**Solution Proposal
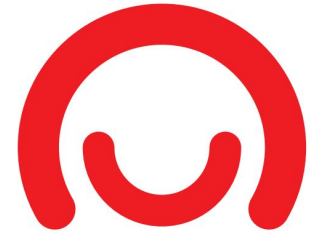Climate Degradation**

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OBJECTIVE FOR THE SOLUTION PROPOSAL

Global Education brings understanding for people who live all their lives in a single perspective. Deepening the understanding of the complexity of social, economic, and environmental issues in the Global South. Through education, workshops, discussions with international partners, and mentors from Poland, participants will gain knowledge about challenges such as: - gender inequality, - climate change (e.g., how to effectively protect biodiversity and ecosystems), - lack of access to education. This will enable participants to develop comprehensive social solutions.

Research shows that 3.6 billion people already live in areas highly susceptible to climate change. Between 2030 and 2050, climate change is expected to cause approximately 250 000 additional deaths per year, from undernutrition, malaria, diarrhoea and heat stress alone. Around 2.4 billion women of working age are not afforded equal economic opportunity and 178 countries maintain legal barriers that prevent their full economic participation, according to the World Bank's Women, Business and the Law 2022 report. Moreover, about 700 million people live in extreme poverty that means living on less than $1.90 per day. 783 Million People Face Hunger Globally According to FAO Report. In 2021, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) estimated that 2 billion people worldwide lack access to clean water.

The objective for Theory of Change is to present two mayor challenges across six selected countries. Each Theory of Change consists of mapping causes and effects from human, social, environment, policy, geopolitics point of view.

Sources **WHO RISE AGAINST HUNGER VOX**

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Utwór Propozycja Rozwiązania - Degradacja klimatu

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Osoby, które współtworzyły Propozycje Rozwiązań - Degradacja klimatu

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SOLUTION PROPOSAL

Climate Degradation

PERSPECTIVE OF SIX COUNTRIES

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PERU

Current Approaches to the Problem - Existing Solutions to Combat Deforestation

Current efforts to tackle deforestation in the Amazon include government policies to restrict illegal logging and promote reforestation projects.

However, these approaches often fail to engage local farmers, who lack the tools and knowledge for sustainable land use. Without their participation, these methods are less effective.

Proposed Solution and Stakeholders - Agroforestry Workshops to Protect Forests

We propose introducing agroforestry workshops to teach farmers how to integrate sustainable practices into their farming.

These workshops will target communities in Loreto and Ucayali, benefiting around 20,000 people.

Key stakeholders include local farmers, NGOs, government agencies, and environmental organizations.

- Key Features:
  - Training on techniques like planting trees between crops.
  - Partnerships with universities and NGOs to deliver workshops.
  - Long-term monitoring and support for participant

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SWOT Analysis of Agroforestry Workshops

Analyzing the strengths, weaknesses, opportunities, and threats helps us understand the potential of agroforestry workshops.

- **Strengths:** Community engagement, improved biodiversity.
  - **Weaknesses:** High initial training costs.
  - **Opportunities:** Can be scaled to other regions.
 - **Threats:** Resistance from large agricultural businesses.

SWOT analysis example

Strengths
- What do we do well?
- What's unique about our organization?

Customer service:
Our customer service is world-class compared to our competitors seeing as we have an NPS score of 90.

Weaknesses
- What could be improved?
- What resources could improve our performance?

E-commerce visibility:
Our website visibility is low due to our lack of marketing budget, with transactions continuing to decrease.

Opportunities
- Are there market gaps in our services?
- What are our goals this year?

Marketing campaign:
In order to improve e-commerce visibility, we'll run ads on Youtube, Facebook, and Instagram.

Threats
- Are there industry changes?
- What new market trends are on the horizon?

New competitor:
With a new e-commerce competitor set to launch within the next month, we could see a decline in customers.

Implementation Plan and Costs - Steps and Budget for Implementation

Our plan involves four key steps and an estimated cost of $50,000 for the pilot phase.

- **Steps:**
  - Identify target communities.
  - Develop training materials with local experts.
  - Deliver workshops through partner NGOs.
  - Monitor and evaluate progress.
- **Cost Breakdown:**
  - Training materials: $10,000
  - Facilitator fees: $20,000
  - Transportation: $5,000
  - Monitoring: $15,000

Budget Breakdown for Pilot Phase ($50,000)

Training Materials
Monitoring
30.0%
20.0%
10.0%
40.0%
Transportation
Facilitator Fees
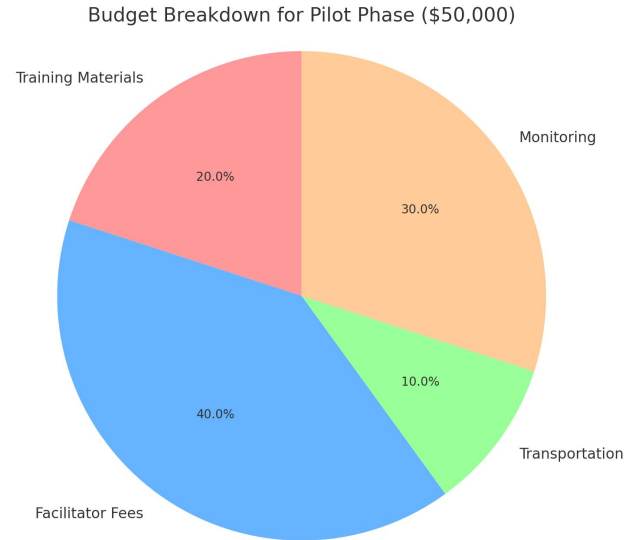
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Expected Outcomes - Positive Impact of Agroforestry

Agroforestry workshops will create both short- and long-term benefits for the environment, economy, and communities."
Short-term: Farmers adopt sustainable techniques, reducing deforestation.
Long-term: Reforestation improves biodiversity and soil health.
Economic benefits: Increased income for farmers due to higher crop yields.

NIGERIA

CLIMATE DEGRADATION -PROBLEM SOLUTION SUGGESTIONS

Development of Renewable Energy Sources: Nigeria is investing in solar and hydroelectric energy to increase access to clean energy. An example is the construction of 10,000 solar-powered mini-grids aimed at providing electricity to rural areas, hospitals, and schools. Additionally, the country plans to complete its largest hydropower plant, the Mambilla project, by 2024.

Combating Desertification and Soil Degradation: Collaboration with international projects such as UNDESERT enables better management of dry and semi-arid lands. This includes monitoring land use changes, training local communities, and implementing practices to counteract erosion and environmental degradation.

Carbon Emissions Trading Market: Nigeria plans to establish an emissions trading system to encourage businesses to reduce emissions and invest in low-emission technologies. This is part of its commitments under the Paris Agreement, which aim to reduce greenhouse gas emissions by 20% by 2030.

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Our team came up with the _idea of planting plants_ that are suitable for the climate of Nigeria (such as cacti, aloe, etc.), watered with previously collected rainwater. Plants could be planted for example on the side of the roads.

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3. CLIMATE DEGRADATION – *SWOT* ANALYSIS

STRENGTHS
- The chance of success comes from adapting plants to challenging conditions.
- The implementation costs are low.
- The solution supports ecology.

WEAKNESSES
- High costs of transporting plants and the necessary irrigation systems.
- Slow growth process of plants.

OPPORTUNITIES
- Plants reduce soil erosion and improve its structure
- Creation of new jobs and new earning opportunities.

THREATS
- The possibility of plants not adapting to the new environment.
- Some species may become invasive, displacing local flora.

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4. CLIMATE DEGRADATION – IMPLEMENTATION OF THE SOLUTION-STEP BY STEP

1. Identify areas <u>most affected</u> by climate degradation and prioritize them for intervention.

2. Evaluate the <u>cost, logistics, and potential environmental impact</u> of the project.

3. Choose <u>succulent species</u> that are well-suited to Nigeria's climate and soil while avoiding invasive varieties. (Agriculture and ecologist experts consultation.)

4. <u>Collaborate</u> with local agricultural organizations to gain support and resources.

5. Design simple, <u>cost-effective irrigation systems</u>, such as drip irrigation, to ensure efficient water use and install them.

6. <u>Monitor</u> plant growth, soil conditions, and water usage.

7. <u>Create job opportunities</u>, such as system installation, maintenance, and plant care.

8. <u>Encourage local farmers</u> to adopt similar practices <u>independently.</u>

9. <u>Use lessons learned to refine and replicate the project in other regions of Nigeria.</u>

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5.CLIMATE DEGRADATION - STAKEHOLDER MAP FOR IMPLEMENTING THE SOLUTION

1. Local Beneficients
– *Local Communities*
  Benefits*:* Better air quality, improved living conditions, better water management.

– *Farmers*
  Benefits: Better access to water, more stable climate conditions for crops.

– *Ecosystem*
  Benefits: Increased biodiversity, healthier soil.

2. Local Authorities and *Administration*
– Local Governments
  Role: Support with legislation and regulations (e.g., tax breaks for eco-friendly projects), monitoring project progress, promoting the initiative to local communities.

– *Government institutions dealing* with the environment and climate change
  Role: Coordinate climate change adaptation actions, implement sustainable development policies.

– *Ministries and environmental agencies*
  Role: Provide legal frameworks and financial support for such projects.

3. Local Potential Partners
– *Environmental organizations (local and international)*
  Role: Support with education, monitoring results, promoting the project, helping with fundraising.

– *Companies dealing with water technology and irrigation*
  Role: Provide technology for rainwater collection and efficient irrigation.

– *Universities and research institutes*
  Role: Research suitable plant species, analyze the project's impact on the local ecosystem.

– *Local businesses and entrepreneurs*
  Role: Investment opportunities in the project, especially in eco-friendly technologies and sustainable development.

– *International organizations (UNDP, GEF)*
  Role: Provide funding and expert advice.

6.CLIMATE DEGRADATION – COST OF PILOTING THE SOLUTION

- 50 aloe seedlings – PLN 500
- 50 agave seedlings – PLN 750
- 50 cactus seedlings – PLN 400

*In total (plants) – **PLN 1650***

- *Sea transport* of seedlings by sea would cost from USD 1,000 to USD 1,500 (PLN 4,000 to PLN 6,000), and the customs duty would range from USD 50 to USD 200 (PLN 200 to PLN 800).

- *50 rainwater tanks* with a capacity of 50 liters – from PLN 5,000 to PLN 7,500

IN TOTAL – 7170 USD

- *The cost of plane tickets to Nigeria for 5 people –* approx. PLN 15,000 (round trip)

- *Living costs for 5 volunteers for a week:*

Accommodation – USD 1,050

Meals – USD 175

Local transportation – USD 70

Other costs about – USD 175

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7.CLIMATE DEGRADATION -INITIAL SELECTION OF POTENTIAL PARTNERS

- Polska Fundacja Dla Afryki

- SEAOO.com

- Ekodren

CURRENT WAYS OF SOLVING THE PROBLEM OF FLOODING

1. Building and repairing existing, broken dams on rivers. Alau Dam (Ngadda river in Borno state), Kiri (Gongola Adamawa state), Kainji (Niger in the state Niger).
2. Building artificial lakes. Jabi Lake (near Abudja), Kainji Lake (formed by the Kainji Dam).
3. Tree planting gained popularity in 2022, with states like Benue, Rivers, Kogi, Borno, Kano, and Bauchi adopting it alongside erosion and flood control as sustainable flood management methods.
4. There are not many anti-flooding policies
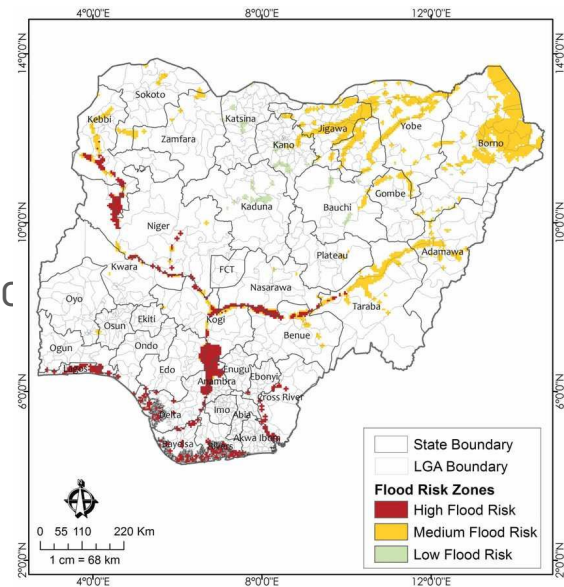
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PLANTING TREES - in the areas affected by flooding and deforestation (shown on the map)

Planting trees has been proven to help prevent and lessen the effects of flooding, because the tree roots absorb water.

Trees we recommend using:
- Faidherbia albida (doesn't require a lot of water, also helps climate change)
- Gmelina arborea (fast growing and native to the areas)

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STRENGTHS - relatively cheap solution, non-invasive (no need to relocate people, destroy ecosystems), doesn't require a specialised team

WEAKNESSES - requires local people to cooperate and help, the trees need some time to grow

OPPORTUNITIES - it can also help with the climate change and reduce CO_2 emissions, can enable ecosystems to thrive, local people can learn to cut out saplings from trees to grow more of them for free

THREATS - there is the risk of the trees being cut down to be used as a source of heat or energy,

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STEPS TO IMPLEMENT THE IDEA

1. Choose the right areas to plant the trees
2. Choose the right type of trees to plant (best if they can hold a lot of water and are native to the area)
3. Educate the local people about the importance of trees in flood management
4. Find people (eg. volunteers) to plant those trees
5. After planting the trees make sure the trees won't be cut down (eg. ask locals to guard them)
6. Teach locals how to cut a seedling off the already planted tree, so they can grow more trees without spending money on saplings

STAKEHOLDERS

locals
local farmers, whose crops may be damaged by flooding
local families who live in areas affected by flooding

local authorities
local state governments, National Agency for the Great Green Wall (NAGGW)

local potential partners
TerraFund for AFR100 (a program managed by One Tree Planted, WRI and Realize Impact), WEP International, We4All

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THE COST OF THE EXAMPLE

OPERATION	DAYS NEEDED
Preparing land	10
Marking and pegging the area	4
Making holes	5
Planting	6
Watering	3
Cleaning up	2
Total	30

1ha of land, 500 trees/ha, (one person plants 60 trees/h (just putting the sapling in the soil))

5 people - 10ha
        +1 supervisor

accommodation - in Onitsha - 1636$ for 30 nights
flights {30 april - 31 may}: 4 tickets for 3160 $
car rental + fuel- 350$

100$ - per person per month
120$ - per month per supervisor
total: 620$

1.7$ - per sapling of faidherbia albida
8.5k$ - total for saplings (5 000)

water (about 30 000l):
dry season - 3k$
(the cost could be lessened if water from the nearby rivers was used, if it was clean enough)

total total: about 17k$

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- USA, GB, Swedish, Norwegian, Japanese, French, German Embassy
- USAID
- Trees For The Future
- We4all
- One Tree Planted Inc
- Nigerian Government
- Global Innovation Found

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DEMOCRATIC
REPUBLIC
OF CONGO

- **GOMA, 25 January 2024 –** A major extension to the municipal water network in Goma, North Kivu Province, has been inaugurated, providing water to an estimated 150,000 people in displaced and host communities.

- With the support of the German Federal Ministry for Economic Cooperation and Development (BMZ), UNICEF installed a system to extract water and preserve rainwater in order to ensure permanent access to water in the healthcare center.

"Water against Cholera in Uvira" project - Construction of a new reservoir (2,000 m3)
Rehabilitation of the Mulongwe treatment and pumping station to increase capacity Rehabilitation (10 km) and extension of the network pipes (24 km) Installation (or rehabilitation, depending on the situation) of private connections (2,368 completed, 2,997 planned) and construction of new standpipes (93 completed, 115 planned.

The project was managed by Regideso and financed by the French Development Agency, the Veolia Foundation, the European Union and Oxfam GB, with a total investment of over 15 million euros

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Water Purification Systems:

Distribute portable water filters or purification tablets to communities.

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CLIMATE DEGRADATION - SWOT ANALYSIS
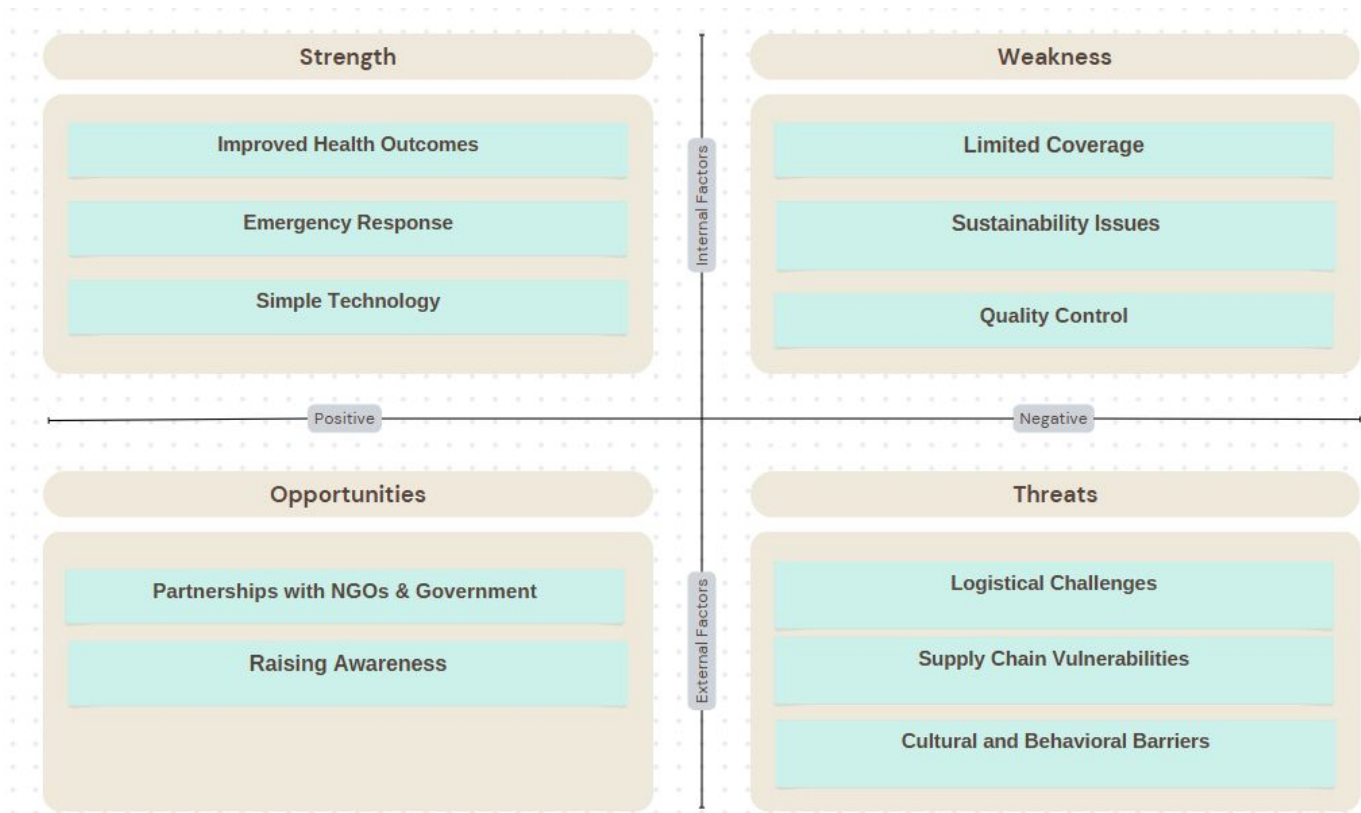
a) **Procure Supplies**: Source reliable water filters or purification tablets that meet health standards.

b) **Plan and Execute Distribution**: Organize the distribution process (e.g., through local leaders, community centers, or door-to-door) to ensure all affected households receive filters/tablets.

c) **Community Education**: Provide training on how to properly use and maintain the filters or tablets, and raise awareness about the importance of clean water.

d) **Monitor Impact**: Track the usage of filters or tablets and their effectiveness in improving water quality. Conduct follow-up surveys to ensure proper use.

e) **Provide Ongoing Support**: Set up a system for replacement filters or tablets and offer continued education or assistance through local volunteers or health workers.

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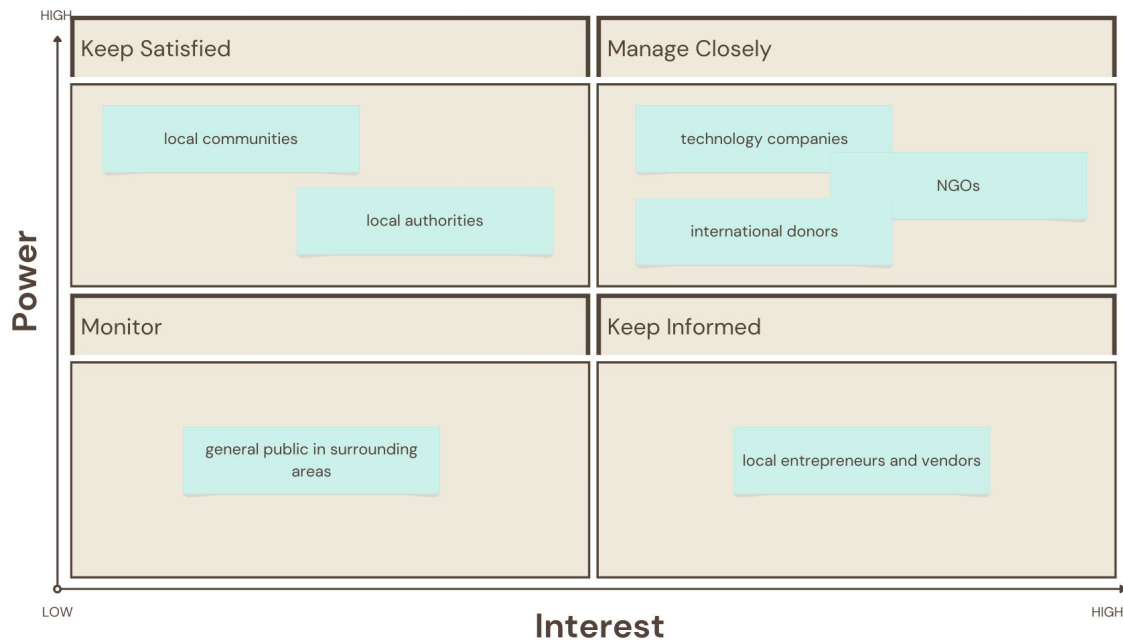
CLIMATE DEGRADATION – COST OF PILOTING THE SOLUTION

- Water purification system
  - Portable water filters

Cost per filter	$70-$400
Filter lifespan	3 - 5 years of family/community use
Transport	$20,000 - $150,000
Total estimated cost	$720,000 - $4,1M

- Water purification tablets

Cost per 60 tablets	Around $20 where the price might decrease in a bulk purchase
Cost per family/year	Around $140
transport	$240,000-$740,000
Total estimated cost	$250,000-$750,000

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CLIMATE DEGRADATION – PRE-SELECTION OF POTENTIAL PARTNERS

- International Development Association (IDA), part of the World Bank
- Join For Water
- LifeStraw

UGANDA

Deforestation in Uganda and Its effects on agriculture

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Current approaches

Government enforcement of forest protection laws (with limited success).

- **Protected areas**: Uganda has designated 15% of its land as protected, including national parks and forest reserves, under the management of the National Forestry Authority (NFA).
- **Laws and policies**: The National Forestry and Tree Planting Act (2003) regulates tree planting and forest conservation.
- **Task forces**: The government has established task forces to combat illegal logging and forest encroachment.

Tree planting campaigns by NGOs and local communities.

- **NGO-Led campaigns**: Organizations like WWF, Tree Aid, and Environmental Alert actively conduct tree planting drives.
- **Community engagement**: Local communities are involved in reforestation efforts, such as planting eucalyptus and fruit trees to restore degraded areas.
- **Public initiatives**: The "Greening Uganda" campaign encourages schools and individuals to plant trees.

Use of agroforestry techniques to balance agriculture and forest conservation.

- **Government support**: Uganda's Ministry of Agriculture, Animal Industry, and Fisheries promotes agroforestry to combat land degradation.
- **NGO programs**: NGOs like the World Agroforestry Centre and local organizations train farmers in agroforestry practices.
- **Farmer adoption**: Some communities have integrated agroforestry practices, like planting shade trees for coffee and cocoa cultivation.

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Proposed Solution: Student exchange program for sustainable agriculture and forestry

Establish an international student exchange program

- **Objective**: Create an exchange program where students from Uganda and international universities collaborate on environmental science and sustainable agriculture projects. Programs like Erasmus can be used as a model for international cooperation.

Collaboration on reforestation and sustainable farming practices

- **Joint projects**: Students from Uganda and abroad will engage in reforestation and sustainable farming projects, focusing on agroforestry techniques to balance agriculture with forest conservation.

Introduction of innovative technologies (e.g. Bamboo-Based products)

- **Bamboo for sustainable income**: Bamboo can be used to produce eco-friendly products, reducing the need for timber from trees. By training students in bamboo-based crafts, construction materials, and biofuels, they can generate sustainable income without contributing to deforestation.

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SWOT Analysis for the student exchange program

Strengths:

- Cross-cultural knowledge exchange promotes innovative, locally relevant solutions.
- Practical solutions like agroforestry and bamboo products tailored to Ugandan needs.

Weaknesses:

- High initial costs (travel, logistics).
- Logistical challenges in coordination and infrastructure.

Opportunities:

- Increased local awareness of sustainable practices.
- Building global partnerships for future collaboration.

Threats:

- Resistance from communities reliant on deforestation.
- Potential disruptions from political or economic instability.

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Implementation steps

Partner with universities and NGOs

- Collaborate with experts in agriculture and reforestation.
- NGOs provide community connections and logistical support.

Select 20 students annually for pilots

- Create a fair selection process focusing on diversity and relevance.
- Offer support for travel, accommodation, and materials.

Conduct training on sustainable farming and reforestation

- Provide practical training on agroforestry, soil conservation, and water management.
- Equip students with skills for community engagement and advocacy.

Organize community engagement workshops

- Host workshops with local leaders to share project outcomes.
- Use demonstrations and discussions to co-develop solutions with communities.

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Stakeholder mapping

Local beneficiaries

- **Farmers**: Directly benefit from tree planting, agroforestry, and environmental training.
- **Community leaders**: Help mobilize and educate the community on sustainable practices.

Local authorities

- **Environmental agencies**: Oversee the enforcement of conservation laws and policies.
- **Forestry departments:** Manage forest resources, promote reforestation, and support agroforestry initiatives.

Private sector

- **Local businesses**: Involved in supplying resources like seedlings, tools, and transportation.
- **Agricultural companies**: Can support sustainable farming practices and contribute to reforestation efforts.

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Pilot Costs

Transportation

- **~$50,000** allocated for student and coordinator travel, including flights, local transport, lodging, and meals. This ensures smooth mobility and adequate support during project activities.

Training and materials

- **~$30,000** designated for purchasing bamboo saplings, farming tools, and educational materials. This includes resources for reforestation and sustainable agriculture training sessions.

Community workshops

- **~$10,000** for organizing workshops, including venue rentals, materials, and facilitator fees. These workshops focus on community engagement and education on the benefits of reforestation.

Monitoring and reporting

- **~$10,000** to cover expenses for field monitoring teams, data collection, and report development. This includes the production of visual documentation and dissemination of results to stakeholders.

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Potential partners

Erasmus+

World Wildlife Fund (WWF)

National Forestry Authority (NFA)

Tree Talk Plus

Uganda Coalition for Sustainable

Development (UCSD)

Food and Agriculture Organization (FAO)

Global Green Growth Institute (GGGI)

Local Universities and Research

Institutions

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- **Afforestation** - planting new trees
- **Working towards environmentally friendly agriculture** - using new techniques that do not negatively impact the environment
- **Uganda Green Growth Development Strategy** - environmental sustainability
- **Strengthening Legislation** - partnering with national authorities
- **Building Capacities** - creating training programs on combating illegal logging
- **Preventing Corruption** - introducing corruption risk management
- **Enhancing Cooperation** - encouraging international law enforcement cooperation

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"Tree Harmony"

A project aimed at stopping deforestation in Uganda and improving the quality of life of Ugandans. It involves encouraging local communities to plant trees or or reduce the cutting of forest areas and use them sustainably. The communities that get the most involved in the project will receive an ecological reward in the form of e.g. water tanks, construction of wells with access to running water, solar panels, construction of toilets and other rewards that improve the quality of life. The winning communities will also gain publicity.

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CLIMATE DEGRADATION - SWOT analysis

STRENGTHS

- Expansion of forest areas
- Creating and protecting habitats for wild animals
- Improving soil quality and preventing soil weathering
- Improving the quality of life of Ugandans

WEAKNESSES

- Possible problems with reaching all communities with information about the project due to language barriers and lack of media
- Possible difficulties in objective assessment and assessment criteria
- High costs of awards and project implementation

OPPORTUNITIES

- Possibility of expanding the program on an international scale
- Attracting the interest of environmental organizations
- Sponsors who would be interested in improving the image of their companies may join the project

THREATS

- Possible disregard of the project by the public, because current programs with slogans like "You cut down a tree, plant two trees" are not taken seriously
- Continued deforestation by the agricultural sector that dominates Uganda
- Political or local conflicts may affect the effectiveness

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- **Development of the programme and evaluation criteria**
- **Acquiring partners and people ready to cooperate** (people who know how to run a project of this type)
- **Obtaining sponsors who would support the project financially**
- **Development of a website and promotional materials**
- **Start advertising by engaging local media (TV, internet)**
- **Opening of the application process**
- **Evaluation of entries and selection of winners**
- **Awards ceremony**
- **Launching the second edition if the first one works out**

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CLIMATE DEGRADATION - Stakeholder map

- **Local communities**
- **Non-governmental organizations (NGOs) and social organizations** (Ecological organizations)
- **International aid organizations and agencies like financial institutions**
- **Local media and communication partners**
- **International sponsors who would like to improve their image**
- **Local businesses that can help with awards such as construction or solar companies**
- **Administration in Uganda** (Local authorities)

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CLIMATE DEGRADATION - The cost of piloting the solution

First edition of the project would last a year and the organization of the project about half a year, of which a large number of things could be managed remotely

- Transport of the team (around 5 persons) to Uganda and accommodation (around 60 days) ~ 15 000$
- Local transport ~ 3 000$
- Payment for local people who help organize the project ~ 10 000$
- Creation of a website and advertising materials ~ 10 000$
- Advertising the project ~ 7 000$
- Prizes costs for around 20 communities ~ 60 000$
- Reserve for unforeseen expenses ~ 10 000$
- Administrative, regulatory and legal fees ~ 1 000$
- Reward for the team ~ 7 000$
  Sum: 123 000$

All costs are subject to change depending on cooperation with partners and sponsors

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- **Local media** (New Vision, NTV Uganda)
- **Local businesses that could support the project with the prizes** (Aptech Africa Ltd, Waterfix Engineering (U) Ltd, Sprinktech Limited)
- **International companies that could sponsor the project** (Unilever, Nestlé)
- **Trees for the Future –** offering support from experts
- **Plan Vivo Foundation -** connects rural farmers with sustainable practices
- **African Development Bank**
- **ECOTRUST (Environmental Conservation Trust of Uganda)**
- **United Nations Development Programme (UNDP) -** supports initiatives that address climate resilience

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AgroTech for sustainable development

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Current approaches to addressing the challenge

Current solutions covers

1. Promotion of traditional **drought-resistant farming techniques**.
2. Government-led initiatives such as tree-planting campaigns (e.g., *Green Belt Movement*)
3. Local adaptive strategies like **rainwater harvesting** and **permaculture gardens.**
4. Collaboration with international organizations for renewable energy projects and climate adaptation funding.

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Team's Proposed Solution

Smart AgroTech Platform (S_A_P) is a digital tool integrating:

-   IoT sensors for real-time soil and weather monitoring,
-   AI-driven crop recommendations for climate-resilient farming.
-   A farmer-centric mobile app for training, resource allocation, and market access.

S_A_P

SWOT Analysis

Strengths	Weaknesses
High scalability real-time data empowers farmers	Limited digital literacy among rural populations.
Opportunities	**Threats**
Potential to attract climate funds; increased productivity.	High initial investment; reliance on stable internet infrastructure.

Steps for implementation S_A_P

1	Conduct a feasibility study with stakeholders
2	Develop a prototype integrating local languages and easy-to-use interfaces
3	Pilot the solution in three key agricultural zones of Tanzania
4	Train local farmers and extension workers on the system
5	Scale based on pilot results and integrate feedback.

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Stakeholder Map

Governments	Local communities	Private sector	NGOs	Funding partners
Ministry of Agriculture Ministry of Environment.	Farmers, extension officers.	Tech companies Agribusinesses telecom providers.	Climate-focused organizations, education entities.	Green Climate Fund World Bank.

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Estimated cost of a Tanzanian Pilot

Development of platform	$150000
Deployment of IoT devices	$100000
Training and workshops	$50000
Pilot coordination and evaluation	$30000
TOTAL	**$300000**

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Preliminary selection of potential partners

1. **Tech Companies**
   a. Microsoft,
   b. IBM
   c. local IT firms.
2. **Telecom Providers**
   a. Vodacom Tanzania
   b. Airtel.
3. **NGOs**
   a. WWF,
   b. CARE International.
4. **Funding Agencies**:
   a. UNDP
   b. African Development Bank.

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BANGLADESH

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CLIMATE DEGRADATION - CURRENT GLOBAL SOLUTIONS TO THESE PROBLEMS

Current approaches in use

- Flood protection embankments, for example Bangladesh has invested heavily in constructing and maintaining embankments to prevent coastal flooding
- Community-based flood management - early warning systems and disaster preparedness training have been implemented in flood-prone areas.
- Nature-based solutions - Initiatives like reforestation of mangroves in coastal regions to reduce storm surges and enhance flood resilience.

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Solution - Floodplain restoration and Mangrove plantations

Solution I - to restore natural floodplains. We focus on rehabilitating natural floodplains
to enable water to spread naturally during high tides, reducing flood risks and promoting ecological balance.
This includes the planting of mangroves along vulnerable coastlines to act as natural barriers against
flooding and erosion.

Solution II - integrating natural solutions with technology - for example, Use tools like GIS mapping
to indenting the most flood-prone areas, combing natural ecosystem restoration with modern technoloĀy to
ensure treated and effective flood management interventions.

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SWOT Analysis

SWOT Analysis

	Positive	Negative
What we can influence	**Strengths** S • Cost-effective compared to engineered solutions. • Enhances biodiversity while reducing the impact of floods. • Engages local communities, providing sustainable livelihoods.	**Weaknesses** W • Long-term results require ongoing maintenance. • It takes time for the mangroves to start collecting large amounts of water effectively. • Natural solutions won't provide quick results compared to engineered solutions.
What we can't influence	**Opportunities** O • International funding opportunities for green projects. • Collaboration with NGOs and local organizations. • Collaboration with horticultural firms specializing in mangrove seedlings can ensure a reliable supply of healthy propagules.	**Threats** T • More frequent and severe weather events could overwhelm restored ecosystems before they are fully established. • Insufficient education and awareness among local populations about the long-term benefits of mangroves could lead to deforestation, when the trees mature and their wood becomes economically valuable.

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Implementation steps I / II

1. Preliminary Assessment and Planning

Objective: Understand the local context, identify flood-prone areas, and design targeted interventions.

- **Study Visit**: Conduct a field visit as part of a study mission to the proposed restoration sites. This visit will allow the team to gather on-ground data, interact with local stakeholders, and refine project plans based on firsthand observations and discussions with community members.
- **Conduct GIS Mapping**: Use GIS and remote sensing to analyze topography, hydrology, and flood risk zones.
- **Stakeholder Engagement**: Involve local governments, communities, environmental organizations, and businesses early in the process.
- **Feasibility Studies**: Assess soil quality, water salinity, and climate conditions to determine suitable mangrove species and restoration methods.
- **Set Goals and Timelines**: Define clear objectives, such as flood mitigation targets, mangrove coverage, or biodiversity enhancement, with measurable milestones.

2. Community Engagement and Education

Objective: Build local support and ensure sustainable management.

- **Study Visit as an Educational Tool**: Use the study visit not only to refine project plans but also as an opportunity to educate local stakeholders about proper practices for managing and preserving mangrove forests and restored floodplains.
- **Awareness Campaigns**: Educate communities about the benefits of natural floodplain restoration and mangroves, such as flood protection, biodiversity, and economic opportunities.
- **Capacity Building**: Train locals in planting, monitoring, and maintaining mangroves and floodplain vegetation.
- **Partnerships with Schools and NGOs**: Integrate environmental education programs to raise long-term awareness.

3. Procurement of Resources

Objective: Secure the necessary materials and technical expertise for restoration.

- **Seedling Sourcing**: Collaborate with horticultural firms and nurseries to procure healthy mangrove propagules and floodplain vegetation.
- **Equipment Acquisition**: Obtain tools, such as planting kits, water monitoring devices, and erosion control materials.
- **Funding**: Apply for grants, work with private donors, or partner with companies supporting sustainability initiatives.

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4. Ecosystem Restoration Activities

Objective: Execute the physical restoration of floodplains and mangroves.

- **Floodplain Rehabilitation:**
  - Remove artificial barriers (e.g., dikes) to restore natural water flow.
  - Plant native grasses and vegetation to stabilize soil.
- **Mangrove Planting:**
  - Plant propagules in zones identified as suitable based on salinity, tidal reach, and soil conditions.
  - Use bioengineering techniques like sediment traps or coir logs for better seedling establishment.
- **Erosion Control:** Implement measures to prevent soil erosion during the early phases of restoration.

5. Policy Integration and Scaling Up

Objective: Ensure sustainability and replicate success in other regions.

- **Policy Advocacy:** Work with governments to incorporate floodplain restoration and mangroves into national climate adaptation and disaster management plans.
- **Incentivize Participation:** Develop programs like tax benefits or subsidies for private landowners contributing to restoration efforts.
- **Scale-Up Efforts:** Use lessons learned to expand restoration projects to other vulnerable areas, creating a regional or national network of resilient ecosystems.

7. Long-Term Community and Economic Integration

Objective: Create economic and social benefits tied to the restored ecosystems.

- **Eco-Tourism and Education:** Develop eco-tourism initiatives, such as mangrove trails or guided floodplain tours, providing economic opportunities.
- **Sustainable Harvesting:** Train locals in sustainable practices like honey collection or small-scale aquaculture to reduce pressure on restored areas.
- **Business Partnerships:** Encourage businesses to invest in the maintenance and expansion of restored ecosystems as part of their sustainability goals.

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Stakeholders

Local people - farmers, fishers and coastal residents who face regular flooding risks

Local authorities - regional disaster management offices, forestry department and municipal governments.

Local partners such as local businesses and universities.

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Pilot Cost estimation for mangrove plantation in Bangladesh

Flight: ~$1,000/person round-trip × 10 coordinators = ~$10,000.
Accommodation: $50/day × 14 days × 10 coordinators = ~$7,000.
Total for 10 coordinators: ~$17,000.

Sapling Purchase:
Mangrove seedlings: $2 each × 20,000 = ~$40,000.

Labor Costs:
Hiring locals: $5/day/person × 50 workers × 30 days = ~$7,500.

Team Salaries:
Project leads: $100/day × 4 people × 30 days = ~$12,000.

Community Education:
Organizing 10 workshops: $500/event × 10 = ~$5,000.

Miscellaneous Supplies and Transport: ~$7,500.

Additional Allocation for Contingencies, Monitoring, and Community Incentives: ~$11,000.

Grand Total: $100,000.

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Preliminary selection of partners

- Local and regional government
- environmental NGOs
- local communities and indigenous groups
- universities and research institutions
- international organizations and donors
- ecotourism companies

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