Inputs: Innovation: School-Based Agricultural Education System

The foundation of the framework is a replicable school-based agricultural education system, based on the school-based farm demonstration model.

1. Ministry of Agriculture
   The Ministry of Agriculture, or other ministries and autonomous agencies providing agriculture research or extension, own knowledge of best agronomic practices and available technologies suitable to local farmers.

2. Ministry of Education
   The Ministry of Education oversees schools, teachers, curriculum and assessment tools fundamental to the agricultural education system.

3. 4-H NGO
   The 4-H organization can be government, non-government or a public private partnership unto itself. It oversees and coordinates agriculture teacher trainings, field officers, student leadership camps, competitions and agriculture fairs/exhibitions.

4. Universities & Colleges
   Colleges of Education and Agriculture educate future agriculture teachers in improved agricultural innovations and the learn-by-doing methodology of the model.
Inputs: Innovation: Agriculture Teacher Trainings
The inputs are centered on a continuum of agriculture teacher trainings. A total of six trainings over two years with continuous follow-up and accountability included.

5. Learn-By-Doing Methodology
Connects agricultural science curriculum to experiential pedagogy using school farm and other tools to improve teacher and student performance.

6. School-Based Farm Demonstration Model
Teachers trained in problem-solving methodology in each of the four components of the school-based farm demonstration model: classroom instruction, school demonstration farm, home entrepreneurship projects, and leadership development.

7. Agricultural Innovation
A weeklong agricultural innovation training for teachers of agricultural science and lead farmers at a local agricultural research institution. Annual trainings can have a focused concentrated, e.g., vegetables, grains, tubers, post-harvest technology, etc.

8. Accountability & Follow-Up
Field officers, extension agents or agricultural education supervisors guide approximately twenty-five agricultural education programs ensuring innovation and pedagogy are enacted properly. Additionally, teacher peer groups hold each other accountable and share new ideas through regular meetings and social media.
Outputs: Early Adopters: School-Based Farm Demonstration Model

Activities implemented through the school-based farm demonstration method are the outputs. Youth, as early adopters, take up the improved agricultural practices and begin implementing them at school and home.

1. Classroom Instruction
   Classroom instruction provides a scientific foundation for students of agriculture.

2. School Demonstration Farm
   The school demonstration farm connects science to practice on a student-led farm introducing improved innovation to farmers in the community.

3. Home Entrepreneurship Projects
   Home entrepreneurship projects allows students to “learn and earn,” receive individualized instruction from their teacher of agriculture, and spread their knowledge to parents and farmers in the community.

4. Leadership Development
   Leadership development through 4-H or Future Farmer clubs equip students with the professional skills and confidence necessary to live life in civil society. Students participate in leadership development activities e.g., public speaking contests, parliamentary procedure contests, agriculture fairs, leadership camps, etc.
Short-Term Outcomes: Tipping Point: Youth Outcomes
As youth outcomes become apparent to adults, improved agricultural innovation begins to diffuse to parents and farmers, eventually creating a tipping point of diffusion within the community.

1. **Confidence**
   Students develop professional skills, such as public speaking, and become more confident interacting with peers and adults.

2. **Competence**
   Students realize increased performance in their academic and vocational skills.

3. **Connection**
   Students meet and connect with like-minded peers from communities across the country and participate in collaborative connections with adults.

4. **Crop & Animal Production**
   Students increase crop and animal production, contributing toward personal and family health and nutrition.

5. **Cash**
   Students have greater agency over their lives as a result of earning cash through their home entrepreneurship projects.
Long-Term Outcomes: Full Adoption: Community Transformation
As improved innovation moves toward full adoption, the local community is transformed at four different levels. The four long-term outcomes substantially contribute toward seven of the United Nations’ Sustainable Development Goals (SDGs) as indicated by specific SDG targets.

1. **Economics: Incomes improve through increased farm production and value-added agribusiness opportunities.**
   - SDG 1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day.
   - SDG 1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.
   - SDG 2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.
   - SDG 4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.
   - SDG 8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training.

2. **Food Security: Increased agricultural production increases the local food supply.**
   - SDG 2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.
   - SDG 2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.
   - SDG 2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain
ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

SDG 12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

3. **Education**: Parents economically benefit from their children staying in school, teachers are better equipped to teach, and student performance substantially improves.

   SDG 4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

   SDG 4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.

   SDG 4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States.

   SDG 8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training.

4. **Civil Society**: The perception of youth, by adults, shifts into a more collaborative role within local society. Local institutions and participatory government are strengthened through the leadership development taught through the school.

   SDG 16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels.

   SDG 17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries.

   SDG 17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships.