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REVISED OPERATIONAL GUIDELINES

AGROFORESTRY

UNDER RASHTRIYA KRISHI VIKAS YOJANA (RKVY)

1. Name of the Component:

Agroforestry under Rashtriya Krishi Vikas Yojana (RKVY). General provisions of RKVY Guidelines shall be applicable for the component.

2. Background:

2.1 Agroforestry is known to have the potential to mitigate the climate change effects through microclimate moderation, conservation of natural resources and creation of an additional source of livelihood and income opportunities. In order to make agriculture less vulnerable to climatic aberrations, the Government of India formulated the National Agroforestry Policy in 2014. The policy recommends setting up a Mission or Board with an initial corpus of Rs 4000-5000 crore annually to address the development of agroforestry sector in an organized manner. As a follow-up to the policy, the Sub-Mission on agroforestry (SMAF) under National Mission for Sustainable Agriculture (NMSA) was launched in 2016-17 to encourage and expand tree plantation on farmland, with the motto of "*Har Med Par Ped*", along with crops/cropping system.

2.2 There have been many initiatives to upscale agroforestry in farmlands, degraded, barren and wastelands. The adoption of agroforestry by farming community is on an upward trend after the coming of the National Agroforestry Policy in 2014. There is ample evidence to show that agroforestry enhances productivity, soil fertility improvement, soil conservation, nutrient cycling, microclimate improvement etc. Over 70% of nurseries in the country are privately owned. Approximately only 10% of seedlings supplied for agroforestry are of Quality Planting Material. Quality Planting Material (QPM) like seeds, seedlings, clones, hybrids, improved varieties, etc. of healthy, resilient and adaptable nursery stock must be made available to farmers. QPM can be considered as part of a value chain that begins with the source of tree seed and ends at the market for the tree product or environmental service, or even at the consumer level. The quality of the initial input, which is the tree seed source determines the productivity and quality of the product or service at the end of the chain.

2.3 Agroforestry has varieties of produce from timber to non-timber products. Strengthening farmer access to markets for tree products is important hence, providing support price and buy-back guarantee for farm-grown trees and other agroforestry products can be an important step to promote agroforestry for the farmers. Marketing infrastructure similar to what is available for agricultural commodities including market information can be taken up in agroforestry with more private sector participation.

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2.4 Agroforestry has the potential to contribute to the government's strategy to promote millets. Traditionally millets are grown along with trees in tropical as well as sub-tropical regions of the country. In agroforestry systems, millets perform exceptionally well due to their hardiness and capacity to withstand prolonged periods of drought, and high temperatures and also having higher efficiency in absorbing and utilizing carbon dioxide.

2.5 Agroforestry can support the action plan for Mission LiFE (Lifestyle for Environment) which makes environmental protection and conservation as a participative process. Agroforestry promotes agroecology and is one of the potential areas for Carbon Credits as well as Green Credit Program(GCP). Agroforestry system is known to have high carbon sequestration potential thereby increasing the soil organic carbon (SOC) in farmer's field.

Reduction of diversity in agricultural landscapes across India severely reduces the resilience to climate and pest shocks, while also missing out on potential economic and ecological opportunities. Increase in the green cover through agroforestry will mitigate pollution, and climate change impacts and contribute to biodiversity conservation in the agricultural ecosystem.

2.6 Agroforestry has importance as a carbon sequestration strategy because of the carbon storage potential in its multiple plant species considering its applicability in agricultural lands and reforestation. Evidence is now emerging that agroforestry systems are promising land use systems to increase and conserve aboveground and soil carbon stock. The carbon sequestration potential of an agroforestry system is generally greater than that of an annual cropped-based system. Agroforestry thus contributes to the resilience of agriculture by adaptation and mitigation of climate change effects and provides scope for emerging carbon market.

2.7 Agroforestry supports agro-ecology and reduces vulnerability to climate and environmental change. Activities under the NMSA strategy and technologies associated with Climate Resilient Agriculture may be promoted through the scheme.

2.8 Institutional support from the Indian Council of Forest Research & Education (ICFRE), ICAR -Central Agroforestry Research Institute (CAFRI), Council of Scientific and Industrial Research (CSIR), ICRAF, etc. which have the technical knowledge and experience on agroforestry will form an integral part of the intervention.

3. Objectives:

- i. To encourage and expand tree plantation in a complementary and integrated manner with crops to improve productivity, additional income generation and improved livelihoods of rural households, especially the small farmers.
- ii. To ensure the availability of Quality Planting Materials (QPM) like seeds, seedlings, clones, hybrids, improved varieties, etc. Quality Planting Material (QPM) of healthy, resilient and adaptable nursery stock raised through seed or vegetative propagation with an overall goal to improve the quality of the plants available to farmers and growers.
- iii. To popularize various agroforestry practices/models suitable to different agro-ecological regions and land use conditions through demonstration plots.

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- iv. To create a database, information and knowledge support in the area of agroforestry.
 - v. To provide Research & Development (R&D), extension and capacity-building support to the agroforestry sector.
 - vi. To identify and catalyze linkages with traditional and emerging markets for the timber and non-timber products generated from agroforestry plantation on farmland including Bio-fuels, matchwood, plywood, silk, fiber, lac, beauty and wellness sector, handicrafts, construction, etc.
 - vii. To promote value addition and processing of agroforestry produce by creating collection and post-harvest facilities for additional income generation by farmers.
 - viii. To provide use of modern technology for monitoring and evaluation (M&E) on the impact of agroforestry in agro-ecology.

4. **Strategy: Quality Planting Material (QPM) and Certification:**

4.1 The scheme shall promote the setting up of new small, medium and hi-tech nurseries for producing Quality Planting Materials (QPM) like seeds, seedlings, clones, and improved varieties to meet the requirement of farmers. Various agroforestry practices/models suitable to different agroecological regions and land use conditions shall be promoted that will support adaptation and mitigation efforts in accordance with NMSA guidelines.

4.2 **ICAR-CAFRI as Nodal Agency for QPM:**

I. ICAR-Central Agroforestry Research Institute (CAFRI) shall be the nodal agency for providing technical support, capacity building, setting up of nurseries, production, and certification of QPM etc. CAFRI shall extend support through its All India Coordinated Research Project (AICRP) centres on agroforestry situated at various locations around the country. ICAR-CAFRI shall coordinate activities with other agencies/ institutes like ICFRE, CIFOR-ICRAF, FAO-India, SAUs, CAUs, Private Partners, etc. while facilitating the implementation of the scheme.

II. All nurseries set up under the scheme shall comply with the registration and accreditation requirements as laid down by CAFRI. The States shall also make efforts for accreditation of other existing Forest Department/Private/Cooperative nurseries in the State that produce planting material for Agroforestry.

III. Certification of QPM from accredited nurseries shall be done as per guidelines laid down by CAFRI in association with empanelled agencies/experts.

IV. CAFRI shall provide the standards and modalities for Registration, Certification and Accreditation of Nurseries as well as Certification of QPM from such Registered/Accredited nurseries.

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V. Capacity building in agroforestry shall be through ICAR-CAFRI and it may be notified as the Central HRD Institution that shall train Master Trainers for different states.

4.3 The State Nodal Department/Agency: For the implementation of the scheme State Nodal Department/Agency shall be identified for each State/UTs.

4.4 The Nodal Department/Agency shall ensure the availability of QPM by producing on its own or through the collaborative arrangement with individuals/institutions such as SAUs, KVKs, FPOs, SHGs, NGOs, Entrepreneurs/Startups, Forest/Agriculture institutes, farmers/cooperative societies etc.

4.5 Capacity building/training for officials/workers, scientists and farmers, extension activities including demonstration of Nursery Techniques for the raising of QPM, seminars/workshops/conferences/fairs & exhibitions and exposure visits of stakeholders shall be emphasized upon.

4.6 Physical verification of the Nurseries and seedlings raised under the scheme shall be done by the State Nodal Department/Agency based on the technical guidelines from CAFRI. Third party verification may also carried out to ensure quality of nurseries/seedlings. Verification certificate shall be obtained by the individual/institution that raised the nursery.

4.7 Nursery Accreditation will ensure the availability of high quality planting material for trees and other woody perennials for agroforestry purposes. Accordingly, each State Nodal Departments should ensure that publicity of these certified seedlings should be done to all other Govt Departments/Municipalities to go for sourcing of certified seedlings produced from these Accredited Nurseries.

4.8 PMUs constituted at the State levels will have the responsibility to ensure collaboration among various line departments in the Centre / State /District to achieve the targets. A national level PMU shall be operational at DAC&FW for overall implementation and monitoring of the scheme.

4.9 Technical Support Groups (TSG) with experts from ICAR-Central Agroforestry Research Institute (CAFRI), Indian Council of Forest Research & Education (ICFRE), ICRAF and other organizations / individuals shall be constituted at National level.

4.10 ICAR-CAFRI will act as Nodal Agency for repository of agroforestry related works with a preamble note to states for providing all related information to CAFRI. CAFRI may undertake project-based activities including transfer of agroforestry technology in various agroclimatic zones, business incubation and training to stakeholders.

5. Seed source:

5.1 Supply of Quality Planting Material (QPM) which essentially is healthy, resilient and adaptable nursery stock raised through seed or vegetative propagation is the key for promoting agroforestry. The scheme envisages a sustainable supply of Quality Planting Material (QPM) of healthy, resilient nursery stock raised in hi-tech centralized

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nurseries as well as small-scale decentralized model nurseries. QPM may be of multipurpose tree species, species having timber value, medicinal plants etc. Also, various agroforestry practices/models suitable to different agroecological regions and land use conditions shall be promoted.

5.2 The Nodal Department/Agency shall coordinate with the Forest Department/CAFRI/ICFRE/SAUs/private growers for germplasm/seed source required for the production of QPM. In many States, the State Forest Department through their research programs are taking up various tree improvement initiatives which also include Agroforestry species. The scheme should leverage coordination with the State Forest Department for sourcing quality seeds/germplasm. The need to establish a national-level coordinating centre for streamlining the supply, while ensuring the quality of the seeds shall be explored.

6. Distribution of Quality Planting Material (QPM):

QMP raised under the scheme shall be made available for farmers/SHGs free of cost or as decided by the respective States/UTs. The plantation and maintenance in subsequent years shall be done by beneficiaries. However, nodal departments/ agencies shall make efforts to meet out the plantation and maintenance cost through convergence with MNREGA/other schemes of Department of Rural Development/ Forests/ Agriculture/ Horticulture.

7. Geo-Tagging of land-based interventions:

- a. Digital information and support system to farmers shall be promoted (ICAR-Central Agroforestry Research Institute (CAFRI) has developed a *bilingual* mobile app '*Farm Tree*' for effective outreach to its stakeholders and farmers. With the help of this farm tree app, farmers can know about the suitable tree species, spacing, cultivation practices, etc. Similarly, International Centre for Research in Agroforestry (ICRAF) with the Department of Agriculture, Odisha has developed App - Agroforestry App Odisha (India) for farmers' support on agroforestry. Both the ICAR-CAFRI and ICRAF will also work towards establishing a database for knowledge support in agroforestry.
- b. All land based intervention should be Geo Tagged/Geo Fenced. Krishi Mapper/Mobile App developed by DA&FW shall be used for Geo Tagging/Geo Fencing of farmers' field. The data captured by the App will be automatically linked with the State/Central MIS portal through API.
- c. National Web portal shall be developed where such information on registered nurseries, plantations, availability of seedlings, price, seed source, genetic makeup etc. shall be made available. All scheme related information including progress and achievements should be captured by State Management Information System(MIS) which the States may also develop and this may be integrated with the National portal or information should be made accessible through API to ensure seamless flow of information.
- d. M&E platforms using modern geo-spatial technology/satellite imagery in collaboration with MNCFC/ICAR-CAFRI shall be taken up.

8. Support of Agroforestry through MNREGA

8.1 Agroforestry envisages close convergence with MNREGA (Department of Rural Development). Under MNREGA mandatory expenditure of at least 60% on the works to be taken up is for agriculture and allied activities. The scheme provides for various plantation models such as block plantation, canal side plantation, sericulture, horticulture plantation, boundary plantation, farm forestry, wasteland plantation, shelter belt trees plantation, coastline plantation, development of silvipasture grassland etc. Further, raising of nursery is a permissible activity under the scheme. Plantation works are permissible in the community as well as in individual beneficiary land. There are many line Departments such as the Forest Department, Agriculture Department, Horticulture Department, Soil Conservation Department, Tribal Development, Watershed Department etc. that are working as implementing agency under MNREGS in the States. Every asset/land-based intervention is geo-tagged in three stages, stage 1- before, Stage 2- during and Stage 3 -after completion of work under MNREGA.

8.2 During the implementation of agroforestry scheme, an incentivized system will promote the local communities/**SHGs**/farmers to adopt agroforestry/restore wasteland/degraded land by plantation (agro-ecological sustainable models). Agroforestry scheme made provision of QPM distribution to farmers. Since MNREGA provides sufficient opportunities for agroforestry related works, States/UTs must ensure convergence of the scheme with MNREGA to meet the cost of plantation including maintenance.

8.3 Works such as nurseries, plantations, survival of seedling in the field etc. shall be closely monitored. As MNREGA has robust monitoring system, monitoring of works such as plantation and maintenance at the micro level shall be carried out by State PMUs with support of Panchayat institutions through existing mechanism of MNREGA.

9. Scheme Interventions:

- i. **Establishment of nurseries for Quality Planting Material(QPM):** Expanding the scope of business opportunities as start ups in agroforestry, the small nurseries, big nurseries, Hi-Tech nurseries and Tissue Culture facilities shall be supported under the scheme as given at **Annexure-I**. Such nurseries and QPM labs shall adopt standards/ protocols developed by ICAR-CAFRI/ICRAF. Also, nurseries shall be registered and accredited as per the protocol developed by ICAR-CAFRI with suitable third-party certification procedure.
- ii. **Skill development and awareness campaign:** Activities like training of farmers/field workers to ensure raising quality planting material, skill development to youth for business opportunities in agroforestry, awareness campaign, publications, information sharing, exposure visits, seminars/workshops at national/international levels etc. would be supported under the scheme. States can utilize up to 5% of the allocated funds for capacity building and training activities. The training activities, materials and report should be made publicly available for the benefit of all stakeholders.

			90% financial assistance if the beneficiary is FRA patta holder and the rest 10% to be borne by the beneficiary
	b. Establishment of new tissue culture units	Up to Rs. 200.00 lakh	100% assistance to Government agencies and 50% back ended credit linked assistance for private partners. 90% financial assistance if the beneficiary is FRA patta holder and the rest 10% to be borne by the beneficiary
4.	Skill Development and awareness campaign Training to Farmers, Officers / Extension Workers, Organizing Workshop/ Seminars / Conference, etc.		Up to 5% of allocation is admissible.
5.	Research & Development	Project Based	100% assistance to Government agencies/organizations.
6.	Monitoring & Evaluation and Other specialized technical works.	Project Based	100% assistance to Government agencies/organizations.
7.	Formulation of Project for Voluntary Carbon Market in Agriculture Sector	Project Based	100% assistance to Government agencies/organizations for VCM Project Formulation & Execution for benefit of farmers
8.	Local Initiative	Up to 2 % of Approved Annual Plan	Promotion of innovations/transportation of seedlings/local level monitoring mechanism through SHGs etc.

Note: Cost of plantation and maintenance is to be met through convergence with MNREGA/other schemes of Department of Rural Development/ Forests/ Agriculture.

10. Convergence architecture with other Central Government schemes

10.1 An incentivized system will promote the local communities/SHGs/farmers to adopt agroforestry/restore wasteland/degraded land by plantation. Under the agroforestry scheme, cost of plantation including maintenance of QPM distributed shall be met through convergence with WDC-PMKSY/MNREGA/other schemes of Department of Rural Development.

10.2 Need based interventions and activities of tree plantation, Industry development & market linking to agriculture and allied sectors will be automatically converged/dovetail for integrated and holistic development of project area under Central & State Government programmes. Convergence with other schemes of DA & FW viz. RAD, Integrated Farming System, Per Drop More Crop (micro irrigation enhances growth and yields), Agri-infrastructure Fund, formation of 10,000 FPOs and other organizations is envisaged for enhanced returns. Convergence with

iii. **Research and Development:** Specific projects for demonstration for extension purposes on specific innovative agroforestry models by ICAR-CAFRI/SAUs/CAUs/CSIR/ICFRE institutes/ State Government/ other National & International level organizations/Private Partners shall be supported. Also project based studies on carbon sequestration, soil health improvement, etc will be supported under the scheme. Following themes/ topics shall be supported for Research & Development:

- a. Works related to accreditation of Agroforestry nurseries and certification of seedlings.
- b. Agroforestry as system approach.
- c. Nexus of Biodiversity, Soil and Water conservation.
- d. Climate Resilient Agroforestry Species and Practices.
- e. Economic viability and market linkages.
- f. Quantification of Community Participation and Social dynamics.
- g. Indigenization of digital augmentation and tools.

(iv) **Monitoring & Evaluation and Other specialized technical works:** For M&E, use of geo-spatial technology/satellite imageries, AI & ML etc. shall be taken up with ICAR-CAFRI/ICFRE/MNCFC institutes.

(v) **Local Initiative:** States can utilize up to 2% of the allocated funds for promoting innovations as per local needs/transportation of seedlings/local level monitoring mechanism through SHGs etc.

Eligible components and pattern of assistance for interventions is given in the Table below.

S. No.	Name of interventions	Unit cost (upper limit) (Rs. Lakh)	Remarks
1.	Establishment of new nurseries		
	a. Hi-tech (2 ha)	Rs. 50.00	100% assistance to Government agencies for taking up the work on Government land and 50% assistance to Private Agency / individual entrepreneur.
	b. Big (1 ha)	Rs. 16.00 lakh	
	c. Small (0.5 ha)	Rs 10.00	90% financial assistance if the beneficiary is FRA patta holder and the rest 10% to be borne by the beneficiary
2.	Raising of saplings in the existing nursery	Up to Rs. 5.00 lakh / nursery	
3.	Establishment of tissue culture units		
	a. Strengthening of existing tissue culture units	Up to Rs. 20.00 lakh	100% assistance to Government agencies and 50% back ended credit linked assistance for private partners.

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programmes like National Clean Ganga Mission, National Medicinal Plant Board, M/o AYUSH, Central Silk Board, Indian Institute of Petroleum, etc. may also be explored.

10.3 Convergence with Dharti Aaba Janjatiya Gram Utkarsh Abhiyan (DA-JGUA): Ministry of Tribal Affairs has launched Dharti Aaba Janjatiya Gram Utkarsh Abhiyan (DA-JGUA) with an aim to improve the socio-economic condition of the tribal communities by adopting saturation coverage for tribal families in tribal-majority villages and Aspirational Districts. The Mission will cover approximately 63000 villages viz. (i) Villages with population of 500 or more and with at least 50% Scheduled Tribe population and (ii) Villages in Aspirational Districts with 50 or more Scheduled Tribes. Dovetailing schemes and beneficiary identification (FRA Patta Holders) is to be undertaken effectively while implementing scheme so as to achieve the Mission objectives. Department of Agriculture & Farmers Welfare, has been included as one of the priority sector for the Mission. The financial assistance to these FRA patta holders would be provided from Development Action Plan for Scheduled Tribes (DAPST) Funds. Individual beneficiaries (FRA Patta Holders) shall be provided 90% financial assistance for the scheme components.

10.4 While implementing Agroforestry scheme, priority should be given to such villages identified for DA-JGUA and inclusion of FRA patta holders should be ensured while selecting beneficiaries. 90% financial assistance will be provided to individual beneficiaries (FRA Patta Holders) for the components where individuals and private agencies are eligible under the Agroforestry Scheme (50% assistance for private individuals/agencies in usual case). Rest 10 % would be borne by the beneficiary (FRA Patta Holders). Also, while distributing seedlings raised under Agroforestry, priority should be given to villages under DA-JGUA and it should ensure that seedlings are distributed free of cost to FRA patta holders.

10.5 Aspirational Districts and Vibrant Villages: While implementing the Agroforestry scheme, priority should be given to Aspirational Districts and Vibrant Villages identified by the Government. States should ensure that these Aspirational Districts and Vibrant Villages, if falling in their States, should necessarily be included in the State Annual Action Plan so that more beneficiaries falling in the Aspirational Districts and Vibrant villages are covered under the Scheme.

11. Monitoring & Evaluation:

11.1 Monitoring & Evaluation shall form an integral part of the scheme. Sustainable supply of QPM, survival of seedling in the field, enhanced agroforestry produce, increase in agroforestry area of the country etc. shall be closely monitored. Monitoring of plantation and maintenance works shall be carried out through existing mechanism of MNREGA/schemes of Ministry of Rural Development. Also, SHGs (under NRLM)/village level institutions shall be closely involved in monitoring the implementation of the scheme.

11.2 All land-based interventions shall be Geo-tagged through Apps based monitoring system. Project based studies and assessment for Soil carbon sequestration, soil organic matter, improvement in livelihood, productivity enhancement of crop and cropping

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systems etc. shall also be undertaken. MIS and periodical assessment using GIS technologies would be adopted for ensuring effective monitoring of the programme. M&E initiatives using geo-spatial technology shall be taken up with Mahalanobis National Crop Forecast Centre (MNCFC)/ICAR under the program.

12. Expected Outcome:

- i. Sustainable availability of Quality Planting Material for agroforestry.
- ii. Increase in tree cover on farmlands, community land, government land, leading to increased production of timber and non-timber produce out of agroforestry to meet the increasing demand of raw materials for wood-based industries.
- iii. Reduction in pressure and dependence on forests and forest produce. Reduction in import of timber and other tree products.
- iv. Additional Income to farmers even under adverse climatic conditions & livelihood improvement.
- v. Enhanced carbon sequestration in farmlands as well as ecosystem services.
