



Soil testing lab established by the Foundation for Ecological Security (FES) in Mandla, Madhya Pradesh, India (Santosh Gupta)

Dissemination of Soil Test Results to Farmers through a Participatory Approach (Индия)

Mitti ki namuna

ОПИСАНИЕ

A systematic approach has been developed under the project for collecting soil samples, conducting the soil test results, issuing soil health cards, building the capacity of farmers to interpret the soil health card and apply the required nutrients to the soil based on the soil test result

Soil testing is a pre-cultivation activity that gives a good idea about soil structure and mineral composition ratios. The essential nutrients required for various crop growths can be estimated during soil testing. The Foundation for Ecological Security (FES) has established a state-of-the-art soil testing laboratory for testing soil samples in India's Mandla District of Madhya Pradesh. The soil test lab was established in 2016 with a capacity to test 1500-2000 soil samples every year. Based on a soil sampling process, it takes around 2 days to generate the soil test results for 20 soil samples. Collected soil samples are tested for 12 parameters. These parameters include Soil Ph, Soil organic carbon (SoC), electrical conductivity (EC), major nutrients like nitrogen(N), phosphorus (P), potassium (K), secondary nutrients like sulphur, magnesium, iron, boron, zinc, manganese, and copper. Based on the soil test report, farmers are issued a soil health card with crop-specific recommendations for additional chemical and organic inputs into the soil.

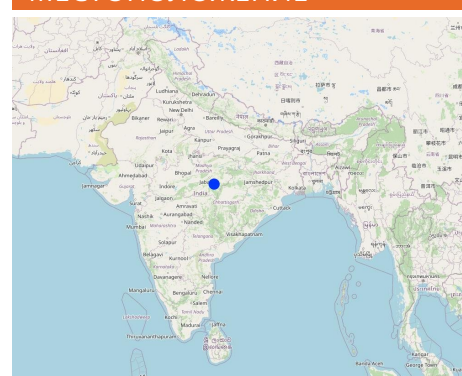
To ensure the accuracy of the sampling process and proper dissemination of generated results among the farmers, FES has developed a very systematic process which consists of:

- the collection of soil samples
- the analysis of collected soil samples in an FES lab
- the issuance of soil health cards
- the interpretation of soil test results
- noticing of test results to farmers
- farmers are able to implement practices, recommended by the test result

The entire process, from soil sampling to dissemination, is briefly mentioned below:

- Developing the grids for a random collection of soil samples: The first step is to develop a geographical grid for collecting random samples based on predefined parameters. In the irrigated areas, samples are drawn in a grid of 2.5 ha, while in rainfed areas, samples are drawn from a grid of 10 ha. While developing the grid, farmers' fields are categorized into the following parameters. Each of the parameters is assigned a specific score, and based on the obtained score, each farmer's land is given a specific number for easy identification on soil maps. These include the a) type of soil, b) type of field, e.g., upland, medium land, or low land, c) crop cycle (Single crop, multiple crops) d) The slope of the field. This entire exercise is a soil survey exercise used to develop soil maps for each geographical unit village, block, district.
- Collection of soil samples: From each classified grid, soil samples are collected from 5 different locations between the harvest of one crop and the sowing/planting of another crop

МЕСТОПОЛОЖЕНИЕ



Местоположение: Mandla, Madhya Pradesh, Индия

Географическая привязка выбранных участков

- 80.37213, 22.59756
- 80.37213, 22.59756

Дата ввода в действие: 2018

Дата завершения: н/п

Тип Подхода

- традиционная/ местная система землепользования, используемая коренным населением
- недавняя местная инициатива/ инновация
- в рамках проекта/ программы

when fields are vacant. The soil samples are collected at a depth of 5 to 15 cm. All the collected soil samples are mixed repeatedly, and a portion of the collected soil is kept aside each time. The mixing process is followed 5-6 times to ensure collected soil samples represent the entire area. Finally, around 500 gm of soil is packed in plastic polythene based on the above grid parameters.

•Soil sample analysis: Collected soil samples are transported to the centralized soil test lab in Mandla (MP) for testing and analysis. The samples are analyzed by qualified lab personnel. The analysis process for the above mentioned 12 parameters takes around 2 days (considering 8-9 working hours in a day).

•Issuance of soil health card: Based on the results obtained from the analysis, soil health cards are issued to farmers. The soil health card contains the following information in the local language (Hindi) so that farmers understand the test results and their implications:

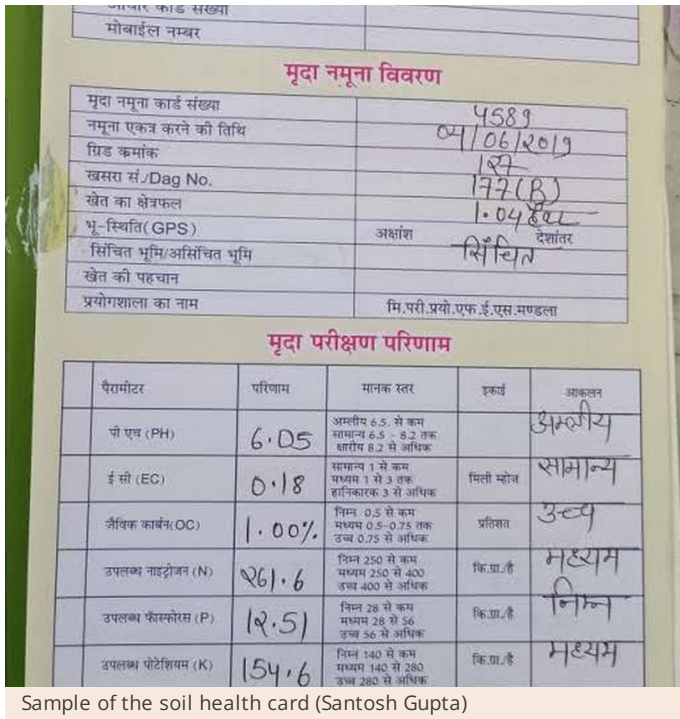
a.Basic details of the farmer: name, address, soil grid, GPS coordinates, field identification number, etc.

b.Soil test results for above mentioned 12 parameters: results of the soil test in their respective units, standard numbers, grading of the obtained result (acidic/saline for PH., high, medium, low for other parameters)

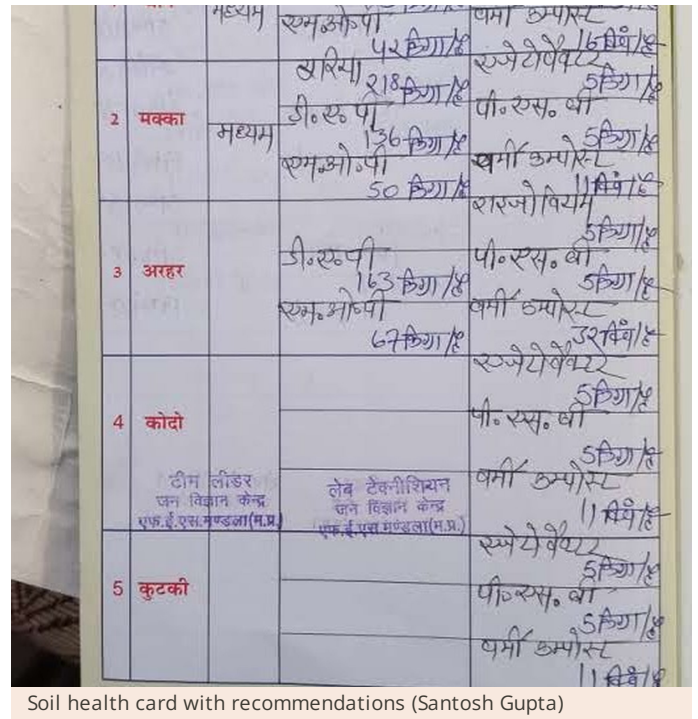
c.Crop-wise soil correction recommendations for major crops: recommendations for synthetic fertilizers, biofertilizers, and compost

d.Pre-printed information with photos for identification of nutrient deficiency in the crops.

•Dissemination of soil health card to farmers: To ensure that farmers understand the results and implement the practices at their field, local community resource persons reach out to every farmer to make them understand the soil test results and closely monitor their farmers' practices across the crop stages. Farmers are also encouraged to maintain farm diaries for their practices. They are also trained in the preparation of various bio-inputs and compost for application in their field.



Sample of the soil health card (Santosh Gupta)



Soil health card with recommendations (Santosh Gupta)

ЦЕЛИ ПОДХОДА И БЛАГОПРИЯТНЫЕ УСЛОВИЯ ДЛЯ ЕГО РЕАЛИЗАЦИИ

Главные цели/ задачи Подхода

1. Ensure judicious usage of fertilizers and micronutrients based on the requirement of the soil
2. Ensure quality soil testing and dissemination of results
3. Build farmers' capacity for interpretation of soil health cards
4. Develop soil maps based on the in-house results from the soil test lab

Условия, содействующие применению Технологии/ Технологий в рамках Подхода

- **Институциональные условия:** The entire dissemination methodology is done through community-based organizations
- **Сотрудничество/ координация действий:** Several stakeholders, such as FES, farmers, equipment suppliers, the scientific community, and soil scientists, are involved in the project
- **Программные документы/ руководящие установки:** Soil test results are an excellent input for the agricultural policies around fertilizers, farming practices, and soil health-related policies
- **Управление земельными ресурсами (принятие решений, осуществление и контроль за выполнением):** A soil health card is an excellent tool for farmers to decide on the usage of fertilizers and the kind of farming practices to implement
- **Осведомленность в области УЗП, доступность технической поддержки:** Soil health cards inform the farmers and the project management team so to decide on required interventions and farming practices
- **Рынки (для приобретения материалов и услуг, продажи продукции) и цены:** Very much relevant as soil test results quantify the number of farm inputs to be applied to the farm

Условия, затрудняющие применение Технологии/ Технологий в рамках Подхода

УЧАСТИЕ И РАСПРЕДЕЛЕНИЕ РОЛЕЙ ЗАИНТЕРЕСОВАННЫХ СТОРОН

Заинтересованные стороны, участвующие в реализации Подхода, и их роли

Какие заинтересованные стороны/ организации-исполнители участвовали в реализации Подхода?	Перечислите заинтересованные стороны	Опишите роли заинтересованных сторон
местные земледельцы/ местные сообщества	Farmers from the project area	Soil samples were collected from the field of farmers. They have actively participated in the projects for managing the soil samples, participating in the capacity building programs, and implementing the recommended practices.
организации местных сообществ	FES, the implementing NGO, have formed the Villages Environment Committee (VEC) in their project villages as community-based organizations	VECs facilitated the implanting of a project by mobilizing the communities as and when needed. FES reached farmers through the VECs, to collect the soil samples or disseminate the information. VECs also facilitated community-level implementation activities.
эксперты по УЗП/ сельскому хозяйству	SLM Specialist	Documentation of the activities
общественные организации	Foundation for Ecological Security (FES) is a well-known NGO registered in India. It focuses on ecology-related issues and works closely with farmers and forest-based communities.	FES played an essential role in the project. Primary activities were as follows: 1. Establishment of soil testing laboratory and hiring the technical team to conduct the soil test lab 2. Collection of soil test samples and building the capacity of farmers on soil sample collection 3. Conducting soil test results and issuance of soil health cards to farmers 4. Developing a soil health map for the project areas 5. Capacity building of farmers for the interpretation of soil health cards and ensuring the implementation of recommended practices
международные организации	GIZ, India	Funding of the project

Ведущая организация
Foundation for Ecological Security

Участие местных земледельцев/ местных сообществ на разных стадиях реализации Подхода

	нет	пассивное	внешняя	поддержка	интерактивное	самоорганизация	
инициирование/ мотивация		<input checked="" type="checkbox"/>					The FES led the initiation of discussions with its donor organizations. Discussions with communities to understand the challenges and opportunities.
планирование				<input checked="" type="checkbox"/>			Local community institutions played a significant role in the entire process of planning and execution
выполнение				<input checked="" type="checkbox"/>			Farmers and community-based institutions were actively involved in implementing multiple activities under the project, such as collecting soil samples, supplying them to the soil test labs, and Implementing the recommended practices.
мониторинг/ оценка				<input checked="" type="checkbox"/>			Community-based institutions played an important role in monitoring individual farmers for implementing the recommendations provided to farmers. They also monitored the results regarding crop progress, crop productivity, and improvement in soil health status.

Схема реализации Подхода

Принятие решений по выбору Технологии УЗП

Решения принимались

- исключительно земледельцы (по собственной инициативе)
- в основном земледельцы при поддержке специалистов по УЗП
- все участники как часть процесса совместных действий
- преимущественно специалисты по УЗП после консультаций с земледельцами
- исключительно специалисты по УЗП
- политики/ руководители

Принятие решений было основано на

- анализ подробно описанного опыта и знаний по УЗП (принятие решений на основе подтвержденных фактов)
- результаты исследований
- личный опыт и мнения (незадокументированные)

ТЕХНИЧЕСКАЯ ПОДДЕРЖКА, ПОВЫШЕНИЕ КОМПЕТЕНЦИЙ И УПРАВЛЕНИЕ ЗНАНИЯМИ

Следующие мероприятия или работы являлись частью Подхода

- Повышение компетенций/ обучение
- Консультационные услуги
- Институциональная (организационная) поддержка
- Мониторинг и оценка
- Научные исследования

Повышение компетенций/ обучение

Обучение было

предоставлено следующим заинтересованным лицам

- землепользователи
- местный персонал/ консультанты

Тип обучения

- в ходе работы
- обмен опытом между фермерами
- опытные участки
- общие собрания
- курсы

Рассматриваемые темы

1. Importance of soil testing for the judicious use of fertilizers
2. Methods for soil sample collection
3. Interpretation of soil health card
4. Dissemination of soil test results and ways and means for implementing the recommended practices following organic and non-organic implementation practices

Консультационные услуги

Консультационные услуги были предоставлены

- на полях землепользователей
- в постоянно функционирующих центрах

FES has a team of community-based resource persons from the local community and villages to provide advisory services to farmers

Институциональная поддержка

Какие институциональные структуры были укреплены или вновь созданы

- нет
- да, немного
- да, умеренно
- да, существенно

на уровне

- местные
- региональный
- национальный

Опишите организацию, функции и ответственность, членство и т.д.

Village-level environment committees were formed to discuss the issues related to environmental concerns, livelihoods, and other social problems at the village level. These committees consist of male and female members representing the entire village.

Тип поддержки

- финансовая
- повышение компетенций/ обучение
- оборудование

Подробнее

These committees were provided financial support to implement the identified activities based on the provision under the project and proposals submitted by the local committees. FES regularly provides training and handholding support to these committees.

Мониторинг и оценка

The soil health report card is very useful in monitoring of the status of soil health and measuring the impact of various practices and intervention

Научные исследования

Научные исследования проводились по следующим темам

- социология
- экономика / маркетинг
- экология
- технология

ФИНАНСИРОВАНИЕ И ВНЕШНЯЯ МАТЕРИАЛЬНАЯ ПОДДЕРЖКА

Годовой бюджет мероприятий по УЗП в долларах США

- < 2000
- 2000-10000
- 10000-100000
- 100 000-1 000 000
- > 1 000 000

Precise annual budget: н/п

Externally funded projects (GIZ)

Землепользователям были оказаны/предоставлены следующие услуги или меры стимулирования

- Финансирование и внешняя материальная поддержка, предоставляемая землепользователям
- Субсидии на отдельные затраты
- Кредитование
- Другие методы или инструменты стимулирования

оборудование: техника

Different equipment used for testing the soils

- профинансированы частично
- профинансированы полностью

оборудование: техника: инвентарь/ инструменты

Different tools are used for collecting soil samples and for soil testing

-

Трудозатраты, вложенные землепользователями были

- добровольный
- в обмен на продукты
- за денежное вознаграждение

АНАЛИЗ ВЛИЯНИЯ И ЗАКЛЮЧИТЕЛЬНЫЕ ПОЛОЖЕНИЯ

Влияние Подхода

	Нет	Да, немного	Да, умеренно	Да, существенно
Сумел ли Подход дать возможность принимать решения на основе подтвержденных фактов? Soil health card-based changes in soil management and developing the evidence for soil health monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Сумел ли Подход улучшить согласованность действий и повысить рентабельность применения практик УЗП Reduced the cost of applying fertilizers and other inputs through a result-based application	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Сумел ли Подход расширить знания и возможности земледельцев в применении практик УЗП? Training and handholding by the team of implementing partners have helped land users to interpret the result of soil health card, collection of soil samples and following the recommended practices	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Сумел ли Подход расширить знания и возможности других заинтересованных сторон? Other stakeholders such as implementing team got information about the outcome of their practices. More importantly, the soil health card was helpful in providing precise information on the application of fertilisers and bio-inputs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Сумел ли Подход стимулировать молодежь/ будущее поколение земледельцев заниматься УЗП? Youths were greatly involved in collection of soil samples	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Основные причины, побуждающие земледельцев внедрять УЗП

- рост продуктивности
- рост прибыли (доходности) и рентабельности
- снижение деградации земель
- снижение риска катастрофических погодных явлений
- снижение объема работ
- материальное стимулирование/ субсидии
- нормативно-правовое регулирование (штрафы)/ контроль
- престиж, общественное давление/ солидарность
- причастность к движению/ проекту/ группе/ сети
- экологическая сознательность
- традиции и верования, нравственные ценности
- приобретение знаний и опыта в области УЗП
- улучшение эстетической привлекательности
- снижение остроты конфликтов

Долгосрочная устойчивость мероприятий в рамках Подхода

Могут ли земледельцы самостоятельно (без внешней поддержки) продолжать применение того, что было реализовано в рамках Подхода?

- нет
- да
- нет уверенности

Yes. The benefit in both reduced cost and improved soil health are the triggers to sustaining the practices. Also, the involvement of local community institutions will also ensure the sustainability of interventions.

ЗАКЛЮЧИТЕЛЬНЫЕ ПОЛОЖЕНИЯ И ИЗВЛЕЧЕННЫЕ УРОКИ

Сильные стороны: по мнению земледельцев

- Judicious use of fertilizers and pesticides based on the nutrient requirement of soil, as mentioned under the soil health report
- Separate recommendations for both chemical and organic (bio-inputs) are a good way for land users to make informed decisions
- Tracing the improvement in soil health status based on the land users' agricultural practices

Сильные стороны: по мнению составителя или ответственных специалистов

- Developing the soil maps for the entire area to design appropriate interventions for the project
- Instead of general recommendations for input application, the soil health card helped develop farmer/village-centric extension services for the farmers
- Understand the impact of various interventions through periodic soil testing to document what has worked and what has not. Even this evidence can be used to monitor the soil organic carbon content for designing carbon-based projects and/or to access national or international carbon reduction credits.

Слабые стороны/ недостатки/ риски: по мнению земледельцев

- Farmers are still unaware of the soil test facility and its benefits
- Regular awareness programs along with a demonstration of soil sample collection

Слабые стороны/ недостатки/ риски: по мнению составителя или ответственных специалистов

- Farmers' strong belief in the application of a certain quantity of fertilizers to ensure better production This requires specific behavior change campaigns through local demonstration and documentation
- Government authorities also conduct the soil test and issue the soil health card. However the farmers' experience with such system has not been outstanding. Put efforts into conveying the difference between both approaches by promptly issuing the soil health card
- The soil test lab is in the District capital, so farmers in far-away areas may face difficulties in accessing the facility Explore the option of establishing soil test labs near farmers' locations

Составитель
Santosh Gupta

Editors
Noel Templer
Stephanie Katsir
Tabitha Nekesa
Ahmadou Gaye
Siagbé Golli

Рецензент
Udo Höggel
Joana Eichenberger
Sally Bunning

Продолжительность применения Технологии: 18 марта 2023 г.

Последнее обновление: 11 апреля 2024 г.

Ответственные специалисты

Santosh Gupta (santosh@ecociate.com) - Специалист по УЗП

Полное описание в базе данных ВОКАТ

https://qcat.wocat.net/ru/wocat/approaches/view/approaches_6698/

Связанные данные по УЗП

н/п

Документирование осуществлялось при участии

Организация

- Alliance Bioversity and International Center for Tropical Agriculture (Alliance Bioversity-CIAT) - Кения
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- Ecociate Consultants (Ecociate Consultants) - Индия

Проект

- Soil protection and rehabilitation for food security (ProSo(i))

Ссылки на материалы по теме, доступные онлайн

- Operational Guidelines for implementation of CENTRALLY SPONSORED SCHEME SOIL HEALTH CARD:
<https://agricoop.nic.in/sites/default/files/GSHC3.pdf>

This work is licensed under [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International](https://creativecommons.org/licenses/by-nc-sa/4.0/)

