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Government of India
Ministry of Agriculture & Farmers Welfare
(Department of Agriculture & Farmers Welfare)
(Mechanization & Technology Division)

Krishi Bhawan, New Delhi
Dated: 28th October 2024

Subject: Operational Guidelines of Central Sector Scheme "NAMO DRONE DIDI"

The Government has approved the Central Sector Scheme 'Namo Drone Didi' for providing Drones to the Women Self Help Groups (SHGs) under DAY-NRLM, with an outlay of Rs. 1261 Crores. The scheme aims to provide drones to 14500 selected Women SHGs during the period from 2024-25 to 2025-2026 for providing rental services to farmers for agriculture purpose (application of liquid fertilizers and pesticides for the present)

2. Under the scheme, a Central Financial Assistance @ 80% of the cost of drone and accessories/ancillary charges up to a maximum of ₹ 8.0 lakhs will be provided to the women SHGs for purchase of drones as a package. The Cluster Level Federations (CLFs) of SHGs/SHGs may raise the balance amount (total cost of procurement minus subsidy) as loan under National Agriculture Infra Financing Facility (AIF). Interest subvention @ 3% on the AIF loan will be provided to the CLFs/SHGs. The CLFs/SHGs shall also have the option to access loans from other sources/programmes/schemes of Ministry of Rural Development.

3. One of the members of the women SHGs will be selected for 15 day training comprising of mandatory drone pilot training and additional training for agriculture purpose for nutrient and pesticide application. The other member/ family member of the SHG with inclination to take up repairs of electrical goods, fitting and mechanical works will be trained as drone assistant. The drone manufacturers shall provide these trainings as a package along with the supply of drones.

4. The Lead Fertilizer Companies (LFCs) responsible for the States are the implementing agencies of the scheme at the State level and they will establish necessary coordination with the State Departments, Drone manufacturers, Cluster Level Federations of SHGs/SHGs and the farmers/beneficiaries etc..

5. It is envisaged that the initiatives under the scheme will provide sustainable business and livelihood support to SHGs and they would be able to earn additional income for them. The scheme will help in infusing advance technology in agriculture for improved efficiency, enhanced crop yield and reduced cost of operation for the benefit of farmers.

6. Implementation of the scheme hinges on rightful selection of the area/cluster and SHG group where there is demand for drone to provide agriculture services. As the introduction of drones in agriculture is at nascent stage, the States needs to closely monitor the interventions, provide handholding support to the women SHGs and help

them in getting the business to cover an area of at least 2000 to 2500 acres in a year. The State Departments of Agriculture & State Mission Directors of DAY-NRLM need to have a very strong convergence and they must take the ownership of the scheme for its successful implementation at the ground level.

7. The State-wise allocation of drones has also been communicated to the States vide this Department's letter 3 -3/2024 -M&T (I&P) (151185) dated 25th October 2024. The States have been requested to identify (if not already done) the appropriate clusters for drone usage, progressive woman SHGs under DAY-NRLM in the identified clusters for providing drones, member of the Woman SHGs for drone pilot and drone assistant training. The State Level Committee as indicated in para 5.3 of the guidelines may be constituted expeditiously (if not already done) and it should start working on its responsibilities immediately so that implementation of the scheme could be done in a time bound manner.

8. The Operational Guidelines of the Scheme are enclosed herewith. All the stakeholders are requested to make meaningful use of these operational guidelines to ensure prompt roll out and implementation of the ' Namo Drone Didi' Scheme.

Encl: as above

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CENTRAL SECTOR SCHEME
NAMO DRONE DIDI

OPERATIONAL GUIDELINES



सत्यमेव जयते

Government of India
Ministry of Agriculture and Farmers Welfare
Department of Agriculture & Farmers Welfare
(Mechanization & Technology Division)
Krishi Bhawan, New Delhi-110001

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OPERATIONAL GUIDELINES

1.0 Introduction

- 1.1 Indian Agriculture has gone through rapid advancements and has benefited from research and adoption of new technologies by farmers. Technologies like drip irrigation, mechanized farming for planting, harvesting and grading are being successfully used for sustainable agriculture in India.
- 1.2 In recent years, use of drone in agriculture has gained prominence. Government of India is promoting use of drones under Sub-Mission on Agricultural Mechanization (SMAM) and some States and Institutes under Indian Council of Agricultural Research (ICAR) are actively engaged in exploring the suitability of this new technology in Indian agriculture. Application of plant nutrients and pesticides using drones has a great potential as we move towards commercialization and achieving precision in agriculture.
- 1.3 Drones are important for increasing efficiency of application of crop protection chemicals and crop nutrients by reducing manpower requirement, reducing time of application, reducing volume of water, quantity of chemicals and drift to environment along with reducing exposure of human to hazardous chemicals.
- 1.4 In spite of benefits of use of drones in agriculture, its adoption at farmers level is limited. Women Self-Help Groups (SHGs) and their Cluster Level Federations (CLF)s have the potential to evolve into small and medium businesses in the agriculture and agro-based industry. Since the SHGs are an effective grassroots level institution for collective interventions, it also has the potential to translate the opportunities of drone application in agriculture into a business proposition.
- 1.5 Therefore, with a view to engaging women and ensuring their continued participation in the mainstream agriculture by providing viable business opportunities for the small groups having limited capital and to enable SHGs to take up suitable and profitable initiatives for additional income generation through drone services, NAMO DRONE DIDI scheme has been introduced.
- 1.6 NAMO DRONE DIDI will be a Central Sector Scheme and will be implemented by converging the resources and efforts of Department of Agriculture & Farmers Welfare (DA&FW), Department of Rural Development (DoRD) and Department of Fertilizers (DoF) and Lead Fertilizer Companies (LFCs) in the identified States, to promote the usage of drones in agriculture sector for spraying of Nano fertilizers and pesticides. The scheme will be implemented in accordance with guidelines described hereunder.

2.0 Objectives

2.1 The objectives of the scheme are as follows:

- (a) To promote advance technology in agriculture for improved efficiency, enhanced crop yield and reduced cost of operation
- (b) To empower Women Self Help Groups (SHGs) and their Cluster Level Federations (CLFs) promoted under Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) as drone service providers, since they have emerged as an effective grassroots level institution for collective interventions.
- (c) To provide business opportunities to Women SHGs and their CLFs promoted under DAY - NRLM to increase their income
- (d) To increase the opportunities for rural employment and financial inclusion
- (e) To encourage use of Nano-fertilizers and to optimize the use of pesticides and fertilizers

3.0 Strategy

3.1 To achieve the above objectives, the scheme will adopt the following broad strategies:

- (i) The scheme proposes holistic interventions by converging the resources of DA&FW, DoRD and DoF, Women SHGs promoted under DAY - NRLM and Lead Fertilizer Companies (LFCs).
- (ii) The implementation of the scheme hinges on rightful selection of the area/cluster and SHGs in Rural Areas under DAY - NRLM where there is demand for drone to provide agriculture services. Thus, demand from the farmers based on certain commitment on their part for drone services will be evaluated for selection of the area/cluster which will then become the basis for selection of SHGs.
- (iii) There will be a committee at the State level to effectively implement and monitor the scheme with members drawn from Department of Agriculture/Agricultural Engineering of the State, Rural Development, State Mission Directorate of DAY-NRLM, State Cooperative Department, Lead Banks/NABARD, representative not below the rank of State Manager of Lead Fertilizer Company nominated for the state, Indian Council of Agricultural Research (ICAR)/State Agricultural Universities (SAUs)/Krishi Vigyan Kendras (KVKs) in the State etc. The representatives of Central Departments of DA&FW, DoRD and DoF will also participate in the meetings of the committee. While Agriculture/ Rural Development Department of the State may be the nodal/ convener, as decided by the State Government, the Committee meetings may be chaired by the senior most officer.

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- (iv) The above committee shall be responsible for selection of appropriate clusters for drone usage, selection of the progressive women SHGs under DAY – NRLM in the States in the identified clusters for providing drones, selection of members of the women SHGs for drone pilot and drone assistant training, assessment of district-wise drone usage, identification of existing gap, availability and future requirements of drone usage, providing/ensuring business to selected Women SHGs in coordination with the LFCs and Pesticide companies etc.
- (v) One of the members of the selected women SHGs as per the criteria as indicated under para 8.2 will be selected for drone pilot training and additional training for nutrient and pesticide application for agriculture purpose.
- (vi) The other member/ family member of the same selected SHG under DAY – NRLM with inclination to take up repairs of electrical goods, fitting and mechanical works will be selected as per the broad criteria as indicated in para 8.3 and will be trained as drone assistant.
- (vii) Financial assistance and loan for purchase of drones will be provided to these selected SHGs/CLF of SHGs under DAY – NRLM (Refer para 6.0).
- (viii) The LFCs accountable for the States will be responsible for procurement of drones as per the guidelines which will be issued by DA&FW separately. The LFCs will ensure that the process of procurement is fair and transparent in accordance with relevant General Financial Rules (GFRs).
- (ix) Considering the difficulties which SHGs and their CLF under DAY – NRLM may face in acquiring the drones, repair and maintenance of drones through drone companies, the LFCs will act as a bridge between drone manufacturing companies and CLFs/SHGs. LFCs will procure drones from the drone manufacturers and place the ownership of drones with CLFs/SHGs through Memorandum of Understanding (MoU) with CLF/SHGs concerned.
- (x) The LFCs will also sign MoU with the drone supplier company for their repair and maintenance. The drones will be supplied with warranty and comprehensive insurance for one year. The drone package will also have Annual Maintenance Contract (AMC) for subsequent 2 years.
- (xi) LFCs will also promote use of Nano Fertilizers by the drones with CLFs/SHGs. CLFs/SHGs will rent out the drone services to the farmers for Nano fertilizer, pesticide and other liquid fertilizer application and will earn additional income for the SHGs.

4.0 Implementation Period and Budgetary Support

- (a) The Scheme will be operational from 2024-25 to 2025-26.
- (b) Budgetary provisions will be made for extending financial assistance to CLFs/SHGs registered under DAY – NRLM for purchase of drone and accessories/ancillary charges as indicated in **Annexure-II**.
- (c) The amount of AIF loan and interest subvention thereon will be met from sanctioned budget of AIF.
- (d) Contingency fund to meet unforeseen expenses will be available at the disposal of Empowered Committee (EC).
- (e) 1% of the annual outlay of the scheme will be used as administrative expenses towards implementation and monitoring of the scheme.

5.0 Scheme Execution

5.1 Empowered Committee (EC)

Empowered Committee (EC) will have the following composition

- (a) Secretary, Department of Agriculture and Farmers Welfare (DA&FW)
 - (b) Secretary, Department of Fertilizers (DoF)
 - (c) Secretary, Department of Rural Development (DoRD)
 - (d) Secretary, Ministry of Civil Aviation
 - (e) Secretary, Ministry of Women and Child Development
- (i) DA&FW will be the convener of the meetings of EC
 - (ii) EC will have all the powers to decide/modify scheme design during course of scheme implementation subject to overall scheme outlay being within the amount approved by EFC/CCEA.
 - (iii) EC will be the formulation body giving overall direction and guidance to scheme, monitor and review its progress and performance.
 - (iv) Contingency fund will be available at the disposal of EC to meet unforeseen expenses and the items of expenditure covered under Contingency Fund will be decided by the EC.
 - (v) EC will meet as frequently as possible as per requirements and at least once in three months.
 - (vi) EC may co-opt any other technical experts to support in decision making on the matters of technical nature.

5.2 Implementation & Monitoring Committee (IMC)

5.2.1 The scheme will have a strong technical component and domain experts will be salient to the management of the scheme. The composition of the Implementation & Monitoring Committee (IMC) will be as under:

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- (a) Additional Secretary, Rural Livelihoods, DoRD – Chair
- (b) Joint Secretary (M&T Division), DA&FW – Member convener
- (c) Joint Secretary, Department of Fertilizers – Member
- (d) Joint Secretary, Ministry of Civil Aviation – Member
- (e) Joint Secretary, Women and Child Development – Member
- (f) Joint Secretary, Department of Rural Development (Rural Livelihoods)– Member
- (g) Assistant Director General (Extension) & (Farm Engineering), ICAR- Member
- (h) President, Drone Federation of India – Member
- (i) Domain experts to be nominated from ICAR, SAUs, RPTOs, State Agriculture Departments, Lead Fertilizer Companies – Expert members

5.2.2 The IMC will have the following functions:

- (a) Effective planning, implementation and monitoring of the scheme.
- (b) Provide overall advice and guidance to all technical matters related to the implementation of the scheme.
- (c) Review and advise on drone specification, selection of SHGs, drone pilot training and assistant training syllabus, drone pilot and assistant training locations etc.
- (d) Provide necessary inputs to the EC for decision making.

5.3 State Level Committee

(i) The suggested structure of the committee is as under:

- (a) Principal Secretary/Secretary/Director (Agriculture)/Director (Agril. Engg.) of the Department of Agriculture
- (b) State Mission Director (SMD) of DAY-NRLM
- (c) Representative of the State Cooperative Department
- (d) Representatives of Lead Banks/NABARD
- (e) Representative not below the rank of State Manager of Lead Fertilizer Company nominated for the state
- (f) Representatives of the ICAR/SAUs/KVKs in the State

(ii) The representatives of Central Departments of DA&FW, DoRD and DoF will also participate in the meetings of the committee. While Agriculture/ Rural Development Department of the State may be the nodal/ convener, as decided by the State Government, the Committee meetings may be chaired by the senior most officer.

(iii) The committee will be responsible for selection of appropriate clusters for drone usage, selection of the progressive CLFs and women SHGs under DAY – NRLM in the States in the identified clusters for providing drones, selection of members of the women SHGs for drone pilot and

drone assistant training, assessment of district-wise drone usage, identification of existing gap, availability and future requirements of drone usage, providing/ensuring business to selected Women SHGs in coordination with the LFCs and Pesticide companies etc.

(iv) The District Level Committee through the District Administration will make sure that rent charged by the CLF/SHGs for drone services shall be less than the prevailing market rate.

(v) The administrative & monitoring funds as may be decided by the Empowered Committee will be provided to the States and LFCs to cover the expenditure on their PMUs, if established and for meeting other related administrative expenses including cost to be incurred for procurement of stationary, field verification, filling of prescribed formats, their verification and its uploading on the drone portal as well as incentive for field functionaries, publicity, etc. The expenditure towards this may be met from the Contingency fund available at the disposal of Empowered Committee (EC).

5.4 Drone Portal

- (a) Effective monitoring will be through an IT based Management Information System (MIS).
- (b) It will act as end-to-end software for service delivery and monitoring.
- (c) Fund flow and disbursement of funds will be done through this portal.
- (d) The portal will track operations of each drone and provide live information on drone usage.
- (e) The portal will have integration with the AIF portal.
- (f) The portal will also be embedded with DAY-NRLM MIS.

5.5 Roles and Responsibilities of the Stakeholders

5.5.1 Department of Rural Development – DAY- NRLM

- (a) Identify appropriate clusters in the States where usage of Drones is economically feasible. It will select progressive CLF in the identified clusters in close coordination with State Rural Livelihood Mission (SRLM) and the State Level Committee.
- (b) Identify Drone Didi/SHG Members to be trained as drone pilots in consultation with SRLM and State Level Committee and finalize the list of Drone Didi/SHGs member/family member for drone pilot and assistant training.
- (c) Ensure that LFCs tie up their training with the drone manufacturers and get them trained.
- (d) Implement and monitor the scheme at ground level with the help of State/District units of SRLM.

- (e) Evaluate the performance of CLFs/SHGs where the drones will be provided.

5.5.2 Department of Agriculture & Farmers Welfare (DA&FW)

- (a) Make budget provisions for the scheme and release funds to the Central Nodal Agency in compliance with the guidelines for release of funds under the Central Sector Schemes.
- (b) Put in place the framework of scheme and provide scheme Operational Guidelines.
- (c) Develop IT based Management Information System (MIS) which will act as end-to-end software for service delivery and monitoring and also allow tracking of operations of each drone.
- (d) Provide course content to Remote Pilot Training Organization (RPTOs) for 15 day training comprising of 10 day mandatory drone pilot training and additional 5 days training for nutrient and pesticide application for agriculture purpose for medium class drones and 7 day mandatory drone pilot training and additional 8 days training on small class drones for agriculture purpose.
- (e) Through Implementation & Monitoring Committee, shall oversee and monitor the activities under the scheme including identification of training organizations, designing and approving of the training specifications, drone specification and terms and conditions for procurement of drones from drone manufacturers.
- (f) Facilitate CLFs/SHGs for acquiring the AIF Loan.
- (g) Provide necessary Standard Operating Procedures (SOPs) for application of drones in vernacular languages.
- (h) Awareness generation through extension services of KVKs, Agricultural Technology Management Agency (ATMA).
- (i) Convene meeting with pesticide and fertilizer companies for making optimal use of drones.

5.5.3 Department of Fertilizer/Lead Fertilizer Companies:

- (a) Department of Fertilizers (DoF) shall nominate one of the Public Sector fertilizer company as Central Nodal Agency (CNA) for implementing the Scheme.
- (b) CNA will be fund routing agency for implementation of the scheme in collaboration with implementing agencies (LFCs) and CLF of SHGs/SHGs.
- (c) LFCs identified by DoF shall be the implementing agencies which will work in close coordination with the CNA, CLF, drone manufacturers and selected SHG members. The State-wise list of LFCs is given in **Annexure-I**.

- (d) The LFCs accountable for the States will be responsible for procurement of drones as per the guidelines which will be issued by DA&FW separately. The LFCs will ensure that the process of procurement is fair and transparent in accordance with relevant General Financial Rules (GFRs).
- (e) Considering the difficulties which SHGs may face in procuring the drones, repair and maintenance of drones through drone companies, the LFCs will act as a bridge between drone supplier companies and CLF of SHGs.
- (f) The LFCs will procure the drones and will sign a Memorandum of Understanding (MoU) with Drone Manufacturer companies for their operations and maintenance. The LFCs will also sign a MoU with Cluster Level Federation (CLF) of the SHGs/SHGs concerned for the same. The drone will be owned by CLF/SHGs and the SHGs will operate the drone for providing services.
- (g) LFCs shall also promote use of Nano fertilizers by the drones with CLFs at mutually agreed rates. LFCs will provide business to CLFs for spraying of Nano fertilizers through drones.
- (h) LFCs shall facilitate training and awareness of SHGs/Farmers.

5.5.4 Ministry of Civil Aviation(MoCA) & Department of Women & Child Development (D/o W&CD)

- a. MoCA will advice on conducive drone policy ecosystem to support the implementation of the scheme. It will also advice on matters related to Drone Rules, technical specification of drones, testing & Type certification of drones and training of drone pilots.
- b. D/o W&CD will advice on promoting social and economic empowerment of women SHGs through cross-cutting policies and programmers, mainstreaming gender concerns, creating awareness about their rights and facilitating institutional and legislative support for enabling them to realize their human rights and develop themselves to their full potential.

5.5.5 Cluster Level Federations (CLF)/SHGs under DAY - NRLM

- (a) Acquire loan from AIF/other sources for purchase of drones and will place it with the LFC concerned.
- (b) Manage operation of the Drones.
- (c) Acquire business for the drone services.
- (d) Fix rates for drone services based on market forces.
- (e) Maintain the drones in working conditions.
- (f) Repay the principle and interest of the acquired loan.

- (g) Create awareness among farmers and SHG members on usage of drones.
- (h) Develop plans for making drones services economically viable.
- (i) Monitor the drone business regularly through Livelihood Sub-Committees.
- (j) Maintain records of drone operations.
- (k) Update information on the drone portal regularly.
- (l) Ensure through the suitable agreement that the trained members/family members of the SHGs as drone pilot and drone assistant do not leave the SHG in a period less than 18 months after the completion of training.

6.0 Pattern of Financial Assistance

- (a) Central Financial Assistance @ 80% of the cost of drone package up to a maximum of Rs. 8.00 lakhs will be provided to the women SHGs for purchase of drones including accessories/ancillary charges as indicated in **Annexure-II**.
- (b) Towards the remaining cost of drone, the CLFs/SHGs may avail loan under AIF with interest subvention of 3% per annum. This subvention will be available for a maximum period of 7 years. The expenditure on amount of AIF loan and interest subvention thereon will be met from the sanctioned budget of AIF. The CLFs/SHGs, shall also have the option to access loans from other sources/programmes/schemes of Ministry of Rural Development.

7.0 Drone Pilot and Drone Assistant Training:

- (i) One of the members of the women SHGs promoted under DAY-NRLM who is well qualified, 18 and above years of age, mentally and physically fit will be selected by the State Level Committee for mandatory drone pilot training and additional training for agriculture purpose for nutrient and pesticide application. (Broad criteria for selection of SHG member for Drone Pilot training is indicated in para 8.2).
- (ii) The other member/ family member of the same SHG with inclination to take up repairs of electrical goods, fitting and mechanical works will be selected by the State Level Committee who will be trained as drone assistant. (Broad criteria for selection of SHG member for Drone Assistant training is indicated in para 8.3). The Drone Assistant will not be eligible to fly drone.
- (iii) These trainings shall be provided as a package (along with the supply of drones) and shall be conducted at Remote Pilot Training Organization (RPTO) approved by Directorate General of Civil

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Aviation (DGCA). The drone manufacturers shall tie up with the RPTOs for these trainings.

- (iv) The type of training i.e. for Small and Medium Class drones will depend on the drones that will be supplied by the manufacturers/purchased by the CLFs.
- (v) The training shall cover drone flying, understanding provisions of Drone Rules, SOPs for nutrient and pesticide application, drone flying practice and minor repair and maintenance of Drones.
- (vi) The training for agriculture purpose shall be conducted by a team consisting of drone manufacturers, experts from Central/State Institutes like SAUs, KVKs, ICAR institutes etc. Both the parts of the training will be preferably conducted in continuation and will be at the same venue. However, flexibility may also be available depending on the circumstances for completing the training and it shall not be necessary to complete the training in one go.
- (vii) All activities of training shall be undertaken and monitored through the drone portal.
- (viii) The training syllabus for medium class drone (10+5 days) and small class drone (7+8 days) is given in **Annexure-III (A)** and **Annexure - III (B)** respectively. The Training Syllabus for Drone Assistant Training is at **Annexure-IV**.

8.0 Criteria for Selection of Clusters, Drone Didi for Drone Pilot Training and Member of SHGs for Training as Drone Assistant.

8.1 Criteria for Selection of Clusters:

- (i) Application of drones in agriculture is feasible in mono crop on a large area. The State Level Committee will identify the clusters with similar commercial crops. Following are the suggested broad criteria for identification of clusters.
 - (a) Cluster of 10-15 villages / Gram Panchayats.
 - (b) Contiguous area of 1000 – 1200 Ha under crops like Cotton, Paddy, Sugarcane, Chillies, Wheat, Orchards, Plantations etc.
 - (c) Clusters where Custom Hiring Centres are running successfully.
 - (d) Clusters with large FPO.
 - (e) Clusters with Large Irrigated area.
 - (f) Clusters with more fertilizer and pesticide consumption.
- (ii) Enterprising CLFs in the Clusters selected as per above criteria will be identified by the State Level Committee and shall be finalized by DAY-NRLM. The State Level Committee will also identify the

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progressive SHGs from the identified CLFs in the States for providing drones.

8.2 **Criteria for Selection of Drone Didi/ SHG member under DAY - NRLM for Drone Pilot Training**

- (i) CLFs/State Level Committee will identify one of the active SHG member as drone pilot.
- (ii) She must not be less than 18 years of age and not more than 50 years.
- (iii) She must have minimum qualification of Class 10th pass.
- (iv) She should be mentally and physically fit and should be willing to undergo training for drone pilot from the DGCA recognized RPTOs.
- (v) After undergoing the Remote Pilot Training and obtaining the Remote Pilot Certificate she will be called as 'Drone Didi'.

8.3 **Criteria for Selection Member of SHGs for Training as Drone Assistant**

- (i) SHG members/ family members (son/husband/daughter) with inclination to take up repairs of electrical goods, fitting and mechanical works may be identified for undergoing training as Drone Assistant.
- (ii) He/She should be minimum 10th class pass.
- (iii) He/She should be at least 18 years of age and not more than 50 years.
- (iv) He/She should be mentally and physically fit and should be willing to undergo training at the authorized institute.

9.0 **Process and Fund Flow Mechanism**

- (a) The State Level Committee will identify the appropriate clusters where usage of Drones is economically feasible.
- (b) The State Level Committee will identify the progressive CLFs in the States in the identified clusters for providing drones.
- (c) The State Level Committee will also identify the progressive SHGs from the identified CLFs in the States for providing drones.
- (d) The identified list of CLFs and SHGs will be finalized by DAY-NRLM and after the approval of Implementation and Monitoring Committee and ratification by EC, the same will be provided to the LFCs. The LFCs will thereafter upload the list with relevant details on the Drone Portal.
- (e) The LFCs accountable for the States will be responsible for procurement of drones as a package as indicated in **Annexure-II**. The procurement guidelines will be issued separately by the DA&FW. The LFCs will ensure that the process of procurement is fair and

transparent in accordance with relevant General Financial Rules (GFRs).

- (f) The LFC will finalize the drone manufacturers for supply of drones and publish the names of manufacturers together with the cost of drone as a package in public domain and also upload the details on drone portal.
- (g) LFC in consultation with the CLF/SHG will select the class of drone to be procured from the selected manufacturers and will place the order with him for supply of drones as a package.
- (h) Based on price discovery, the LFC will inform the CLF/SHG about the applicable subsidy and advice the CLFs/SHGs to procure loan for balance amount from AIF or from any other sources/programmes/schemes. LFCs will assist the CLF/SHGs in procuring loan.
- (i) The loan procured by the CLF/SHGs will be transferred to the account of the LFC mapped under the scheme.
- (j) Physical verification of the drone supply as a package shall be done by LFC in coordination with the State Level Committee and will upload the relevant information on the drone portal.
- (k) On the recommendations of the Implementation and Monitoring Committee and sanction order released by DA&FW, funds will be placed by the Central Nodal Agency into the account of LFC mapped under the scheme.
- (l) On completion and verification of the drone supply as a package, LFC will make the final payment to the selected drone manufacturer within 7 days.

10.0 Project Management Unit (PMU)

DA&FW shall appoint a Project Management Unit (PMU) for effective monitoring and management of the scheme. The responsibilities of PMU include:

- (a) Assist DA&FW in day to day implementation and monitoring of the scheme
- (b) Help in the implementation, monitoring and evaluation of various interventions in the Scheme and provide feedback reports to the DA&FW
- (c) Will identify implementation glitches and coordinate with LFCs, CNA, CLF/SHGs to identify the support needed.
- (d) Undertake publicity/information campaign to create awareness on the usage of drones, document and disseminate the success stories.
- (e) Visit the project implementing clusters regularly and frequently to provide guidance in organizational and technical matters.

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- (f) Assess state-wise drone usage, availability and existing gap and identify the future requirements
- (g) PMU will evaluate efficacy of this scheme on regular basis and will assess the performance, outcome and shortcomings of the Scheme and recommend suitable corrective measures.
- (h) Information and communication technology will be deployed extensively for ensuring transparency in the implementation process and effective monitoring of the Scheme.
- (i) Compile materials for capacity building, conduct and participate in the promotional events such as, workshops/seminars/ exhibitions on different subjects in different regions of the country.
- (j) Conduct evaluation based on performance indicators
- (k) Prepare the agenda for the Implementation & Monitoring Committee and EC meetings
- (l) Coordinate with DAY – NRLM and share the findings of their visits and suggest measures for improving the business

The composition of PMU and the Responsibilities of each resource in the PMU is indicated in **Annexure-V**. The services for the PMU shall be procured on the terms and conditions of the Manual for Procurement of Consultancy and other Services and in conformance with relevant Rules of GFR.

11.0 Scheme Monitoring

- (i) The Scheme envisages a coordinated approach for monitoring and evaluation with active involvement of PMU, implementing agencies, beneficiaries and other stakeholders.
- (ii) A combination of periodic desk review, field visits and web-based mechanism will be adopted for releasing funds, monitoring physical and financial progress and monitoring the progress of scheme interventions at National level by Mechanization and Technology Division (M&T) in the DA&FW.
- (iii) All LFCs will ensure that a report regarding utilization of funds and the physical and financial progress of the NAMO DRONE DIDI Scheme are submitted to DA&FW and DAY – NRLM regularly. The progress reports will also be uploaded on the Drone Portal regularly.
- (iv) Since this is a new scheme, midterm evaluation and end of scheme evaluation will be conducted by DA&FW, through a suitably chosen third party. The funds towards evaluation will be used from within administrative expenses earmarked in the scheme budget.
- (v) Quality checks of the drones shall be carried out by the Farm Machinery Training & Testing Institutes, ICAR Institutes and KVKs by way of checking the drones selected through random sampling.

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The expenditure towards the checking of drones through random sampling shall be met by the concerned drone manufacturer.

- (vi) Drone portal will have monitoring dashboard.

12.0 Compliance with Drone Rules issued by DGCA

- (a) The Drone should be DGCA approved as per the Drone rules, with Unique Identification Number (UIN) and should be registered on the Digital Sky platform under appropriate category of drones.
- (b) The drone models should have Type Certificate of Directorate General of Civil Aviation (DGCA)
- (c) All the drone operations are governed by 'Drone Rules' (as may be amended from time to time) published by Directorate General of Civil Aviation (DGCA), which shall be complied for all drone operations under the scheme.
- (d) Drone flying shall only be carried out by a person holding the Remote Pilot Certificate (RPC) issued by RPTO/Remote Pilot Licence issued by DGCA.

13.0 Other Conditions

- (a) Drones should be capable for application of Nano fertilizers and pesticides.
- (b) All the drones supplied under the scheme must have laser embossing on the canopy/ cowling of drones as "NAMO DRONE DIDI Scheme"
- (c) DA&FW has brought out generic Standard Operating Procedures (SOPs) for use of Drone application with pesticides for crop protection in agricultural, forestry, non-cropped areas, etc., SOPs for Drone Application in Spraying for Soil and Crop Nutrients, and SOPs for spraying of pesticides in 10 different crops, which shall be scrupulously followed for all drone applications. These SOPs are available at <https://farmech.gov.in>

14.0 Drone Transport

- (i) The daily transportation of the Drone to the farmland is an important aspect of scheme implementation.
- (ii) Under the Sub-Mission on Agricultural Mechanization (SMAM), financial assistance to individuals and groups for procurement of machines is available.
- (iii) Under the component of Farm Machinery Banks under SMAM, financial assistance @ 80% of the project cost is available. This may be availed by the SHGs for procuring multi-utility machines which may also be used for drone transport.
- (iv) The DA&FW shall make the enabling provisions under SMAM and States shall give preference to the SHGs identified under this scheme for purchase of Multi-utility machines

15.0 Expected Scheme Outcomes

The deployment of 15,000 drones by women self-help groups for spraying of pesticides and crop nutrients have several expected outcomes. Some of these outcomes include:

- (a) The scheme will provide an opportunity for engaging rural women and ensuring their continued participation in the mainstream agriculture by providing viable business opportunities for the small groups having limited capital. It will provide sustainable business and livelihood support to 15,000 SHGs and they would be able to earn additional income of ₹ 1.0 lakhs per annum.
- (b) The scheme will help infusing advanced technology in agriculture for improved efficiency, enhanced crop yield and reduced cost of operation for the benefit of farmers
- (c) Liquid Nano Urea has emerged as an alternative to conventional Urea and increased use of it will result in economic savings to the farmers, increased productivity and reduced India's dependence on urea imports. Spraying Nano Urea through drones has been found more effective on crops and also have a positive effect on productivity. 30 million acres of cropped area will be brought under drone application.
- (d) Increased Agricultural Productivity: The use of drones for spraying pesticides and crop nutrients can lead to an increase in agricultural productivity. Drones can spray in a more timely and precise manner, ensuring that the crops are protected from pests and have access to the nutrients they need to grow appropriately.
- (e) Higher Crop Yields: The use of drones can result in higher crop yields due to better pest control and the application of nutrients in a more even and accurate manner.
- (f) Reduced Crop Losses: The use of drones will help in reducing crop losses due to pests, diseases, and weather conditions.
- (g) Cost Savings: Drones can reduce the cost of pesticide and nutrient application by being more targeted and using less material.
- (h) Improved Environmental Sustainability: The use of drones can reduce the amount of pesticides and fertilizers that are applied to crops, leading to improved environmental sustainability.
- (i) Empowerment of Women: The deployment of drones can contribute to the empowerment of women by providing them with new skills and tools to participate actively in the agricultural sector.
- (j) Poverty Reduction: The use of drones by women self-help groups can contribute to poverty reduction by increasing productivity, generating additional income, and improving livelihoods.

- (k) **Reduced Health Risks:** The use of drones for spraying pesticides can reduce the health risks associated with manual pesticide application, which is often done by farmers and farmworkers.
- (l) The Scheme irrespective of being beneficiary oriented will be implemented at grass root level and the ultimate beneficiaries are women SHGs and farmers. Therefore, it will have a catalytic effect in creating both direct as well as indirect employment in the agriculture sector. As the operation of drones involves one drone pilot and one assistant, it will provide assured employment to 30,000 persons in the women SHGs.
- (m) **Innovative Agricultural Practices:** The deployment of drones can encourage innovative agricultural practices and contribute to the adoption of modern technologies in the agriculture sector.
- (n) The scheme has been formulated in such a way to promote various pillars of the Atmanirbhar Bharat Abhiyan in the agriculture sector. The scheme covers various aspects of agriculture through interventions in areas like domestic requirements. The scheme will promote domestic manufacturing of drones.

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

Annexure-I

State-wise Cooperatives/Public Sector Undertakings to function as Lead Fertilizer Companies (LFCs)

S. No.	State	Cooperatives/Public Sector Undertakings to function as Lead Fertilizer Companies (LFCs)
1	Andhra Pradesh	Indian Farmers Fertiliser Cooperative Limited (IFFCO)
2	Arunachal Pradesh	Brahmaputra Valley Fertilizer Corporation Limited (BVFCL)
3	Assam	Brahmaputra Valley Fertilizer Corporation Limited (BVFCL)
4	Bihar	Indian Farmers Fertiliser Cooperative Limited (IFFCO)
5	Dadra and Nagar Haveli and Daman and Diu	Rashtriya Chemicals and Fertilizers Limited (RCF)
6	Chhattisgarh	Krishak Bharati Cooperative Limited (KRIBHCO)
7	Goa	Rashtriya Chemicals and Fertilizers Limited (RCF)
8	Gujarat	Rashtriya Chemicals and Fertilizers Limited (RCF)
9	Haryana	Krishak Bharati Cooperative Limited (KRIBHCO)
10	Himachal Pradesh	National Fertilizers Limited (NFL)
11	Jammu & Kashmir	Indian Farmers Fertiliser Cooperative Limited (IFFCO)
12	Jharkhand	National Fertilizers Limited (NFL)
13	Karnataka	Rashtriya Chemicals and Fertilizers Limited (RCF)
14	Kerala	The Fertilisers And Chemicals Travancore Limited (FACT)
15	Madhya Pradesh	National Fertilizers Limited (NFL)
16	Maharashtra	Rashtriya Chemicals and Fertilizers Limited (RCF)
17	Meghalaya	Brahmaputra Valley Fertilizer Corporation Limited (BVFCL)
18	Mizoram	Brahmaputra Valley Fertilizer Corporation Limited (BVFCL)
19	Nagaland	Brahmaputra Valley Fertilizer Corporation Limited (BVFCL)
20	Odisha	Indian Farmers Fertiliser Cooperative Limited (IFFCO)
21	Punjab	National Fertilizers Limited (NFL)
22	Puducherry	Madras Fertilizers Limited (MFL)

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

23	Rajasthan	Indian Farmers Fertiliser Cooperative Limited (IFFCO)
24	Tamil Nadu	Madras Fertilizers Limited (MFL)
25	Telangana	Krishak Bharati Cooperative Limited (KRIBHCO)
26	Tripura	Brahmaputra Valley Fertilizer Corporation Limited (BVFCL)
27	Uttarakhand	Krishak Bharati Cooperative Limited (KRIBHCO)
28	Uttar Pradesh	Indian Farmers Fertiliser Cooperative Limited (IFFCO)
29	West Bengal	National Fertilizers Limited (NFL)

Drone and accessories/ancillary charges

S. No.	Suggested list of items/accessories and ancillaries in the Drone package	
A	Drone With Spraying Assembly, 1 Set Batteries, Downward Facing Camera, Dual Channel Fast Battery Charger, 2X Battery Charger Hub with 6 ports, Anemometer, pH meter and Drone Box with 1 year onsite warranty on all items	
B	Additional Items for Drones	
	1	04 Spare Battery sets
	2	01 Spare Propeller Set (Each set contains 6 Propellers)
	3	Petrol Portable Manual Generator (03 KVA)
	4	Centrifugal Nozzle with mounting attachment (Minimum 2 Nos.), Hollow Cone High Pressure Atomizing Nozzle (Minimum 4 Nos) and Flat Jet Spray Nozzle (Minimum 4 Nos.)
	5	Dual Channel Fast Battery Charger
	6	Battery Charger Hub with 6 ports
C	1. RPTO Training with Remote Pilot Certificate from DGCA plus additional flying training of agriculture drone to one member of women SHG. 2. Drone assistant training to other member/family member of SHG	
D	Annual Maintenance Contract (AMC) for 2 years after the expiry of warranty period	
E	Comprehensive Insurance for Drone	
F	Applicable GST	

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

Annexure-III (A)

Medium Class Drone Pilot Training Program (Minimum Fifteen Days) under NAMO DRONE DIDI Scheme

Part A (mandatory syllabus as per DGCA)

Ten days training to be imparted by DGCA approved RPTOs

Cat1 [VLOS]	Medium
Category	Rotorcraft
Limits	VLOS, <400 ft

Day No.	Topics	Sub-Topics	Duration (hours)
GROUND CLASS			
Day 01	Stakeholders & their laws [Basic] Drone Rules 2021	International Rules, Regulations, Standards & Practices	1:30
		Civil Aviation Requirements, AIPs, NOTAM	
		Classification & Categorization of drones	
		Type Certification of Drones	
		Registration, Sale & De-Registration of Drones	
		Operations of Drones	
		Do's and Don'ts	
		Remote Pilot Certificate	
	Basic principles of flight	Drone Insurance	1:00
		Fundamentals of flight	
		Aerodynamics	
		Take-off, flight, and landing	
	ATC procedures & Radio Telephony (non FRTOL)	Maneuvers, turns and circuit pattern	1:15
		Understanding ATC operations	
		Airspace structure and Airspace	
		Restrictions with knowledge of no drone zones	
		Flight regulations and procedures in Yellow Zone	
		RT Phraseology & Communicating with ATC including Position and Altitude Reporting	
Fixed-wing Operations and Aerodynamics	Flight Planning Procedures including Altimeter setting procedures	1:15	
	Collision avoidance		
	Radio Telephony (RT) techniques		
	Types of fixed wing drones, make, parts, terminology		
	Operation and maneuvers of fixed wing drones, Flight Performance		
Rotorcraft Operations and Aerodynamics	Intro to Mission Planning, Instrument Flying & Navigation (GCS)	1:30	
	Applications of fixed-wing UAVs		
	Pros and Cons of Fixed Wing Drones		
	Basic drone terminology & parts		
	Types of drones, material used and size of drones		
	Drone Anatomy: Different parts of drones		
	Avionics & C2 Link		
Hybrid Operations and	Intro to Mission Planning, Instrument Flying & Navigation (GCS)	0:30	
	Principles of Aerodynamics		
		Types of Hybrid Drones & Parts	

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

	Aerodynamics	Intro to Mission Planning, Instrument Flying & Navigation (GCS) Applications of Hybrid UAVs Comparison with Rotorcraft & Aeroplane	
			7:00
Day 02	Weather and Meteorology	The standard atmosphere	1:15
		Measuring air pressure	
		Heat and temperature	
		Wind	
		Moisture, cloud formation, icing and its effects	
		Effect of atmosphere on RPAS operation & hazardous weather avoidance	
		Met Terminal Aviation Routine Weather Report (METAR)	
	Drone Equipment Maintenance	Maintenance of drone, flight control box, ground station	1:30
		Maintenance of ground equipment, batteries and payloads	
		Scheduled servicing	
		Repair of equipment	
		Fault finding and rectification	
	Risk Assessment & Analysis – Safety Management / TEM	Drone Emergency & Handling	1:30
		Loss of C2-link	
		Fly-aways (Straying)	
		Loss of power	
		Other Emergencies	
		Control surface failures	
Human Performance & Pilot Incapacitation			
Payload, Installation and Utilization	Types of payloads - What to carry, what not to carry	1:15	
	Parts of payloads		
	Installation		
	Features of payloads		
	Utilization		
Intro to Drone Data & Analysis	Principles of Observation	1:30	
	Elements of Image & Video Interpretation		
	Introduction to Photogrammetry		
	Types of Image & Video Data		
	Analysis		
			7:00
Day 02	Final test - Theory	Written Test (Based on Type of Drone)	0:40
FLYING CLASS			
Day 03-10	Flight Simulator Training	Introduction to Flight Simulator	2:45
		Sim familiarization, Controls check	
		Pre-flight checks, Takeoff, Cruise	
		Approach, Go-around & Landing, Post-Flight Checks	
		Cruise and Turns, Climbing and Climbing Turns	
		Descend & Descending Turns	
		Disorientation & Recovery	
		Circuit Flying – Rectangle/ Square/ Circle/ Orbit, Flying –Figure of 8	
		Gimbal Controls (Pan, tilt & zoom)	
		Night Flying	
Abnormal / Emergency Procedures			
Flight Simulator Training	Simulator Test	0:15	
Basic Assembly & Maintenance	Assembling of drone	3:00	
	De-assembling		
	Integration of sub-sections/ modules		
	Integration of engine/ propulsion system		
	Fault finding and rectification		
Practical Flying with Instructor/ Solo Flying	Repair maintenance and documentation	6:10	
	Intro to Digital Sky platform		
	RPAS familiarization & Safety briefing		

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

		Introductory flight where the student experiences sensitivity of controls and learning the orientation of the RPA	
		Take-off, Climbing, descending and maintaining height	
		Basic Controls: Pitch, Roll and Yaw	
		Disorientation & Recovery	
		Progress Check-Multirotor	
		Level turns in both directions	
		Climbing and descending turns	
		Left and right square circuits patterns	
		Flying in circles	
		Flying in figure of 8	
		Mission Planning & Instrument Flying	
		Auto Mission & Flight	
		Night Flying	
		Abnormal/ Emergency procedures	
Day 10		Final Test-Multirotor	0:20

Note:

The ten days duration of the Training Program may be extended based upon the size of the batch, so that mandatory flying hours can be catered to adequately.

Part B (Suggestive syllabus)

Five days additional Kisan Drone Training to be imparted by Drone manufacturers (OEMs)

Day No	Topics	Sub-Topics	Duration (Hours)
Day 11-14	Flight Training -1 (Manual Mode)	Preflight check	2:00
		Basic control	
		Circuit flying	
		RTL	
		Flight modes	
		Manual geo fence	
		Manual spraying	
	Flight Training -2 (Automatic Mode)	Waypoint navigation	2:00
		Flight parameter setting	
		Auto take off	
		Autonomous mission Trails	
		Autonomous Geo fencing	
	Emergency handling	Spray setting	0:30
		Cloud sync	
		Emergency landing and functions	
Flight Test	Post emergency handling	0:30	
	Incident reporting		
Post-Flight Management & Logging	Manual/Auto/Emergency Handling Skill Check	2:00	
	Post Flight cleaning & Maintenance of Drones		
	Packaging, Transportation & Handling		
Battery / Engine Handling & Management	Flight Logging & Documentation	2:00	
	Battery Charging		
	Battery maintenance		
	Battery disposal techniques		
	Battery storage		
Maintenance, Repair & Overhaul	Engine maintenance (for engine operated drones)	4:00	
	Documentation/Log		
	Familiarization of assembly & maintenance tools		
Day 15	Maintenance, Repair & Overhaul	Introduction to periodic maintenance schedule and procedures	4:00
		Fault identification process	

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

		Cleaning of essential components	
		Payload swapping procedure	
		Battery, propeller, tank, landing gear replacement	
		Replacement of other essential components	
		Recalibration of drone & remote controller	
		Maintenance logging	
		Insurance Claim Process	
		Contacting Surveyor, Raising Claim etc.	
	Formulation, Management Training by Lead Fertilizer Company (LFC)	Details on various fertilizers, insecticides etc.	4:00
		Crop Specific SOP for agrochemicals	
		Fertilizer SOP	
		Crop-specific formulations, dosage, & crop-based applications	
		Non-target applications	

Note:

1. Minimum five hours flying (including manual & automatic flight training, emergency handling, flight test) is recommended **including 2 hours flying in the actual field.**
2. The duration of the Training Program may be extended based upon the size of the batch, so that subsequent increasing in flying hours can be catered to adequately.
3. The Flight training for Part-B syllabus must be provided only by DGCA-authorized Drone Instructors on type-certified Kisan drones.
4. Drone Operations must be conducted as per Drone Rules 2021 and subsequent amendments, and any other applicable regulations.

Annexure-III (B)

Small Class Drone Pilot Training Program (Minimum Fifteen Days) under NAMO DRONE DIDI Scheme

Part A (mandatory syllabus as per DGCA)

Seven days training to be imparted by DGCA approved RPTOs

Cat1 [VLOS]	Small
Category	Rotorcraft
Limits	VLOS, <400 ft

Day No.	Topics	Sub-Topics	Duration (hours)
GROUND CLASS			
Day 01	Stakeholders & their laws [Basic] Drone Rules 2021	International Rules, Regulations, Standards & Practices	1:30
		Civil Aviation Requirements, AIPs, NOTAM	
		Classification & Categorization of drones	
		Type Certification of Drones	
		Registration, Sale & De-Registration of Drones	
		Operations of Drones	
		Do's and Don'ts	
		Remote Pilot Certificate	
	Basic principles of flight	Fundamentals of flight	1:00
		Aerodynamics	
		Take-off, flight, and landing	
		Maneuvers, turns and circuit pattern	
	ATC procedures & Radio Telephony (non FRTOL)	Understanding ATC operations	1:15
		Airspace structure and Airspace	
		Restrictions with knowledge of no drone zones	
		Flight regulations and procedures in Yellow Zone	
		RT Phraseology & Communicating with ATC including Position and Altitude Reporting	
		Flight Planning Procedures including Altimeter setting procedures	
Fixed-wing Operations and Aerodynamics	Collision avoidance	1:15	
	Radio Telephony (RT) techniques		
	Types of fixed wing drones, make, parts, terminology		
	Operation and maneuvers of fixed wing drones, Flight Performance		
	Intro to Mission Planning, Instrument Flying & Navigation (GCS)		
Rotorcraft Operations and Aerodynamics	Applications of fixed-wing UAVs	1:30	
	Pros and Cons of Fixed Wing Drones		
	Basic drone terminology & parts		
	Types of drones, material used and size of drones		
	Drone Anatomy: Different parts of drones		
	Avionics & C2 Link		
	Intro to Mission Planning, Instrument Flying & Navigation (GCS)		
Applications and operations of Multirotor, Flight Performance			
Hybrid Operations and Aerodynamics	Pros and Cons of Rotorcraft Drones	0:30	
	Principles of Aerodynamics		
	Types of Hybrid Drones & Parts		
		Intro to Mission Planning, Instrument Flying & Navigation (GCS)	

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

		Applications of Hybrid UAVs	
		Comparison with Rotorcraft & Aeroplane	
			7:00
Day 02	Weather and Meteorology	The standard atmosphere	1:15
		Measuring air pressure	
		Heat and temperature	
		Wind	
		Moisture, cloud formation, icing and its effects	
		Effect of atmosphere on RPAS operation & hazardous weather avoidance	
		Met Terminal Aviation Routine Weather Report (METAR)	
	Drone Equipment Maintenance	Maintenance of drone, flight control box, ground station	1:30
		Maintenance of ground equipment, batteries and payloads	
		Scheduled servicing	
		Repair of equipment	
		Fault finding and rectification	
	Risk Assessment & Analysis – Safety Management / TEM	Drone Emergency & Handling	1:30
		Loss of C2-link	
		Fly-aways (Straying)	
		Loss of power	
		Other Emergencies	
		Control surface failures	
		Human Performance & Pilot Incapacitation	
	Fail-Safe Features		
Payload, Installation and Utilization	Types of payloads - What to carry, what not to carry	1:15	
	Parts of payloads		
	Installation		
	Features of payloads		
Intro to Drone Data & Analysis	Utilization	1:30	
	Principles of Observation		
	Elements of Image & Video Interpretation		
	Introduction to Photogrammetry		
	Types of Image & Video Data		
		Analysis	
			7:00
Day 02	Final test - Theory	Written Test (Based on Type of Drone)	0:40
FLYING CLASS			
Day 03-07	Flight Simulator Training	Introduction to Flight Simulator	2:45
		Sim familiarization, Controls check	
		Pre-flight checks, Takeoff, Cruise	
		Approach, Go-around & Landing, Post-Flight Checks	
		Cruise and Turns, Climbing and Climbing Turns	
		Descend & Descending Turns	
		Disorientation & Recovery	
		Circuit Flying – Rectangle/ Square/ Circle/ Orbit, Flying – Figure of 8	
		Gimbal Controls (Pan, tilt & zoom)	
		Night Flying	
	Abnormal / Emergency Procedures		
	Flight Simulator Training	Simulator Test	0:15
	Basic Assembly & Maintenance	Assembling of drone	3:00
		De-assembling	
Integration of sub-sections/ modules			
Integration of engine/ propulsion system			
Fault finding and rectification			
Repair maintenance and documentation			
Practical Flying with Instructor/ Solo Flying	Intro to Digital Sky platform	4:10	
	RPAS familiarization & Safety briefing		

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

		Introductory flight where the student experiences sensitivity of controls and learning the orientation of the RPA	
		Take-off, Climbing, descending and maintaining height	
		Basic Controls: Pitch, Roll and Yaw	
		Disorientation & Recovery	
		Progress Check-Multirotor	
		Level turns in both directions	
		Climbing and descending turns	
		Left and right square circuits patterns	
		Flying in circles	
		Flying in figure of 8	
		Mission Planning & Instrument Flying	
		Auto Mission & Flight	
		Night Flying	
		Abnormal/ Emergency procedures	
Day 07		Final Test-Multirotor	0:20

Note:

The seven days duration of the Training Program may be extended based upon the size of the batch, so that mandatory flying hours can be catered to adequately.

Part B (Suggestive syllabus)

Eight days additional Kisan Drone Training to be imparted by Drone manufacturers (OEMs)

DayNo	Topics	Sub-Topics	Duration (Hours)
Day 08	Drone Rules 2021 Refresher Training	Recap of latest Rules & circulars by MoCA & DGCA Drone insurance & coverage	2:30
	Drone Anatomy	Kisan Drone Types Kisan Drone Parts & Detailed Functioning Spray Tank Functioning & Balancing Kisan Drone Payloads Kisan Drone Familiarization (Practical)	2:30
Day 09	Nozzle Selection	Types of nozzles, selection and use Droplet measurement Nozzle calibration	2:00
	Kisan Drone Operations	Kisan Drone SOP by Ministry of Agriculture & Farmer Welfare Drone Parameters – Altitude, speed, obstacles Spray Parameters – Spray volume, rate, swath Agrochemical Parameters – Concentration, dosage, handling, etc. Environmental Parameters – Time, wind, weather Operational Parameters – Canopy, crop stage, etc.	3:30
Day 09	GCS Software & Pre-flight Inspection	Installation & activation Drone & remote-control connection procedure Remote control calibration Drone calibration Spray system calibration Camera settings Flight modes and settings Projects & data management Mission planning functionality + practical Geo-fencing Field plotting Pre-flight inspection of drone Payload filling Video and image capturing mechanism	3:30
	Flight Training -1	Preflight check	2:00

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

Day 10 -14	(Manual Mode)	Basic control	
		Circuit flying	
		RTL	
		Flight modes	
		Manual geo fence	
		Manual spraying	
		Waypoint navigation	
	Flight Training -2 (Automatic Mode)	Flight parameter setting	
		Auto take off	
		Autonomous mission Trails	
		Autonomous Geo fencing	
		Spray setting	
	Emergency handling	Cloud sync	
		Emergency landing and functions	
		Post emergency handling	
Flight Test	Incident reporting		
	Manual/Auto/Emergency Handling Skill Check		
Post-Flight Management & Logging			
	Post Flight cleaning & Maintenance of Drones		
	Packaging, Transportation & Handling		
Battery / Engine Handling & Management	Flight Logging & Documentation		
	Battery Charging		
	Battery maintenance		
	Battery disposal techniques		
	Battery storage		
	Engine maintenance (for engine operated drones)		
Documentation/Log			
Day 15	Maintenance, Repair & Overhaul	Familiarization of assembly & maintenance tools	
		Introduction to periodic maintenance schedule and procedures	
		Fault identification process	
		Cleaning of essential components	
		Payload swapping procedure	
		Battery, propeller, tank, landing gear replacement	
		Replacement of other essential components	
		Recalibration of drone & remote controller	
		Maintenance logging	
		Insurance Claim Process	
	Contacting Surveyor, Raising Claim etc.		
	Formulation, Management Training by Lead Fertilizer Company (LFC)	Details on various fertilizers, insecticides etc.	
		Crop Specific SOP for agrochemicals	
		Fertilizer SOP	
Crop-specific formulations, dosage, & crop-based applications			
	Non-target applications		

Note:

1. Minimum five hours flying (including manual & automatic flight training, emergency handling, flight test) is recommended **including 2 hours flying in the actual field.**
2. The duration of the Training Program may be extended based upon the size of the batch, so that subsequent increasing in flying hours can be catered to adequately.
3. The Flight training for Part-B syllabus must be provided only by DGCA-certified Drone Instructors on type-certified Kisan drones.
4. Drone Operations must be conducted as per Drone Rules 2021 and subsequent amendments, and any other applicable regulations.

Annexure-IV

**Five Days Drone Assistant Training Program
(To be imparted by Drone manufacturers (OEMs))**

Day No.	Topics	Sub-Topics	Duration (hours)
Day 01	Drone Rules 2021	Classification & Categorization of drones	1:00
		Type Certification of Drones	
		Operations of Drones	
		Do's and Don'ts	
	Basic principles of flight	Fundamentals of flight	2:00
		Aerodynamics	
		Take-off, flight, and landing	
		Maneuvers, turns and circuit pattern	
	Drone Anatomy	Drone Parts	2:00
		Critical Agri Drone Payloads	
		OEM Drone Familiarisation	
		Nozzle Selection	
	Basic Assembly & Maintenance	Assembling of drone	2:00
		De-assembling	
		Integration of sub-sections / modules	
		Integration of engine/ propulsion system	
Fault finding and rectification			
	Repair maintenance and documentation		

Day 02	Agri Drone Operation	Key Parameters for Drone Operations	3:30
		Time of Operations	
		Wind speed & Direction	
		Weather Condition	
		Flight Altitude & Speed	
		Spray Volume & Application Rate	
		Crop Canopy Volume/ Growth Stage	
		Pesticide Concentration & Dosage	
		Swath Overlap & Coverage	
		Operational Checklist	
	Drone Flight Logging		
	Detailed SOPs by Ministry of Agriculture and Farmers Welfare	Operational Dos & Donts	3:30
		Pre application of Agrochemicals	
		While applying of Agrochemicals	
After Spray Operations			
	Drone Calibration		
	Drift Management		
	Fertilizer SOP		

Day 03	Risk Assessment & Analysis – Safety Management / TEM	Drone Emergency & Handling	1:30
		Loss of C2-link	
		Fly-aways (Straying)	
		Loss of power	
		Other Emergencies	
		Control surface failures	
		Human Performance & Pilot Incapacitation	
Fail-Safe Features			

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Day 03	Payload, Installation and Utilization	Types of payloads - What to carry, what not to carry	1:30
		Parts of payloads	
		Installation	
		Features of payloads	
		Utilization	
	GCS Software Familiarisation	License Key activation	2:00
		Projects	
		Flight planning	
		Auto and manual	
		Field plotting	
		Drone Connecting procedure	
		Spraying system	
		RC calibration	
		Camera setting	
		Calibration	
		Flight safety	
		Geo fencing	
	Cloud sync		
Mission planning functionality			
Field report			
Post-Flight Management & Logging	Post Flight cleaning & Maintenance of Drones	2.00	
	Packaging, Transportation & Handling		
	Flight Logging & Documentation		

Day 04	Assist Drone Pilot in minor maintenance	Drone handling	4:00
		Safety procedures	
		Storage	
		Payload filling procedure	
		Payload component maintenance	
		Payload swapping procedure	
		Drone RC connection procedure	
		RC controls	
		RC calibration	
		Emergency procedures	
		Assembly and maintenance tools	
		System overall maintenance	
		Scheduled servicing	
		Maintenance of flight control box, ground station, payloads	
		Fault finding and rectification	
	Maintenance log		
	Battery Handling & Management	Battery Charging	3:00
Battery maintenance			
Battery disposal techniques			
Battery storage			
Documentation/ Log			

Day 05	Training by Lead Fertilizer Company (LFC)	Details on various fertilizers, insecticides etc.	7:00
		Crop-specific Formulations and use on various crops etc.	
		Insurance Claim Process	
		Contacting Surveyor, Raising Claim etc.	
		Agrochemical parameters - Concentration, dosage	
		Operational parameters - Canopy, crop stage, Non-target applications	
		Crop Specific SOP for agrochemicals	
		Fertilizer SOP	

Annexure-V

Composition of the Project Monitoring Unit (PMU), Educational Qualification, Experience and Job Description

S. No	PMU Team	Experience Level	Job Description
1	Project Manager/Team Lead (01 No.)	<ul style="list-style-type: none"> · B Tech in IT /Computer Science & MBA / equivalent · More than 10 years of work experience with at least 05 years of work experience in Government Consulting · At least 5 years of experience in working in Project Management Units in Centre/State/ Public Sector Units · Demonstrable experience in requirements management, BPR and change management. · Experience in Agriculture is Desirable 	<ul style="list-style-type: none"> · Assist DA&FW in Day-to-Day Implementation of Scheme · Monitoring the Progress of the Scheme · Evaluate the efficiency, Performance outcome and shortcomings of the Scheme and recommend suitable corrective measures. · Frequently Visiting the Identified clusters & SHGs to evaluate the progress & monitoring of the Scheme. · Developing Strategy to create the Business Continuity plan for the accruing new business for Agriculture spray. · Assess state-wise drone usage, availability and existing gap and identify the future requirements. · Reviewing the deliverables of the Team. · Prepare the implementation plans for other activities of the Division. · Prepare plan for field visits by the Team. · Overall responsibility to ensure effective and efficient team working. · Set Weekly and monthly targets in keeping in view the long term and short-term goals of the Division.

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S. No	PMU Team	Experience Level	Job Description
			<ul style="list-style-type: none"> · Prepare and present periodic progress to authorities. · Responsible for program performance management, Quality control, program delivery · Policy review, Inter-department PMU and stakeholder coordination · Presentation and Knowledge management
2	Consultant - (Emerging Technologies) (01 No.)	<ul style="list-style-type: none"> · B Tech and MBA with 5 years relevant experience in Data Analytics/AI & ML /Emerging Technologies (Robotics) 	<ul style="list-style-type: none"> · Monitoring the State wise drone usage · Prepare the periodic report (Monthly & Weekly) on Drone Usage · Creating the Data Bank of the various reports of the division · Developing Insight reports on the data specific to the Division
3	IT Consultant (01 No.)	<ul style="list-style-type: none"> · B Tech IT & MBA with 5 years Experience in handling Software applications 	<ul style="list-style-type: none"> · Development of Process flow · Quality control of the program · Review the Test cases prepared by the System integrator. · Conduct the UAT testing of the Drone portal. · Prepare the approach notes for new requirements on Drone Portal. · Co-ordinate with the system integrator & monitor the progress of the portal. · Monitoring the Progress of the Scheme · Evaluate the efficiency, Performance outcome and shortcomings of the Scheme and recommend suitable corrective measures. · Frequently Visiting the Identified clusters & SHGs

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

S. No	PMU Team	Experience Level	Job Description
			<p>to evaluate the progress & monitoring of the Scheme.</p> <ul style="list-style-type: none"> · Preparing the requirement documents, approach notes for new IT initiatives of the Division.
4	Consultant – Farm Mechanization (01 No.)	<ul style="list-style-type: none"> · B Tech Agriculture & MBA with 5 years Experience in Farm Mechanization 	<ul style="list-style-type: none"> · Provide technical guidance on matters related to interventions proposed in the scheme. · Develop standardized formats of action plans. · Assist DA&FW in planning, formulation of action plans, whenever required. · Assist senior officers in synchronizing and synergizing with other divisions of DA&FW, State Governments, State Agriculture Universities, ICAR research institutions and other stake holders on technical front. · Analyze the data received from various States and to come up with suggestions wherever improvements are required in the execution of the activities
5	IEC/ Marketing, Branding & Communication Expert (01 No.)	<ul style="list-style-type: none"> · MBA Marketing or Equivalent with 6 years of experience · Experience in Agribusiness is desirable 	<ul style="list-style-type: none"> · Prepare the Marketing & Branding Strategies for the Scheme · Prepare the promotional material for the various initiatives of the Division. · Prepare the plans for various workshops, conferences & Roadshows etc. for the promotion of the Schemes. · Prepare communications plans & materials for the various workshops, conferences & roadshows.

CENTRAL SECTOR SCHEME - NAMO DRONE DIDI

S. No	PMU Team	Experience Level	Job Description
			<ul style="list-style-type: none"> · Prepare the news feeds for the social media platforms. · Development of knowledge materials, case studies, learning documents, progress reports and presentations
6	Data Analyst (01 No.)	<ul style="list-style-type: none"> · M Tech/MCA/BE/B Tech/MBA with relevant experience in data analysis, AI & ML etc. 	<ul style="list-style-type: none"> · Creating the Data Bank of the various reports of the division and its analysis · Developing Insight reports on the data specific to the Division · Prepare various analytical reports