

# Achieving Food and Nutritional Security of Urban and Semi-urban Communities in Sri Lanka under a Changing and Variable Climate through Smart Vertical Farming Modules

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## INTRODUCTION

Urban home gardening through Smart Vertical Farming Module (SVFM) opens a new window for food security in Sri Lanka. It also helps urban and semi-urban communities to have an easy access for safe foods and spend their leisure times with a productive activity. It is of paramount importance to implement climate-proofed adaptation interventions in the context of water, nutrient and pest & disease management in a controlled manner, especially where the land resource is scarce in these exposures. Automated features such as enhanced photosynthesis rates of crops with artificial lighting, nutrient management through fertigation and modern ICT techniques for the manipulation of modules will be unique compared to a conventional controlled agriculture system.

## Our Solution ..... Smart Vertical Farming Module (SVFM) using State of Art Technologies

Planting will be done in six gutters with solid plant medium and two hydroponics pipes under controlled environmental conditions.



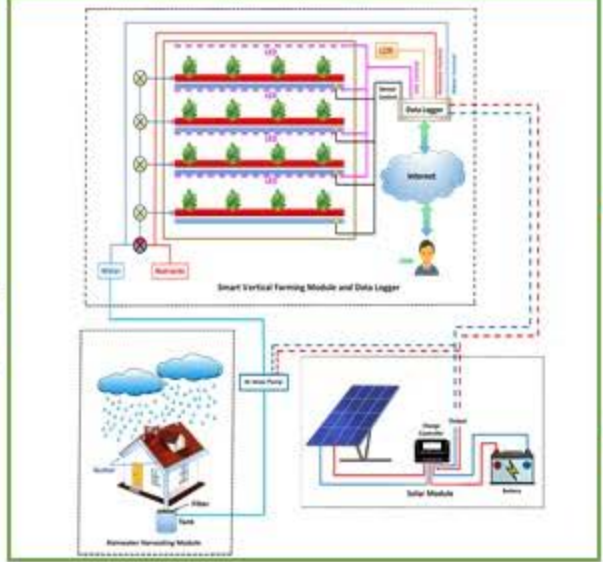
## Sensors used in SVFM

- Soil moisture sensor
- Soil pH level sensor
- Light intensity sensor
- Temperature & Humidity sensor

## Unique features of SVFM

- Automated water and fertilizer supply
- Artificial lighting as and when required
- Limited man hour involvement
- Less impact for extreme weather events
- Rainwater harvesting module
- Solar power as main source
- Remote manipulation via Web App

## SVFM & other supportive modules



## Methodology

- Kick-Off Meeting
- Selection of Sites/Household
- Selection of crops
- Manufacturing SVFM & Testing
- Regular meetings
- Web Application
- Awareness programmes
- Installation of SVFM
- Regular Inspection
- Data Collection
- Workshops
- Up-scaling

SVFM is perfectly aligning with the newly introduced Sri Lanka government's National Agriculture Policy - 2021

## Limitations of Urban Farming in Sri Lanka

- Limited available space for urban farming
- Time limitation due to busy & hectic schedules
- Knowledge limitation on urban farming
- Knowledge limitation on modern agricultural technologies