

National Mission For Sustainable Agriculture (NMSA)

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Introduction

NMSA is a reorganize scheme subsuming National Project on Organic Farming, National Mission on Micro Irrigation, National Project on Management of Soil Health and Fertility and Rain fed Area Development Programme to focus on climate change adaptation being implemented since the year 2014-15. Share of Centre: State in funding is 60: 40 percent. Sustaining agricultural productivity depends on availability and quality of natural resources like soil and water. Agricultural growth can be sustained by promoting conservation and sustainable use of these scanty natural resources through suitable location specific measures. Indian agriculture remains mostly rain fed covering about 60 percent of the country's net sown area and accounts for 40 percent of the total food production. So, conservation of natural resources in conjunction with development of rain fed agriculture holds the key to meet burgeoning demands for food grain in the country. Towards this end, NMSA has been formulated for enhancing agricultural productivity mainly in rain fed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation.

NMSA derives its mandate from Sustainable Agriculture Mission which is one of the eight Missions outlined under National Action Plan on Climate Change (NAPCC). The strategies and programmes of actions (POA) outlined in the Mission Document, that was accorded 'in principle' approval by Prime Minister's Council on Climate Change (PMCCC), aim at promoting sustainable agriculture through a series of adaptation measures focusing on ten lead dimensions encompassing Indian agriculture viz., 'Improved crop seeds, livestock and fish cultures', 'Water Use Efficiency', 'Pest Management', 'Nutrient Management', 'Improved Farm Practices, Agricultural insurance, Credit support, Access to Information and Livelihood diversification. During XII Five Year Plan, these measures are being embedded and mainstreamed onto ongoing Missions / programmes / Schemes of Department of

Agriculture & Cooperation (DAC&FW) through a process of restructuring and convergence. NMSA architecture has been outline by converging, subsuming and consolidating all ongoing as well as newly proposed activities/programmes related to sustainable agriculture with a special emphasis on water use efficiency, soil & water conservation, soil health management and rain fed area development. The centre of NMSA will be to infuse the judicious utilization of resources of commons through community based approach.

Objective

- To make agriculture more productive, sustainable, remunerative and climate resilient by promoting location specific Integrated/Composite Farming Systems.
- To conserve natural resources through appropriate soil and moisture conservation measures.
- To adopt comprehensive soil health management practices based on soil fertility maps, soil test based application of macro & micro nutrients, judicious use of fertilizers etc.
- To optimize utilization of water resources through efficient water management to expand coverage for achieving ‘more crop per drop’.
- To develop capacity of farmers & stakeholders, in conjunction with other on-going Missions e.g. National Mission on Agriculture Extension & Technology, National Food Security Mission, National Initiative for Climate Resilient Agriculture (NICRA) etc., in the domain of climate change adaptation and mitigation measures.
- To pilot models in select blocks for improving productivity of rain fed farming by mainstreaming rain fed technologies refined through NICRA and by leveraging resources from other schemes/Missions like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Integrated Watershed Management Programme (IWMP), RKVY etc.
- To establish an effective inter and intra Departmental/Ministerial co-ordination for accomplishing key deliverables of National Mission for Sustainable Agriculture under the aegis of NAPCC.

Strategy

- Promoting integrated farming system covering crops, fishery and livestock, plantation and pasture based composite farming for enhancing livelihood opportunities, ensuring food security and minimizing risks from crop failure through supplementary/ residual production systems.
- Popularizing resource conservation technologies and introducing practices that will support mitigation efforts in times of extreme climatic events or disasters like prolonged dry spells, floods etc.
- Promoting effective management of available water resources and enhancing water use efficiency through application of technologies coupled with demand and supply side management solutions;
- Encouraging improved agronomic practices for higher farm productivity, improved soil treatment, increased water holding capacity, judicious use of chemicals/ energy and enhanced soil carbon storage;
- Creating database on soil resources through land use survey, soil profile study and soil analysis on GIS platform to facilitate adoption of location and soil-specific crop management practices& optimize fertilizer use;
- Promoting location and crop specific integrated nutrient management practices for improving soil health, enhancing crop productivity and maintaining quality of land and water resources;
- Involving knowledge institutions and professionals in developing climate change adaptation and mitigation strategies for specific agro climatic situations and promoting them through appropriate farming systems.
- Programmatic interventions as per land capability and conducive to climatic parameters in select blocks as pilots for ensuring integrated development through dissemination and adoption of rain fed technologies with greater reach in disadvantaged areas & location specific planning by way of coordination, convergence and leveraging investments from other Schemes/Missions like MGNREGS, IWMP, RKVY, National Food Security Mission (NFSM), Mission for Integrated Development of Horticulture (MIDH), National Mission for Agricultural Extension & Technology (NMAE&T) etc. A consortium approach may be evolved with various stake holders including knowledge partners like State Agricultural

Universities (SAUs), Krishi Vigyan Kendras (KVKs), Indian Council of Agricultural Research (ICAR) Centres, professional organizations etc. by the State Government to provide single window service/ knowledge provider system for the benefit of farming community.

- State Government may engage reputed NGOs for implementation of cluster/village development plan in case of limited Government infrastructure is available in that area through a transparent system of selection and defined process of supervision and monitoring through a line department. Strong technical monitoring and feedback systems on climate change mitigation and adaptation issues to the National Advisory council for regular updates on technical feasibility of various components and their effectiveness in bringing about the climate resilience. The experts of central institutes and state agricultural universities would be part of such technical monitoring/feedback. The capacity building of the implementing agencies would be steered by MANAGE.
- Establishing platform to liaison, review and coordinate implementation of interventions outlined in Mission Document of NMSA under aegis of National Action Plan on Climate Change.

Component :

1. Rain fed Area Development (RAD)

Rain fed Area Development (RAD) will adopt an area based approach for development and conservation of natural resources along with farming systems. This component has been formulated in a 'watershed plus framework', i.e., to explore potential utilization of natural resources base/assets available/created through watershed development and soil conservation activities / interventions under MGNREGS, NWDPR, RVP&FPR, RKVY, IWMP etc. This component will introduce appropriate farming systems by integrating multiple components of agriculture such as crops, horticulture, livestock, fishery, forestry with agro based income generating activities and value addition. Besides, soil test/soil health card based nutrient management practices, farmland development, resource conservation and crop selection conducive to local agro climatic condition will also be promoted under this component. A cluster based approach of 100 hectare or more may be adopted to derive

noticeable impact of convergence and encourage local participation and for future replication of the model in larger areas.

Supplementary support from this component will be admissible for gap-filling resource conservation activities under converging programmes. RAD clusters should have soil analysis/soil health card/soil survey maps to justify the interventions proposed and at least 25% of the farming system area will have to be covered under On Farm Water Management. Farming Systems recommended by ICAR's Contingency Plans and successful findings of NICRA projects shall also be considered in development of integrated project plan. Besides, creation and development of common property resources/assets/utilities like grain bank, biomass shredders, fodder bank, group marketing etc. will be encouraged under this component.

2. Sub-Mission on Agro Forestry (SMAF)

Sub-Mission on Agro Forestry has been launched to encourage tree plantation on farm land "Har Medh Par Ped", along with crops/ cropping system. The scheme is being implemented in the States which have liberalized transit regulations for selected tree species.

The implementation of the sub-mission will result in providing additional income opportunities for farmers, Increase in tree cover through will lead to higher carbon sequestration and compliment the national initiatives on climate change adaptation and mitigation and trees grown on farm land will help in enriching soil organic matter

3. National Bamboo Mission (NBM)

Bamboo is a versatile group of plants which is capable of providing ecological, economic and livelihood security to the people. India has the highest area (13.96 million ha) under bamboo and is the second richest country, after China, in terms of bamboo diversity with 136 species (125 indigenous and 11 exotic). It means that there are greater opportunities to harness the market potential by increasing its production and ensuring establishment of proper value chain system. In most of the hilly States of the country, bamboo is used as building material/construction material, besides, having a niche as basic raw material in other countries with various traditional and an ever-increasing range of contemporary uses/applications in industries like paper and pulp, construction, furniture, textile, food, energy production etc. This is especially important from the potential of bamboo based

livelihoods and employment for rejuvenating the rural economy and doubling of farmers' income. Keeping in view the vast untapped potential of the bamboo sector, boost domestic cultivation of quality and appropriate species for supply to our industry, the restructured National Bamboo Mission (NBM) has been approved for implementation across the country.

4. Soil Health Management (SHM)

Soil Health Management (SHM) will aim at promoting location as well as crop specific sustainable soil health management including residue management, organic farming practices by way of creating and linking soil fertility maps with macro-micro nutrient management, appropriate land use based on land capability, judicious application of fertilizers and minimizing the soil erosion/degradation.

Assistance will be provided for various improved package of practices based on land use and soil characteristics, generated through geographical information system (GIS) based thematic maps and database on land and soil characteristics through extensive field level scientific surveys. This component will also provide support to reclamation of problem soils (acid/alkaline/saline). This component will be implemented by State Government, National Centre of Organic Farming (NCOF), Central Fertilizer Quality Control & Training Institute (CFQC&TI) and Soil and Land Use Survey of India (SLUSI).

Given the limitations, such as staff and infrastructure, faced by the department of agriculture at the field level, a Public Private Partnership Model may be adopted by states depending upon the private partner's strength in the field to ensure that the soil testing is done in time and in the numbers required. The private parties can be encouraged to set up soil testing labs in selected areas in the district.

5. Climate Change and Sustainable Agriculture: Monitoring, Modeling and Networking (CCSAMMN)

Climate Change and Sustainable Agriculture: Monitoring, Modeling and Networking (CCSAMMN) will provide creation and bidirectional (land/farmers to research/scientific establishments and vice versa) dissemination of climate change related information and knowledge by way of piloting climate change adaptation/mitigation research/model projects in the domain of climate smart sustainable management practices and integrated farming system suitable to local agro-climatic conditions. The dedicated expert teams of technical

personnel will be institutionalized within NMSA to rigorously monitor and evaluate the mission activities thrice in a year and will inform the National Committee.

Comprehensive pilot blocks will be supported to illustrate functional mechanism for dissemination of rainfed technologies, planning, convergence and coordination with flagship schemes/Missions like MGNREGS, IWMP, Accelerated Irrigation Benefit Programme (AIBP), RKVY, NFSM, NHM, NMAET etc. Such an integrated action of input and output flows across agriculture, livestock and other production systems will harness the growth potential of the rain fed production systems, imparting sustainability of local production systems while negotiating climate change risks.

A consortium approach will be evolved with various stake holders including knowledge partners like State Agricultural Universities (SAUs), Krishi Vigyan Kendras (KVKs), Indian Council of Agricultural Research (ICAR) Institutes etc. by the State Government to provide single window service/knowledge provider system for the benefit of farming community. Financial support may be provided through States to institutionalize the concept and meeting supplementary developmental activities.

Climate change related monitoring, feedback, knowledge networking and skill development will also be supported under this component through State Agricultural Universities, ICAR Institutes National/International Institutes, KVKs, Public/Private R&D Organizations etc. Awarding of Studies, Documentation & Publication, Domestic and Foreign Training, Workshops/Conferences etc. will be supported under this component.

Conclusion:

National Mission for Sustainable Agriculture will cater to key dimensions of 'Water use efficiency', 'Nutrient Management' and 'Livelihood diversification' through adoption of sustainable development pathway by progressively shifting to environmental friendly technologies, adoption of energy efficient equipments, conservation of natural resources, integrated farming etc. Besides, NMSA aims at promoting location specific improved agronomic practices through soil health management, enhanced water use efficiency, judicious use of chemicals, crop diversification, progressive adoption of crop-livestock farming systems and integrated approaches like crop-sericulture, agro-forestry, fish farming etc.