2. Summary Coversheet: Cover sheet stating the applicant name and organization, proposal date, program title, program period proposed start and end date, and brief purpose of the program.

**Applicants:**

Yisehak Shata, MEng, PE, ENV SP

Chairman and Board of Directors STEM Synergy International

Mobile: 540-355-5250

Email:[yshata@stemsynergy.org](mailto:yshata@stemsynergy.org) Website: [https://stemsynergy.org/](https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fstemsynergy.org%2F&data=04%7C01%7CBEAUCAG%40UCMAIL.UC.EDU%7C5fd7639b522b4ab1debb08d943ea8405%7Cf5222e6c5fc648eb8f0373db18203b63%7C1%7C0%7C637615497212206168%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C2000&sdata=R2XZeT2id%2FFTTMVqe%2FJk8XzmrM4sTjcAV%2B9E69M6QoM%3D&reserved=0)

Tsegaye Legesse MBA/CPA

President and Executive Director STEM Synergy International

Cell Phone: 202-203-8240

Email: [tlegesse11@stemsynergy.org](mailto:tlegesse11@stemsynergy.org)

Abiyot Lakew, Manager of STEM Synergy’s Addis Ababa facility.

Prof. Gregory Beaucage,

Department of Chemical and Materials Engineering

University of Cincinnati

513 373 3454 (Cell)

beaucag@uc.edu

Berhanu Assefa (Dr.- Ing) Associate Professor, Chemical Engineering

Addis Ababa Institute of Technology, Addis Ababa University

Addis Ababa, Ethiopia Tel: +251 (0) 911 40 54 91 hmberhanu@yahoo.com

**Program Title:** ***Ethiopian Manufacture of Drip Irrigation Control Systems***

**Proposed Start Date:** October 1, 2021

**Proposed End Data:** September 30, 2022

**Purpose of Program:** The funds will be used to initiate a business in Addis to manufacture drip irrigation control systems that were previously designed and field tested during a Fulbright Fellowship by Prof. Greg Beaucage (University of Cincinnati, Addis Ababa University, Dire Dawa University, University of Sheffield, UK). In the first year, with US Embassy funding, we plan to develop a manufacturing protocol for drip irrigation (DI) control systems and to install the systems in two agricultural test sites including in East Hararghe/Dire Dawa with the Fair Planet NGO and at Bishoftu near Addis at the AAU agricultural test facility. At the end of the first year we hope to have a business plan for a marketable DI control system, manufacturing protocol and capital investment to initiate commercial activity in Ethiopia to manufacture DI control systems for Ethiopian farms. The program chiefly involves the Stem Synergy International NGO which has recent experience with Ethiopian startups and has manufacturing facilities and an office in Addis, 22 STEM centers across Ethiopia and offices in the Washington DC area. The one-year funding will result in the initial manufacture of soil moisture sensors, solar irradiance, temperature and humidity detectors, electronic valves and a control app for control of the system using a cell phone. In the first year these initial systems will be field tested in collaboration with Fair Planet, an Israeli NGO operating at Dire Dawa and in the East Hararghe region, as well as in collaboration with Addis Ababa University at their Bishoftu agricultural test facilities near Addis. This seed funding will be coupled with further investment developed during the first year so that a functional startup business will result that employs Ethiopian trained engineers and scientists towards the manufacture of DI control systems for Ethiopian farms run by a cell-phone app and including solar powered electronic valves, solar-powered soil moisture/temperature/humidity/irradiance detectors and a new app that can take the humidity/temperature/irradiance/soil moisture readings and calculate and implement the needed irrigation and fertilizer addition based on existing algorithms available in textbooks on drip irrigation.