The Role of Green Legacy in Promoting Sustainable Development and Combating Climate Change

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Abstract: The Impact of Green Legacy on Sustainable Development and Climate Change in Ethiopia is a topic that requires further research to address the existing research gap. While the Green Legacy initiative launched by the Ethiopian government aims to combat deforestation and soil degradation by promoting tree planting, there is limited scholarly literature specifically examining its impact on climate change mitigation and adaptation. A research gap exists in understanding the effectiveness of the Green Legacy in reducing greenhouse gas emissions, promoting carbon sequestration, and enhancing the resilience of local ecosystems to climate change impacts. Further research in this area is crucial to assess the initiative's contribution to climate change mitigation and adaptation efforts in Ethiopia, inform policy decisions, and guide the implementation of effective strategies to address the country's environmental challenges. The objective of this study was to investigate the impact of green legacy in promoting climate change. Mixed research methods were employed. To get the primary data needed for the study, questionnaires and interviews as data collection tools. The study adopted both descriptive and explanatory research designs. Through explanatory research design, the study investigated the effect of planting and growing trees on climate change. The study used a descriptive method to assess changes and opportunities in Ethiopian green legacy. Logit regression analysis was applied to examine the factors that affect business climate change. While working on the green legacy agenda, the changes such as water scarcity to grow trees, overexploited forests, and lands that are difficult to easily recover through green legacy. The research findings on this topic can contribute to the understanding of the effectiveness of large-scale reforestation initiatives in combating climate change. By evaluating the outcomes of the Green Legacy, researchers can identify successful strategies, challenges, and potential improvements that can be adapted to other regions facing similar environmental issues. Secondly, this research can provide insights into the potential contribution of tree planting initiatives to carbon sequestration, which is vital for global efforts to reduce greenhouse gas emissions and mitigate climate change impacts. Additionally, understanding the impact of the Green Legacy on local ecosystems can guide the development of sustainable land management practices, habitat restoration, and biodiversity conservation. Lastly, the findings of this research can inform evidence-based policy decisions, guiding the formulation and implementation of effective environmental and climate change policies at the national and international levels. Overall, the research implications highlight the importance of studying the impact of the Green Legacy in Ethiopia to address climate change challenges and advance

sustainable development goals. Based on regression analysis, the results of the study revealed that planting and growing have a negative effect on climate change. The scholars suggested the federal government of Ethiopia continue the plantation of trees and growing of trees to maintain sustainable development through green and healthy countries after climate action.

Keywords: Green legacy, climate change, sustainable development, planting trees

Foreword

As we face the challenges of climate change, it is becoming increasingly important to prioritize the preservation and expansion of green spaces. By planting trees and protecting forests and natural habitats, we can mitigate the effects of carbon emissions and preserve biodiversity. In addition, green infrastructure and sustainable land use practices can provide a renewable source of resources, reducing our reliance on non-renewable sources of energy. By prioritizing a green legacy, we can create a healthier and more sustainable future for ourselves and for generations to come.

1. Introduction

Climate change is the hot agenda of the world that can be achieved through planting and growing trees. Trees are vital for protecting the Environmental Impact and maintaining sustainable Development (Hakim, Miyakawa, & Bakti, 2013; Bäckstrand & Lövbrand, 2006).

It is impossible to have a green and healthy world without planting trees. The reason is simple: the living organisms cannot survive without trees. Trees are an important tool in the fight against climate change. They store carbon and help cool the environment. Forests are the habitat of countless species of plants and animals and serve as an important source of biodiversity. Trees provide oxygen, food, water, clean air, medication, and jobs. That's how trees ensure a healthy living environment for everyone (Trees for All, 2023).

Planting trees is the best mechanism for creating a green and healthy world and the globe needs more trees for a better climate, more biodiversity, and healthy living conditions. Today the issue of the green economy has become the burning agenda of the world in general that of Ethiopia in particular. So, the agenda of building a carbon-free economy is global and needs the cooperation of all countries in the world.

Different countries in the world have established different methods to work on the issue of climate change. For example, the green economy policy of America is the Green New Deal; the Netherlands is Trees for All, the Great Green Wall China, and the Green Economy Strategy and Implementation Plan in Kenya respectively.

Ethiopia is one of the sub-Saharan African countries hardest hit by drought and forest deforestation (Abebe and Arega, 2023).

Empirical findings have pointed out that green economy policy implementation has a positive and significant effect on sustainable development (Hamad, 2022; Kandasamy et al., 2022; Abebe and Arega, 2023; Versal, & Sholoiko, 2022). Hamad, 2022).

The Green Legacy has successfully contributed to increased forest cover: A study conducted by Kassa et al. (2020) assessed the impact of the Green Legacy on forest cover in Ethiopia. The researchers analyzed satellite imagery and found a significant increase in forest cover since the inception of the initiative. The study concluded that the Green Legacy has been effective in addressing deforestation and promoting reforestation, thereby enhancing

carbon sequestration and mitigating climate change.

Positive impact of the Green Legacy on local climate: A research study conducted by Abate et al. (2019) investigated the impact of reforestation efforts under the Green Legacy on local climate in Ethiopia. The researchers used climate modeling techniques and ground-based observations to analyze changes in temperature and precipitation patterns. The findings indicated that the Green Legacy has had a positive impact on the local climate, leading to reduced temperatures and increased rainfall, which have significant implications for agricultural productivity and water availability in the region.

Now is the right time for researchers to conduct the research on impact of climate change in Ethiopia. The three major reasons are:

Assessing effectiveness: The Green Legacy is a national reforestation initiative launched by the Ethiopian government to combat deforestation and increase forest cover in the country. By studying its impact on climate change, researchers can evaluate the effectiveness of this initiative in terms of mitigating greenhouse gas emissions, enhancing carbon sequestration, and promoting climate resilience.

Climate change adaptation: Climate change poses significant challenges to Ethiopia, including increased drought frequency, erratic rainfall patterns, and vulnerability to extreme weather events. By studying the impact of the Green Legacy, researchers can determine how it contributes to climate change adaptation strategies, such as improving water availability, protecting soil quality, and promoting biodiversity, which are vital for enhancing the resilience of communities and ecosystems.

Policy formulation and decision-making: Understanding the impact of the Green Legacy on climate change can provide valuable insights for policymakers and decision-makers. It can help guide the development of effective strategies and policies related to afforestation, reforestation, and land-use management. Additionally, research findings can inform resource allocation, target setting, and monitoring mechanisms for sustainable practices.

Knowledge sharing and replication: Evaluating the impact of the Green Legacy can contribute to the global body of knowledge on reforestation efforts and their effects on climate change. Findings from Ethiopia can be shared with other countries facing similar challenges, providing valuable lessons and best practices for replication or adaptation elsewhere.

Sustainable development and co-benefits: The Green Legacy has wider implications beyond climate change, including social, economic, and environmental benefits. Researching its impact can help identify and quantify these co-benefits, such as job creation, improved water quality, enhanced biodiversity, and ecosystem services. Such information can support a holistic understanding of the initiative's contributions to sustainable development in Ethiopia.

The green legacy programs are the tools to provide carbon carbon-free economy. Hence, the sustainable implementation of the green legacy initiative in Ethiopia is a big memo for the government of Ethiopia. In accordance with the intended nationally determined contribution issued by the Government of Ethiopia, the country intends

to limit net greenhouse gas to 145 Mt CO2 by the year 2030. Therefore the paper set out to identify the effect of Green Legacy on Climate change as well as explore challenges in implementing the program.

Research objectives:

The major objective of this study was to examine the impact of green legacy on weather change in Ethiopia.

- ✓ Identify the effect of planting and growing trees on climate change in Ethiopia.
- ✓ Explore the challenges and opportunities of green legacy in Ethiopia

2. Literature Review

Studying the impact of the Green Legacy on climate change in Ethiopia provides insights into its efficacy, informs policy formulation, supports climate change adaptation strategies, facilitates knowledge sharing, and highlights the broader benefits associated with reforestation efforts. Hence, the researcher developed a literature review as follows

2.1 United Nations Goal on Green Legacy

The United Nations (UN) has set several goals as part of its green legacy initiative, aimed at promoting sustainability and environmental conservation worldwide. These goals address various aspects of sustainable development, including climate change, biodiversity, and resource management. This article will discuss five key UN goals of green legacy, along with references to support each goal.

a) Goal: Climate Action

One of the primary goals of the UN's green legacy initiative is to combat climate change and reduce greenhouse gas emissions. The UN encourages countries to adopt renewable energy sources, implement energy-efficient practices, and promote sustainable transportation systems. This goal aligns with the Paris Agreement, an international treaty aimed at limiting global warming. (Reference: United Nations Framework Convention on Climate Change, unfccc.int)

b) Goal: Sustainable Cities and Communities

The UN aims to create sustainable cities and communities that are environmentally friendly, socially inclusive, and economically prosperous. This goal involves developing eco-friendly infrastructure, improving waste management systems, and promoting sustainable urban planning. The UN's Sustainable Development Goal 11 focuses specifically on making cities and human settlements inclusive, safe, resilient, and sustainable. (Reference: United Nations Sustainable Development Goals, sustainabledevelopment.un.org)

c) Goal: Life on Land

The UN recognizes the importance of protecting terrestrial ecosystems and biodiversity. The Green Legacy initiative emphasizes the conservation and restoration of forests, wetlands, and other natural habitats. This goal aligns with the UN's Sustainable Development Goal 15, which aims to protect, restore, and promote sustainable use of terrestrial ecosystems. (Reference: United Nations Convention on Biological Diversity, cbd.int)

d) Goal: Clean Water and Sanitation

Access to clean water and sanitation is crucial for human well-being and environmental sustainability. The UN's green legacy initiative promotes responsible water resource management, including water conservation, pollution prevention, and sustainable water use. This goal aligns with the UN's Sustainable Development Goal 6, which aims to ensure the availability and sustainable management of water and sanitation for all. (Reference: United Nations Water, unwater.org)

e) Goal: Responsible Consumption and Production

The UN aims to promote sustainable patterns of consumption and production to minimize waste generation and environmental degradation. This goal encourages individuals and businesses to adopt sustainable practices, such as reducing waste, recycling, and using eco-friendly products. The UN's Sustainable Development Goal 12 focuses specifically on ensuring sustainable consumption and production patterns. (Reference: United Nations Development Programme, undp.org)

In conclusion, the UN's green legacy initiative encompasses various goals related to sustainability and environmental conservation. These goals include climate action, sustainable cities and communities, life on land, clean water and sanitation, and responsible consumption and production. By addressing these goals, the UN aims to create a greener, more sustainable future for all.

2.2 Climate Change in Ethiopia

Climate change is a pressing issue in Ethiopia, as the country is highly vulnerable to its impacts. This has significant implications for the country's agricultural sector, which heavily relies on rainfall for crop production. Droughts have led to crop failures, food shortages, and increased food insecurity, affecting millions of people in rural areas (FAO, 2019).

Another impact is that climate-changing rainfall patterns due to increases in temperature have resulted in decreased water availability, particularly in areas dependent on rivers and lakes. This has led to water scarcity, affecting both agricultural activities and access to clean drinking water. The declining water resources have also contributed to conflicts and displacement of communities (UNDP, 2019).

Furthermore, climate change has accelerated the degradation of Ethiopia's ecosystems, particularly its forests. Deforestation, coupled with increased temperatures and changing rainfall patterns, has resulted in the expansion of arid and semi-arid areas, leading to desertification. This has negative implications for biodiversity conservation, soil fertility, and the livelihoods of communities dependent on forests (USAID, 2019).

Ethiopia has also faced water floods and storms. These events have caused significant damage to infrastructure, homes, and agricultural lands, leading to economic losses and displacement of communities. The impacts of extreme weather events are particularly felt in vulnerable communities lacking adequate infrastructure and resources to cope with their aftermath (World Bank, 2019).

To address the challenges posed by climate change, Ethiopia has taken various measures or strategy includes initiatives such as reforestation, promoting renewable energy, and implementing climate-smart agriculture practices (Ministry of Environment, Forest and Climate Change, 2019).

2.3 Green Legacy in Ethiopia

The Green Legacy initiative in Ethiopia is a large-scale reforestation campaign commenced by Prime Minister Abiy Ahmed in 2019 which aimed to combat deforestation, restore degraded landscapes, and increase the country's forest cover. As part of the campaign, millions of trees are planted across the country each year, with the goal of planting four billion trees by October (Ethiopian Embassy, 2023).

Climate Change and Increased Temperature in Ethiopia: A study conducted by Seleshi and Zanke (2004) examined the trends and changes in temperature patterns in Ethiopia from 1960 to 2000. The researchers analyzed meteorological data and found a clear warming trend during this period. The study concluded that Ethiopia experienced a significant increase in temperature, with the warming being more pronounced in the highlands. The findings suggest that climate change has contributed to elevated temperature levels in the country.

Erratic Rainfall and Climate Variability in Ethiopia: A research study conducted by Conway et al. (2004) focused on understanding the variability and changes in rainfall patterns in Ethiopia over the last century. The researchers used multiple datasets, including historical rainfall records, and analyzed climate indices to assess rainfall variability. The study found evidence of increased climate variability and a higher frequency of droughts and floods in different regions of Ethiopia. The findings indicate that climate change has contributed to erratic rainfall patterns, posing challenges to agriculture and water resource management.

The Green Legacy initiative has garnered widespread support and participation from various sectors of society, including government institutions, schools, communities, and businesses. It has become a national movement, with millions of Ethiopians actively involved in tree-planting activities. The initiative not only contributes to mitigating climate change but also promotes environmental awareness and community engagement (UN Environment Programme, 2020).

The reforestation efforts under the Green Legacy initiative have numerous benefits for Ethiopia. They help to restore ecosystems, conserve biodiversity, and protect watersheds, which are crucial for water availability and soil fertility. Reforestation also contributes to carbon sequestration (Ethiopian Embassy, 2020).

In addition to the environmental benefits, the Green Legacy initiative has socio-economic impacts. It provides employment opportunities, particularly for rural communities, through activities such as seedling production, tree planting, and forest management. The initiative also promotes sustainable agriculture practices and agroforestry, which can enhance food security and improve livelihoods (UN Environment Programme, 2020).

The Green Legacy initiative has received international recognition and support. It aligns with global efforts to combat climate change and achieve the Sustainable Development Goals. The United Nations Environment Programme (UNEP) has praised Ethiopia's commitment to reforestation and highlighted the initiative as an example for other countries to follow in addressing deforestation and climate change (UN Environment Programme, 2020).

The literature review regarding the impact of planting trees on climate change in Ethiopia is evident, with limited studies conducted on this specific topic. Despite the country's ambitious reforestation initiatives, such as

the Green Legacy campaign, there is a need for comprehensive research that examines the direct and long-term effects of tree planting on mitigating climate change in Ethiopia.

One area that lacks sufficient research is the quantification of the carbon sequestration potential of newly planted trees in Ethiopia. While there are studies that estimate the carbon storage capacity of different tree species, there is a scarcity of research that specifically focuses on the carbon sequestration potential of trees planted through large-scale reforestation programs in the country. Understanding the carbon sequestration rates and the factors that influence them is crucial for accurately assessing the contribution of tree planting initiatives to climate change mitigation (FAO, 2020).

Another literature gap is the assessment of the impact of tree planting on local microclimates and ecosystem services in Ethiopia. Trees play a vital role in regulating temperature, humidity, and wind patterns, as well as providing various ecosystem services such as soil conservation, water regulation, and biodiversity conservation. However, there is a lack of studies that investigate the extent to which tree-planting initiatives in Ethiopia have influenced local microclimates and the provision of ecosystem services (Woldeamlak et al., 2019).

Furthermore, there is a need for research that examines the social and economic dimensions of tree-planting initiatives in Ethiopia. While the Green Legacy campaign has generated significant social mobilization and community engagement, there is limited literature that explores the socio-economic impacts of these initiatives. Understanding the effects on employment, income generation, and community resilience can provide valuable insights for policy and program development in the context of climate change adaptation and sustainable development (UN Environment Programme, 2020).

2.4 Impact of Planting Trees on Climate Change

Trees release oxygen into the air, which is essential for human and animal life. The impact of planting trees on climate can be significant, especially if done on a large scale.

According to the United Nations, green legacy helps to reduce carbon dioxide in the atmosphere, trees also have other benefits for the environment. They help to prevent soil erosion, provide habitat for wildlife, and improve air and water quality.

Trees can also provide shade, which can reduce the need for air conditioning in the summer, and they can act as windbreaks, which can help to reduce heating costs in the winter. Planting trees also has social and economic benefits. Trees can provide food, timber, and other resources for local communities, which can help to alleviate poverty and improve livelihoods. They can also provide recreational opportunities, such as hiking and camping, which can boost tourism and create jobs. Overall, the impact of planting trees on climate is significant and wide-ranging. It is a cost-effective and practical solution to avoid the negative effects of climate change. By planting trees, we can create a healthier, more sustainable future for ourselves and for future generations (Zegeye, 2018).

Figure 1: Planting tree

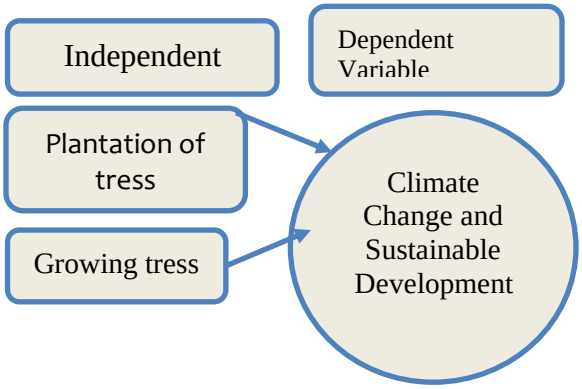
Source: Furra Institute of development studies & education (2022).

Since 2019 as far as Ethiopia started the green legacy process. The above image shows the corresponding author contributing to the green legacy of Ethiopia to save lives. The photo shows the plantation of trees as a contribution to the green economy of the world (Figure 1)

2.5 Conceptual Framework

The conceptual framework of this study focuses on measuring factors affecting the collection of climate change. This study involves climate change as a dependent variable and the plantation of trees and growing trees as an independent variable.

Figure 2: Conceptual framework of the study



Source: Authors' Design from Literature Review, 2023

The above Figure 2 shows the relationship between planting trees and climate change.

3. Research Methodology

The methods and materials used in this study have been summarized as follows:

Table 1: Summary of research methodology

The reason for selecting the Study area	This study was conducted in Ethiopia. The government of Ethiopia started the green legacy incentives in 2019 to promote the agenda of Green and Low-Carbon Economy. So, studying the impact of the Green Legacy on climate change in Ethiopia is crucial for Assessing the effectiveness of Green Legacy progress, exposing climate change adaptation strategies, Policy

	formulation and decision-making, Knowledge sharing and replication, and sustainable development and co-benefits: The Green Legacy has wider implications beyond climate change, including social, economic, and environmental benefits. Researching its impact can help identify and quantify these co-benefits, such as job creation, improved water quality, enhanced biodiversity, and ecosystem services. Such information can support a holistic understanding of the initiative's contributions to sustainable development in Ethiopia.
Research design	This study employed the descriptive research design. Descriptive research design is essential because it allows researchers to systematically gather, analyse, and interpret data to provide a detailed description of a specific phenomenon or group. This design helps in answering questions related to who, what, when, where, and how of a particular situation, without manipulating variables or making causal inferences. It provides a comprehensive picture of the subject being studied, enabling researchers to observe patterns, trends, and relationships, which can be valuable for decision-making, policy formulation, and understanding complex real-world phenomena. Descriptive research is particularly useful in exploratory studies, where the focus is on accurately describing and documenting characteristics, behaviors, attitudes, and opinions of individuals or groups, serving as a crucial foundation for further in-depth investigations and hypothesis generation.
Research approach	In this research paper, the researchers used a Mixed approach. The mixed research approach is highly advantageous as it combines both qualitative and quantitative methods in a single study. This approach allows researchers to gain a more comprehensive understanding of a research problem by simultaneously exploring the depth and richness of qualitative data and capturing the breadth and generalizability of quantitative data. By utilizing both approaches, researchers can explore the complexities of human experiences, attitudes, and behaviors while also examining larger patterns, trends, and statistical relationships. This approach enhances the validity and reliability of research findings by triangulating multiple sources of data, facilitating a more holistic and nuanced understanding of the research topic. It also increases the practical utility

	of research by providing both in-depth insights and broader generalizability, making it highly valuable for informing evidence-based decision-making and policy formulation.
Target population	The target population refers to the group of individuals or entities that a researcher or marketer intends to study or reach with their research or marketing efforts. It is a specific group that possesses certain characteristics, behaviors, or qualities that make them relevant to the study or marketing campaign. The target population is usually defined based on specific criteria or variables, such as age, gender, income level, geographic location, or specific interests. The target population of this study is all employees of the Ministry of Agriculture, Environment Protection Authority, and the Ministry of Environment, Forest, and Climate Change.
Sampling technique	Purposive sampling is an important technique in research as it allows researchers to select participants who have specific characteristics or experiences that are relevant to their study. This sampling method helps ensure that the sample chosen is representative of the population under investigation and increases the likelihood of obtaining comprehensive and meaningful data. By intentionally selecting participants based on certain criteria, researchers can focus their study on individuals who possess the knowledge, perspectives, or traits necessary for a deep exploration of their research question. This technique enables researchers to effectively target their sample, enhance the validity and reliability of their findings, and ultimately contribute to the development of impactful and applicable research outcomes. So, the researchers used the purposive sampling technique.
Sample size	Sample size refers to the number of observations or participants included in a study or survey. It is important to have an appropriate sample size in research to ensure that the results are representative of the population being studied and to minimize the margin of error. The sample size is determined based on the research objectives, statistical considerations, and resources available. The sample size of this study is 120 experts working on green legacy 40 participants each from three government ministries.

Sources of data	In this study, the researchers employed primary data sources. Accuracy and reliability: Primary data sources provide first-hand information, which is collected directly from the source. This ensures that the data is accurate and reliable, as it is not subject to any interpretation or bias that may be present in secondary data sources.
Data collection tools	In this research, the researchers used questionnaires & interviews. Questionnaires and interviews are valuable tools in data collection as they allow researchers to gather specific, reliable, and rich data, with the flexibility to adapt and explore new areas of research.
Method of data analysis	Quantitative and qualitative data analyses were done. Mixing both quantitative and qualitative data analysis allows for a more comprehensive and balanced understanding of the research topic or problem. Quantitative analysis utilizes numerical data and statistical methods to explore patterns, trends, and relationships, providing objective and generalized insights. On the other hand, qualitative analysis involves examining textual or narrative data to gain an in-depth and subjective understanding of underlying meanings, motivations, and contexts. By combining both approaches, researchers can triangulate findings, validate each type of data against the other, and obtain a richer and more nuanced perspective. This mixed-methods approach enhances the validity and reliability of the research, allowing for a more holistic and meaningful interpretation of the data.
Model specification	A binary Logistic Regression model was employed. Binary logistic regression is a popular statistical model used for predicting the probability of an event occurring, which can take one of two possible outcomes or categories. This model is specifically designed for binary or dichotomous dependent variables, where the two categories are coded as 0 and 1.

Econometric Model Equation

The change in climate and sustainable development can be considered as a dummy variable. The equation was derived as follows:

$$y = \frac{1 \; if \; y* > 0}{0 \; if \; y* \leq 0} \ldots\ldots\ldots\ldots (1)$$

Probability of success/ Probability of failure

$$\Pr CC\ (Y* > 0$$
$$= \Pr Ob(\beta' X + E > 0)$$
$$= \Pr Ob(E > -\beta' X)$$
$$= \Pr Ob\ (E < \beta' X)$$
$$= f(\beta' X) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

The mathematical expression of the model can be:

$$\Pr(CC = 1)$$
$$= \beta 0 + \beta 1(PT1) + \beta 2(GT2) +$$
$$\cup \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

β0 = Constant term

CC= climate change.

PT= plantation of trees

GT= growing trees

β1- β2 refers to coefficients

4. Results & Discussion

4.1 Quantitative Analysis

In quantitative, the data is collected and then analyzed in response to the problems presented in the introduction of this study. The findings are based on sample employees of three sectors with the help of structured questionnaires and Interviews. The response rate stood at 83%, with 100 out of 120 sampled individuals providing their responses.

Model fitting information

Table 2: Model the Goodness-of-Fit Model

Particulars		Chi-Square	Df	p-value
Step	Step	253.165	5	0.000
1	Block	253.165	5	0.000
	Model result	253.165	5	0.000

Source; Primary data, 2023

In the above Table 2, the p-value under three cases such as step, block, and model result is less than 0.01 which means the model as a whole is statistically significant. Also, the chi-square value of the model under three cases is more than 0 which implies the model of this study is fit.

Table 3: Model Summary Result

-2log likelihood	Cox and Snell R^2	Nagelkerke R^2
188.882a	.844	.938

Source: Survey data, 2023

As seen from Table 3 Nagelkerke R^2 0.938 shows 93.8% of variation by the Climate Change and Sustainable Development, that is, climate change could be explained by variation in the independent variables chosen for our model (plantation of trees and growing trees). However, the remaining 6.2% of changes in climate change in Ethiopia are caused by other factors that are not included in the model.

Regression analysis

In this research climate change was considered by increases in temperature. So, when green forest increases, the temperature will decrease.

Table 4: Binary logit model Result

	Coefficient	Standadrd	Wald val	Degree of	p-value	Exponential

			erorr.	ve	freedom		Coefficient
Step 1a	PT	-291	.266	23.542	1	.000***	3.636
	GT	-.432	.387	6.850	1	.009***	2.751
	Constant	-16.692	1.945	73.622	1	.000	.000
a. Variable(s) entered on step 1: PT, GT *** significant at 1%,							

Source: Survey data, 2023

The coefficients of independent variables such as knowledge of rights and responsibilities -291 indicates that a 1% increase in planting trees, decreases the probability of an increase in temperature by 29.1%. Also, the regression coefficient of growing trees indicated that a 1% increase in growing trees reduces the probability of an increase in temperature by 43.3%.

Planting trees has a coefficient[β=-0.291] which is negative and significant at a one percent level of significance. Therefore, hypothesis one was not rejected by researchers. This finding is consistent with Hamad (2022) and Kandasamy et al., (2022) who found that planting trees has a negative and significant relationship with climate change measured through an increase in temperature. This implies that if plants planted well, the climate will be cool down.

Growing trees have a coefficient [β=-0.432] which is negative and significant at a one percent level of significance. Hence, the hypothesis one was not rejected. The finding of this paper is similar to Abebe and Arega (2023); and Versal, & Sholoiko, (2022) who found that growing trees has a negative and significant relationship with climate change measured through an increase in temperature. This implies that if plants planted grow well, the high-temperature amount will cool down.

4.2 Qualitative analysis

In order to triangulate the findings from both quantitative and qualitative, the researcher collected the primary data through telephone interviews with director generals of three purposively selected sectors. The scholar asked what the current challenges and opportunities of the green legacy program are. For clarity the researcher mentioned both challenges and opportunities as follows: According to the response of the interview, the green legacy of Ethiopia is facing changes like Scarcity of water in rural areas, Soil erosion, Deforestation, Land degradation, Loss of biodiversity, High Population growth, increases of temperature etc.

The opportunities of Ethiopian green legacy include but are not limited to better climate conditions, more biodiversity, a healthy and green world, improvement in livelihood for the people, prevention of loss of biodiversity, and increased energy and resources.

5. Conclusion

The world is working on the agenda of a green and carbon-free economy which is the main concern for the United Nations. It is Goal number 13 is climate action implemented by reducing carbon in the economy through planting and growing trees. This study was set out to examine the impact of green legacy in reducing temperature and promoting sustainable development with reference to Ethiopia. The required data were collected from experts in three sectors working on climate change in

Ethiopia. Then, both quantitative and qualitative analyses were done by the researcher. Based on the result of quantitative analysis, the researcher concluded that plantation and growing of trees reduce the increases in temperature. Based on qualitative analysis, it can be concluded that the green legacy of Ethiopia is facing changes like Scarcity of water in rural areas, Soil erosion, Deforestation, Land degradation, Loss of biodiversity, High Population growth, increases in temperature as well and forest degradation. Based on the analysis result of this paper, it can be concluded that planting and growing trees (green legacy) has a positive and significant contribution to the green economy which is a safe side for biodiversity.

6. Recommendations

Continuing to plant trees and other vegetation is a critical step in preserving biodiversity and achieving a carbon-free economy. By creating green spaces in urban areas and protecting existing forests and natural habitats, Ethiopia should provide homes and food for a variety of plant and animal species. Additionally, planting trees and using sustainable forestry practices can provide a renewable source of timber and other resources, reducing our reliance on fossil fuels and other non-renewable resources. By prioritizing green infrastructure and sustainable land use practices, Ethiopia should create a healthier and more sustainable future for us and for the planet.

7. Direction for future research

This study was focused on the role of green legacy on climate change and suitable development in Ethiopia. This study only considered planting and growing trees as independent variables and climate change as dependent variables. So, the findings of this study have been interpreted based on the effect of planting and growing trees. Future researchers can expand the study by expanding its scope to Africa or the world in order to have generalized views. Also, the future researcher will add variables to expand the scope of this topic.

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First of all, we would like to extend our heartfelt gratitude to God for everything. Next to God, thank all participants of this study. Last but not least, we would like to express our deep gratitude for the financial support provided by Atlantic International University to study the research entitled "The Impact of Green Legacy on Climate Change in Ethiopia." Your support has been instrumental in conducting this study and has allowed us to gather valuable insights into the positive effects of the Green Legacy initiative on climate change in Ethiopia. The funds provided by Atlantic International University have contributed significantly to covering various research expenses, including data collection, analysis, and other project-related costs. Your belief in the importance of this research and your generous financial assistance have not only made this study possible but also reinforced our dedication to addressing crucial environmental issues.

Through our research, we have been able to uncover and quantify the direct impacts of Ethiopia's Green Legacy on climate change mitigation efforts. The initiative, which aims to restore and conserve forests, has proven to be highly successful in reducing carbon emissions, improving air quality, and enhancing biodiversity. Furthermore, our findings highlight how the Green Legacy initiative has positively influenced the local communities, promoting sustainable livelihoods, and economic growth. By engaging the community in tree planting and

environmental conservation activities, the initiative has empowered individuals to actively participate in combating climate change. We are excited about the positive implications of our research for climate change mitigation strategies, both in Ethiopia and globally. The support received from Atlantic International University has undoubtedly played a vital role in making these important findings accessible to policymakers, researchers, and environmentalists, which in turn can facilitate evidence-based decision-making. Once again, we sincerely appreciate Atlantic International University's financial support, which has significantly contributed to the success of this research. We hope that our study's outcomes will inspire further collaborations and initiatives to combat climate change, promoting sustainability and environmental stewardship.

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