problematic. The results may have doubtful significance (in tonnes) to diverse environmental effects like emission of a toxic pollutant, and the extermination of valued specie (Yarahmadi & Bohloli, 2015).

A useful cost categorisation was provided by the US Environmental Protection Agency in 1998 where they made a distinction between four types of costs: conventional costs (raw material and energy costs having environmental relevance), potentially hidden costs (costs captured by accounting systems but then losing their identity in "general overheads"), contingent costs (costs to be incurred at a future date such as clean-up costs), image and relationship costs (costs that, by their nature, are intangible, for example, the costs of preparing environmental reports). On the other hand, the UNDSD described environmental costs as comprising of: costs incurred to protect the environment (such as measures taken to prevent pollution), and costs of wasted material, capital and labour (resulting from inefficiencies in the production process), Kaplan Financial Knowledge Bank (2012). These two definitions look at environmental costs differently, yet do not contradict each other.

Environmental experts remain increasingly disturbed about the perilous management of forest resources as both illegal and legal harvesting and trade of timber have devastating consequences on the environment such as global warming. Logging activities should normally improve the standard of living of communities. Unfortunately, the livelihoods of most indigenous communities in Cameroon where logging takes place are so much undermined by these logging companies.

Cameroon has approximately 22 million hectares of forests, making about 46% of the total area of Cameroon. Out of this, 26,000 hectares or 0.1% of the forest area is considered as planted forest. Regrettably, the land area covered by forest in Cameroon declines by 1.0% every year for the last 25 years (1990 to 2015). This 1.0% rate is rated as one of the highest deforestation rates in the

Congo Basin. The most harvested species of wood between 2010 and 2016 were Ayous (*Triplochiton scleroxylon*), Sapelli (*Entandrophragma cylindricum*), Tali (*Erythrophleum ivorense*; *Erythrophleum suaveolens*), Azobé (*Lophira alata*), Okan (*Cylicodiscus gabunensis*), Iroko (*Milicia excelsa*), Padouk (*Pterocarpus soyauxii*), Kossipo (*Entandrophragma candollei*), Fraké (*Terminalia superba*), Dabéma (*Piptadeniastrum africanum*). Cameroon's logging industry produced roughly 3.3 million metres of logs in 2017 most of which was exported from primary processing, valued at some US$933.7 million in 2018 (Ministry of Forests and Wildlife, 2018).

Deforestation in Cameroon is driven by the need to carry out agriculture in both large, medium and small scale plantations, fuel-wood harvesting, mining, and infrastructure development. Forest degradation is also attributed to unsustainable and illegal logging. This comes as a result of the misuse of certain logging permits in the country, and the absence of effective regulation and law enforcement (Hoare, 2015).

Timber operation in Cameroon takes place at both the Permanent Forest Domain (PFD) and the Non-Permanent Forest Domain (NPFD). The PFD comprises council forests, forest reserves, protected areas, and forest management units. The NPED on the other hand includes community forest and sales of standing volume. The application of forest regulations, governance and trade in timber and timber-derived products destined for the European Union market in Cameroon is governed since 2010 by a Voluntary Partnership Agreement (VPA) between the Republic of Cameroon and the European Union. Valid authorisations for forest exploitation in Cameroon have varied considerably from 226 in early 2012 to 386 at the close of 2015, and to 296 titles in early 2016. By Order No. 0378_MINFOF_MICOMMERCE on the organisation and functioning of the domestic timber market, operationalisation process for the domestic timber market present situation and future prospects, and the decision on optimisation of sawmills scraps (Cerutti, Mbongo, & Vandenhaute, 2015), the Ministry of Forestry and Wildlife (MINFOF) strives hard amidst challenges to assure responsible forest exploitation.

In 2019, MINOF declared 93 forest concessions, 38 communal forests, 142 timber sales and approximately 50 community forests. These forest titles are managed by about 50 large international or national companies (59), about 40 medium-sized national companies (46) and about 30 rural communes (38) that own communal forests (I2D, 2019). According to MINFOF (2018), Cameroon's logging industry produced approximately 3.3 million metres of logs in 2017. Most of this volume is used for the export of products from primary processing, which represents a total export value of US$933.7 million in 2018 (ITTO 2019, data 2018). MINFOF N.0309/C/MINFOF/SG/DPT/SDTB/STPL/NKR of 9th July 2012 disclosed that there were 199 timber processing units (TPU) on Cameroonian territory.

From 2013 to 2015 there were some serious offences in Cameroo concerning

the forests, wildlife, charcoal, and non-timber forest products. The first list carries 156 offences for a total amount to be recovered of some 16.9 billion CFA. The second list shows 276 offences for a total amount to be recovered of close to 17.3 billion CFA.

In this connection, a symposium was organised in Yaounde in February 2018 by the United States Embassy and the Cameroon government to discuss some of these challenges and how best Cameroon and its partners need to go about the management of Cameroon's incredibly beautiful and diverse natural resources (U.S. Embassy, 2018). It should be noted that unsustainable and illegal harvesting of wood is blamed for causing the degradation of Cameroon's forests. Worries have been expressed over the abuse of certain logging permits in Cameroon, and the absence of effective regulation and law enforcement (Hoare, 2015).

Many parties are involved in the Cameroon forestry management: the government administrations, forest operators, traders, forest operators' associations and unions, indigenous peoples, and populations bordering the exploitation area. Access to information on the goals, implementation, monitoring and controls that will allow for a thorough understanding of the processes and the involvement of all parties to the agreement will contribute to the fulfilment of the VPA objectives. According to the Minister of Forests and Wildlife Ngole Philip Ngwese, Cameroon stands to project a better image of forestry products on EU markets and a more propitious investment environment for companies exporting timber to the European Union if there is greater transparency in the forest sector. This, therefore, provides for the sharing of information on the forest sector that is useful for research, statistics and due diligence. Such information includes information on legal issues, production, allocations, management, processing, exports, legality assurance system, audits, financial transactions and the institutional setup (U.S. Embassy, 2018).

According to law No. 96/12 of 5th of August 1996 on environmental management, and other decrees and orders, companies awarded an FMU are obliged to carry out an environmental and social impact study so as to assess the effects of forest operations on the environment and disturbances to the livelihoods of the local populations. The law also provides measures to reduce harm to the environment and support measures to protect the health and safety of the workers and the local population. Despite the existence of this law, many indigenous communities complain of not having their fair share of the benefits resulting from the exploitation and distortion of their environment. This study attempted to examine the relationship existing between costs of environmental conservation and productivity of timber and lumber companies in Cameroon. Such business area costs associated with environmental conservation are in this study divided into three: pollution prevention cost, global environmental conservation cost, and resource recycling cost.

The literature just reviewed highpoints the impacts and related costs involved in using the environment. It also projects some of the efforts made by governments to step up environmental conservation. Environmental accounting re-

quires that environmental costs be realistically estimated and allocated in the books of account. As a result, this study sought to examine the implications of environmental costs prevention on the productivity of timber production companies. Specifically, it aims at examining the effect of pollution prevention, global environmental conservation, and resource recycling on the output of timber companies in Cameroon.

The rest of the paper is organised such that the review of related literature is done in Section 2 based on some concepts, theories, and most especially empirical studies carried out on environmental costs prevention relating to pollution, global conservation, and resource allocation. A description of the area of study and the methodology are presented in Section 3. Section 4 presents and discusses the empirical results relating pollution prevention, global environmental conservation, and resource recycling, to timber productivity. The conclusion and policy recommendations are given in Section 5.

2. Review of Related Literature

The Cameroon Forest Code, No. 94/01 of 20 January 1994 provides a guide towards sustainable forest use in Cameroon. This Forest Code appears to be the most important law that regulates forests, fauna and fisheries in the country. It provides for the categorisation of all of Cameroon's forest lands according to the 1993 zoning system. The concept of community forests is introduced for the first time as forests outside the permanent domain less than 5000 hectares are now apportioned and managed by local communities or villages. Additional community rights to acquire community forests were provided for in the Ministerial Order No 2001/0518/MINEF/CAB of December 21, 2001.A bone of contention in the 1994 Forest Code is the absence of the rights of indigenous people to their lands, territories, and resources they have customarily and historically owned, occupied or otherwise used and acquired (MINFOF, 2018).

Lately, considerable amount of resources have been deplored to the natural environment so that it is not explored as a "free good" (Ebipanipre & Ihenyen, 2014). Environmental accounting attempts identifying and measuring possible and/or actual environmental impacts of organisations (Tapang et al., 2012; Bassey et al., 2013). This appears to be value added to the conventional accounting system since information assessing the behaviour of businesses and their economic consequences on the environment can now be included. This can be very useful in making strategic business decisions concerning process and product pricing design, performance evaluation, capital investment decisions and costing determinations (UNDSD, 2001).

Environmental accounting is an inclusive field of accounting which provides environmental reports for both internal and external uses. Internally, it generates information relevant in making rational decisions on pricing, controlling overhead and capital budgeting. Externally, it generates environmental information of interest to the public and to the financial community. Internal use of en-

vironmental accounting is better termed environmental management accounting (Bartolomeo, Bennett, & Bouma et al., 2000).

The use of the environment by companies causes environmental impacts and related costs. The impact of business activities on the environment may be found in three scenarios: The *media* as it concerns air, water, and underground pollution; the *targets as it concerns* drinking water, land and habitat for endangered and threatened species; and *global sites* as it concerns oceans, atmosphere, and land mass. Business operations are responsible for an array of pollutants, including toxic, hazardous and "warming" pollutants (Yakhou & Dorweiler, 2004). They gave a contextual view of the need to integrate environmental policies with business policies, thus creating a multi-discipline team where accounting supports corporate environmental strategy, corporate business strategy, and numerous accounting sub-disciplines correlated with environmental issues. Such a multi-discipline team they opined is to support top-level strategies and to reap the benefits directing a company in an environmentally sound manner.

Some managers apparently out of ignorance nurse the impression that improving environmental performance or ensuring clean production only entails additional costs for a business entity without an equivalent benefit. Apart of compliance with laws and regulations in order to and thus elude prosecutions and penalties, such managers perceive nothing good in such a venture. However, other corporate environmental managers disagree with this preconception. They strongly argue that dirty production is inefficient production. They see waste and pollution as indications of low production efficiency (Schaltegger et al., 2009). As reviewed in Burritt (2004) adopting environmental protection measures substantially and simultaneously reduce both costs and environmental impacts at the same time.

Environmentalists make a critique of the use of monetary values in "pricing the priceless" categories of nature. According to them, measuring environmental assets and their services in financial terms "commodifies" nature, whose intrinsic worth need not be exposed to market preferences. They suggest that environmental impacts be measured by physical indicators and aggregation of material flows in the economy in material flow accounts. Weighting nature by the weight of materials and pollutants allots suspicious significance to the depletion of timber, emission of a toxic pollutant, or the extinction of cherished species, just to mention a few of the various ecological impacts (Hossein & Ali, 2015).

Another much related concept in this study is environmental conservation. It is defined as "*the prevention, reduction, and/or avoidance of environmental impact, removal of such impact, restoration following the occurrence of a disaster, and other activities. The environmental impacts are the burden on the environment from business operations or other human activities and potential obstacles which may hinder the preservation of a favourable environment*" (Ministry of Environment Japan, 2005). Conservation therefore includes the management of natural resources by human beings for current public benefits, and sustainable

social and economic benefits.

One of the key concepts in this study is pollution. This is the introduction of harmful materials known as pollutants into the environment. Pollution may be caused by natural factors such as a volcano emitting toxic materials. It may also be produced by human activities such as trash emitted by companies operating in an environment. Pollution is defined as 'an undesirable change in the physical, chemical, or biological characteristics of our air, land, and water that may or will harmfully affect human life or that of any other desirable species, or industrial processes, living conditions, or cultural assets; or that may or will deteriorate raw material resources (National Geographic Society, 2011).

In a study carried out by Mieseigha and Ihenyen, 2014 to examine the relevance of environmental cost accounting information and strategic business decision in Nigeria for the period 2008 through 2013 it was found that waste management costs, employee health costs, investment financing costs and compliance and environmental costs are relevant in making strategic business decisions. They recommended that firms should make available environmental costs information in order that the true costs in an organisation can be properly determined and apportioned.

In another study by Fuller et al. (2019) to assess the impact of China's timber industry on Congo Basin land use change it revealed that consumer demand in China and the USA has increased the extraction of natural resources in the Congo Basin. The total accumulated export of wood from Congo Basin countries to China doubled between 2001 and 2015, with 50% of exports originating from Cameroon and the Republic of Congo. A positive relationship was found between measures of Chinese logging and the loss of tree cover in the Congo Basin. It was further disclosed that US demand for Chinese-made furniture was positively correlated with Chinese timber imports from the Congo Basin, thus suggesting that US demand for furniture constitutes a significant economic driver of deforestation of the Congo basin.

Asamoah et al. (2020) came out with findings in a scientific research in Ghana to assess the wood waste generation, its management practices, and its effects on Ghanaian forest that the rate of logging in Ghana has increased due to increased number of Sawmilling companies in the country which have increased the sawn timber production. Waste generation stepped up as a result of the use of outmoded milling machines. Some 80% of the timber production companies did not have the technical know-how to manage the by-products or waste. As a result wood shavings, sawdust, wood slabs, offcuts, branches, and others are left uncirculated or recycled. The wood which was not utilised or wasted and that which was utilised as sold products were equal in cost to the company. This underscored the poor inventory management and cost-inefficiency which continued to widen their contribution to deforestation in the country.

Rofelawaty (2010) carried out a study which disclosed that environmental cost information generated through environmental accounting promotes organisa-

tional growth. Company performance improves with the implementation of environmental accounting (Larrinaga & Babbington, 2001; Elewa, 2007). Apart of cost deduction, environmental accounting also indicates potentials when environmental liabilities are avoided for companies to grow significantly (Beer & Friend, 2006).

3. Study Area and Methodology

Cameroon has a surface area of 475,442 km^2 and approximately 46% or 22 million hectares of this surface area constitutes forests. Out of the 22 million hectares of forests (constituting a significant part of the Congo Basin forest ecosystem), only 26,000 hectares or 0.1% is considered as planted forest. However, since the last 25 years, Cameroon's forest land surface has declined with a loss of around 1.0% forest cover per year, which is one of the highest deforestation rates in the Congo Basin (Ministry of Forests and Wildlife, 2018).

However, these forests offer a significant source of revenue, employment, livelihoods, ecosystem services, and habitat for over 9000 plant species, 910 bird species, and 320 mammal species. The forest ecosystem ensures security portfolios for over 80% of the local population. It thus contributes significantly to poverty alleviation and national development (Global Forest Watch, 2003; Wright & Priston, 2010). Cameroon's forests are managed for both production and conservation. Areas under forest management for timber extraction make up 40% of the national forest area, while protected areas including national parks, forests reserves, and hunting zones currently covering 20% of the national forest area. Cameroon's 1994 forest law was the first in Central Africa to promote community forest management as a strategy for sustainably managing forests and promoting local development. Most of the logs garnered in Cameroon are processed in the country. However, high quality processed products are very uncommon. The forest industry produces essentially primary timber products, exporting mainly logs, plywood, sawn wood, and veneer which are worldwide through the chief port of Douala.

Primary data was gathered online from 25 randomly chosen timber companies out of a population of 200. Production of timber companies was hypothesised to be influenced by pollution prevention, contribution to global environmental conservation and resource recycling. The following model was established:

$$\text{PTC} = f\left(\text{PP}, \text{CGEC}, \text{RR}\right)$$

The econometric expression being:

$$\text{PTC}_i = \beta_0 + \beta_1\text{PP}_i + \beta_2\text{CGEC}_i + \beta_3\text{RR}_i + \lambda_i$$

where:

β_0 = Intercept;

β_1, β_2, β_3 = Parameter coefficients to be estimated for the variables in the regression equation;

PTC = Production of Timber Companies;

PP = Pollution Prevention;

CGEC = Contribution to global environmental conservation, and;

RR = Resource Recycling;

λ = Error or disturbance term with its assumed normality.

The data was analysed using the Ordinary Least Square (OLS) technique. To test for the reliability of the constructs, the study adopted the computation of the Cronbach's alpha coefficient. This was to determine the internal consistency of the constructs in the study. The Cronbach's alpha reliability was used to test for internal consistency. This test of scale reliability involves examining whether items have a loading of at least 0.70, which demonstrated that the items share more common properties with the construct than error variance (Carmines & Zeller, 1979). A second test was a measure of internal consistency developed by Fornell and Larcker (1981); the goal of which was to achieve a score greater than 0.70. The third and final, common way to assess reliability was to examine Cronbach's alpha coefficient (Nunnally, 1994), where alpha scores that exceed 0.50 are considered reliable.

4. Presentation and Discussion of Empirical Results

Reliability Test of the Constructs

Table 1 shows that all the Cronbach's alpha values of the constructs are higher than 0.50, indicating adequate internal consistency. These results imply that there is identity in the set of properties or characteristics surrounding the set of variables (constructs), and that it is not by error that they trend in a similar direction. The values satisfy the cut-off criterion and allow us to proceed with their inclusion in the analysis of this result. This is a demonstration that the tests and scales that have been constructed or adopted for this study are fit for the purpose.

Table 2 presents an analysis on the contribution of timber companies in pollution, global environmental conservation and resource recycling. It contains the coefficients and their levels of significance.

The output of timber companies was hypothesised to be influenced by pollution prevention, contribution to global environmental conservation, and resource circulation. The coefficient of pollution prevention is positive (0.038), in dicating

Table 1. Cronbach's alpha values.

Variables	Cronbach's Alpha	Cronbach's Alpha Based On Standardized Items	No of Items
PTC	0.790	0.812	3
PP	0.848	0.853	9
CGEC	0.569	0.589	3
RR	0.708	0.739	3

Source: Field data, 2020.

Table 2. Regression results.

Model	Coefficients				
	Unstandardised Coefficients		Standardised Coefficients	t	Significance
	B	Std. Error	Beta		
(Constant)	2.961	1.152		2.571	0.012
Pollution Prevention	0.038	0.110	0.038	0.347	0.029
Contribution to Global Environmental Conservation	0.035	0.151	0.027	0.233	0.016
Resource Recycling	0.341	0.148	0.260	2.307	0.024

1. Dependent Variable: PTC; PTC = 2.961 + 0.038PP + 0.035CGEC + 0.341RR.

that pollution prevention has a positive influence on production of timber companies. Therefore an increase in pollution prevention by one unit will improve output of timber companies by 0.038. Hence, results show that pollution prevention is statistically significant at 5 percent. In essence, if improved and innovative measures are designed and put into effect, they will cause an increase in the amount of timber produced in Cameroon. This is so because when pollution is prevented; all company factors of production operate in a safe and healthy environment conducive for increased productivity. This result meets the a priori expectation of this paper and is in line with the findings of Rofelawaty (2010) which disclosed that environmental cost information generated through environmental accounting promotes organisational growth. It also supports the findings of Larrinaga and Babbington (2001), and Elewa (2007) which disclosed that organisational performance improves with the implementation of environmental accounting.

Global environmental conservation has a positive influence on the production of timber companies with a coefficient of 0.035. A unit change in the contribution to global environmental conservation will enhance a 0.035 change in the production of timber companies. This result is statistically significant at 5% level of significance. This result justifies why De Steiguer (1992) upheld the establishment of an optimal level of pollution control so as to enhance environmental conservation in Europe and America. According to him, air pollution damage to the environment has increased in recent years, and the threat to forests is now a matter of public concern. Adhikari and Ozarska (2018) both called for minimisationof environmental impacts of timber products through the production process from sawmill to final products.

Resource recycling also has a positive coefficient of 0.341 indicating a positive effect on the production of timber companies in Cameroon. This implies that when more resources are recycled, they boost up the total margin of timber companies, especially through diversification. This is particularly important because it adds value to the entire production system. Hence the result is significant at 5%

level. In this light, if more resources are being recycled, they will improve the productivity of timber companies in Cameroon. According to Larinde, Akande, Agbeja, and Ntabe (2010), resource recycling through process technology which is an aspect of solid waste management is relevant in timber production. This was supported by an improvement in the mean operating capacity for surveyed firms of 72.5%.

To determine the extent to which the dependent variable is influenced by a combined change in all the independent variables in the model, the study uses the R-squared. This finding is shown in Table 3.

The coefficient of R-squared is 0.5461. This shows that all the independent variables combined (that is, Pollution Prevention, Contribution to Global Environmental Conservation, and Resource Recycling) explain about 54.61% of the variations in the production of timber companies. This in effect means a unit change in all of these variables will lead to a 54.61% change in the production of timber companies. On the other hand, about 45.39% of the variations in the production of timber companies are caused by changes in variables that were not included in the model of this study.

The overall significance of the study was tested by calculating the F-statistics. The results are as presented on Table 4.

Table 3. Model summary (coefficient of multiple determinations).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.581[a]	0.5461	0.499	0.94797

a. Predictors: (Constant), PP, CGEC, and RC.

Table 4. ANOVA[a].

	Model	Sum of Squares	Df	Mean Square	F	Significance
	Regression	1.7758	3	0.293	5.83	0.0000[b]
1	Residual	1.075	21	0.154		
	Total	2.833	24			

a. Dependent Variable: PTC; b. Predictors: (Constant), PP, CGEC and RC.

From Table 4, the coefficient of the F-statistics is 5.83 with a probability value of 0.000. This means that the overall model is very significant at 1 percent. That is, the model is more than 99 percent reliable in explaining the joint variation of the production of timber Companies in Cameroon. Based on the Bayesian theory, the null hypothesis that there is no significant contribution of cost of pollution prevention, global environmental conservation, and resource recycling on the production of timber companies is rejected.

5. Conclusion and Policy Recommendations

The use of the environment creates environmental impacts and related costs.

Business operators in forests products generate air, water, and soil pollutants; resource depletion and degradation; and disturbances to the livelihoods of the local populations. Traditional accounting secretes these costs caused by environmental exploitation stakeholders. However, Green accounting or Environmental accounting demands that these costs be realistically estimated and allocated accordingly. As a consequence, this study examined the implications of accounting for environmental conservation costs incurred on the productivity of timber companies in Cameroon.

The empirical results gave evidence of a causal connection between cost accounting of pollution prevention, contribution to global environmental conservation, and resource recycling, and the output of timber companies in Cameroon. Specifically, the results disclosed that an increase in the cost accounting of pollution prevention will improve on the productivity of timber companies. Further empirical evidence supported the point that an increase in the cost accounting of contributions to global environmental conservation will improve the production of timber companies. Lastly, the results revealed that cost accounting of resource recycling increases the output of timber companies.

Consequently, there is a need for proper assessment of a country's income. For this to be effective or realistic accountability must not only be given for all the operational contributions made by all production entities of the economy, but also of their impact on the environment. The government should enforce the legislation in a way that compels the environmental exploitation participants to abide by this accountability in their financial statements.

Furthermore, this study has proven that even where effective legislation is absent; it is cost-saving and profitable in the long run to carry out cost and management accounting of pollution prevention, contribution to global environmental conservation, and resource recycling by environmental stakeholders. Environmental conservation creates a more work-friendly environment for optimum production. Accounting for the cost of pollution prevention, contribution to global environmental conservation, and resource recycling contribute significantly to organisational and environmental cost decrease.

The incorporation of the realistic values of natural resources (timber) and the costs of environmental conservation should all appear in the financial records and statements of these operators. Resource recycling should be greatly encouraged and should be the responsibility of both the private sector and the public sector. Recycling apart from keeping the environment clean of much waste, generates profit margins for the recycler that would have been lost if there was no recycle. Environmental cost and management accounting if practiced properly signals when to minimise environmental costs and liabilities in order to experience significant growth in production. Environmental stakeholders in general and timber exploitation entities, in particular, should be adequately sensitised by the government and professional accounting bodies on the need to incorporate realistic values of natural resources and the costs of environmental conservation

in their financial records and statements.

The future work based on this study may examine the implications of other environmental cost conservation variables such as research and development costs on the productivity of other environmental exploitation stakeholders.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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