# Sustainable Soil Management Component (SSMC) of OCP Foundation's Agricultural Development Project in Bangladesh – Stage 1

## MONTHLY REPORT | JANUARY 2018


INTERNATIONAL FERTILIZER DEVELOPMENT CENTER
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# Acronyms and Abbreviations

| | |
|---|---|
| BARI | Bangladesh Agricultural Research Institute |
| BRRI | Bangladesh Rice Research Institute |
| DAE | Department of Agricultural Extension |
| DD | Deputy Director |
| DTW | Deep Tubewell |
| FC | Field Coordinator |
| GAP | Good Agricultural Practice |
| GOB | Government of Bangladesh |
| ICARDA | International Center for Agricultural Research in the Dry Areas |
| IFDC | International Fertilizer Development Center |
| IPM | Integrated Pest Management |
| LLP | Low-Lift Pump |
| OFRD | On-Farm Research Division |
| SAAO | Sub-Assistant Agriculture Officer |
| SRDI | Soil Resource Development Institute |
| SSMC | Sustainable Soil Management Component |
| STW | Shallow Tubewell |
| UAO | Upazila Agriculture Officer |

# Sustainable Soil Management Component (SSMC) of OCP Foundation's Agricultural Development Project in Bangladesh – Stage 1

## Monthly Report (January 2018)

## Introduction

The OCP Foundation signed an agreement with the International Fertilizer Development Center (IFDC) for implementation of the Sustainable Soil Management Component (SSMC) of OCP Foundation's Agricultural Development Project in Bangladesh – Stage 1 for a period of three years, from January 2017 to December 2019. SSMC is addressing many of the increasing, serious soil fertility concerns of the northern districts of Bangladesh while also helping farmers enhance crop productivity and profitability through the implementation of improved soil management methods in the overall context of market-sensitive good agricultural practices (GAPs).

OCP Foundation's comprehensive project also includes input from OCP Foundation and the International Center for Agricultural Research in the Dry Areas (ICARDA). The overall objective of this agricultural development project is "sustainable management of soil to enhance yields and farmers' incomes under resilient production systems in Bangladesh, resulting in food and nutrition security, improved health and livelihoods." The project includes the SSMC in addition to monitoring and capacity building inputs by OCP Foundation and works related to the promotion of GAPs, entrepreneurship, and farmer organizations by ICARDA. The project targets rice, maize, potato, pulses, and, to a lesser extent, wheat.

SSMC is being implemented with Government of Bangladesh (GOB) counterparts – Bangladesh Agricultural Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Department of Agricultural Extension (DAE), and Soil Resource Development Institute (SRDI). Additionally, agro-input retailers are also involved to promote balanced plant nutrient and GAP solutions for improving crop productivity, crop profitability, and soil fertility. The primary approach of the project for IFDC is to conduct trials with BRRI and BARI and field extension activities with DAE. This monthly report shows the progress achieved in January 2018.

# Technical Program Activities

As per the annual work plan, major technical activities conducted during the reporting month included the following, which are linked to cropping season and deliverable and aimed at achieving the project goal.

## Field Trials

- Two on-station and two on-farm field trials on *Boro* (dry rice) were established at the BRRI Regional Research Station in Rajshahi and at Sadar of Kurigram and Pirganj of Rangpur districts, respectively, between January 6 and 23, 2018. The rice variety used was BRRIdhan 58, and the age of the seedlings ranged from 47 to 50 days. Detailed information on established *Boro* field trials are presented below.

| SL. No. | Location | Name of the Crop | Category of Trials | Number of Established Trials | Date of Sowing |
|---|---|---|---|---|---|
| 1. | Regional Research Station, BRRI, Rajshahi | *Boro* | On-station | 2 | January 6, 2018 |
| 2. | Sadar, Kurigram | *Boro* | On-farm | 1 | January 21, 2018 |
| 3. | Pirganj, Rangpur | *Boro* | On-farm | 1 | January 23, 2018 |
| | | | **Total** | **4** | |

- The SSMC senior staff visited two on-station trial plots at the BRRI Rajshahi Regional Research Station on January 16, 2018. The seedlings were at recovery stage. It was observed that a few seedlings died due to cold conditions. Gap filling of seedlings continued during the visit. The visiting SSMC staff advised the BRRI scientists to keep more seedlings of the same age for future gap filling. Signboards and plot labels were not placed until the visit.
- The SSMC senior staff also visited two BARI-established on-farm trial plots of potato and maize at Dinajpur Sadar of Dinajpur and Domar of Nilphamari districts on January 16 and 24, 2018, respectively. The SSMC staff noted that the soils should be raised on a bed for the maize trial plot at Dinajpur Sadar. For maize, normal physiological growth hampered the crop (stunted) in six subplots under tree shade. Crop conditions of maize in other plots were good but growth was irregular. All the potato crops were in good condition. An insignificant number suffered from late blight fungal disease. Due to adverse weather conditions, regular fungicide needs to be applied in the potato plots. In Domar, both potato and maize trial plots were in good condition. Signboards and plot labels were installed properly in all locations.
- The senior staff of SSMC visited and monitored two BARI-established on-farm trial plots on potato and wheat in Bogra on January 16, 2018. The wheat crop was at flowering stage and the crop's condition was good. Late blight fungal disease was observed in potato trial subplots. Necessary steps

have been taken by the concerned scientist to combat the late blight disease. The signboard and plot labels were properly placed.

- The SSMC senior staff and field coordinator (FC) monitored four on-station and on-farm *Boro* and wheat trial sites at Rajshahi (BRRI), Nachole (BARI), and Kurigram Sadar (BRRI) on January 25 and 26, 2018. The *Boro* crop at BRRI Rajshahi Research Station was at recovery stage, and gap filling was required. The SSMC staff advised to fill the gaps soon. In the Kurigram trial plot, due to continuous irrigation, a few plots were over-flooded. SSMC staff advised the trial farmer to apply irrigation water in an efficient way. Overall, the wheat crop's condition was good at Nachole.

## Field Demonstrations

- In the reporting month, six SSMC *Boro* demonstration plots were established at Saidpur and Sadar of Nilphamari; Sadar and Nageswari of Kurigram; and Nachole and Gomostapur of Chapai Noawabganj districts. Layout, fertilization, and seedling transplantation were done properly. Upazila agriculture officer (UAO) Nachole and Kurigram Sadar, concerned sub-assistant agriculture officers (SAAOs) of DAE, and the SSMC senior staff and FC actively participated in all the activities. In different locations, seedling age varied from 40 to 49 days. Detailed information is provided below.

| Sl. No. | Upazila | District | Crop | | Target | Achievement | Date of Sowing |
|---|---|---|---|---|---|---|---|
| | | | Name | Variety | | | |
| 1. | Saidpur | Nilphamari | Boro | BRRIdhan 29 | 1 | 1 | January 19, 2018 |
| 2. | Sadar | Nilphamari | Boro | BRRIdhan 29 | 1 | 1 | January 21, 2018 |
| 3. | Sadar | Kurigram | Boro | BRRIdhan 28 | 1 | 1 | January 25, 2018 |
| 4. | Nageswari | Kurigram | Boro | BRRIdhan 29 | 1 | 1 | January 26, 2018 |
| 5. | Nachole | Chapai Nawabganj | Boro | BRRIdhan 28 | 1 | 1 | January 24, 2018 |
| 6. | Gomostapur | Chapai Nawabganj | Boro | BRRIdhan 28 | 1 | 1 | January 30, 2018 |
| | | | | **Total** | **6** | **6** | |

- The focal point of SSMC and additional director (planning) of DAE visited and monitored eight demonstration plots of *Boro* rice, potato, lentil, and wheat at Nachole, Saidpur and Nilphamari Sadar on January 19 and 29, 2018. Deputy director (DD), DAE Nilphamari, UAOs, concerned SAAOs and other field officials were present. He discussed with all the demonstration farmers and concerned SAAOs and briefed them about the purpose of the demonstration plots. Overall, the crop condition was good.
- The FC of SSMC monitored 40 demonstration plots on potato, maize, lentil, wheat, and *Boro* rice at different locations of the project area throughout the month. Except for potato and lentil, all other crops were in good condition in different demonstration plots. In some potato demonstration plots,

crops were affected by early and late blight disease, and lentil was affected by fungal disease. Control measures were taken by the demonstration farmers and DAE field officials in all the potato and lentil demonstration plots. Overall, crop conditions have improved after taking necessary actions.

- The SSMC senior staff and FC and DAE SAAOs monitored different demonstration plots on potato, maize, and wheat at Gabtoli, Nilphamari Sadar, Chirirbandar, and Dinajpur Sadar upazilas. Potato plots were affected by late blight in different demonstration plots ranging from 5% to 40% due to prolonged foggy and cold weather. **It was found that in the OCP fertilizer treatment subplots, crop conditions were better than other treatment plots in almost all the demonstrations**. A wheat demonstration farmer of Gabtali reported that he motivated several farmers to use lime on their land, and they did.
- The senior staff and FC of SSMC monitored one demonstration plot on lentil at Lalpur of Natore. Layout and ails were prepared properly. Lentil seed was sown in line. In all the plots, lentil seed germinated well and overall crop conditions were good, but in some patches, a few crops became whitened and died. In the OCP fertilizer treatment subplots, crop conditions were better than in other plots. The proper integrated crop management (ICM) techniques were used to prevent fungal disease.

## Farmer Training

- In January 2018, only two farmer training programs on *Boro* rice were conducted on January 3 and 4, 2018, with the participation of 60 progressive[1] men and women farmers. The trainings were conducted at Gomostapur and Gabtoli upazilas. Of the 60 trained farmers, two demonstration farmers who were selected earlier also attended the training. In addition, 38 farmers were men and 10 were women (17%). In addition, 10 agro-input retailers were present. Methods followed during training programs include PowerPoint and oral presentations, group discussions using a participatory approach, and practical demonstrations on identification techniques of adulterated micronutrient fertilizers. The SSMC senior staff and FC, and DD Bogra and UAO Gabtali of DAE attended the program as resource persons. Concerned SAAOs were also present at these programs. The numbers of farmers participating in the training program are provided below.

[1] Progressive farmers are those who are willing to use good agricultural practices (GAPs – such as using good quality seed, balanced doses of fertilizers, maintaining proper spacing from line to line and plant to plant, integrated pest management [IPM] practices with improved technologies, etc.) and are willing to establish their own demonstration plots. These farmers are eager to share their knowledge and encourage their neighboring farmers to use GAPs along with improved technologies.

| SL. No. | Training Venue | Participants | | | Total |
|---|---|---|---|---|---|
| | | Male Farmer | Female Farmer | Fertilizer Retailer | |
| 1. | Agriculture Training Centre, DAE, Gomostapur, Chapai Nawabganj | 21 | 4 | 5 | 30 |
| 2. | Agriculture Training Centre, DAE, Gabtali, Bogra | 19 | 6 | 5 | 30 |
| | **Total** | **40** | **10** | **10** | **60** |

To date, a total of 35 farmer training programs on potato, maize, lentil, wheat, and *Boro* rice have been completed.

## Other Activities

- The IFDC director of Global Field Programs, chief operating officer, two deputy directors from Africa and a deputy operating officer visited Bangladesh, and the two SSMC senior staff members attended a meeting with the team. The director of Global Field Programs made a brief PowerPoint presentation on the overall project overview in different countries and provided guidelines to the staff for new business development.
- Fertilizer retailers reported that they sold an adequate amount of lime to trained and non-trained farmers this year. It was three to four times higher than the previous year.
- Watering from the shallow tube well (STW)/deep tube well (DTW)/low-lift pump (LLP) in *Boro* fields did not start until January in most of the areas due to a wave of cold weather. Only in a few places, watering in the *Boro* field has begun, and transplantation has been in progress on a small scale. In some upazilas, *Boro* seedlings were affected by cold injury (yellow color). Overall, *Boro* transplantation activities were at least 15 days late than in previous years.
- Lime was applied in all the 10 *Boro* demonstration sites at Dinajpur, Nilphamari, Kurigram, Bogra, and Chapai Noawabganj districts.
- The FC of SSMC collected six soil samples from different demonstration sites for chemical analysis. He handed over both the samples to SRDI, Bogra and Dinajpur for analysis.
- For conducting the SSMC sample household survey, 270 sample farmers were selected from the list of trained farmers following standard statistical methods by the Data Management Unit of IFDC. The lists were given to the FC and two temporary FCs to conduct the survey activities.
- Three data collection forms on the revised datasheet for *T. Aman*/*Boro*/wheat/lentil/maize/potato and sample household survey and village monitoring survey forms were developed by the Data Management Unit. All forms were given to the FCs to conduct the survey activities.

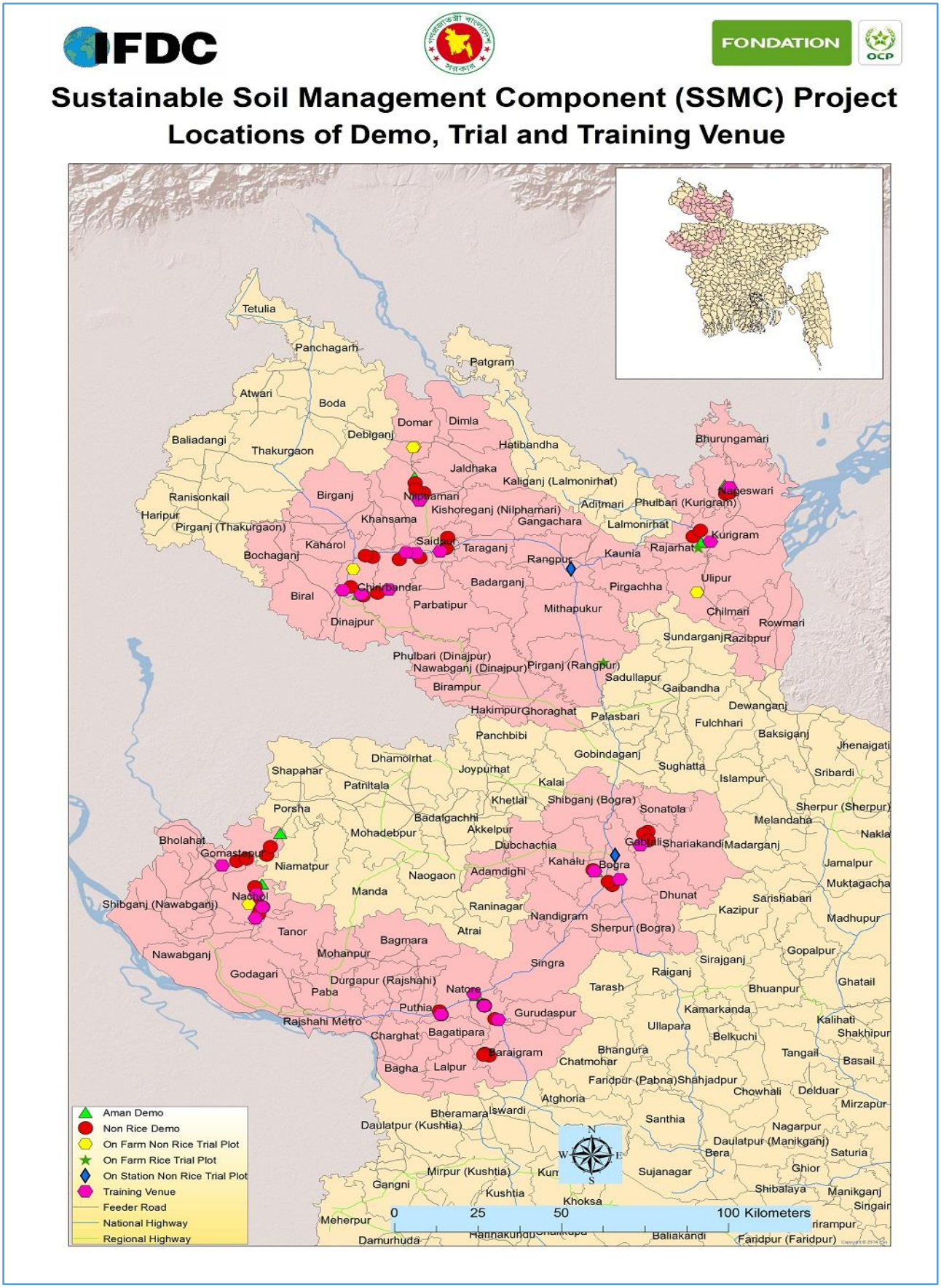


**Figure 1. GPS Coordinates of SSMC Project Locations – Demonstrations, Trials, and Training Venues**

# Photographs of SSMC Activities


On-station wheat field trial at On-Farm Research Division (OFRD), BARI, Bogra on January 16, 2018


On-station field trial of maize at OFRD, Bogra on January 16, 2018


Demonstration plot of wheat at Chirirbandar, Dinajpur on January 24, 2018


Demonstration of potato at Shahjahanpur of Bogra on January 16, 2018

On-station field trial of *Boro* at Regional Research Kurigram Station, BRRI, Rajshahi on January 16, 2018

On-farm field trial of *Boro* at Sadar on January 25, 2018

# Photographs of SSMC Activities


**Demonstration plot on maize at Kurigram Sadar on January 25, 2018**

**Demonstration plot on *Boro* at Nilphamari Sadar on January 24, 2018**

**Focal Point of DAE-monitored SSMC lentil demonstration plot at Nachole of Chapai Noawabganj on January 19, 2018**

**Establishment of *Boro* demonstration plot at Sadar, Kurigram on January 25, 2018**

**Establishment of *Boro* demonstration plot at Nageswari, Kurigram on January 26, 2018**


**Farmer training program on *Boro* cultivation at Gabtoli of Bogra on January 3, 2018**