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REVIEW ON ONE HEALTH BENEFITS OF RECENTLY LAUNCHED ETHIOPIAN GREEN LEGACY

Sadik Zakir Abadura[1], Sufian Abdo Jilo[2]

[1] *Jimma University College of Agriculture and Veterinary Medicine, School of Veterinary Medicine, Jimma Etiophia*

[2]*Addis Ababa University College of Veterinary Medicine and Agriculture, Bishoftu, Etiophia*

Address for correspondence:
Sadik Zakir Abadura

Jimma University College of Agriculture and Veterinary Medicine School of Veterinary Medicine, Jimma Etiophia

E-mail: sadikethiovet@gmail.com

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ABSTRACT

Ethiopia, a country known for its rich cultural heritage and diverse natural landscapes, has a long-standing tradition of environmental stewardship deeply rooted in its history. Recognizing the urgent need for conservation and sustainable practices in the face of modern challenges, the Ethiopian government launched the Green Legacy Initiative in 2019. The Ethiopian Green Legacy initiative holds great importance as a comprehensive reforestation and conservation program aimed at addressing environmental, human health, and socio-economic challenges. This article presents a review of the one health benefits associated with the Ethiopian Green Legacy initiative. By exploring the various dimensions of this initiative, including its environmental impact, influence on human health and well-being, biodiversity enhancement, economic opportunities, challenges, and future prospects, we aim to highlight the significance of this ambitious project in promoting sustainable development and improving the overall quality of life in Ethiopia.

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Key words: Animal, Environment, Ethiopian, Green Legacy, Public Health

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INTRODUCTION

Ethiopia is a country known for its stunning landscapes and rich biodiversity. The Green Legacy initiative is a massive national effort in Ethiopia aimed at tackling environmental issues and promoting sustainable development. However, like many other places around the world, it has been faced with numerous environmental challenges such as deforestation, soil erosion, and water scarcity.[1] The Green Legacy initiative was born out of the need to address these issues and ensure a greener future for the country. The main objective of this initiative is to plant a whopping 20 billion trees by 2024.

The initiative aims to increase forest coverage, restore degraded ecosystems, and improve water resource management.[2] By doing so, it hopes to mitigate the effects of climate change, enhance soil conservation, and promote sustainable land use practices. On the other hand, the Green Legacy is initiative that integrating environmental, human and animal health concerns, which brings us to the next section.[3] The interconnectedness of public, animal, and environmental health is recognized as a fundamental principle in the field of One Health. This concept acknowledges that the health of humans, animals, and ecosystems are all intertwined and dependent on one another.[4] The close proximity between humans and animals in various settings like agriculture, wildlife populations, and domestic pets creates opportunities for the transmission of pathogens between species. For example, zoonotic diseases such as avian influenza or Ebola can cross over from animals to human populations.[5]

Additionally, environmental degradation resulting from factors like pollution or deforestation can negatively impact human and animal health alike by exposing them to harmful toxins or disrupting delicate ecosystems.[6] A holistic approach is necessary to mitigate these risks, involving collaboration among professionals from different fields including veterinarians, medical doctors, ecologists, and policymakers. Efforts must be made to promote research, education, surveillance systems, and policies that recognize this interconnectedness to effectively protect public health while also preserving animal welfare and sustaining healthy environments for all beings involved.[7]

Moreover, Ethiopian Green Legacy initiative is highly important to the One Health approach through planting billions of trees and restoring ecosystems. Also the initiative is not just improving the environment; it's also promoting better human and animal health. Trees act as natural air filters, helping to reduce air pollution and improve respiratory health. They provide shade, which can help prevent heat-related illnesses during scorching summers. In addition, forests create habitats for a diverse range of species, contributing to biodiversity conservation and ecological balance.[2] By adopting a One Health approach, the Green Legacy initiative recognizes that a healthier environment leads to healthier communities.

LITRATURE REVIEW

Historical Background of Ethiopian Environmental Practices

Ethiopia's environmental consciousness has deep roots in its history. From ancient times, Ethiopians recognized the value of their natural surroundings and practiced environmental stewardship. They understood that their well-being was intricately connected to the health of the land and its resources.[8,9] Ethiopians developed innovative conservation techniques that have stood the test of time. One example is the use of terracing to combat soil erosion, prevent floods, and retain moisture for agriculture. Indigenous communities also implemented rotational grazing

systems to protect grazing lands and ensure their sustainability. These practices, passed down through generations, demonstrate the wisdom of traditional conservation techniques.[10]

The Green Legacy Initiative was officially launched in 2019 by Prime Minister Abiy Ahmed. Its primary objective is to tackle deforestation and land degradation, which pose significant threats to Ethiopia's biodiversity, water resources, and climate regulation. The initiative seeks to restore landscapes, revitalize ecosystems, and enhance resilience to climate change through massive tree planting campaigns and sustainable farming practices.[11]

Benefits of Green Legacy for Human Health and Well-Being

Reduction of air pollution and respiratory health benefits

By planting millions and millions of trees, the initiative is helping to reduce air pollution and improve respiratory health. Trees act as natural air filters, absorbing pollutants such as carbon dioxide, nitrogen dioxide, and particulate matter.[12] In urban areas, where air pollution often reaches alarming levels, the presence of trees can make a significant difference.[13] Cleaner air means a lower risk of respiratory diseases and improved overall well-being.[14] Moreover, Non-communicable Diseases such as diabetes and cardiovascular conditions are on the rise worldwide.[15] By promoting an active lifestyle and providing opportunities for exercise in green spaces, the movement aims to reduce the risk of these diseases and keep the population healthier for longer.

Improvement in mental health and well-being

Nature has a way of soothing our personalities and lifting our spirits. The Green Legacy initiative understands this and aims to improve mental health and well-being through its reforestation efforts. Spending time in green spaces has been shown to reduce stress, alleviate anxiety, and improve overall mental health.[16] The initiative seeks to create more of these green spaces by planting trees in urban areas, parks, and communities. This allows people to connect with nature and reap the psychological benefits that come with it.

Access to clean water and sanitation

Clean water is not just a luxury; it's a basic human right. The Green Legacy initiative recognizes this and aims to improve access to clean water and sanitation through its environmental restoration efforts. By protecting watersheds and ensuring healthy water sources, the initiative contributes to the availability of clean water for communities.[17] This helps prevent waterborne diseases and promotes better hygiene and sanitation practices. After all, it's hard to stay healthy without access to clean water.[18] Moreover, the Ethiopian Green Legacy initiative is not only just about planting trees; it's about paving the way towards a greener and healthier future. By taking a One Health approach and focusing on the environment and human health, the initiative is tackling multiple

Animal Health Benefits of Ethiopian Green Legacy

The Ethiopian green legacy initiative has proven to be a game-changer for animal health. It has addressed critical aspects such as water availability, air pollution, and biodiversity, all of which directly impact the well-being of our

beloved animals. By ensuring adequate water access and improving its quality, animals stay hydrated and healthy. Reduced air pollution leads to better respiratory health for our furry friends.[19] Also enhanced biodiversity not only maintains ecosystem balance but also indirectly prevents diseases.

Improved Shade and Its Benefits for Animals

As trees flourish under the Green Legacy Initiative, they provide valuable shade for animals in Ethiopia. This increased shade has numerous benefits for the well-being of livestock and wildlife. Shade helps animals regulate their body temperature, protecting them from extreme heat and reducing the risk of heat stress-related health issues.[20] By seeking shelter under these newfound canopies, animals can find relief from the scorching sun, resulting in happier and healthier creatures.[21] Ethiopia's tropical climate poses challenges for animal health, especially in livestock farming. Heat stress is a major concern, leading to reduced productivity and increased susceptibility to diseases.[22] The Green Legacy Initiative addresses this issue by replenishing the environment with trees, creating microclimates that offer cooling effects and relief from excessive heat. As a result, animals experience less heat stress, leading to improved health, higher milk production, and enhanced fertility rates.[23]

Increased Availability and quality of Nutritious Forage for Livestock

One of the significant benefits of the Green Legacy Initiative is the increased availability of nutritious forage for livestock. Reforestation efforts contribute to the growth of diverse plant species, including grasses and legumes, which serve as excellent sources of feed for animals. These nutrient-rich forage options improve the quality of their diet, leading to better animal nutrition and overall health.[24] With a more abundant and varied forage supply, livestock reared in areas affected by the Green Legacy Initiative experience improved growth rates and productivity. Nutritious forage promotes proper development, allowing animals to reach their full genetic potential.[25] Additionally, a well-balanced diet contributes to stronger immune systems, reducing the risk of disease and leading to healthier, more resilient livestock.[26]

Prevention of Soil Erosion and Its Impact on Animal Well-being

Soil erosion can have detrimental effects on animal well-being. It leads to the loss of fertile topsoil, reducing nutrient availability in pastures and affecting the quality of grazing areas. This degradation of grazing lands can result in inadequate nutrition for animals, impacting their health and productivity.[27] With the Green Legacy Initiative's focus on preventing soil erosion, the quality and quantity of available grazing areas can be safeguarded for the benefit of both domestic and wild animals. Soil erosion often leads to the contamination of water sources with sediment and pollutants, posing risks to animal health.[28] So by preventing erosion and promoting reforestation, the Green Legacy Initiative helps to safeguard water quality, reducing the exposure of animals to harmful contaminants. Access to clean water is crucial for maintaining optimal health and preventing waterborne diseases, ensuring the well-being of animal population.

Improved water availability and its significance for animal health

With the Ethiopian green legacy initiative, there has been a significant improvement in water availability for animals. Adequate water access ensures that our four-legged buddies stay hydrated, aiding in digestion, temperature regulation, and overall well-being.[29] Moreover it has also focused on improving water quality. Clean and uncontaminated water sources have a direct impact on animal health through reducing the risk of waterborne diseases and infections, animals can drink without worry.[28]

Enhancing biodiversity and its indirect effects on animal health

Biodiversity plays a vital role in maintaining the delicate balance of ecosystems.[30] With the Ethiopian green legacy promoting reforestation and conservation efforts, biodiversity is thriving. This diverse range of plants and animals ensures a healthy ecosystem, which directly affects animal health. When natural habitats are restored, animals can flourish in their intended environments, free from stress and disturbance.[31] Also a healthy ecosystem translates to healthier animals. With an increase in biodiversity, the chances of disease transmission are reduced. When nature's web is intact, natural checks and balances keep diseases at bay. By promoting biodiversity through the green legacy initiative, animals are better equipped to fend off pesky illnesses, ensuring their well-being and survival.[32]

Environmental benefits of the Ethiopian Green Legacy

Reforestation and restoration of degraded ecosystems

The Ethiopian Green Legacy initiative aims to bring that feeling to the whole country. By planting billions of trees, the initiative is restoring degraded ecosystems, increasing forest coverage, and creating new habitats for wildlife. Reforestation not only helps combat climate change by absorbing carbon dioxide, but it also reduces soil erosion and improves water regulation.[33] Trees act as anchors, preventing soil from being washed away by heavy rains and maintaining the stability of slopes and hillsides. This means less runoff, which translates to increased water availability in rivers and underground reserves[34]

Soil conservation and prevention of erosion

Erosion can devastate landscapes, destroy fertile soil, and even threaten human settlements. Thankfully, the Green Legacy initiative is tackling this issue head-on. By planting trees and implementing sustainable land use practices, the initiative is promoting soil conservation and preventing erosion. The roots of trees help bind the soil together, making it less prone to erosion caused by wind or water.[35] This not only protects the environment but also safeguards agricultural lands and ensures food security for local communities.

Water resource management and watershed protection

The Green Legacy initiative recognizes the importance of water resource management and watershed protection. By restoring ecosystems and increasing forest coverage, the initiative helps regulate water flow and maintain healthy watersheds. Forests act as natural sponges, absorbing rainfall and gradually releasing it into rivers and underground aquifers. This ensures a steady

supply of clean water for both humans and wildlife, and also reduces the risk of floods and droughts.[36]

Enhancing Biodiversity and Conservation Efforts through the Green Legacy

Contribution to climate change adaptation and mitigation

In the face of climate change, the Green Legacy initiative plays a crucial role in both adapting to and mitigating its impacts. Trees absorb carbon dioxide, a major greenhouse gas, and release oxygen, helping to combat global warming.[1] The increased forest cover creates microclimates, aiding in temperature regulation and reducing the risk of extreme weather events.[2] This initiative aligns with Ethiopia's commitment to climate change adaptation and mitigation strategies, making it an essential tool in addressing this pressing global issue.

Preservation of endangered species and habitats

Ethiopia's Green Legacy initiative is not only about planting trees, but it also plays a crucial role in preserving endangered species and their habitats. By creating more green spaces, the initiative provides a safe haven for wildlife, helping to protect their populations from further decline. This effort is vital for maintaining the rich biodiversity that Ethiopia is known for.[9]

Promotion of ecosystem services and ecological balance

The Green Legacy project contributes to the promotion of ecosystem services and the restoration of ecological balance. Trees and plants improve air and water quality, enhance soil fertility, and help regulate temperature.[14] With more trees being planted, there is an increased potential for carbon sequestration, which can mitigate the effects of climate change.[13] This initiative goes beyond beautifying the landscape; it actively supports the health and well-being of both humans and the environment.

CONCLUSION AND RECOMMENDATIONS

The Ethiopian Green Legacy initiative showcases the power of a one health approach to address pressing environmental and health issues. Through its reforestation efforts, the initiative not only enhances the natural ecosystems but also improves human health, fosters biodiversity, and offers sustainable economic opportunities. Despite the challenges it may face, the Green Legacy initiative has the potential to create a lasting positive impact on Ethiopia's environment and society. By continuing to invest in this initiative, Ethiopia can pave the way for a greener, healthier, and more prosperous future for its people and the planet as a whole. The success of the Green Legacy initiative calls for scaling up and expanding its reach. By increasing the number of trees planted and extending the project into other areas, Ethiopia can make an even greater impact on biodiversity conservation, climate change mitigation, and sustainable development. The initiative has the potential to inspire other countries to embark on similar tree planting efforts, creating a global movement for environmental preservation.

- ✓ Collaboration and partnerships are key to the sustained success of the Green Legacy initiative. By fostering strong partnerships, the initiative can build a solid foundation for long-term success and create a network of support for its future endeavors.
- ✓ Scientific research and monitoring efforts are essential for evaluating the effectiveness of the Green Legacy initiative and making evidence-based decisions.

- ✓ By incorporating scientific studies into the planning and implementation processes, the initiative can refine its strategies and ensure the best possible outcomes. Regular monitoring of planted trees' health and growth will provide valuable insights to inform future tree planting campaigns and conservation efforts.

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