Project Title: Hydroponics in greenhouses for Lesotho
Country: Lesotho
Sponsoring College: Harvard College
Project Lead: Djibril Rushingabigwi Rwanda, Harvard College ’22
Team Member: Lerato Takana Lesotho, Harvard College ’22, Waterford Kamhlaba UWCSA
Project Execution Date Range: June 15th 2021– August 15th 2021

Overview
Like most low-income African countries, agricultural production in Lesotho is vital to the Country’s social and economic development. About 90% of the farmers are sustenance growers that grown on less than 1 hectares producing mainly for home consumption with very little or no surplus to sell on the market. The meager yield is mainly caused by the use of outdated, traditional farming methods and global warming albeit the abundant arable land available even in urban areas. These small-scale farmers lack the necessary expertise and capital to adopt new farming methods that will ensure fresh ample harvest, enabling them to sell more surplus.

Upper-Thamae, located in the heart of Maseru, is one of the urban villages with high crime rates and youth unemployment rates. Only one in 20 people is still in school or graduated from high school or college. Majority of the youth has been in and out of jail for gangsterism, which is perceived as unavoidable by school dropouts and jobless graduates. In an attempt to prevent the youths idleness, community leaders encourage members of the society to employee students and fresh graduates as gardeners, car washing employees, and baby-sitters. From time to time, diligent youngsters manage to earn their patrons trust, and they obtain the rights to farm their patron’s land for free and reap all the benefits. These young farmers develop a passion for agriculture and selling crops, yet they hardly gain any returns with their scant yield – a misfortunate result of pests, pesticides, draught or flooding.

This project aims to take advantage of technological advancements to address challenges that the youth in Upper-Thamae faces and use this as a pilot on how sustainable farming methods can combat crime and reduce unemployment in Lesotho. The project aims to set up a hydroponics system (growing plants by using water rich in dissolved mineral nutrients instead of soil) under a greenhouse at Upper-Thamae at Lerato Takana’s home where selected UpperThamae youth farmers can learn and practice farming with hydroponics method. Because the green house will be generating funds adjacently to training and employing young farmers, we shall encourage employed farmers through subsidies and other form of investments to start their own greenhouses.

Objectives
The project aims to accomplish the following goals:

- Combat crime at Upper-Thamae
- Reduce youth unemployment
- Encourage collaboration among community small-scale farmers
- Encourage use of sustainable farming methods
- Establish farming skills exchange between Upper-Thamae youth and the other communities. The youth will be encouraged to apply for funds to start their own hydroponics farms collaborating with other youth.

Project Plan and Timeline
### Timeline (June - August)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build a greenhouse and hydroponics</td>
<td>A company called Mehloli Ea Lintle AGRO will be hired to build the greenhouse and setup the hydroponics. A discounted price will be charged when we buy equipment from them and use their transportation.</td>
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<tr>
<td>Training program</td>
<td>Hold a theoretical training program for selected youth on hydroponics, green houses and their sustainable advantages.</td>
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<tr>
<td>Training program</td>
<td>Guided, practical training for the youth on how to farm with hydroponics.</td>
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<tr>
<td>Plantation and Harvest</td>
<td>Start growing vegetables harvest first batch.</td>
</tr>
<tr>
<td>Project Assessment and growth potential assessment</td>
<td>Compare pre-implementation to post-implementation goals and milestones achieved as well as assess scalability of project.</td>
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### Project Impact on Peace and Sustainability

Basotho say “Matsoho a hlatsoana”, meaning collaborating and supporting each other is key to the survival and success of Basotho. We feel that this hasn’t been the case of late in Lesotho, and that people are generally just looking out for themselves. In light of this, we are essentially striving to promote a crime-free, collaborative environment amongst community members at Upper-Thamae through agriculture. We also aspire to instill an entrepreneurial mindset within the community that will not only help establish sustainable agricultural ventures but will also be invaluable knowledge to be disseminated with no constraint. With the accrued income from selling products, the project will expand and hire more people, consequently reducing unemployment. We also hope to incite the Ministry of Agriculture to embark on the quest to educate Basotho about sustainable farming methods and seek investors who will fund the set up of more hydroponics farms across the entire country.

### Who Are We

Lerato Takana was born and raised in Upper-Thamae and was fortunate enough to use education as a weapon to overcome gangsterism. He continues to work with the Upper-Thamae youth as a tutor and mentor. Djibril Rushingabigwi is a Rwandan who grew up in a place similar to Upper-Thamae where the youth is in dire need of assistance. Both Lerato and Djibril have had the chance to work at agricultural companies: Lerato interned with Nalane, an NGO that practices aquaponics (combination of hydroponics and fish farming) farming at a primary school in Lesotho; and, Djibril interned with an aquaponics farm based in the US. They have a deep passion for sustainable farming methods, the likes of hydroponics and aquaponics, and they hope to see these techniques being practiced on the entire African continent.