Project Proposal

Low-Cost Mobile Soil Testing and Soil Rejuvenation Counselling for Rural Villages in Karnataka, India

Executive Summary

This project plan proposes a low-cost, mobile soil testing and soil rejuvenation counselling service for rural villages in Karnataka, India. The initiative aims to improve agricultural productivity, promote sustainable farming practices, and enhance the livelihoods of small and marginal farmers. The mobile units will conduct on-site soil testing and provide tailored advice on soil health management and crop suitability, using scientific data and local agronomic knowledge.

Problem Statement

Farmers in rural Karnataka often lack access to timely and affordable soil testing services. As a result, they use inputs inefficiently, leading to poor crop yields, soil degradation, and financial stress. There is a critical need for localized, easily accessible soil health diagnostics and actionable guidance on soil rejuvenation and fertility enhancement.

Justification

Soil health is the foundation of sustainable agriculture. The excessive and unbalanced use of chemical fertilizers without understanding the soil's nutritional needs has led to widespread soil degradation. According to the Indian Council of Agricultural Research (ICAR), up to 60% of agricultural soil in India is deficient in one or more key nutrients. By offering scientific soil health testing and personalized guidance, the project ensures better productivity, environmental sustainability, and farmer profitability. This initiative directly supports the Indian government's efforts under the Soil Health Card Scheme and promotes Atmanirbhar Bharat through agri-entrepreneurship.

Objectives

- To provide affordable, on-site soil testing services to farmers in rural villages.
- To deliver personalized soil health counselling and crop planning support.
- To promote organic and regenerative soil management practices.
- To raise awareness on balanced nutrient management and sustainable agriculture.

Target Area

The primary target area includes small and marginal farmers in rural districts of Karnataka, especially those in rain-fed and semi-arid regions with limited access to soil testing labs. The service aims to reach 5,000+ farmers annually through 3 mobile vans operating in different regions.

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Services Offered

- Mobile soil testing (pH, NPK, organic carbon, micronutrients).
- Printed and digital soil health reports in local languages.
- On-site counselling by trained agronomists.
- Recommendations on organic composting, crop rotation, green manuring, and bio-fertilizers.
- Follow-up visits and seasonal soil health campaigns.

Equipment and Technology

- Mobile van fitted with storage and workspace for soil testing.
- Portable soil test kits (for pH, NPK, EC, Organic Carbon, Micronutrients).
- Tablet/computer with soil health software and GIS mapping support.
- Solar power backup system for remote operations.
- Printing device for on-site report generation.

Relevant Government of India Schemes

- Soil Health Card Scheme – Ministry of Agriculture and Farmers Welfare.
- Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).
- Rashtriya Krishi Vikas Yojana (RKVY).
- National Mission for Sustainable Agriculture (NMSA).
- Agri-Clinics and Agri-Business Centres (ACABC) Scheme.
- Start-up India and Atmanirbhar Bharat initiatives supporting agri-entrepreneurs.

Existing Portals and Resources

- SHC Portal (https://soilhealth.dac.gov.in/) for soil card tracking and advisory.
- mKisan Portal (https://mkisan.gov.in/) for mobile-based advisories.
- Kisan Suvidha App by MoAFW for real-time agricultural support.
- eNAM (https://enam.gov.in/) for market linkage of farm produce.

Revenue Model

Farmers will pay a nominal fee of INR 200–250 per soil test, inclusive of consultation. Subsidies from local panchayats, CSR partnerships, and government schemes will support outreach and scalability. Additional income may come from selling low-cost soil enhancers or partnering with organic input suppliers and other NGO partners.

Operational Plan

Each mobile van will be equipped with a portable soil lab kit, GPS-based mapping, and trained technicians. Vans will operate on a rotational basis across pre-identified clusters. Farmer groups, SHGs, and local agri-extension workers will help mobilize beneficiaries. A central data system will log soil results and advisory records.

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Impact and Outcomes

- Increased crop yields due to informed nutrient management.
- Reduced use of chemical fertilizers and improved soil health.
- Empowered farmers with knowledge and decision-making skills.
- Scalable and replicable model for sustainable rural development.

Budget Estimate

- Estimated cost per mobile unit: INR 8–10 lakhs (including van, lab kit, salaries, fuel, and operations).
- Initial rollout with 3 vans: INR 30 lakhs.
- Funding to be sourced through Rotary Global Grant, CSR donors, NABARD support, and farmer cooperatives.

Sustainability Plan

The project will become self-sustainable through a combination of farmer contributions, CSR funding, and linkages with government schemes. Integration with agri-tech platforms and partner NGOs will ensure continuous support and scalability. Community ownership will be fostered through training local youth as agri-entrepreneurs and soil counsellors.

References

1. Indian Council of Agricultural Research (ICAR).
2. Ministry of Agriculture and Farmers Welfare.
3. Soil Health Card Portal – https://soilhealth.dac.gov.in/
4. FAO Guidelines on Sustainable Soil Management.
5. National Institute of Agricultural Extension Management (MANAGE).
6. NABARD Guidelines for Agri-Entrepreneurship Promotion.