National Project on
Management of Soil Health & Fertility
2008-09

Operational Guidelines

Department of Agriculture & Cooperation

Ministry of Agriculture

Government of India

Guidelines for Implementation of National Project on Management of Soil Health and Fertility

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November 7; 2008

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SALIENT FEATURES OF THE NATIONAL PROJECT ON MANAGEMENT OF SOIL HEALTH AND FERTILITY

1.1 FERTLIZER USE SCENARIO:

1.1.1 India is the third largest producer and consumer of fertilizers in the world, after China and USA. It accounts for 12.2% of the world's production of nitrogenous (N) and phosphatic (P) nutrients and 12.6% of the world's consumption of NP & K (Potash) nutrients. However, India's consumption of nutrients per hectare (112.3 kg/ha of arable land in 2006-07) was marginally above the world average of 101 kg/ha (2004-05) and lower than consumption of these nutrients by most of the developing countries, including neighbouring countries like China (277.7kg/ha), Bangladesh (177.5kg/ha), Sri Lanka (310.3 kg/ha) and Pakistan (138.9 kg/ha).

1.1.2 The impressive growth of consumption of fertilizer in India in the post-green revolution period ensured increase in foodgrain production from 74.0 million tonnes (MT) in 1966-67 to 209.8 MT during 1999-2000. Production has been ranging between 174 MT to 216 MT, during the last 7 years and the rate of growth of food production has shown a declining trend, in spite of increase in fertilizer consumption during recent times, due to the adverse impact of imbalanced use of fertilizers on foodgrain production and productivity.

1.1.3 Fertilizer consumption in India is highly skewed, with wide inter-state, inter-district and inter-crop variations. The NPK ratio, which is a measure of balanced use of fertilizer, shows wide inter-zonal and inter-state disparity. While existing variation from the ideal ratio is nominal in the South and the East zones, it is very wide in the North and the West zones. ICAR studies indicate that partial factor productivity of fertilizers (i.e. additional kg of foodgrain production per kg of nutrient applied) has been continuously declining.

1.1.4 Indian soils not only show deficiency of NPK but also of secondary nutrients (Sulphur, Calcium and Magnesium) and micro nutrients (Boron, Zinc, Copper and Iron etc.) in most parts of the country. Besides the three primary nutrients (N, P, K), deficiency of Sulphur and micro nutrients like Zinc and Boron in many of States, and of Iron, Manganese and Molybdenum in some States, has become a limiting factor in increasing food productivity. Intensive agriculture,

while increasing food production, has caused second generation problems in respect of nutrient imbalance. Some such problems include:

- Greater mining of soil nutrients to the extent of 10 million tonnes every year depleting soil fertility,
- Emerging deficiencies of secondary and micronutrients,
- Decline of water table and its quality of water,
- Decreasing organic carbon content, and
- Overall deterioration in soil health.

Consumption of nutrients by 2011-12 is projected at 25 million tonnes of NPK, and if the existing trend is allowed to continue, it may aggravate imbalances and deficiencies of more nutrients in new areas. Timely corrective action, therefore, necessitates balanced use of fertilizers.

1.2 BALANCED USE OF FERTILIZERS

1.2.1 Balanced fertilization is normally defined as the timely application of all essential plant nutrients (which include primary, secondary and micronutrients) in readily available form, in optimum quantities and in the right proportion, through the correct method, suitable for specific soil/crop conditions. Components of balanced fertilization include judicious use of chemical fertilizers based on deficient soil nutrients as established by soil testing in conjunction with other sources of plant nutrients such as organic manures and bio-fertilizers. Use of soil amendments for acidic/ alkaline soils also need to be promoted to improve soil health and its fertility thereby ensuring adequate availability of nutrients in soils to meet the requirement of plants at critical stages of growth and thus ensuring adequate soil humus to improve physico-chemical and biological properties of the soil.

1.3 CONSTRAINTS IN PROMOTING BALANCED USE OF FERTILIZERS

1.3.1 Main constraints in promoting balanced use of fertilizers include inadequate and ill equipped soil testing facilities, neglect of organic manures, inadequate extension system, wide gap in dissemination of knowledge between research institutions, soil testing laboratories and the extension machinery, and lack of awareness among farmers about benefits of balanced fertilization.

1.4 STRATEGY FOR PROMOTING BALANCED USE OF FERTILIZERS:

1.4.1 The Task Force on Balanced Use of Fertilizers recently constituted in Department of Agriculture and Cooperation (DAC) has, inter alia, recommended strengthening and revamping of soil testing facilities; encouraging production and promotion of the use of organic manures and bio-fertilizers; and fortification of major fertilizers with appropriate grade of secondary and micro-nutrients.

1.5 EARLIER SCHEME:

1.5.1 In order to promote balanced use of fertilizers, Department of Agriculture & Co-operation launched during 1991-92 a Centrally Sponsored Scheme entitled "Balanced and Integrated Use of Fertilizers". The main objective of the scheme was to promote integrated nutrient management, to disseminate information on the balanced and judicious use of chemical fertilizers (N,P,K) with secondary nutrient (Sulphur, Calcium, Magnesium) and micro nutrient (Zinc, Iron, Copper, Boron, Molybdenum, Manganese), in conjunction with organic sources of nutrients like green manures, organic manures (compost), vermi-compost etc. and bio-fertilizers based on a scientific soil test.

1.5.2 The scheme's main components were:

i. To establish compost plants to process bio-degradable city solid waste into compost.
ii. To strengthen soil testing facilities by setting up of new Soil Testing Laboratories (STLs) and strengthening of existing STLs.
iii. To conduct training courses for up-gradation of skills of staff of STLs.
iv. To organize National Seminars/Regional Workshops on soil test based fertilizer recommendations.

1.5.3 The scheme continued during subsequent plan periods and was subsumed under the Macro Management of Agriculture (MMA) Scheme in 2000.

1.6 NATIONAL PROJECT ON MANAGEMENT OF SOIL HEALTH AND FERTILITY

1.6.1 Based on the recommendations of the Task Force on Balanced use of Fertilizer, this new Centrally Sponsored Scheme entitled "National Project on Management of Soil Health and Fertility (NPMSF)" has been formulated. The scheme is broad based in terms of its activities, subsidy rates etc. The component relating to Balanced Use of Fertilizers, will henceforth be taken out of the purview of the Revised MMA Scheme and subsumed in the National Project on Management of Soil Health and Fertility.

Objectives

1.6.2 The scheme is being launched with the following broad objectives:

i. To facilitate and promote Integrated Nutrient Management (INM) through judicious use of chemical fertilizers, including secondary and micro nutrients, in conjunction with organic manures and bio-fertilizers, for improving soil health and its productivity.

ii. To strengthen soil testing facilities and provide soil test based recommendations to farmers for improving soil fertility and economic return to farmers.

iii. To improve soil health through green manuring.

iv. To facilitate and promote use of soil amendments for reclamation of acidic/alkaline soils for improving their fertility and crop productivity.

v. To promote use of micro nutrients for improving efficiency of fertilizer use.

vi. To upgrade the skill and knowledge of STL/extension staff and farmers and their capacity building through training and demonstration including demonstration on farmers fields regarding benefits of balanced use of fertilizers.

vii. To ensure quality control of fertilizers through strengthening of fertilizer quality control facility including training to enforcement officers of State Governments for effective implementation of "Fertilizer Control Order".

viii. To provide financial assistance for upgrading and setting up of STLs/Fertilizer Testing Laboratories and various activities for promoting balanced use of fertilizers.

Components

1.6.3 The scheme is proposed to be implemented through the following components:

a. Strengthening of Soil Testing Laboratories (STLs)

i. Setting up 500 new Soil Testing Laboratories during 11th Five Year Plan period and 250 Mobile Soil Testing Laboratories (MSTLs) for micro nutrients analysis.

ii. Strengthening of 315 existing State STLs for micronutrient analysis.

iii. Capacity building through training of STL staff/extension officers/farmers and field demonstration/workshop etc.

iv. Creation of data-bank for balanced use of fertilizers, which is site specific.

v. Adoption of village by STLs (10 villages each) through Frontline Field Demonstrations.

vi. Preparation of digital district soil maps (using Global Positioning System) and soil fertility monitoring system by ICAR/ State Agriculture Universities (SAUs).

b. Promoting Use of Integrated Nutrient Management

i. Promotion of organic manuring.

ii. Promotion of soil amendments (lime/basic slag) in acidic soils.

iii. Promotion and distribution of micro-nutrients.

c. Strengthening of Fertilizer Quality Control Laboratories

i. Strengthening/up-grading 63 existing State Fertilizer Quality Control Laboratories.

ii. Setting up of 20 New Fertilizer Quality Control Laboratories by State Governments.

iii. Setting up of 50 fertilizer testing laboratories for advisory purposes, under the private/ cooperative sector.

Financial Outlay

1.6.4 The scheme has been approved for implementation during the 11th Five Year Plan with a total outlay of Rs. 429.85 crore for various components as listed in **Annexure-I** and will be implemented by Department of Agriculture & Cooperation (DAC), Ministry of Agriculture.

Project Sanctioning-cum-Monitoring Committee

A Project Sanctioning-cum-Monitoring Committee (PSMC), under Chairmanship of Additional Secretary, DAC has been constituted as follows:

1. Additional Secretary, DAC	-	Chairman
2. Agriculture Commissioner, DAC	-	Member
3. Financial Advisor, DAC	-	Member
4. Joint Secretary, INM	-	Member
5. Joint Secretary, NRM	-	Member
6. Joint Secretary, Crops	-	Member
7. ADG Soils, ICAR	-	Member
8. Representatives of Department of Fertilizers	-	Member
9. Advisor, Planning Commission	-	Member
10. Deputy Commissioner (INM)	-	Member Secretary

1.6.6 The PSMC shall be responsible for evaluation of project proposals, sanctioning and release of funds to beneficiaries and periodic monitoring of implementation of the scheme. The PSMC shall be empowered to amend guidelines, decide need-based area specific components / inter- component transfer of funds within approved outlay and also approve schemes as per these Guidelines and its discretion, without affecting quantum of subsidy and total approved outlay.

National Monitoring Team of Experts

1.6.7 A National Monitoring Team of Experts has been set up under the chairmanship of Agriculture Commissioner, DAC as follows:

1. Agriculture Commissioner	-	Chairman
2. Joint Secretary (INM), DAC	-	Member
3. ADG (Soil), ICAR	-	Member
4. Chief Soil Survey Officer, All India Soil and Land Use Survey, DAC	-	Member
5. Director, National Centre of Organic Farming	-	Member
6. Director, Central Fertilizer Quality Control & Training Institute	-	Member
7. Director, Agriculture of four States by rotation	-	Members
8. Deputy Commissioner (INM - II), DAC	-	Member
9. Special invitees (need based)	-	Member
10. Deputy Commissioner (INM - I), DAC	-	Member Secretary

1.6.8 This Team shall perform the following functions:

(a) Advise the PSMC on scientific and technical matters such as type and specification of equipment etc.

(b) Time to time monitoring of implementation of the scheme.

(c) Inspection of physical infrastructure established through the scheme.

(d) Advise on syllabus, course contents and timely up-gradation of capacity building programmes such as training, demonstration, Frontline Field Demonstrations (FFDs) etc.

(e) Advise PSMC on any other technical issue arising in implementation of the scheme.

State Project Sanctioning -cum-Monitoring Committee (PSMC)

1.6.9 At the State level, a State PSMC shall be constituted under the Chairmanship of Secretary (Agriculture) with members from line departments and representatives from ICAR, State Agricultural Universities/Fertilizers Industry for identification and recommending project proposals for consideration by the PSMC and monitoring of the project in the State. The State PSMC shall have flexibility to adopt area specific technology interventions for promoting balanced use of fertilizers to the extent of 10% of the total outlay of the Project in the State. But the total financial assistance from DAC shall not exceed original amount as per Guidelines. Moreover, all equipment as provided for in the guidelines shall have to be provided necessarily. Thus, only the amount saved can be spent on any activity related to Project.

State Designated Agency (SDA)

1.6.10 State Governments are advised to nominate an existing agency or create a suitable autonomous agency registered under the Societies Registration Act for implementing the project and routing of funds. Such an agency can also be the State Agricultural Management and Extension Training Institute (SAMETI).

1.6.11 At the district level, the scheme shall be implemented through the Agricultural Technology Management Agency (ATMA), which will also be responsible for monitoring the project in the district.

Release of Funds:

1.6.12 Assistance from the Government of India shall be in the form of grant through the SDA. Assistance from the Government of India will be released in two instalments through the SDA for all components appearing in **Annexure-I** except serial nos. (3) and (6) of Component I and serial nos. (1) and (4) of Component III. In the latter cases, the funds will be released directly to the eligible agencies by the DAC. No recurring liability will be taken up by the Central Government in respect of laboratories set up by the State Government and under PPP mode.

1.6.13 The SDA shall further disburse and release funds as follows:

a) In case of State Government Departments and agencies associated with it, ICAR and SAUs, funds can be released by SDA directly to the institute concerned or agency.

b) For components proposed under Public-Private-Partnership mode (PPP) through Agri-clinics/ fertilizer industry/NGOs/Co-operatives/Private Entrepreneurs etc funds may be released as credit-linked back ended subsidy, through Scheduled Banks or NABARD or NCDC, in all those cases where entrepreneur's share is also to be raised as a loan. If the entrepreneur is not availing of a loan, the subsidy will be released on completion of the project on the recommendation of the SDA after physical verification.

c) Signing of MOU with private stakeholders for performance related guarantees should be ensured.

***Receipt of Proposals*:**

1.6.14 For components of the Project for which funds are to be routed through the SDA, the State PSMC shall examine and scrutinise proposals and make recommendations to the Department of Agriculture and Cooperation (DAC), Government of India. Linkages should be established with the district level KVKs and districts plans for coordinated development activities. In order to expedite processing and sanctioning of various components, zone-wise meetings may be organized by DAC after carrying out initial scrutiny in advance before such zone-wise meetings. For serial nos. (3) and (6) of Component I and serial no. (1) and (4) of Component III in **Annexure-I**, proposals will be received directly by the DAC.

***Progress Report**:*

1.6.15 Formats for physical progress reports have been prescribed for the various components. These reports are to be submitted to DAC every quarter. The DAC is also evolving a web-based interface for electronic submission of reports, so that data entry, compilation and analysis may become easier.

Submission of Utilisation Certificate:

1.6.16 On completion of the programme, Statement of Expenditure duly audited by the competent authority, along with a Utilization Certificate in GFR 19A **(Annexure XII),** shall be submitted to the DAC. Details regarding physical progress and expenditure incurred with respect to each component also need to be given along with the Utilisation Certificate.

Evaluation of the Programme:

1.6.17 Concurrent evaluation will be done every year. The Indian Agricultural Statistical Research Institute (IASRI), New Delhi or ICAR will be involved in designing the appropriate format for data collection pertaining to different components of the Project to evaluate their impact on productivity of crops and the income of the farmers. A Mid-Term Evaluation will be taken up through an independent agency / organization, for its performance and shortcomings so as to take the remedial measures/make required changes in the scheme and method of implementation, if considered necessary. An impact Evaluation Study will also be done through an independent agency during the 4th year of implementation to assess the impact of the scheme in increasing the productivity of rice, wheat and pulses, crop diversification and enhancement of farmers' income.

II COMPONENTS OF THE NATIONAL PROJECT ON MANAGEMENT OF SOIL HEALTH AND FERTILITY (NPMSF)

COMPONENTS OF NPMSF*:*

The National Project on Management of Soil Health and Fertility (NPMSF) comprises three main components. These components are :

(A) Strengthening of Soil Testing Laboratories (STLs),

(B) Promoting Use of Integrated Nutrient Management, and

(C) Strengthening of Fertilizer Quality Control Laboratories.

A STRENGTHENING OF SOIL TESTING LABORATORTIES

i Setting up of new Soil Testing Laboratories (Static and Mobile) by Agri Clinics/NGOs/Cooperatives/ Private Entrepreneurs under PPP Mode.

2.1 Soil, which is the upper layer of earth in which plants grow, consists of disintegrated rock with admixture of organic remains and contains primary nutrients like Nitrogen, Phosphorus, Potassium (NPK), secondary nutrients like Sulphur and micronutrients such as Zinc, Boron, Iron, Manganese, Molybdenum etc. These nutrients should be present in optimum quantities for good agriculture production but get depleted over the years due to use of soil for agricultural production and other factors such as flood, rains, drought etc. Since presence of various nutrients is essential for good production of crops, nutrients are supplemented by use of fertilizers. Fertilizers have to be administered in optimum quantity for which soil testing is essential for ascertaining its chemical composition and thereby determining optimum use of nutrients in the form of fertilizers. However, in practice, farmers use fertilizers on the basis of tradition or on the advice of fertilizer dealers, which results in use of fertilizers in non-optimal quantities, which is not desirable. Hence, periodic analysis of soil is necessary with a view to use fertilizer/ nutrients in optimum quantities, which results in optimum agriculture production.

2.2 Due to the indiscriminate and imbalanced fertilizer use, Indian soils today show deficiency of NPK, secondary nutrients (Sulphur) and micronutrients (such as Zinc, Boron, Iron, Manganese and Molybdenum) in most parts of the country. If the existing trend is allowed to continue, it may further aggravate imbalance and deficiencies of nutrients. Timely corrective action, therefore, necessitates judicious and balanced use of fertilizers, based on deficient soil nutrients as established by soil testing. The main constraint in promoting balanced use of fertilizers is inadequate and ill equipped soil testing facilities. Therefore, it is proposed to establish new STLs and strengthen existing STLs in order to address this issue.

2.3 In order to promote soil test based balanced and judicious use of chemical fertilizers, 500 new static STLs and 250 new mobile STLs will be set up in the country during the 11th Five Year Plan.

2.4 While carrying out the complete analysis of soil, following categories of elements are normally measured:

(a) N, P, K (Major nutrients)
(b) Ca, Mg, S (Secondary nutrients)
(c) Zn, Fe, Cu, Mn, B, Mo, Cl (Micro nutrients)
(d) C, H, O (Auxiliary nutrients)

2.5 Quantities of Nitrogen, Phosphorus and Potassium in soil are measured using Titration, Spectrophotometer and Flame Photometer respectively.

2.6 Micro nutrients like Zinc, Iron, Copper, Calcium, Magnesium and Manganese are determined using an Atomic Absorption Spectrophotometer (AAS). Molybdenum, Boron and Sulphur are measured using a normal Spectrophotometer and Chlorine, Oxygen and Hydrogen are normally not estimated. Sensitivity of Ca and Mg in case of AAS is rather low and hence titration method is preferred for these two elements. An Inductively Coupled Plasma Spectrometer (ICP) can also be used. In fact with some minor modifications, ICP can be used even to test pesticides, which would be useful as unified test laboratories for farmers. Hence, considering convenience, utility and speed, it may be desirable to have Inductively Coupled Plasma Spectrometer at a few central locations in every State (if the State so desires) where large number of samples can be made available because it can measure 9 out of 11 elements in soil (baring Nitrogen and Carbon) in one go at a very rapid pace of nearly 40 samples per hour. An ICP shall replace an AAS, Spectrophotometer and Flame Photometer. However, irrespective of the kinds of equipment being procured, the subsidy shall not exceed 50% subject to a maximum of Rs.30 lakh and the remaining amount will need to be arranged by the State from its own resources.

Details of equipment/facilities needed and time required

Parameters	Conventional Methods	With ICP
C	Wet digestion method	Wet digestion method
N	Kjeldahl digestion	Kjeldahl digestion
P	Spectrophotometer	ICP
K	Flame Photometer	
Ca & Mg	Titration	
B, Mo, S	Spectrophotometer	
Cu, Fe, Zn, Mn	AAS	
No. of Samples for elements except C&N	30 per day	320 per day at least

Eligible Agencies:

2.6 The implementing agencies shall be Agri-clinics, NGOs, Cooperative Societies and private entrepreneurs. The State Governments and other State Government Agencies also are included in the implementing agencies as some States may like to set up some of the Soil Testing Laboratories through a State Government agency or some States may not have any option for PPP mode. Similarly, Fertilizer Companies also need to be encouraged to set up STLs.

Number of STLs to be set up in different States:

2.7 Presently, 517 Static STLs and 134 MSTLs are functional in the country. 500 Static and 250 Mobile STLs have been proposed in the Project. A distribution criterion for these units in different States is as follows:

i) 50% weightage to number of land holdings in the State as a proportion of total number of land holdings in the country as number of samples to be tested is expected to be proportional to the number of land holdings.

ii) 50% weightage to number of districts in a State as one mobile lab is to be set up in every State.

iii) The figures arrived at, as per (i) and (ii) shall be further normalised after considering area of the State and terrain, subject to equitable and uniform distribution amongst the States. The total number of STLs assigned to a State shall be split between mobile and

static labs after seeing the existing numbers of labs of either kind and need for mobility due to various factors including accessibility, but broadly in the ratio of 2:1. However, each State is proposed to be given at least one lab under this Project.

Norms for Assistance:

2.8 50% of the project cost, subject to a limit of Rs. 30 lakh, will be provided as subsidy for purchase of machinery & equipment, chemicals & glass wares, miscellaneous laboratory articles and contingencies as per list at **Annexure II A**. In case of Mobile STLs, financial assistance from DAC shall be 75% of the project cost subject to a maximum of Rs. 30 lakh per Mobile STL as per list of admissible items at **Annexure II B**. Every laboratory to be set up under this Project must be provided at least the suggested equipment and financial assistance from the DAC shall not exceed the limits given in **Annexure-I**.

Expected Outcome:

2.9 It is expected that each of these static STLs could analyse about 10000 soil samples per annum for NPK out of which one out of every three samples (preferably from the same locality) shall also be tested for micronutrients. Similarly, capacity of every MSTL is 5000 samples per annum, which should be optimally utilised.

User Charges:

2.10 Maximum User Charges for Soil analysis with different analyzing capacities for laboratories set up in PPP mode will be finalised by the State Governments in consultation with the implementing agencies.

Physical Progress Report:

2.11 Final physical progress report is to be submitted in prescribed formats indicated at **Annexure IX -A** and **IX – B**. Quarterly Progress Reports (QPRs) are to be submitted as per format indicated at **Annexure X-A.**

ii Strengthening of Existing Soil Testing Laboratories

2.12 At present, there are 651 soil testing laboratories (517 STLs and 134 MSTLs) working in the country having annual analyzing capacity of above 7 million soil samples. Many of the existing STLs do not have facilities for micronutrient analysis and the existing capacities of analysing NPK also is not being fully utilised. A one time grant shall be provided to create

facilities for analysis of micronutrients such as Zinc, Iron, Copper, Manganese, Boron, etc. 315 existing STLs will be strengthened during the 11th Five Year Plan period.

Eligible Agencies:

2.13 Existing STLs working under the control of the State Governments/UTs. For strengthening of 315 STLs having no micro-nutrient analysis facility, performance assessment should be made keeping in view the existing staff before any assistance is given. Only working STLs should be supported. The State Government should carefully study the existing performance level of the STL and whether it requires any process change to achieve higher efficiencies. Moreover, a system of bench-marking should clearly be put in place.

Norms for assistance:

2.14 Rs. 10 lakhs per/lab for creating micronutrient analysis facilities through purchase of Atomic Absorption Spectrophotometer (AAS) or ICP (Inductively Coupled Plasma Spectrometer) and its accessories with required chemicals and glasswares of standard quality.

Submission of Progress Report:

2.15 Final physical progress report is to be submitted in prescribed format indicated at **Annexure IX-C**. Quarterly Progress Reports (QPRs) are to be submitted as per format indicated at **Annexure X - B.**

iii Capacity Building through training of STL staff/extension officers/ farmers and field demonstration/workshop etc. on balanced use of fertilizers

Objectives:

2.16 This component has the following objectives:

i. Creation of awareness about the concept and principals of balanced use of fertilizers amongst STL staff and field functionaries and to improve the analytical skills of the STL staff required for testing of soil fertility.

ii. Training of farmers will help to create awareness among farmers on the importance of Integrated Nutrient Management (INM) and soil test based balanced and judicious use of fertilizers (NPK) along with secondary nutrients (Sulphur, Calcium, Magnesium) in conjunction with Organic Fertilizer and Bio-fertilizers.

iii. The merit of the demonstration lies in "seeing is believing" and "doing is learning". The field demonstration trial on the farmer's field is the most effective way of demonstrating the importance of balance and integrated use of fertilizers. The impact is greater and long lasting when farmers see the beneficial results for themselves on their own lands.

iv. To create awareness on balanced and integrated use of fertilizers and other nutrient sources, it is proposed to organize National and Regional seminars/workshops.

Training Programme for Staff

2.17 The training programme to be organized for STL staff and field functionaries on Balanced Use of Fertilizers will be a two day programme. The course content shall be as follows:

i. Importance of Soil testing in Soil Fertility Management
ii. Sampling Methodology.
iii. Testing protocols.
iv. Interpretation of soil test results and calculation of nutrient requirement.
v. Cropping system based nutrient management.
vi. Importance of balanced nutrition on productivity and quality of produce and soil health maintenance.

Training Programme for Farmers

2.18 The training programme to be organized for farmers on Balanced Use of Fertilizers will be a two day programme. For organizing the two day training for farmers on Balanced Use of Fertilizers, the course content shall be as follows:

i. Importance of Soil Testing in Soil Health Management.
ii. Importance of balanced fertilizer use in crop productivity and Soil Health Management.
iii. Sampling protocols and sending samples to testing laboratories.
iv. Importance of organic manures and biofertilizers in balanced nutrition.
v. Implementation of soil test results for soil fertility management as per the requirement of crop.

Field Demonstrations:

2.19 Field Demonstrations on Balanced Use of Fertilizers should be conducted at the farmers' field. The entire package of practices except fertilization should be taken up uniformly. Cultural

practices such as ploughing, disking, levelling, etc should be done before sowing/planting. The demonstration plot should be of one acre (4000 sq. mt.) each in one single patch. Two or more well divided plots of total one acre can also be selected. Each demonstration plot should be divided into 2 equal parts as follows:

a) **Control part**- based on existing practices adopted by the farmer
b) **Treated part**- based on soil test based balanced fertilization including micro nutrients and soil amendments, if required.

All other cultural practices should be kept uniform till harvesting.

Farmers' fair

2.20 A one day farmer's fair should be organized at a time when the crop is at almost grain forming/fruiting stage or on the day of harvesting. 50 farmers from the nearby villages should be invited to demonstrate the impact and usefulness of balanced and soil test based fertilization practice. Efforts should be made to supply technical literature in the regional language. Two subject matter specialists should also be invited for proper technology transfer and for addressing farmers' queries.

Eligible Agencies:

2.21 State Governments and agencies associated with it/ICAR/SAUs/Fertilizer Industry.

Number of programmes:

2.22 5,000 trainings for STL Staff and Field Functionaries, 1,000 trainings for farmers and 1,500 Field Demonstrations.

Norms for assistance and duration:

2.23 Details in this regard have been given in **Annexure III-A.**

***Submission of Progress Report*:**

2.24 Formats for submission of final progress report have been indicated at A**nnexure VII - A, VII - B and VII – C.** QPR format is indicated at **Annexure X – C**

iv Creation of Data Bank for site specific Balanced Use of Fertilizers

Objective:

2.25 For promoting balanced use of fertilizers, it is essential to maintain region specific and location specific data on soil fertility. As on today, there is no systematic data or system available in the country for recommending site-specific nutrient requirement and

delineation of secondary and micronutrient deficiencies. It is proposed to create a National Data Bank.

Eligible Agencies:

2.26 State Governments/ SAUs/ ICAR/ National Informatics Centre.

Fund Provision:

2.27 Rs 5.00 crore for the 11th Five Year Plan. Quantum of assistance to each unit shall be decided by PSMC depending upon the size of the State and quantum of data.

Submission of Progress Report:

2.28 Initial physical progress report regarding data bank (district-wise) may be sent by the States in its own format along with soft copies of data banks in a standardised data-structure (to be conveyed subsequently). A detailed format for quarterly reporting shall be evolved subsequently and circulated among all the States.

v Adoption of village by STLs (10 Villages each) through Frontline Field Demonstration (FFD)

Objective:

2.29 For confidence building of farmers about usefulness of balanced use of fertilizers, it is essential that STLs' recommendations are effectively demonstrated in villages. It is proposed to adopt 8000 villages by 800 Soil Testing Laboratories to conduct frontline field demonstration on balanced use of fertilizers. These 800 STLs shall be chosen by the State PSMC, which will keep past performance in mind while considering these proposals and a list will be sent to GOI.

2.30 For adoption of villages, the following procedure shall be followed:

i. 10 farmers belonging to the adopted village should be selected. A one acre field with each farmer should be selected and soil samples collected. Selection is to be done well in advance of the sowing season so that soil samples test reports are available at the time of sowing.

ii. Arrangements for all essential inputs should be made and inputs kept ready.

iii. At the time of sowing, efforts should be made to invite maximum number of farmers and the utility of soil test based recommendations should be explained.

iv. Selected fields should be sown as per the recommendations based on soil test reports.

v. Regular visits should be made to adopted villages to keep interaction going on with the farmers.

vi. After some time, when the crop is in good growth or near maturity, a field day shall be arranged for 50 farmers of the same or nearby villages. Subject matter specialists should explain the requirement and usefulness of soil test based fertilization and the importance of soil amendments.

Eligible Agencies:

2.31 Existing and new STLs.

Norms for Assistance:

2.32 Rs. 20,000 per FFD as per the details at **Annexure III-B**.

Submission of Progress Report:

2.33 Physical report duly authenticated by the competent authority may be submitted to the DAC as per Annexure**-VIII**.

vi Preparation of Digital District Soil Maps and Global Positioning System (GPS) based Soil Fertility Monitoring

Objectives:

2.34 Lack of GPS based district soil fertility maps is the major hindrance in adopting balanced use of fertilizers. Hence, it is proposed to prepare 500 digital district soil maps and GPS based soil fertility monitoring system in all important 500 agricultural districts during the 11th Five Year Plan.

Eligible Agencies:

2.35 State Governments/ SAUs/ ICAR/ National Informatics Centre/ KVKs.

Norms for Assistance:

2.36 Rs. 2.00 lakh per district.

Submission of progress report and utilization certificate:

2.37 Initial physical progress report regarding digital soil maps (district-wise) may be sent by the States in its own format along with soft copies of soil maps in a standardised data-structure(to be conveyed subsequently). A detailed format for quarterly reporting shall be evolved subsequently and circulated among all the States.

B PROMOTING USE OF INTEGRATED NUTRIENT MANAGEMENT

i Promotion of Organic Manuring

Objectives:

2.38 Organic manures have good potential for providing both organic carbon and plant nutrients. Application of organic manure also increases fertiliser use efficiency. It is proposed to promote the use of organic manure through financial assistance of not more than Rs. 500 per hectare to cover 0.5 million hectare area. In order to ensure that the benefitted farmers make use of organic manure on a long term basis, preference should be given to create group of farmers (10 or more) who will collectively construct requisite infrastructure for production of organic manure.

Eligible Agencies:

2.39 State Governments.

Area to be covered:

2.40 0.5 million hectare.

***Norms for Assistance*:**

2.41 Rs. 500/- hectare.

Submission of progress report and utilization certificate:

2.42 Necessary progress report and expenditure statement will be submitted by the implementing Department to the DAC. Quarterly Progress Reports (QPRs) are to be submitted as per format indicated at **Annexure X-D.**

ii Promotion of Soil Amendments (lime /basic slag) in Acidic Soils

Objectives:

2.43 Use of soil amendments such as lime and basic slag in acidic soils and gypsum and pyrites, etc in alkaline and sodic soils is essential for improving soil health and obtaining optimum crop productivity. It is proposed to provide financial assistance for use of such soil amendments.

Eligible Agencies:

2.44 State Governments.

Area to be covered:

2.45 0.5 million hectare.

***Norms for assistance*:**

2.46 25% of the cost subject to maximum of Rs. 500 per hectare

Submission of progress report and utilization certificate:

2.47 The implementing Department/agency shall submit necessary physical report and expenditure statement duly authenticated by the competent authority. Quarterly Progress Reports (QPRs) are to be submitted as per format indicated at **Annexure X - D.**

iii Promotion and Distribution of Micronutrients

Objectives:

2.48 Intensive agriculture is experiencing widespread deficiency of micronutrients particularly of Zinc followed by Iron, Manganese, Boron, etc. It is proposed to promote and distribute micronutrients during the entire 11th Five Year Plan.

Eligible Agencies:

2.49 State Governments.

Area to be covered:

2.50 0.5 million hectare.

***Norms for Assistance*:**

2.51 50% of the cost of requisite nutrients subject to a maximum of Rs. 500 per hectare

Submission of progress report and utilization certificate:

2.52 The implementing Department/agency shall submit necessary physical report, in the prescribed formats. Quarterly Progress Reports (QPRs) are to be submitted as per format indicated at **Annexure X-D.**

C STRENGTHENING OF FERTILIZER QUALITY CONTROL LABORATORIES (FQCLs)

i Strengthening/Upgradation of the existing State Fertilizer Quality Control Laboratories

***Objectives*:**

2.53 In order to check the quality of the fertilizers sold in the country, at present there are 63 FQCL working under the control of different State Governments. Since quality testing is a statutory requirement under the Fertilizer Control Order (FCO), it is imperative to maintain all the instruments and equipment and to ensure supply of quality chemicals and glasswares for the analysis. This requires time-to-time upgradation and replacement of the equipment. Many of the State Laboratories are also facing acute financial problem to maintain these facilities. Therefore, in order to maintain the high standard of analysis potential, it is proposed to upgrade and strengthen the existing 63 FQCLs.

Eligible Agencies:

2.54 FQCLs under State Governments. Assistance will be provided to only those State laboratories, which are functional and working well and there will be no recurring liability on the part of the Central Government.

***Norms for Assistance*:**

2.55 Rs.25 lakh per laboratory is to be provided for purchase of machinery & equipment, chemicals, glasswares and miscellaneous laboratory articles as per **Annexure IV**.

Submission of progress report and utilization certificate

2.56 The implementing laboratory shall submit a detailed final progress report along with expenditure statement giving list of items purchased and installed in the prescribed format at **Annexure IX-C.** Quarterly Progress Reports (QPRs) are to be submitted as per format indicated at **Annexure X-B.**

ii Setting up of new Fertilizer Quality Control Laboratories by State Governments

Objectives:

2.57 Considering that the total number of dealers in the country by the end of the 11th Five Year Plan would be about 3.25 lakhs, the minimum requirement of fertilizer samples to be tested for ensuring quality is 6.50 lakh (to cover each dealer during kharif and rabi). The capacity of existing testing facilities (1.25 lakh) is quite inadequate and is only around 20 per cent of the requirement. It is, therefore, proposed to set up 20 new FQCLs by the State Governments for quality testing with annual analyzing capacity of 4000 samples each. A one time financial assistance @ Rs. 50 lakh/laboratory is proposed to be provided to the State Governments. This will provide an additional annual analyzing capacity of 0.80 lakh samples.

No. of Laboratories to be set up:

2.58 20 new FQCLs will be set up during the 11th Five Year Plan. The State-wise breakup is based on the number of dealers and analyzing capacity in a particular State. The figure thus arrived at has been further normalized after taking into consideration existing number of FQCLs and Kg/per hectare consumption of fertilizer.

***Norms for Assistance*:**

2.59 One time grant of Rs.50 lakh per laboratory shall be provided for purchase of machinery & equipments, chemicals, glass wares and miscellaneous laboratory articles as per **Annexure-V** to create facilities for analysis of NPK, secondary and micronutrients.

Submission of progress report and utilization certificate:

2.60 The implementing laboratory shall submit a detailed progress report along with expenditure statement giving list of items purchased and installed in the format prescribed indicated at Annexure **IX-D**.

iii Setting Up of Fertilizer Testing Laboratories by Private/Co-operative Sector under PPP Mode For Advisory Purpose

Objective:

2.61 As presently there is no testing facility available for dealers and farmers to ascertain the quality of fertilizers being purchased/ used by them, it is proposed to set up 50 new Fertilizer Testing Laboratories under private/cooperative sectors under PPP mode and given accreditation under FCO for providing advisory service to farmers/dealers.

Norms for Assistance:

2.62 A one time subsidy of 25 per cent of total financial outlay or Rs. 10 lakh whichever is less, shall be provided as one time back ended subsidy for purchase of machinery & equipments, chemicals, glassware and miscellaneous laboratory articles as per **Annexure VI**. Laboratories under PPP mode will be also not be eligible for any recurring grants.

Submission of Progress Report:

2.63 The implementing laboratory shall submit a detailed progress report along with expenditure statement giving list of items purchased and installed in the format indicated at **Annexure IX-A.**

MONITORING FORMATS FOR THE NATIONAL TEAM OF EXPERTS : State – wise final monitoring report (including inspection by random sampling of such size as it may decide) shall be compiled in **Annexures XI – A to XII – E.**

III SUMMARY OF PHYSICAL TARGETS AND FINANCIAL REQUIREMENTS, COMPONENT-WISE, UNDER NPMSF DURING 11TH FIVE YEAR PLAN

Annexure I

Summary of Physical and Financial Requirements during 11th Five Year Plan

(Rs in crore)

Particulars		Nos.	Rate	Amount
I. Strengthening of Soil Testing Laboratories (STLs)				
1	Setting up of additional soil testing laboratories by Agri clinics / NGOs / Cooperative, Private entrepreneurs, etc under Public Private Partnership mode	500	@50% of project cost limited to maximum of Rs.30 lakh as one time subsidy.	150.00
2	Strengthening of 315 State STLs having no micronutrient analysis facility.	315	@Rs.10 lakh/lab	31.50
3	Capacity building through training of STL staff/Extension officers/ farmers and field demonstration/ Work Shop etc. on balanced use of fertilizer by State Govts / ICAR / SAUs / Fertilizer Industry	-	-	15.00
4	Creation of data bank for site specific Balanced Use of Fertilizers			5.00
5	Adoption of village by STLs (10 villages each) through Frontline Field Demos. (FFD) by 800 STLs	8000 villages	@ Rs.20,000/- per FFD	16.00
6	Preparation of digital district soil maps & GPS based soil fertility monitoring by ICAR/SAUs	500	@Rs. 2 lakh/district	10.00
	TOTAL I			**227.50**
Particulars		**No.**	**Rate**	**Amount**
II. Promoting Use of Integrated Nutrient Management.				
1	Promotion of organic manures	0.5 mha	@ Rs.500/ha	25.00
2	Promotion of soil amendments (lime/basic slag) in acidic soils.	0.5 mha	@Rs.500/ha @ 25% of cost	25.00
3	Promotion & distribution of micronutrients	0.5 m ha	@ Rs.500/ha	25.00
	TOTAL II			**75.00**
III.	**Strengthening of Fertilizer Quality Control Laboratories**			
1	(a) Continuation of CFQC&TI/ Regional Labs. (b) Strengthening of CFQC&TI/ Regional Labs including setting up of 4 new Regional Labs.	- -	- -	9.60 12.00
2	Strengthening/upgradation of existing state fertilizer quality control labs.	63	@Rs.25 lakh each	15.75
3	Setting up of New Fertilizer Quality Control Labs by State governments.	20	@Rs.50 lakh	10.00

4	Setting up of fertilizer testing labs under private/co-operative sector for advisory purposes	50	@ 25% of the project cost or Rs.10.00 lakh as one time back ended subsidy	5.00
	TOTAL III			**52.35**
IV.	**Strengthening of Mobile Soil Testing Laboratories (STLs)**			
1	Setting up of Mobile Soil Testing Laboratories by Agri clinics / NGOs / Cooperative, Private entrepreneurs, etc under Public Private Partnership mode	250	@75% of project cost limited to maximum of Rs.30 lakh as one time subsidy.	75.00
	Total IV			**75.00**
Grand Total (I+II+III+IV)				**429.85**

IV SUGGESTED LIST OF MAIN EQUIPMENTS FOR STLs AND MSTLs

Annexure II-A

Admissible items and list of equipment for setting up of Soil Testing Laboratory with annual analyzing capacity of 10,000 samples per annum (For analyzing NPK, secondary nutrients and micronutrients in soils and water)

Sl.	Items	Cost (Rs. in lakhs)
1	Equipment*	18.00
2	Chemicals & glasswares	10.00
3.	Contingencies	6.00
4.	Standby Generator/Electricity source	6.00
5.	Assistance for manpower	20.00
		60.00

Note: *Subsidy would be provided @ 50% of project cost limited to maximum of Rs.30 lakh as one time subsidy.*

***List of Equipment**

S.No.	Name of Equipment	No	Cost (Rs. in lakhs)
1	Atomic Absorption Spectrophotometer (AAS) #	1	10.00
2	Spectrophotometer #	1	1.00
3	Flame Photometer #	1	0.70
4	Conductivity Meter	2	0.30
5	pH Meter	2	0.30
6	Shaking Apparatus	2	0.30
7	Electronic Balance	1	1.00
8	Analytical Balance / Top Loading balance	2	0.70
9	Drying Oven	1	0.20
10	Computer with appropriate software	1	1.50
11	Table Top Centrifuge	1	0.25
12	Misc. laboratory articles	-	1.25
			18.00

Note # or Inductively Coupled Plasma Spectrometer (ICP) in lieu of equipment mentioned at Sl Number 1, 2, and 3.

Note 2 Equipment should be sourced from reputed firms with adequate experience; of latest specification and technology and appropriate support facilities.

For strengthening of Existing Soil Testing Laboratory to create facilities for analysis of micronutrients, financial assistance of Rs 10 lakh will be provided for the purchase of Atomic Absorption Spectrophotometer (AAS) or Inductively Coupled Plasma Spectrometer (ICP) and any other equipment which needs replacement as mentioned above for new STLs.

Annexure II-B

Admissible items and list of equipment for setting up of Mobile Soil Testing Laboratory with annual analyzing capacity of 5,000 samples per annum (for analyzing NPK, secondary nutrients and micronutrients in soils and water analysis)

Sl	Items	Cost (Rs. in lakh)
1.	Equipment #	18.00
2.	Chemicals & glasswares	1.50
1.	Contingencies	1.00
2.	Generator	1.00
3.	Cost of Mobile Soil Testing Van	15.00
4.	Assistance for manpower	3.50
5.	Total	**40.00**

*Note: *Subsidy would be provided @ 75% of project cost limited to maximum of Rs.30 lakh as one time subsidy.*

#List of Equipment

Sl	Items	No.	Cost (Rs. In lakhs)
3.	Atomic Absorption Spectrophotometer (AAS)	1	10.00
4.	Spectrophotometer	1	1.00
5.	Flame Photometer	1	0.70
6.	Conductivity Meter	2	0.30
7.	pH meter	2	0.30
8.	Shaking Apparatus	2	0.30
9.	Electronic Balance	1	1.00
10.	Analytical Balance	2	0.70
11.	Drying Oven	1	0.20
12.	Computer with appropriate softwares	1	1.50
13.	Table Top Centrifuge	1	0.25
14.	GPS System with Mobile Phone	1	0.25
13	Misc. /Lab. Articles		1.50
	Total		**18.00**

Note 2: Equipment should be sourced from reputed firms with adequate experience; of latest specification and technology and appropriate support facilities

V NORMS FOR TRAININGS AND DEMONSTRATIONS FOR SOIL TESTING LABORATORIES (STLS)

Annexure III-A

Norms for assistance for trainings and demonstrations

1. **Two Days trainings for STL staff and Field Functionaries:**

Sl	Component	Amount (in Rs.)
1.	Lodging and Boarding @ Rs. 400/- per person/day for 20 participants	16,000/-
2.	Folder/Stationary/Literature	5000/-
3.	Honorarium to Guest Speakers @ Rs. 500/- per speaker- 4 Nos.	2000/-
4.	Tea/Coffee/Misc. expenditure including POL, Transport	2000/-
	TOTAL	**25,000/-**

2. **Two Days farmers Training**

Sl	Component	Amount (in Rs.)
3.	Working lunch/tea/training arrangements @ Rs. 150/- per person/day for 20 participants	6000/-
4.	Stationary/literature	2000/-
5.	Honorarium to Guest Speaker @ Rs. 500/- per Speaker including miscellaneous expenses	2000/-
	TOTAL	**10,000/-**

6. **Field Demonstrations**

Sl	Component	Amount (in Rs.)
1.	Assistance to farmer for inputs, labour, etc.	5000/-
2. a.	Field day Expenses: Refreshment to 50 farmers @ Rs. 50/- per farmer	2500/-
b.	Miscellaneous expenses such as POL/Transport/Honorarium to Speakers, etc	2500/-
	TOTAL	**10,000/-**

Annexure III-B

Norms for assistance for Village Adoption through Frontline Field Demonstrations

Sl	Component	Amount (in Rs.)
1.	Subsidy on inputs	
a	Soil Amendments @ Rs. 200/acre x 10	2000/-
b	Micronutrient @ Rs. 200/acre x 10	2000/-
c	Organic inputs @ Rs. 200/acre x 10	2000/-
d	Fertilizer @ Rs. 1000/acre x 10	10,000/-
2.	Field Day-cum-Farmers Fair (One day)	
a	Tea Snacks etc for 50 farmers @ Rs. 50 per farmer	2500/-
b	Misc. expenses for field day	1500/-
	TOTAL	**20,000/-**

VI SUGGESTED LIST OF EQUIPMENT FOR FERTILIZER QUALITY CONTROL LABORATORY (FQCL)

Annexure IV

Admissible items and list of equipment for strengthening of existing Fertilizer Quality Control Laboratory with annual analyzing capacity of 4,000 samples per annum

Sl	Items	Cost (Rs. In lakhs)
1	Equipment #	20.00
2	Chemicals & glasswares	4.00
3	Contingencies	1.00
	Total	**25.00**

 # List of Equipment

Sl	Name of Equipment	No	Cost (Rs. In lakhs)
1	Atomic Absorption Spectrophotometer (AAS)	1	10.00
2	Spectrophotometer	1	1.00
3	Water bath-cum-shaker	1	0.40
4	Muffle Furnace + Oven	2	0.50
5	pH Meter	2	0.30
6	Vacuum Pump	2	0.50
7	Electronic Balance	1	1.00
8	Analytical Balance	2	0.70
9	Digestion/Distillation set	2	0.40
10	Karl Fischer Apparatus	1	0.50
11	Deionizer	1	1.20
12	Computer with appropriate software	1	1.50
13	Lab. Articles	-	1.50
14.	Misc.	-	0.50
	Total		**20.00**

Note: Equipment should be sourced from reputed firms with adequate experience; of latest specification and technology and appropriate support facilities.

Annexure V

Admissible items and list of equipment for setting up of Fertilizer Quality Control Laboratory with annual analysing capacity of 4,000 samples per annum

Sl	Items	Cost (Rs. In lakhs)
1	Equipment #	20.00
2	Chemicals & glasswares	2.00
3.	Lab. Articles	1.00
4.	Contingencies	1.00
5.	Standby Generator/Electric source	6.00
6.	Staff salary etc	20.00
	Total	**50.00**

 # List of Equipment

Sl.	Name of Equipment	No	Cost (Rs. in akhs)
1	Atomic Absorption Spectrophotometer (AAS)	1	10.00
2	Spectrophotometer	1	1.00
3	Water bath-cum-shaker	1	0.40
4	Muffle Furnace + Oven	2	0.50
5	pH Meter	2	0.30
6	Vacuum Pump	2	0.50
7	Electronic Balance	1	1.00
8	Analytical Balance	2	0.70
9	Digestion/Distillation set	2	0.40
10	Karl Fischer Apparatus	1	0.50
11	Deionizer	1	1.20
12	Computer with appropriate softwares	1	1.50
13	Lab. Articles	-	1.50
14.	Misc.	-	0.50
			20.00

Note: Equipment should be sourced from reputed firms with adequate experience; of latest specification and technology and appropriate support facilities.

Annexure VI

List of equipment / other articles for setting up of Fertilizer Quality Control Laboratory for advisory purpose under PPP Mode

Sl	Items	Cost (Rs. In lakhs)
1	Equipment #	20.00
2	Chemicals & glasswares	2.00
3.	Lab. Articles	1.00
4.	Contingencies	1.00
5.	Standby Generator/Electric source	6.00
6	Assistance for manpower	10.00
		40.00

 # List of Equipment

Sl	Name of Equipment	No	Cost (Rs. in lakhs)
1	Atomic Absorption Spectrophotometer (AAS)	1	10.00
2	Spectrophotometer	1	1.00
3	Water bath-cum-shaker	1	0.40
4	Muffle Furnace + Oven	2	0.50
5	pH Meter	2	0.30
6	Vacuum Pump	2	0.50
7	Electronic Balance	1	1.00
8	Analytical Balance	2	0.70
9	Digestion/Distillation set	2	0.40
10	Karl Fischer Apparatus	1	0.50
11	Deionizer	1	1.20
12	Computer with appropriate software	1	1.50
13	Lab. Articles	-	1.50
14.	Misc.	-	0.50
			20.00

Note: Equipment should be sourced from reputed firms with adequate experience; of latest specification and technology and appropriate support facilities.

VII REPORTING

FORMATS

Annexure VII-A

Format of Report for two days trainings for STL staff and Field Functionaries on Balanced Use of Fertilizers

1. Name of Programme:
2. Date and Venue:
3. Programme Schedule with subject of talks:
4. No. of Participants with their status such as SC, ST, General, Women, Small/Marginal. Enclosed list of participants with name and addresses:
5. Sample copy of literature provided:
6. Name and addresses of Resource Persons:
7. Statement of Expenditure:

Statement of expenditure

……

……From……To……

Sl	Items	Allocation of funds sanctioned (Rs.)	Actual Expenditure
1.	Lodging and Boarding @ Rs. 400/- per person/day for 20 participants	16,000/-	
2.	Folder/Stationary/Literature	5000/-	
3.	Honorarium to Guest Speakers @ Rs. 500/- per speaker- 4 Nos	2000/-	
4.	Tea/Coffee/Misc. expenditure including POL, Transport	2000/-	
	TOTAL	25,000/-	

1. Certified that the above expenditure of Rs……. has been incurred in connection of the organization of training programme for STL staff/Field Functionaries on balanced use of fertilizers from…….. to ……..

2. Certified that this amount has been actually utilized on the organization of the above mentioned training course and is in accordance with the norms and guidelines issued by Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, New Delhi.

3. Certified that all the vouchers in respect of the above expenditure are available for audit check.

Training-in-charge Signature

Authorized Officer of the Training Institute

Annexure VII-B

Format of Report for organization of two days trainings for Farmers on Balanced Use of Fertilizers

1. Name of Programme:
2. Date and Venue:
3. Programme Schedule with subject of talks:
4. No. of Participants with their status such as SC, ST, Gen., Women, Small/Marginal. Enclosed list of participants with name and addresses:
5. Sample copy of literature provided:
6. Name and addresses of Resource Persons:
7. Statement of Expenditure:

Statement of Expenditure

……

from……To……

Sl	Items	Allocation of funds sanctioned (Rs.)	Actual Expenditure
1.	Working lunch/tea/ training arrangements @ Rs. 150/- per person/ day for 20 participants	6000/-	
2.	Stationary/literature	2000/-	
3.	Honorarium to Guest Speaker @ Rs. 500/- per Speaker including miscellaneous expenses	2000/-	
	TOTAL	10,000/-	

1. Certified that the above expenditure of Rs……. has been incurred in connection of the organization of training programme for STL staff/Field Functionaries on balanced use of fertilizers from…….. to ……..

2. Certified that this amount has been actually utilized on the organization of the above mentioned training course and is in accordance with the norms and guidelines issued by Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, New Delhi.

3. Certified that all the vouchers in respect of the above expenditure are available for audit check.

Training-in-charge Signature

Authorized Officer of the Training Institute

Annexure VII-C

Format of report for conducting Field Demonstration on Balanced use of fertilizers

1. Name of Demonstration Farmer:
2. Address & Contact Nos.:
3. Crop/s of demonstration:
4. Enclose copy of soil test report and recommendations provided:
5. Details of cultural practices adopted and inputs used separately for control and treated plots:
6. Yield data Q/ha for both control and treated plots:
7. Date of farmers fair:
8. Venue:
9. List of farmers with participants status such as SC/ST/Gen./OBC/Women/Small/Marginal:
10. List and Addresses of Resource Persons:
11. Subjects discussed:
12. Sample copy of literature provided:

Statement of Expenditure

……
from……To……**……**

Sl	Items	Allocation of funds sanctioned (Rs.)	Actual Expenditure
1.	Assistance to farmer for inputs, labour, etc.	5000/-	
2.	Field day expenses:		
a.	Refreshment to 50 farmers @ Rs. 50/- per farmer	2500/-	
b.	Miscellaneous expenses such as POL/Transport/ Honorarium to Speakers, etc.	2500/-	
	TOTAL	10,000/-	

1. Certified that the above expenditure of Rs……. has been incurred in connection of the organization of training programme for STL staff/Field Functionaries on balanced use of fertilizers from…….. to ……..

2. Certified that this amount has been actually utilized on the organization of the above mentioned training course and is in accordance with the norms and guidelines issued by Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, New Delhi.

3. Certified that all the vouchers in respect of the above expenditure are available for audit check.

Training-in-charge Signature

Authorized Officer of the Training Institute

Annexure VIII

Format of Report for adoption of villages through Frontline Field Demonstrations (FFDs)

1. Name of the STL:
2. Name of the Village adopted:
3. Name and Address of Farmers selected:
4. Soil Test results of selected farmer's fields:
5. Recommendations given based on soil test report:
6. Crops being taken farmer-wise with Dates of sowing and inputs used (for individual farmer):
7. Crop yield in Q/ha. farmer-wise:
8. Average response of balanced fertilizer use practice:
13. Date of farmer's fair:
14. Venue:
15. List of farmers with participants status such as SC/ST/Gen./OBC/Women/Small /Marginal:
16. List and Address of Resource Persons:
17. Subjects discussed:
18. Sample copy of literature provided:

Statement of Expenditure

……
from……To……

Sl	Items	Allocation of funds sanctioned (Rs.)	Actual Expenditure
1.	Subsidy on inputs		
	a Soil Amendments @ Rs. 200/acre x 10	2000/-	
	b Micronutrient @ Rs. 200/acre x 10	2000/-	
	c Organic inputs @ Rs. 200/acre x 10	2000/-	
	d Fertilizer @ Rs. 1000/acre x 10 Field Day-cum-Farmers Fair (One day)	10,000/-	
	a Tea Snacks etc for 50 farmers @ Rs. 50 per farmer	2500/-	
	b Misc. expenses for field day	1500/-	
	TOTAL	**25,000/-**	

1. Certified that the above expenditure of Rs……. has been incurred in connection of the organization of training programme for STL staff/Field Functionaries on balanced use of fertilizers from…….. to ……..

2. Certified that this amount has been actually utilized on the organization of the above mentioned training course and is in accordance with the norms and guidelines issued by Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, New Delhi.

3. Certified that all the vouchers in respect of the above expenditure are available for audit check.

Training-in-charge Signature

Authorized Officer of the Training Institute

Annexure IX-A

Format of Report for setting up of New Soil Testing Laboratory and Fertilizer Testing Laboratory for advisory purpose under PPP mode

1. Name & Address of Implementing Agency:
2. DAC Sanction letter no. and date:
3. Total financial outlay approved:
   a. Contribution by Promoter:
   b. Bank Loan:
   c. Subsidy:

   Total:
4. Name of financing bank with loan sanction letter no. and date (enclose copy):
5. List of Equipment and machinery purchased with cost:

   (enclose list with purchase cost)
6. List of glassware, chemicals and miscellaneous items purchased with quantity and total cost:
7. Name and address of laboratory Incharge and Technical Person:
8. Capacity generated in terms of parameter analysis potential and No. of samples to be analyzed: (per year)

Annexure IX-B

Format of Report for setting up of Mobile Soil testing Laboratory by Agriclinics/ NGOs/ Cooperatives and Private entrepreneurs etc under PPP mode

1. Name & Address of Implementing Agency:
2. DAC Sanction letter no. and date:
3. Total financial outlay approved:
    a. Contribution by Promoter:
    b. Bank Loan:
    c. Subsidy:
    d. Total:
4. Name of financing bank with loan sanction letter no. and date (enclose copy):
5. List of Equipments and machinery purchased with cost:
6. List of glassware, chemicals and miscellaneous items purchased with quantity and total cost:
7. Details of vehicle purchased with facilities, cost and registration No.:
8. Name and address of laboratory Incharge and Technical Person:
9. Capacity generated in terms of parameter analysis potential and No. of samples to be analyzed:
10. Area to be covered:
11. Targeted number of samples to be analyzed per year:

Annexure IX-C

Format of Report for Strengthening of Existing Soil testing Laboratory and Fertilizer Quality Control Laboratory under State Governments

1. Name, Address and Department of Laboratory Established/ strengthened:
2. DAC Sanction Letter No and date:
3. Funds sanctioned:
4. List of Equipments and machinery purchased:
5. Date of installation of facilities:
6. Capacity generated in terms of Macro, secondary and micronutrient analysis and No. of samples per year for analysis:

Annexure IX-D

Format of Report for Establishment of New Fertilizer Quality Control Laboratories under State Governments

1. Name & Address of Implementing Department:
2. DAC Sanction letter no. and date:
3. Total Funds sanctioned:
4. Location and address of new laboratory:
5. List of Equipments and machinery purchased with cost:
6. List of glassware, chemicals and miscellaneous items purchased with quantity and total cost:
7. Name and address of laboratory Incharge and Technical Person:
8. Capacity generated in terms of parameter analysis potential and No. of samples to be analyzed:
9. Area to be covered:
10. Targeted number of samples to be analyzed during next three years (per year):

VIII MONITORING

FORMATS FOR QUARTERLY

PROGRESS REPORTS

UNDER STLS AND FQCLS

Annexure X-A

Format for Quarterly Progress Report on Setting up of New Fertilizer Quality Control Laboratories by State Governments (FQCL) and STLs, MSTLs and FQCL for advisory purpose under PPP Mode

Report for the Quarter ending……

A. State and name of State Designated Agency:

B. DAC sanction letter No and Date:

C. Target for the current financial year:

D. Over-spill (if any) from the previous financial year:

E. Total target for the year (C + D):

F. Fund sanctioned (Rs.):

Sl	Establishment stages	**Progress made (give numbers out of total target)**		
		No Progress	**Under process**	**Complete**
1	Financial arrangement			
2.	Land			
3.	Building			
4.	Supply order placed for equipments			
5.	Installation of equipments			
6.	Laboratory staff employed			
7.	Glassware and chemicals procured			
8.	Sample analysis begins			
9.	Final reporting and submission of adjustment to DAC			

In case if the progress is not as per schedule, specify reasons for delay:

Expected date of completion:

Funds utilized in the quarter:

Progressive status of funds utilization:

Signature of Controlling authority:

Annexure X-B

Format for Quarterly Progress Report on Strengthening and Up-gradation of Existing STLs and Fertilizer Quality Control Laboratories by State Governments.

Report for the Quarter ending……

A. State and name of State Designated Agency:

B. DAC sanction letter No and Date:

C. Target for the current financial year:

D. Over-spill (if any) from the previous financial year:

E. Total target for the year (C + D):

F. Fund sanctioned (Rs.):

Sl	**Establishment Stages**	**Progress made (give numbers out of total target)**		
		No Progress	**Under process**	**Complete**
1.	Equipments finalized for purchase			
2.	Supply order placed for equipment			
3.	Installation of equipment			
4.	Laboratory staff training on AAS and other new equipment			
5.	Sample analysis begins			
6.	Final reporting and submission of adjustment to DAC			

In case if the progress is not as per schedule, specify reasons for delay:

Expected date of completion:

Funds utilized in the quarter:

Progressive status of funds utilization:

Signature of Controlling authority:

Annexure X-C

Format for Quarterly Progress Report on Capacity Building through trainings, demonstrations and workshops etc on balanced use of fertilizers

Report for the Quarter ending……

A. State and name of State Designated Agency:

B. DAC sanction letter No and Date:

C. Target for the current financial year:

D. Over-spill (if any) from the previous financial year:

E. Total target for the year (C + D):

F. Fund sanctioned (Rs.):

Sl	Components	**Progress made**		
		Total No of programmes sanctioned	**No of courses Under process**	**No of courses Complete**
1.	Training of STL staff			
2.	Training for Extension Officers			
3.	Training for farmers			
4.	Field demonstrations			
5.	Workshops etc			
6.	Adoption of villages through FFDs			

In case if the progress is not as per schedule, specify reasons for delay:

Expected date of completion:

Funds utilized in the quarter:

Progressive status of funds utilization:

Signature of Controlling authority:

Annexure X-D

Format for Quarterly Progress Report on Promoting use of Integrated Nutrient Management

Report for the Quarter ending……

A. State and name of State Designated Agency:

B. DAC sanction letter No and Date:

C. Target for the current financial year:

D. Over-spill (if any) from the previous financial year:

E. Total target for the year (C + D):

F. Fund sanctioned (Rs.):

Sl	Components	**Progress made (in ha)**		
		Target sanctioned	**Area covered in the quarter**	**Progressive area covered**
1.	Promotion of organic manures			
2.	Promotion of soil amendments			
3.	Distribution of micronutrients			

In case if the progress is not as per schedule, specify reasons for delay:

Expected date of completion:

Funds utilized in the quarter:

Progressive status of funds utilization:

Signature of Controlling authority:

IX MONITORING

FORMATS FOR THE

NATIONAL TEAM OF

EXPERTS

Annexure XI-A

Monitoring Format for Different Components under the Centrally Sponsored Scheme on National Project on Management of Soil Health and Fertility

A **Monitoring Format for setting up of New Soil Testing Laboratories (Mobile/Static) and Fertilizer Quality Control Laboratories for Advisory Purpose under PPP Mode**

1. State and Name of State Designated Agency:

2. DAC sanction Letter No., Date and Number of laboratories sanctioned:

3. Details of implementing agencies:

4. No. of laboratories established:

5. Facilities created for analysis of (with capacity):
    a. NPK:
    b. Secondary nutrients:
    c. Micronutrients:

6. Total Capacity created in the state (No of samples/year):

7. Expenditure made according to guidelines or not. In case of deviation, please specify with reasons:

8. Details of laboratories established with Name and address of implementing agency, Name of Incharge, Details of technical staff appointed (attach separate report for each laboratory), expenditure statement etc with individual sample analyzing capacity created and user charges being levied (or proposed to be levied):

9. Mechanism of monitoring by SDA:

10. Report of SDA on establishment of laboratories:

11. Is the Monitoring team satisfied with the implementation. If not then specify grounds and suggestions for improvement:

12. What has been the actual no. of samples analysed (no. of samples/year)

13. What has been the outcome in terms of improving soil health and balanced use of fertilizers:

Recommendation: Give specific findings on shortcomings noted and area and scope for improvement:

Annexure XI-B

B Monitoring Format for Strengthening Of Existing Soil Testing/ Fertilizer Quality Control Laboratories under State Governments

1. State and Name of State Designated Agency:

2. DAC sanction Letter No., Date and Number of laboratories sanctioned:

3. Details and number of laboratories strengthened:

4. Facilities created/upgraded for analysis of (with capacity):
   NPK:
   Secondary nutrients:
   Micronutrients:

5. Total Micronutrient Analysis Capacity created in the state (No of samples/year):

6. Expenditure made according to guidelines or not. In case of deviation, please specify with reasons:

7. Details of individual laboratories strengthened with Name and address of laboratories:

8. Mechanism of monitoring by SDA:

9. Report of SDA on strengthening of laboratories:

10. Is the Monitoring team satisfied with the implementation. If not then specify grounds and suggestions for improvement:

11. Is the Monitoring team satisfied with the implementation. If not then specify grounds and suggestions for improvement:

12. What has been the actual no. of samples analysed (no. of samples/year)

13. What has been the outcome in terms of improving soil health and balanced use of fertilizers:

Recommendation: Give specific findings on shortcomings noted and area and scope for improvement:

Annexure XI-C

C Monitoring Format for Capacity Building Through Training of STL Staff/Extension Officers/Farmers and Field Demonstration/Workshops etc on Balanced Use of Fertilizers under the Centrally Sponsored Scheme on National Project on Management of Soil Health and Fertility

1. State and Name of State Designated Agency:

2. DAC sanction Letter No., Date and Number of programmes sanctioned:

3. Details and addresses of implementing offices/agencies with target allotted:

4. Implementation details:
   Physical
   a. No of programmes sanctioned:
   b. No of programmes implemented:
   c. Balance to be completed (if any) and reason for delay:
   d. Area covered under each component in ha:

   Financial
   a. Sanctioned funds, component-wise:
   b. Expenditure:
   c. Saving if any:

5. Details of beneficiaries:
   In Trainings for officers
   a. SC
   b. ST
   c. OBC
   d. Other
   e. Women

   In farmers trainings, FFDs and field demonstrations:
   a. SC
   b. ST
   c. OBC
   d. Other
   e. Women
   f. Marginal Farmers
   g. Small Farmers
   h. Others

6. Mechanism of monitoring by SDA:

7. Report of SDA on implementation:

8. Does Monitoring team satisfied with the implementation. If not then specify grounds and suggestions for improvement:

9. Is the Monitoring team satisfied with the implementation. If not then specify grounds and suggestions for improvement:

10. What has been the actual no. of samples analysed (no. of samples/year)

11. What has been the outcome in terms of improving soil health and balanced use of fertilizers:

12. Recommendation: Give specific findings on shortcomings noted and area and scope for improvement:

Annexure XI- D

D Monitoring Format for Creation of Data Bank and Preparation of Digital District Soil Maps under the Centrally Sponsored Scheme on National Project on Management of Soil Health and Fertility

1. State and Name of State Designated Agency

2. DAC sanction Letter No., Date and Number of programmes sanctioned:

3. Details and addresses of implementing offices/agencies:

4. Implementation details:

    a. Number of districts proposed to be covered:
    b. Data bank/maps developed for districts:
    c. Periodicity of upgradation:

5. How the information can be accessed by the public:

6. Web address and other details for data access:

7. Mechanism of monitoring by SDA:

8. Report of SDA on implementation:

9. Is the Monitoring team satisfied with the implementation. If not then specify grounds and suggestions for improvement:

10. Area for which Data Bank and Digital District Soil Maps have been prepared:

11. What has been the outcome in terms of improving soil health and balanced use of fertilizers:

12. Recommendation of monitoring team:

Annexure XI-E

E Monitoring Format for Promoting Use of Integrated Nutrient Management (Promotion of Green Manures, Soil Amendments, Micronutrients) under the Centrally Sponsored Scheme on National Project on Management of Soil Health and Fertility

1. State and Name of State Designated Agency:

2. DAC sanction Letter No., Date and Number of programmes sanctioned:

3. Details and addresses of implementing offices/agencies with target allotted:

4. Implementation details:

   Physical
   a. No of programmes sanctioned:
   b. No of programmes implemented:
   c. Balance to be completed (if any) and reason for delay:

   Financial
   a. Sanctioned funds, component wise:
   b. Expenditure:
   c. Saving if any:

5. Details of beneficiaries
   a. SC
   b. ST
   c. OBC
   d. Other
   e. Women
   f. Marginal Farmers
   g. Small Farmers
   h. Others

6. Mechanism of monitoring by SDA:

7. Report of SDA on implementation:

8. Is the Monitoring team satisfied with the implementation. If not then specify grounds and suggestions for improvement:

9. What has been the actual no. of samples analysed (no. of samples/year)

10. What has been the outcome in terms of improving soil health and balanced use of fertilizers:

11. Recommendation: Give specific findings on shortcomings noted and area and scope for improvement:

X UTILISATION

CERTIFICATE FORMAT

Annexure XII

FORM GFR 19-A

[See Government of India's Decision (I) below Rule 150]

Form of Utilization Certificate

Sl.No.	Letter No. and Date	Amount
	Total	

1. Certified that out of Rs……. of grants-in-aid sanctioned during the year…….in favour of ……...under this Ministry/Department letter No. given in the margin and Rs…….on account of unspent balance of the previous year, a sum of Rs……..has been utilized for the purpose of ……...for which it was sanctioned and that the balance of Rs……..remaining unutilized at the end of the year has been surrendered to Government (vide No……..dated…… will be adjusted towards the grants-in-aid payable during the next year……..

2. Certified that I have satisfied myself that the conditions on which the grants-in-aid was sanctioned have been duly fulfilled/are being fulfilled and that I have exercised the following checks to see that the money was actually utilized for the purpose for which it was sanctioned.

Kinds of checks exercised

1.
2.
3.

Signature…

Designation…….

Date……

Counter signature by Chartered Accountant
/Auditor/ Competent Authority