PROJECT NAME/TITLE: Restoration of degraded landscapes and conservation of the biodiversity as a response to climate action through bamboo planting

1. PROJECT PROBLEM STATEMENT

To drive into a refugee settlement in Uganda is to drive into hope. Refugee houses stand proudly alongside those of host communities -- a testament to what happens when you invest in a refugee response, providing displaced people a degree of security amid crisis. The World Food Program reaches 1.4 million, out of the 1.5 million, refugees in Uganda with food assistance and livelihood interventions, yet their funding is at a historical low.WFP targets refugees across all 13 refugee settlements and neighboring host communities in Uganda in what is our most under-resourced response in Eastern Africa.

A sustainable refugee response anchors on people who open their hearts, homes and country to the most vulnerable. In Uganda, which has the highest refugee population in Africa, people fleeing conflict and climate crises find a place where they can heal and rebuild their lives. Its refugee policy is much lauded for being inclusive and progressive, yet increasing crises have led to dwindling resources. In line with international commitments such as those laid down in the Kampala Convention to address root causes of displacement -- including climate impacts -- and to provide refugees with the support they need to survive crises and build self-reliance, a refugee response will be sustainable only if there is a focus on climate adaptation. That is, it must prepare refugees and host communities to conserve the environment and adapt to changing climate contexts.

We must invest in renewable energy to ensure refugees have access to clean fuel that preserves their health and the environment. It is also important to sow and nurture the culture of tree planting to safeguard food systems while making sure refugees and host communities are included in decision-making processes that impact their environment and lives. Take cleared acres of land, destruction of crops and livestock, the searing heat of the dry season, the unforgiving floods in the rainy season -- a direct result of climate change -- and tensions that might lead to conflict between refugees and host communities are easily stoked.

Nakivale settlement, in the southwest of Uganda near the border with Tanzania, for example, extreme weather conditions affect people's livelihoods. In the dry season, the bare land is starved of trees to counter the heat from the harsh sunshine. Plants die, food becomes expensive, and many go to bed hungry. In the wet season, rivers and swamps overflow into homes and gardens -- causing destruction to houses, assets and crops, exacerbating diseases such as malaria Similar scenarios play out in Kyangwali refugee settlement, in the southwest's Hoima district where the

great Bugoma forest is struggling to maintain a semblance of its old majesty as people encroach it for firewood, timber, and farming land. In the northwest, the already mostly rocky land is struggling with exhaustion from over cultivation.Welcoming people fleeing crises is an international obligation but also an inherent part of the Ubuntu spirit of the people and Government of Uganda.

Climate change is worsening the living conditions of refugees and their hosts. Uganda's refugee response is already severely underfunded -- working with the UN Refugee Agency and the Government of Uganda, WFP is only currently able to assist people who are most at risk. Around 14 percent of the refugees are considered highly vulnerable and receive food rations at 60 percent; 82 percent are categorized as having medium vulnerability and receive 30 percent food ration. (Around 4 percent of refugees are considered self-reliant.)The situation is particularly hard for women who are fleeing crises as often they also carry the responsibility of finding food for their families even in the face of difficult climatic conditions. So funding must not only consider emergency and long-term livelihood needs but also make sure food systems -- all the stages of getting food from farm to fork -- receive the support they need. Funding the refugee response to become more sustainable changes lives, boosting families, communities and, in turn, the country's economy.

2.1 PROJECT MAIN OBJECTIVE:

To promote Sustainable and Profitable utilization of Resources to boost wealth and ecosystem health in the impoverished Communities.

2.2 PROJECT SPECIFIC OBJECTIVES:

- Promote enterprise development for sustainable supply of bamboo products and generate improved livelihoods
- Sustain and upscale local initiatives through community-led multi-stakeholder development models
- To expand bamboo cultivation on non-forest government and private lands to increase agricultural income and combat climate change.

3. PROJECT RATIONAL

Bamboo, in the Poaceae family and the Bambusoideae subfamily, is one of the most abundant plants in tropical and subtropical regions between 46°N and 47°S. Bamboo can be the most important economic resource for local people of this area. These woody-stemmed grass species are known as some of the fastest growing plants in the world, and one native plant in Asia plays an important economic role in the livelihoods of local people living in this area. Characteristics, such as fast growth, high biomass, and yield in a short time and high efficiency in a few years, have allowed bamboo to be identified as a superior herb, which is categorized as a non timber forest product (NTFP) plant. Bamboos are used in almost 1500 commercial goods, which are utilized in many ways, from construction materials, food profiling, and musical instruments to the production of paper pulp, fencing, basketry, water pipes, utensils, bicycles, bridges, and low-rise housing. According to the FAO in 2010, bamboo covers more than 31 million hectares

of forest land around the world, and more than 60% of it is located in China, Brazil, and India, while it is abundant in other countries on three continents, namely, Asia, Latin America, and Africa; moreover, bamboo covers more than 0.8% of the forest area in the world. Generally, 80% of bamboo forests are in Asia, 10% in Africa, and 10% in Latin America. In the world, bamboo contains 1225–1500 species in approximately 75–105 general. Among these countries, China, with more than 500 species in 39 genera, is one of the countries with native bamboo, which is called “The Kingdom of Bamboo ", where bamboo covers more than 6.01 million hectares of China's forests. This amazing herb famously has different local names in Asia and is called “friend of people,” “wood of the poor,” and “the brother " in China, India, and Vietnam, respectively. One of the most important features of bamboo is the rapid rate it reaches maturity, which can be three years, while other woods need approximately 20 years to reach maturity. The bamboo growth rate is also stunning; in some reported cases, it is approximately two inches per hour, and the height can reach 60 feet in only 3 months. All these reasons have led to an increase in Chinese bamboo forests from 4.21 to 6.01 mil·ha (43%) from 1998 to 2013. Bamboo has great potential for use in construction because it has nodes, which improve bending and tensile strengths and can be compared with steel and cement. Bamboo is a renewable bio resource that can have a short period of growth with a high CO_2 fixation rate. Bamboo can absorb approximately 3.73 cubic meter of CO_2, which means it can absorb the equivalent of carbon dioxide emissions from approximately 2 cars in one day and 1.83 kg carbon in less than one month, so it can be a good option for reducing global warming and climate change. Bamboo is one of the most economical forest plants, and new applications of bamboo are found every few years. In recent years, the entry of bamboo into the textile industry has created antibacterial and UV absorption bamboo clothing, which is caused by a characteristic of lignin in the bamboo fiber. One experiment on the removal of two bacteria, *S. aureus* and *E. coli*, showed that the use of the bamboo fiber led to the maintenance of 88% of the antibacterial properties after 20 washes, as well as anti-UV properties, which increased from 8.16 to 18.18 when using bamboo pulp fibers. In general, today's bamboos play a considerable role in human life, and they cover a wide range of human needs from environmental protection to use as home appliances. The aim of writing this paper is to identify the most commonly utilized bamboo for researchers by describing the mechanisms available in this unique plant. Below are the most important ones.

3. HOW TO DONORS SHALL BE ABLE TO SEE THE VALUE FOR THEIR MONEY

o **CREATE A MONTHLY NEWSLETTER AND SUBSTACK,**Newsletters shall be created and shared with all the potential donors to serve a number of purposes like create or increase awareness, provide basic information, or create a sense of stability and commitment for a project, a newsletter alone will accomplish a project’s education goals. This shall motivate and have the opportunity and ability to act, support and enforce educational messages as part of a larger multi-faceted effort.

o **GATHER BENEFICIARIES SUCCESS STORIES,** Success stories from the community members shall be gathered time after time and shared with the stakeholders to demonstrate the value of program activities. The success stories shall be useful tools for

educating the stakeholders about the outcomes of the work and the results the project is achieving.

o **CREATE AN INTERACTIVE SATELLITE MAP FOR THE ORCHARD AND THE BAMBOO LOT, This** shall be a powerful way to reach the audience by using interactive maps to display the message in a specific location or region where the orchard and the bamboo shall be planted. With interactive maps, we shall create custom content that is tailored to the needs and interests of a specific audience or group, and display it in a way that is most relevant to them. The interactive map shall be linked to external data sources, such as social media feeds or newsletter,and website, to provide users with the most current and accurate information available. This shall help to keep the audience engaged and informed, and provide valuable insights and trends that can inform your business decisions.

4. IMPACT/OUTCOME OF THE PROJECT

A. Social Impact

Affordable and clean cooking: The bamboo briquettes are priced as low as UGX 1,000 per kilogram, and last longer than ordinary charcoal. On average households can save up to 30% of their regular expenditure on cooking expenditures. In addition, the briquettes are smokeless and don't produce soot. In a 2010 Lancet study, household air pollution was estimated to be responsible for 3.5 million premature deaths worldwide. There is strong evidence linking household air pollution exposure with cardiovascular diseases, acute lower respiratory infections, chronic obstructive pulmonary disease, and chronic bronchitis, lung cancer, cataract, low birth weight, and stillbirth. Using bamboo briquettes therefore will save one from those health effects and thus reduce hospital bills.

B. Environmental Impact

Reduction in deforestation: Energy needs are a key driver of deforestation and climate change. The Ministry of Energy and Mineral Development (MEMD) explains that with the current annual use of 44M tons, dependence on tree biomass is highly unsustainable in Uganda. According to the National Forest Authority, Uganda is losing over 200,000 acres of forest cover annually. The bamboo briquettes are an eco-friendly fuel as they are produced from a sustainable value chain. Bamboo is the fastest growing crop on earth with a gestation period of only 4 years to obtain a mature bamboo tree and it regenerates every year. The increased adoption of bamboo briquettes can reduce pressure on existing forest resources and reduce deforestation.

Life on land Bamboo is known to provide a wide range of ecosystem services, It is effective for soil conservation by reducing runoff and given its resilient stature it can be useful for the rehabilitation of degraded land. The extensive underground interconnected rhizome and roots system with net structure effectively binds topsoil and prevents sheet and gully erosion. It is an

effective tool to improve soil qualities and hydrological functions, even after harvesting, the root system continues to grow; new shoots emerge and the roots still prevent soil erosion and maintain nutrients. This greatly benefits the rural farmers who will be intercropping bamboo with other crops through our agroforestry programs.

C. Economic Impact

Ø **Job creation and entrepreneurship**: Divine Bamboo is currently employing 18 full-time staff and 50 wage earners. Over the next 5 years, the business will create 80 more full-time jobs and 300 seasonal jobs for youth through the entire value chain from nurseries, plantations, briquette processing, and distribution. Through the deployment of briquette distributorship training programs, we can spur entrepreneurship and the creation of micro-enterprises distributing energy in different areas of Uganda.

Ø **Increased farmers' revenue:** the model is largely based on working with smallholder farmers to establish a bamboo supply chain. We on board farmers are given seedlings and equipped with skills to establish and manage plantations following agroforestry systems .Upon maturity, the bamboo poles are sold back to Divine bamboo for the production of briquettes. This model ensures that farmers can get earnings by joining our supply chain.