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FROM THE AMERICAN PEOPLE

FARMER TO FARMER
The USAID John Ogonowski and Doug Bereuter Farmer-to-Farmer Program



To express interest in this assignment please email priyanka.subba@crs.org

CRS Farmer-to-Farmer Program

Volunteer Assignment Scope of Work

Summary Information				
Assignment SOW Code	NE304			
Country:	Nepal			
Country Project:	Climate-smart agriculture (CSA)			
Host Organization:	Silverline Agro Pvt. Ltd.			
Partner:	N/A			
Assignment Title:	Training on hydroponics and soilless farming.			
Objectives of the assignment:	<p>The main objective of the assignment is to provide training and technical guidance on hydroponic and soilless production systems. The following are the specific objectives.</p> <ol style="list-style-type: none"> 1) Provide training and technical guidance on plant nutrition and water quality management. 2) Provide training and technical guidance on pest and disease management. 3) Provide training and technical guidance on appropriate substrate selection for soilless cultivation. 4) Develop Standard Operating Procedures (SoP) for nutrition, water quality, and pest management. 			
Assignment preferred dates:	June-July			
Desired volunteer expertise:	<ol style="list-style-type: none"> 1) Proficient in plant biology, physiology, and growth requirements for successful hydroponic and soilless cultivation. 2) Knowledge of essential nutrients for plant growth, their sources, and maintaining proper nutrient levels in hydroponic systems. 3) Skilled in assessing water quality, managing pH levels, and optimizing water circulation systems to ensure ideal plant growth conditions. 4) Capable of identifying common pests and diseases in hydroponic systems and implementing appropriate control measures to minimize their impact. 			
Type of Volunteer Assistance:	Business/Enterprise Development (E)			
Type of CSA Activity	A Adaptation/Resilience			
PERSUAP Classification ¹ :	Type II			
Approx. Number of people to be trained:	Men	Women	Male Youth	Female Youth
	15	15	5	5

¹ USAID precisely classifies PERSUAP in four categories: PERSUAP Type I assignments make recommendations on the use of specific pesticides; Type II assignments provide advice on the safe and effective use of pesticides; Type III assignments do not involve the use of pesticides in any way; and Type IV assignments are associated with other USAID projects and collaborators and are likely to be covered by those projects' PERSUAPs.

Host Information	
Date of completion of baseline & Capacity development plan data collection:	25 th April 2024
Date of host agreement signing:	26 th April 2024
No. of previous assignments: ²	None
Recommendations given (Total):	None
Recommendations applied (Total):	None
Name of ToT trainee (if already identified)	Sadhu Ram Singh Basnet, Founder, CEO Bishnu Dev Saha, Agriculture Officer, Bardibas municipality

Gender, youth and climate considerations			
Gender Sensitivity:	Yes	No	If yes, how? If no, why not?
1. Does the assignment take into account gender dynamics (i.e. decision-making power, roles and responsibilities, cultural norms) in the implementation area?	Yes		<ul style="list-style-type: none"> While assessing the host community, we found that female farmers often feel hesitant and less confident than their male counterparts while communicating with external individuals and expressing their opinions. This may result in reduced participation among women as well as dominance by male farmers during the assignment. Therefore, this assignment encourages fostering active and equal participation of men and women during the entire assignment period.
2.1 Does the assignment contribute to increasing the capacities of men?	Yes		<ul style="list-style-type: none"> Male employees of the host and municipality office will increase their knowledge of hydroponics and soilless production practices.
2.2 Does the assignment contribute to increasing the capacities of women?	Yes		<ul style="list-style-type: none"> Priority will be given to women because women are typically excluded from such trainings.
3.1 Does the assignment address the constraints of women?	Yes		<ul style="list-style-type: none"> Access to knowledge and skills in hydroponics and soilless farming are a key constraint for men, women, and youth. This assignment aims to alleviate these constraints associated with hydroponics and soilless production systems.
3.2 Does the assignment address the constraints of men?	Yes		<ul style="list-style-type: none"> Same as 3.1 above
4.1 Does the assignment consider how to mobilize women to participate?	Yes		Two municipal female extension workers and 15 women employees of the host are expected to attend the course. The team will engage in discussions with the host and volunteer to ensure

² Discuss new hosts with Program Director.

			<p>that they are given equal opportunities to engage in the discussion and other assignment activities.</p> <ul style="list-style-type: none"> The host is proactively communicating with staff and farmers (men and women) regarding the training, timing, venue, logistics, etc. This will ensure that participants, especially women, are adequately prepared in advance to attend the training.
4.2 Does the assignment consider how to mobilize men to participate?	Yes		<ul style="list-style-type: none"> Same as 4.1 above.
5.1 Have the assignment logistics been organized in a way that facilitates men's participation?	Yes		<ul style="list-style-type: none"> The timing and duration of the training will be determined based on the availability of both male and female participants. Dialogues with the host organization will encompass the availability and suitability of facilities, including hotels, training halls, restroom facilities, etc., to ensure they are gender-friendly and capable of accommodating the diverse needs of all participants, both men and women.
5.2 Have the assignment logistics been organized in a way that facilitates women's participation?	Yes		<ul style="list-style-type: none"> Same as 3.1 above
Youth Empowerment:	Yes	No	If yes, how? If no, why not?
1.1 Does the assignment contribute to increasing the capacities of male youth?	Yes		<ul style="list-style-type: none"> The training will improve the skills and capabilities of male youth in hydroponics and soilless production systems.
1.2 Does the assignment contribute to increasing the capacities of female youth?	Yes		<ul style="list-style-type: none"> The training will improve the skills and capabilities of one female youth participant in hydroponics and soilless production systems.
2. Are there particular barriers to male youth and female youth's participation in the value chain? Has the assignment taken those into account?	Yes		<ul style="list-style-type: none"> Access to knowledge and skills in hydroponics and soilless farming is a key constraint particularly for youth, due to the growing interest and involvement of young people in this sector. Furthermore, both the public and private sector institutions lack extension staff with appropriate knowledge and skills in these new technologies. Therefore, this assignment aims to alleviate these constraints faced by youth associated with hydroponics and soilless production systems.
3 Does the assignment address the particular constraints of male youth?	Yes		Same as above
4 Does the assignment address the particular constraints of the female youth?	Yes		Same as above
Climate Change	Yes	No	If yes, how? If not, why not?

<p>Will the assignment address climate change? (Yes/No) If yes, please include this in the issue description.</p>	<p>Yes: The assignment will promote the efficient and smart use of water, nutrients, technology, and weather information leading to increased capacity of production systems to adapt to and mitigate the effect of climate change.</p>
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A. BACKGROUND

About the CRS Farmer-to-Farmer program (F2F)

The CRS Farmer-to-Farmer program (F2F) is a five-year (2024-2028) USAID-funded program that provides technical assistance to farmers, farm groups, agribusinesses, and other agriculture sector institutions in developing and transitional countries to promote sustainable improvements in food security and agricultural processing, production, and marketing. The main goal of the program is to generate sustainable, broad-based economic growth in the agricultural sector through voluntary technical assistance. A secondary goal is to increase the U.S. public’s understanding of international development issues and programs and international understanding of the U.S. and U.S. development programs.

F2F volunteers are pooled from a broad range of US agricultural expertise including private farmers, university professors, bankers/certified accountants, animal health and nutrition specialists, soil scientists and agronomists who can provide technical assistance to the local host organizations. The program introduces new innovations and skills to develop local organizations’ capacity to participate in more productive, profitable, sustainable, and equitable agricultural systems while providing an opportunity for people-to-people exchange within the agricultural sector.

When the COVID-19 global pandemic broke out, CRS F2F introduced a paired remote volunteer (PRV) model whereby a US volunteer who does not travel provides remote support to a local/national volunteer who carries out the assignment in person. This model is still used for up to 10% of assignments.

For the 2023-2028 round of F2F, CRS is taking a gender-sensitive approach to programming, which includes conducting a gender assessment of each host prior to initiating assignments. CRS is also asking each host to identify at least one person to be a key trainee (under a Training of Trainer [ToT] model) for each assignment in the hope that this person will be able to replicate the training in the future. This isn’t a deal-breaker but we are strongly encouraging it. Therefore, the volunteer report format will ask you to name the trainee (if there was one) and comment on their level of engagement.

The CRS F2F program in Nepal has identified Agribusiness Development and Climate-Smart Agriculture (CSA) as the topics of its assignments. These are known within F2F as ‘Country F2F Projects.’ The agribusiness development project involves activities such as vegetable and fruit cultivation, dairy and goat farming, honeybee management, mushroom cultivation, as well as agro-processing, storage, packaging, branding, and marketing. The CSA project includes diversification and crop management, improved water management, and soil conservation. CRS F2F’s working geographic zones are Sudur Paschim, Karnali, Lumbini, Bagmati, and Madhesh provinces. Requests from other locations and outside-country projects are sometimes considered but are seen as exceptions.

About the host organization

Silverline Agro Pvt. Ltd. was established in 2020 by two young entrepreneurs. It is located in the Bardibas municipality within the Mahottari district, approximately 150 kilometers southeast of the Kathmandu Valley.

Silverline Agro Pvt. Ltd. is dedicated to developing comprehensive systems encompassing nursery raising, production, processing, delivery, and consumption of fresh vegetables and microgreens. Through innovative components developed under a Public-Private Partnership (PPP) model, the host provides direct technical and marketing services to small-scale farmers, empowering them with sustainable practices and cutting-edge technology.

At the forefront of this endeavor is the establishment of a state-of-the-art indoor farm, employing climate-resilient techniques. These innovative facilities have enabled year-round cultivation under controlled conditions, leveraging artificial grow lights to mitigate weather constraints and enhance productivity. In total, the company has invested \$310,000 in infrastructure, facilities, and technology. In 2023, the company successfully sold microgreens, cherry tomatoes, and cucumbers in the domestic market generating revenue equivalent to \$115,384.

Embracing the principles of CSA, the host integrates advanced technologies such as precision farming and hydroponics to optimize resource utilization. The company's commitment to water use efficiency and temperature regulation is guided by the 3R (Recycle, Reuse, and Repair) principle, ensuring environmental sustainability across its operations.

Beyond its commercial objectives, Silverline is dedicated to fostering financial stability among smallholder farmers and addressing productivity challenges exacerbated by climatic hazards. The company's ethos revolves around promoting sustainable production systems and environmentally friendly practices at every stage of operation.

Looking ahead, Silverline Agro aims to work directly with 5,000 smallholder farmers, significantly boost their incomes, and scale up their daily fresh produce output to 2,000 kg, catering to both domestic and international markets. This is to be achieved by providing quality planting materials, training, inputs, and marketing opportunities to the smallholder farmers. Currently, Silverline comprises over 30 dedicated employees working closely with a network of more than 1,500 farmers who form the backbone of their agro-based initiative.

B. ISSUE DESCRIPTION

The Government of Nepal's Agriculture Development Strategy (ADS) envisions a self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth and improves livelihoods and food security. The ADS prioritizes four strategic components: governance, productivity, profitable commercialization, and competitiveness, emphasizing inclusiveness, sustainability, private sector development, and connectivity to market infrastructure, information technology, and power sources. Among these components, increasing productivity, profitable commercialization, and competitiveness are directly linked to high-tech horticulture, a focus area implemented by Silverline Agro Pvt. Ltd. In line with this policy, the Government of Nepal (GoN) has been implementing plans to establish high-tech farms based on precision farming principles in each province since 2018.

Despite this, the high-tech horticulture sector faces various challenges regarding its fully-fledged adoption and operation. Issues such as low-quality inputs and crop products and reduced productivity and profitability pose significant obstacles, particularly in hydroponic systems. The lack of knowledge around nutrient and water quality management, and disease management contributes to reduced income and decreased market

competitiveness. Additionally, obstacles like high technology access costs, substantial upfront investments, inadequate water quality and nutrient management, and insufficient training on technical know-how have significantly hampered technology adoption. The lack of expertise in critical technical areas, such as water quality, nutrient and pest management, has worsened these challenges.

Given that the sustainability of emerging sectors like hydroponics and high-tech farming depends on the technical proficiency and expertise of farm owners and employees, comprehensive training is imperative. Investing in capacity-building for agri-entrepreneurs in technology adoption, management, and operation is essential to address these challenges and equip the agri-entrepreneurs with the necessary skills to run successful businesses. Therefore, on-the-ground assistance is crucial for organizations like Silverline to develop a robust approach to manage and operate hydroponic farms that align with their vision and values.

This SOW falls under the F2F Nepal Climate-smart Agriculture (CSA) country project which aims to promote the adoption of climate-smart agricultural technologies and practices among smallholder farmers and agribusinesses. The objective is to increase their yields, improve their adaptive capacity and resilience to climate shocks, and reduce greenhouse gas emissions. This assignment will ultimately support the national goal of fostering the adoption of CSA technologies for profitable commercialization, boosting competitiveness, and promoting a more inclusive agriculture sector.

Hydroponic farming, which the assignment will focus on, offers several advantages that contribute to both adaptation to and mitigation of climate change. Hydroponic systems use significantly less water and can be implemented utilizing less land compared to traditional soil-based agriculture. The technologies offer a climate-resilient production environment that is less susceptible to extreme weather events such as droughts, floods, and storms ensuring consistent yields, even in the face of climate variability. The systems allow for precise control over nutrient delivery, optimizing resource use, and minimizing fertilizer runoff reducing soil and water pollution.

C. OBJECTIVES OF THE ASSIGNMENT

The main objective of the assignment is to provide training and technical guidance on hydroponic and soilless production systems.

The following are the specific objectives.

- 1) Provide training and technical guidance on plant nutrition and water quality management.
- 2) Provide training and technical guidance on pest and disease management.
- 3) Provide training and technical guidance on appropriate substrate selection for soilless cultivation.
- 4) Develop Standard Operating Procedures (SoP) for nutrition, water quality, and pest management.

D. HOST CONTRIBUTION

The host will mobilize company staff and municipal extension workers to attend the assignment. The organization will also assign at least one key personnel to work closely with the volunteer during training preparation and implementation to ensure that key staff members can train other organization members once the assignment has been completed.

Furthermore, the host will provide the following contributions:

- Provision of training venue and necessary demonstration materials for the training sessions.
- Provision of stationery and transportation for participants, and other associated training facility costs.

E. ANTICIPATED RESULTS OF THE ASSIGNMENT

- 1) Improvement in the host’s production, productivity, and quality.
- 2) Increased knowledge and skills of staff and municipal extension workers regarding plant nutrition, pest management, and the selection of appropriate substrate in soilless farming.
- 3) Contribution to the company’s five-year vision for production, productivity, and market outreach.

F. DELIVERABLES

The anticipated deliverables accomplished by the volunteer include:

1. Volunteer end-of-assignment report with recommendations for the host organization’s action plan and recommendations for CRS (due before departure from Nepal).
2. Group presentation with local stakeholders at the end of the assignment in-country.
3. Final debrief meeting (PowerPoint presentation) with the host organization (plus key stakeholders) and CRS/USAID.
4. A minimum of 3 volunteer outreach activities in the US and/or in-country using appropriate media (print, radio, TV, group presentations, social media etc.)
5. Standard Operating Procedures (SoP) for nutrition, water quality, and pest management developed and shared with the host.

G. DRAFT SCHEDULE OF VOLUNTEER ACTIVITIES IN THE COUNTRY

Day	Activity
Day 1	<ul style="list-style-type: none"> • Arrival at Tribhuvan International Airport (TIA); pick-up by Hotel Kutumba driver • Check-in at Hotel Kutumba, Kupondole, Lalitpur, Nepal. <p>NB: If you encounter any difficulties, please request assistance from airport staff to call Suprava Acharya (on WhatsApp or phone) at +977 9840937902 or Nirmal Gadal at +977 9851073671.</p>
Day 2	<ul style="list-style-type: none"> • Rest day in Hotel Kutumba
Day 3	<ul style="list-style-type: none"> • At 10:00 am, the volunteer will be picked up at the hotel by a CRS driver and taken to the office for introductions and briefings. • The volunteer will be briefed by the F2F team about the host and then discuss with the team the related logistics and anticipated outcomes. • The volunteer may also prepare study materials while at the CRS Office. • After the briefing, the volunteer will travel to the Silverline Agro Pvt. Ltd’s hydroponic facilities at Bardibas for introductions and commence the assignment in the company of F2F team members.
Days 4 – 12	<ul style="list-style-type: none"> • Conduct assignment-related activities at the host location.
Day 13 & 14	<ul style="list-style-type: none"> • Activity close-out. <ul style="list-style-type: none"> • In-country/virtual debrief with CRS staff and/or USAID Mission. • Reimbursement of expenditures and liquidations (if any) with the finance department, as required. • Drafting and submission of volunteer reports, training attendance sheets, assignment reports, PPT presentations, and any reference materials to the CRS F2F team

Day 15	• Depart for the USA
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H. DESIRABLE VOLUNTEER SKILLS

- 1) Proficient in plant biology, physiology, and growth requirements for successful hydroponic and soilless cultivation.
- 2) Knowledge of essential nutrients for plant growth and their sources and maintaining proper nutrient levels in hydroponic systems.
- 3) Skilled in assessing water quality, managing pH levels, and optimizing water circulation systems to ensure ideal plant growth conditions.
- 4) Capable of identifying common pests and diseases in hydroponic systems and implementing appropriate control measures to minimize their impact.
- 5) Familiarity with various hydroponic systems including their setup, operation, and maintenance (desired).

I. ACCOMMODATION AND OTHER IN-COUNTRY LOGISTICS

- While in Kathmandu, the volunteer will be booked at Hotel Kutumba (www.hotelkutumba.com) and confirmation will be sent prior to the volunteer's arrival. The hotel includes services such as airport pickup and drop-off, breakfast, wireless internet, etc. While on assignment, the volunteer will be placed in a CRS approved Hotel in Bardibas, additionally the host may also host the volunteer in a local guest house. This will be confirmed and communicated to the volunteer prior to the assignment date.
- CRS Nepal will cover the costs of lodging. CRS HQ will provide the volunteer with a per diem advance to cover meals and incidentals.
- Security information will be provided by the CRS Nepal security focal person at the CRS office.
- CRS Nepal will provide the volunteer with a laptop computer (if s/he needs one), a local internet dongle (modem/EVDO), and a mobile phone with a charged local SIM card and top-up. Any other required logistics and facilities can also be requested by the volunteer during her/his stay. CRS Nepal will provide a vehicle and accompany the volunteer to the place of the assignment.

J. ASSIGNMENT PREPARATION RECOMMENDATIONS

Training Materials:

- Before travel, the volunteer is advised to prepare all necessary training and demonstration aids and written handouts. Electronic copies of these handouts and any other materials can be printed for immediate use at the CRS office in Kathmandu at the volunteer's request.

Training Participants demographics:

- The training participants will include company staff and municipal extension workers. Training participants will be mixed in terms of education, age, and gender. Women and youth participants will be encouraged to attend.
- The volunteer will be given opportunities to understand the socio-technical and cultural contexts including government sectoral policies and priorities before the start of the actual training.

Roads and transportation:

- Kathmandu has good road connectivity. However, traffic can sometimes be heavy, especially during mornings (8:30 to 10:30 am) and evenings (5:00 to 6:30 pm).

- The volunteer will travel by road to the assignment site, situated approximately 150 kilometers southeast of the Kathmandu Valley in Bardibas Bardibas Municipality, Mahottari. It's important to note that sections of the road may be rough due to poor maintenance.

Communication and Security

- While there are no major security issues nationwide, we advise volunteers to remain vigilant and aware of their surroundings. Avoiding travel during early mornings and late afternoons is recommended. Try to schedule activities between 8:00 am and 5:00 pm.
- Nearby hospitals and clinics are available. In case of need, volunteers are encouraged to refer to the CRS F2F guide for accessing medical care during their assignment.
- In Kathmandu, services such as electricity, internet, and cellphone signals are generally reliable and stable. However, during field visits to rural areas, occasional electricity outages and weak internet and cellphone signals may be encountered.

Working environment and culture

- Nepalese people are known for their friendliness and may actively seek to establish meaningful connections with visitors. It is advisable to accept invitations from host staff or training participants to informal gatherings such as lunches, wedding parties, and cultural ceremonies to nurture personal relationships with them.
- Nepalese culture often exhibits flexibility regarding schedules and deadlines. When collaborating with locals, it is advantageous to underscore the significance of adhering to mutually agreed-upon deadlines and to communicate how any delays might affect the overall assignment.

Weather-appropriate clothing

- June is the hottest month across the country with an average temperature of 42°C (107.6°F) and the wettest month is July with an average of 325.3mm of rain. About 2812 mm (110.7 inches) of precipitation falls annually in Nepal. Please visit <https://www.accuweather.com/en/np/nepal-weather> to check the weather forecast closer to your travel dates for any unexpected changes and to pack accordingly.
- It is best to pack a variety of clothing to accommodate different conditions: lightweight and breathable clothing, such as cotton shirts, shorts, and dresses, are suitable for the warmer months (e.g., June). A waterproof or water-resistant jacket or raincoat is advisable, especially for the wetter months (e.g., July) when there's a higher chance of rainfall.
- Comfortable walking shoes or hiking boots are recommended for exploring the terrain and navigating uneven surfaces, especially if you plan to venture into rural areas or hike in the surrounding hills.

K. KEY CONTACTS

To express interest in this assignment, please email the CRS Baltimore contact listed below. For additional information about the host, issue description or field conditions, please email the country contact provided below, copying the CRS Baltimore contact.

CRS Baltimore

<p>Priyanka Subba F2F Operations Manager Farmer-to-Farmer Program 228 W. Lexington Street Baltimore, MD 21201 Email: priyanka.subba@crs.org Contact number: 410-955-7194</p>	
CRS Country Program	
<p>Nirmal Gadal Country Director, Farmer-to-Farmer Program CRS Nepal Country Office Sanchal Marg - Sanepa , Lalitpur Metropolitan City Ward No.1, Bagmati Province, Nepal Email: nirmal.gadal@crs.org Cell: +977-9851073671</p>	<p>Suprava Acharya Project Coordinator, Farmer-to-Farmer Program Nepal Country Office Sanchal Marg - Sanepal, Lalitpur Metropolitan City Ward No.1, Province 3, Nepal Email: suprava.acharya@crs.org Cell: +977-9840937902</p>
Host Organization (Primary contact)	Host Organization (Secondary contact)
<p>Sadhu Ram Singh Basnet Address: Silverline Agro Pvt. Ltd., Bardibass-6, Mahottari Email: retesh705@gmail.com Contact number: 9851173076</p>	<p>Kiran Giri Designation: Assistant Technical Expert Address: Silverline Agro Pvt. Ltd., Bardibass-6, Mahottari, Kathmandu Email: karkisuresh@gmail.com Contact number: 9862101802</p>