

**Operational Guidelines**  
**of**  
**Per Drop More Crop**



**2024**

**Government of India**  
**Ministry of Agriculture & Farmers Welfare**  
**Department of Agriculture & Farmers Welfare**

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## Abbreviations

<b>AC&amp;FW</b>	Agriculture Cooperation & Farmers Welfare
<b>AIBP</b>	Accelerated Irrigation Benefit Programme
<b>ATMA</b>	Agriculture Technology Management Agency
<b>BIS</b>	Bureau of Indian Standards
<b>CIPET</b>	Central Institute of Plastics Engineering and Technology
<b>CST</b>	Central Sales Tax
<b>DAC&amp;FW</b>	Department of Agriculture, Cooperation & Farmers Welfare
<b>DBT</b>	Direct Benefit Transfer
<b>DIP</b>	District Irrigation Plan
<b>DLIC</b>	District Level Implementation Committee
<b>DoLR</b>	Department of Land Resources
<b>DONER</b>	Development of North Eastern Region
<b>DPR</b>	Detailed Project Report
<b>DRDA</b>	District Rural Development Agency
<b>GoI</b>	Government of India
<b>HDPE</b>	High Density Polyethylene
<b>HP</b>	Horse Power
<b>HRD</b>	Human Resource Development
<b>ICAR</b>	Indian Council of Agricultural Research
<b>ICT</b>	Information Communication Technology
<b>IDWG</b>	Inter Departmental Working Group
<b>IMD</b>	Indian Meteorological Department
<b>IPPE</b>	Intensive Participatory Planning Exercise
<b>ISRO</b>	Indian Space Research Organisation
<b>IWMP</b>	Integrated Watershed Management Programme
<b>KVK</b>	Krishi Vigyan Kendra
<b>MGNREGA</b>	Mahatma Gandhi National Rural Employment Guarantee Act
<b>Mha</b>	Million Hectare
<b>MI</b>	Micro Irrigation
<b>MIS</b>	Micro Irrigation System/Management Information System
<b>MLALAD</b>	Member of Legislative Assembly Local Area Development
<b>MoA</b>	Ministry of Agriculture
<b>MoRD</b>	Ministry of Rural Development
<b>MoJS</b>	Ministry of Jal Shakti
<b>MPLAD</b>	Member of Parliament Local Area Development
<b>NABARD</b>	National Bank for Agriculture & Rural Development
<b>NABCONS</b>	NABARD Consultancy Services
<b>NCPAH</b>	National Committee on Precision Agriculture and Horticulture
<b>NEC</b>	National Executive Committee
<b>NEH</b>	North Eastern & Himalayan States
<b>NGO</b>	Non-Governmental Organisation
<b>NRAA</b>	National Rain-fed Area Authority
<b>NRM</b>	Natural Resource Management
<b>NSC</b>	National Stewardship Council

<b>PFDCs</b>	Precision Farming Development Centres
<b>PMKSY</b>	Pradhan Mantri Krishi Sinchayee Yojana
<b>PRI</b>	Panchayati Raj Institutions
<b>PVC</b>	Poly Vinyl Chloride
<b>RIDF</b>	Rural Infrastructure Development Fund
<b>RKVY</b>	Rashtriya Krishi Vikas Yojana
<b>SAC</b>	Space Application Centre
<b>SAGY</b>	Sansad Adarsh Gram Yojana
<b>SAU</b>	State Agricultural university
<b>SC</b>	Schedule Caste
<b>SCP</b>	Special Component Plan
<b>SIP</b>	State Irrigation Plan
<b>SLNA</b>	State Level Nodal Agency
<b>SLSC</b>	State Level Sanctioning Committee
<b>S&amp;MF</b>	Small & Marginal Farmers
<b>ST</b>	Schedule Tribe
<b>GSTIN</b>	Goods & Service Tax Identification Number
<b>TSP</b>	Tribal Sub – Plan
<b>UC</b>	Utilization Certificate

## **Salient Features of the Scheme**

- i. Per Drop More Crop (PDMC) is a Centrally Sponsored Scheme implemented by the Department of Agriculture and Farmers Welfare (DA&FW) from the year 2015-16 to promote micro irrigation in the Country to benefit the farmer community. As a part of the restructuring/rationalization of the schemes of DA&FW, PDMC Scheme is being implemented under Rashtriya Krishi Vikas Yojana (RKVY) from the year 2022-23.
- ii. At the State level, PDMC has a three-tier structure with State Level Sanctioning Committee (SLSC) of RKVY under the Chairmanship of Chief Secretary, Inter-departmental Working Group (IDWG) under the Chairmanship of Secretary, Deptt. of Agriculture/Agriculture Production Commissioner (APC)/Development Commissioner; and District Level Implementation Committee (DLIC) under the Chairmanship of District Collector/Magistrate.
- iii. District Irrigation Plans (DIP) is the cornerstone for planning and implementation of PDMC which identifies gaps in irrigation chain after taking into consideration currently available resources and resources that would be added from ongoing schemes, both State and Central.
- iv. The Annual Action plans is to be drawn from District Irrigation Plans
- v. State irrigation plan focuses on cluster based approach and integrated development of different components in the irrigation chain.
- vi. The scheme is to be implemented through the mechanism of Direct Benefit Transfer (DBT). Aadhaar details of the beneficiary are required to avail the benefit of the programme. Aadhaar details need to be linked through a web based registration process. States/UTs should ensure disbursement of subsidy in a time bound manner.
- vii. The scheme will be monitored through web-portal of PDMC. Physical and Financial progress achieved during the preceding month is required to be uploaded by states on the web-portal of PDMC.
- viii. More focus be given on promotion of micro irrigation in rainfed areas and also for water intensive/guzzling crops to minimize water requirement.
- ix. The pattern of assistance payable to the beneficiary under the micro irrigation scheme will be 55% for small and marginal farmers and 45% for other farmers which will be met by both Central Government and State Government in the ratio of 60:40 for all states except the North Eastern and Himalayan States. In the case of these states, ratio of sharing is 90:10. For the Union Territories, funding pattern is 100% grant by the Central Government.

- x. The subsidy payable to the beneficiary will be limited to an overall ceiling of 5 hectare per beneficiary. Those beneficiaries, who have already availed subsidy benefits for his /her farm, would be eligible for subsidy again for the same land only after the end of projected life of the micro irrigation system which is 7 years.
- xi. The subsidy payment will be limited to the unit costs specified in the Operational Guidelines of the scheme. 25% higher amounts will be taken into calculation of subsidy for the North Eastern, Himalayan States and UTs of JK & Ladakh and 15% higher for States with low penetration of Micro Irrigation.
- xii. Only BIS marked systems/components can be supplied under the scheme.
- xiii. The registration of manufacturers/companies under the scheme will be for a period of 5 years. The registration will be open round the year. The registration will, however, be subject to satisfactory performance by the company. In case of violations, penalty provisions have been specified in the guidelines. Repeated failures will lead to de-registration of the company with the approval of SLSC.
- xiv. The company will provide free service after sales to the beneficiary for a period of at least three years from the date of installation of the system. If it fails to provide free after sales service, action as appropriate similar to other consumer products may be initiated.
- xv. In case the company intends to supply imported components, it shall be eligible for subsidy under the scheme subject to indigenization of manufacturing of the component within the country in a period of two years.
- xvi. Human resource development is an important component of the scheme and suitable provisions have been made in the guidelines for creating awareness, organizing training programs, Skill development and exposure visits etc.
- xvii. The general framework of the Guidelines of the RKVY shall also be applicable for PDMC.

## **1. Introduction:**

Water is becoming scarce commodity these days due to competitive demand and also due to the change in climatic behaviour, particularly the erratic nature of rainfall. More than 80% of the available water resource in the country is used in Agricultural sector for the purpose of irrigation. The country has been able to cover just 50% of the net sown area under irrigation. Hence, promoting efficient use of the available water through technological interventions is one of the priorities in agriculture. Micro irrigation is one such initiative for enhancing water use efficiency in Agriculture Sector. The Government of India has been implementing Centrally Sponsored Scheme on Micro Irrigation with the objective to

enhance water use efficiency in the agriculture sector by promoting appropriate technological interventions like drip & sprinkler irrigation technologies and encourage the farmers to use water saving and conservation technologies. The Ministry is making efforts to bring two million ha area under micro irrigation per year.

## **2. Per Drop More Crop:**

Per Drop More Crop (PDMC) focuses on enhancing water use efficiency at farm level through Micro Irrigation viz. Drip and Sprinkler irrigation systems.

## **3. Scheme Architecture**

Per Drop More Crop will adopt the following institutional set up and architecture of overall RKVY framework as given in the General Guidelines of RKVY.

3.1 National Stewardship Council(NSC): National Stewardship Council(NSC)under the Chairmanship of Secretary (DA&FW) with the following members will be constituted to provide strategic direction for guidance and planning for effective implementation of the scheme;

- i. Secretary, Department of Agriculture &Farmers Welfare: Chairman
- ii. Additional Secretary & Financial Advisor: Member
- iii. Additional Secretary, DA&FW: Member
- iv. Representative from Ministry of Water Resources: Member
- v. Representative from Ministry Rural Development: Member
- vi. Representative from Department of Agricultural Research & Education: Member
- vii. Representative from Department of Land Resources: Member
- viii. Joint Secretary (INM): Member
- ix. Joint Secretary (Crops): Member
- x. Joint Secretary(RKVY): Member
- xi. Technical Expert of National Rainfed Area Authority (NRAA): Member
- xii. Director, Water TechnologyCenter (WTC), ICAR: Member
- xiii. Joint Secretary (NRM & RFS):Member Secretary

Representative from three State Implementing Departments/Agencies; One representative from Precision Farming Development Centres (PFDC); One Micro Irrigation System Manufacturer/Industry; President/Representative of the Irrigation Association of India(IAI) and representative from two FPOs/farmers' cooperatives may be invited as special invitees.

3.2 At the State level, an Inter Departmental Working Group (IDWG) under the Chairmanship of Agriculture Production Commissioner/ Development Commissioner with Secretaries of line departments as members to be constituted to coordinate at the State level, the planning and implementation of the scheme. States may take



the advice/input of MI manufacturers by inviting representative from manufacturers/Micro Irrigation Industries /Irrigation Association of India(IAI) as special invitee in such Committees.

- 3.3 District Level Implementation Committee (DLIC) under the Chairmanship of Collector/District Magistrate/CEO of Zila Parishad/ PD DRDA, Joint Director/Deputy Director of line departments in the district and progressive farmers, representative of MI industry, and leading NGO as members to oversee implementation of the scheme and inter-departmental coordination

#### **4. Nodal Department**

PDMC focuses on enhancing water use efficiency at farm level and thereby enhancing agricultural production & productivity. Therefore, State Agriculture/Horticulture Department may be the Nodal Department for implementation of Per Drop More Crop scheme. However, States are free to identify the nodal Department based on the established institutional set up and mandate of the Department. All communication between Department of Agriculture & Farmers Welfare, GoI and State Government would be preferably with and through the Nodal Department.

#### **5. District and State Irrigation Plans (DIPs & SIPs)**

- 5.1 District Irrigation Plans (DIPs) are the cornerstone for planning and implementation of different schemes related to irrigation which will identify gaps in irrigation infrastructure after taking into consideration the District Agriculture Plans (DAPs) vis-à-vis irrigation infrastructure currently available and resources that would be added from ongoing schemes, both State and Central.
- 5.2 DIPs present holistic irrigation development perspective of the district outlining medium to long term development plans integrating three components viz. water sources, distribution network and water use applications.
- 5.3 The annual action plans for Per Drop More Crop will be drawn from DIPs and implemented in conjunction with the water sources created under convergence with other State/Central schemes.

#### **6. Objectives of Per Drop More Crop**

The main objectives of Per Drop More Crop are as under:

- 6.1 Increase the area under Micro Irrigation technologies in agriculture to enhance water use efficiency.
- 6.2 Increase productivity of crops and income of farmers through precision water management.
- 6.3 Promote micro irrigation technologies in water intensive/consuming crops like sugarcane, banana, cotton, paddy etc. and give adequate focus to extend coverage of field crops under micro irrigation technologies.

- 6.4 Make potential use of micro irrigation systems for promoting fertigation.
- 6.5 Promote micro irrigation technologies in water scarce, water stressed and critical ground water blocks/districts
- 6.6 Link tube-well/river-lift irrigation projects with micro irrigation technologies for best use of energy both for lifting and pressurized irrigation as far as possible.
- 6.7 Establish convergence and synergy with activities of on-going programmes and schemes, particularly with created water source for its potential use, integration of solar energy for pressurised irrigation etc.
- 6.8 Promote, develop and disseminate micro irrigation technology for agriculture and horticulture development with modern scientific knowledge.
- 6.9 Support the initiatives of reuse of waste water in Agriculture/peri-urban Horticulture through micro irrigation systems.
- 6.10 Create employment opportunities for skilled and unskilled persons, especially unemployed youth for installation and maintenance of micro irrigation systems.

## **7. Scheme Strategies**

- 7.1 Priority should be given for promoting micro irrigation technologies in rainfed areas. More focus should be given to water scarce, water stressed and critical ground water blocks/districts to conserve water and get extended coverage in terms of area and time period for life saving irrigation.
- 7.2 It is desirable to make potential use of the available water for sustained growth in agriculture sector. Preference should be given to adopt Micro Irrigation technology in water guzzling crops like sugarcane, cotton, banana etc. and the state implementing agencies should take suitable steps like publicity campaigns, policy provisions & sharing responsibilities with the Micro Irrigation industry so that adoption of technology is initiated in such crops. Industry related to the specific crops like sugar factories should be actively involved in promotion of micro irrigation to their farmers through incentivisation and technical supervision. Apart from horticulture and water guzzling crops, cereals and pulses may also be brought under the ambit of Micro irrigation.
- 7.3 In all the new irrigation commands where hydraulic heads are available, drip irrigation systems need to be encouraged as it can be operated without additional energy support.
- 7.4 Facilities of micro irrigation is under utilized if it is not used for fertigation. States should encourage the use of liquid fertilizers using micro irrigation systems. Availability of liquid fertilisers, awareness among farmers on the benefits of fertigation need to be given desired attention for promoting fertigation.
- 7.5 Efforts may be made for integration of micro irrigation with solar pumping units. A solar water pump has a mini power house at its heart and consists of a calibrated and matching solar array of modules – tuned with the equivalent power of pump

for that particular application. The solar water pumping system is capable of running all types of electrical water pumps with applications varying from irrigation to household demands. Irrigation pumps such as submersible, surface or deep well can also be coupled with drip irrigation systems to enhance the returns from this configuration. A 2000 Watt Peak (WP) solar water pump is capable of drawing and pumping approximately 80,000 litres of water per day from a source that is up to 10 meters deep. This is sufficient to irrigate about 1 ha of land with regular crops.

- 7.6 The available water sources or the new sources those are being created need to be used in best possible manner to fulfil the vision of "Har Khet Ko Pani" through efficient water conservation (Jal Sanchaya) and water management (Jal Sinchan) practices. It is, in this context, more vital to link most of the water sources with micro irrigation to get extended coverage for a longer duration.
- 7.7 PDMC focuses on micro irrigation for enhancing water use efficiency. States may take up sources creation activities as Other Interventions (OI) under the scheme and must be linked with Micro Irrigation to make potential use of the available funds for higher water use efficiency. These activities should be based on actual requirement and as per the needs of the farmer who adopts the Micro irrigation system.
- 7.8 The amount for OI activities must be restricted to 20% of the total allocation for States/UTs and 40% for North East States, Himalayan States & UTs of Jammu Kashmir and Ladakh.
- 7.9 Assistance for installation of micro irrigation system is limited to five hectares per beneficiary. The land holding of a beneficiary to be covered under drip/sprinkler system could be located in one contiguous area or at different locations, but the financial assistance will be limited to the overall ceiling of five ha.
- 7.10 Those beneficiaries, who have already availed subsidy benefits for his /her farm, can not avail the assistance for the next seven years. A beneficiary if availed the benefit of subsidy for micro irrigation for a particular farm would be eligible for subsidy again for the same land only after the end of projected life of the micro irrigation system which is seven years. However, the beneficiary may be allowed to avail effective differential subsidy in case he intends to install Drip Irrigation System on the same plot/field from the existing Sprinkler Irrigation System at least after three years to promote crop diversification irrespective of seven years subsidy cycle.
- 7.11 The unit cost/BoQs of the MI systems given in the Guidelines are indicative. The beneficiary will be allowed to opt to make his choice for items/components etc. In case any deviation from the BoQ, the differential cost shall be borne by the beneficiary subject to ceiling of unit cost.

- 7.12 Sometimes beneficiaries may not be able to contribute the requisite amount to adopt micro irrigation technologies. States/UTs may involve financial institutions like NBFC/Bank/NABARD to fill the upfront credit gap faced by the farmers for micro-irrigation adoption. States may facilitate credit facility to farmers (such as enabling subsidy component as State guarantee).
- 7.13 In view of the continuous modernization of agriculture resulting into evolving ways to improve productivity and sustainability, crops spacings keeps on changing. Financial assistance for installation of Micro irrigation systems will be based the indicative cost of MI systems for different spacings and plot sizes provided in the guidelines. In case of crops with plant spacing other than those mentioned in the Guidelines, the amount of assistance could be calculated on pro rata/average basis of the nearest plant area.
- 7.14 Beneficiaries/Institutions that have opted for contract farming or taken land on lease are also eligible for obtaining financial assistance under the scheme. However, to become eligible, the beneficiary/institution shall have to produce lease agreement for a minimum period of 7 years from the date of approval of application by the MI implementing agency.
- 7.15 ICAR,PFDCs, CIPET, ATMA etc may be involved in planning, implementation, demonstration, training and evaluation under the scheme. The implementing agency at the district level will ensure convergence of activities under the programme with the activities of various departments on water management to get the desired output.
- 7.16 Raw material price of polymers & other costs varies a lot because of fluctuation in national/international prices. Accordingly, periodic review of pricing may be carried out by the DA&FW, GoI.
- 7.17 States must include all Aspirational Districts identified by NITI Aayog in their Annual Action Plan (AAP) for coverage of Micro Irrigation under the Scheme in these Districts. Further, priority may be given to Namami Gange Districts/Gram Panchayats (GPs) along the stretch of river Ganga basin to be included in AAP for Micro Irrigation coverage.
- 7.18 Climate Change is known to have adverse impact on agriculture. Irrigation has been an effective tool in addressing climatic aberrations like drought, heat wave causing that is responsible for enormous loss to agriculture. States/UTs must ensure coverage of MI in dark zones and climatically vulnerable areas. The MI coverage should also be given priority to the areas under NICRA program of ICAR-CRIDA to promote climate resilient technologies.
- 7.19 Micro Irrigation is an important component of various Centrally Sponsored Schemes, such as, National Mission of Edible Oils – Oilseeds (NMEO-OS), MIDH, NFSM, NMEO-OP. States/UTs should ensure that installation of Micro Irrigations

systems under these schemes be dovetailed with PDMC. The Annual Action Plan must be prepared accordingly and progress of Micro Irrigation activity to be reported under the PDMC scheme.

- 7.20 States may encourage Automation in the Micro Irrigation Systems for ease of operation with minimal or no manual intervention thereby achieving greater efficient use of Micro Irrigation Systems by the beneficiaries. The Automation unit may be linked with solar energy wherever possible at the farm. It is desirable that States should target 5% of Micro Irrigation coverage under the scheme with Automation. The cost of automation may vary with the type of Automation adopted by the beneficiary. For adoption of Automation in the Micro Irrigation system under the scheme, the financial assistance to the beneficiary will be restricted on the existing rate of subsidy to the indicative cost of Rs. 40000/ha.
- 7.21 Preference for installation of micro irrigation will be given to farmers adopting crop diversification to enhance the production and their income substantially.
- 7.22 The Guidelines for implementation of Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM KUSUM) Scheme, Ministry of New and Renewable Energy gives preference to farmers using Micro irrigation systems. Accordingly, PDMC be converged with PM-KUSUM for promoting use of solar energy with MI systems. States/UTs to ensure that all solar pump beneficiaries under PM-KUSUM adopt micro irrigation system.
- 7.23 The Atal Bhujal Yojana (ABY) focuses on sustainable management of ground water through participatory approach. The PDMC Scheme may be converged with ABY to achieve the objectives of the schemes.
- 7.24 The Guidelines for New Generation Watershed Development Projects (WDC-PMKSY 2.0) envisage convergence of watershed projects with PDMC. Accordingly, priority may be given to areas under WDC-PMKSY 2.0 to integrate activities, particularly, creation of water sources with that of micro irrigation. Similarly, water sources created under MGNREGS may be integrated with micro irrigation for their potential use.
- 7.25 Department of Water Resources, River Development & GR is implementing Command Area Development & Water Management (CADWM) program. CADWM envisages the modernization of Irrigation Command Area i.e. providing Pressurized Piped Irrigation Command (PPIC) for use of Surface Water combined with other sources of water which provides network of established water source to farm gate for farmer to adopt micro irrigation in the farm to improve the Water use Efficiency at farm level. The States/UTs must ensure that the source/infrastructure created under the scheme shall be utilized for Micro Irrigation in coordination with WRD/CAD agencies. CADWM program shall be dovetailed with PDMC and it shall be ensured that Water user Societies covered under modernized CADWM program should be necessarily part of PDMC for adoption of MI systems. Such convergence

shall make it possible to aggregate large areas under micro irrigation which enable better implementation, cost effective, maintenance & services and better market linkage of produce.

7.26 Soil Health Card scheme was launched in 2015 to provide Soil Health Cards to all the farmers in the country. Soil Health Card provides information to farmers on soil nutrient status of their soil and recommendation on appropriate dosage of nutrients to be applied for improving soil health and its fertility. Further, the Ministry is promoting Kisan Credit Card (KCC) scheme with a view to provide easy access to concessional institutional credit to farmers. While implementing PDMC scheme, States/UTs should facilitate the beneficiary of PDMC scheme to avail Soil Health Card and Kisan Credit Card under the respective programs.

### 7.27 **Cluster Approach:**

7.27.1 States/UTs should prioritize implementation of MI through Cluster approach to have effective integration of sources, connectivity, distribution and application. The size of cluster may be 50 ha. & above in mainland states and 20 ha. in NE & hilly states. Water User Associations/Groups, Farmer Producer Organizations, Cooperative societies, Self-Help Groups, Growers' Associations etc. shall be encouraged to adopt Micro Irrigation in a cluster. In such cases the beneficiary will be entitled to avail financial assistance through their respective organizations / bodies. The total financial assistance available to the individual beneficiary in the group would be 55% under the scheme. The land holding of the beneficiary should be located in one contiguous area. Such farmers groups/organizations may be allowed to avail an administrative/institutional charges @ 3% of the cost of the Cluster.

7.27.2 The States/UTs may encourage FPOs to take up micro irrigation at community level. States/UTs may ensure at least 5% micro irrigation target is implemented through FPOs.

7.27.3 States/UTs may enable such farmers' groups to access capital from NBFC/Bank/NABARD so that such cluster implementation could be taken up through banks with Joint Liability Group (JLG).

### 7.28 **Public Private Partnership (PPP-MI) approach:**

States/UTs may take up projects with PPP mode of implementation. The framework for PPP-MI would be as follows:

7.28.1 Public Private Partnership (PPP) approach in Project mode may be an important step for increasing MI coverage for the benefit of farming community. State Governments/UTs may take up projects in PPP approach involving farmer groups, private partners and concerned Departments in the State. Such projects should focus on improving water use efficiency, productivity, income of farmers, access to market and positive environment outcomes.

#### 7.28.2 Objectives:

- a. Implementation of Micro-Irrigation in an aggregated manner achieving better coverage, efficiency in water and fertilizer use.
- b. Convergence of various ongoing Central and State Government schemes and programs to deliver better outcomes.
- c. Availability of private capital and technology partnership;
- d. Access to functional and technical efficiency of private entities.
- e. Active involvement of farmer groups through participatory approach.
- f. Creating employment opportunities for skilled/unskilled persons, especially unemployed youth.
- g. Achieve better products and market linkage.

#### 7.28.3 Rationale:

Judicious use of water is important to expand the agricultural area under irrigation. Micro irrigation promotes adopting optimum cropping pattern and efficient water application, that utilizes available water resources in an efficient manner. Saving of water will not only help in extending irrigation coverage but also in enhancing productivity and improving farmland ecosystem. The water use efficiency in irrigated areas as well as non irrigated areas is presently at low level. In future there could be huge stress on water availability for agriculture as a result of negative impact of climate change. Very few farmers in irrigated commands are adopting micro irrigation system. Micro-irrigation system is cost intensive and technical with maintenance requirements. Capital investment in agriculture is still largely insufficient. Micro irrigation penetration to small and marginal farmers especially in most rural areas is still lagging. There is also a need to ensure equitable access of water availability to tail end farmers. Better market linkage opportunities of farm produce would help in enhancing farmers income. In this regard, collaborative efforts between the Government and Private partners in promotion of micro irrigation shall open new opportunities for the benefit of the farming community.

#### 7.28.4 Strategy of PPP- Micro Irrigation:

- a) Public Private Partnership for integrated Project on Micro Irrigation can be executed through an agreement between State Government and private partners. The arrangement would involve a whole-lifecycle with a predetermined period where the private partners can extend support for both implementation (installation, construction etc.) and operation of the MI systems.
- b) State /UT Governments may prepare projects involving Corporate/Private Partners/Other Entities, farmers groups and concerned Institutions/ Departments in the State. Under the project, allowed activities of PDMC

scheme may be taken up through the scheme following the operational Guidelines. The other activities of the project would be converged from other schemes/investments from entities of the project. The proposals shall clearly indicate the interventions being made by the entities, the scale of the project, approx. number of farmers involved and the expected outcomes in terms of farmers benefits.

- c) Various Agri retail business companies may be involved for facilitating market linkages of farm produce in the project area.
- d) The aim is to set up PPP based projects wherein entities (eg. FPO/ Farmers Groups, Private Companies, Concerned Departments of the State etc.) may invest in creation of Common Infrastructure i.e. Water sources, pressurized pipe networks till farm end gate from canal /reservoir along with sumps/storages, lifting/pumping facility and the on-farm Micro irrigation system. Convergence with various related Government schemes may be made for effective utilization of available resources in the project area. Corporate/Industries shall be encouraged to participate in the project through their Corporate Social Responsibilities (CSR) outreach.
- e) The PDMC scheme would be dovetailed with such PPP projects.
- f) Project document will have clearly marked out convergence of other Centrally Sponsored Schemes of Ministries as well as State Schemes.
- g) Transparency of complementary investments of non-Government entities and visibility of public-domain infrastructure created shall be ensured.
- h) IT based solutions, use of advanced technologies of Micro Irrigation such as solar energy, Automation, use of AI, IoT etc. should be given priority for effective implementation & monitoring. Technologies that are complimentary to micro irrigation in reducing water losses or evaporation, improve soil water holding capacity etc. should be promoted along with MI.
- i) PPP projects should explore carbon market potential which will deliver additional income to farmers.

#### 7.28.5 Procedure for Approval and Implementation:

- a) The project on PPP should include information on geography & climate, potential of agriculture development, available irrigation infrastructure, potential for micro irrigation, strategy for development and plan of action proposed to be taken. The document should focus on adoption of aggregation/cluster approach for coverage of micro irrigation and linking with available infrastructure, or to be created. Willingness of the farmers to be a part of the proposed project should also be included.
- b) The project should reflect the whole-lifecycle with a predetermined period. The project shall clearly indicate the interventions/responsibilities/role of the



entities, the scale of the project, approx. number of farmers involved and the expected outcomes in terms of farmers benefits and the way forward.

- c) Growers/farmers/farmers group under the project would be entitled for assistance under other schemes of DA&FW/other Departments. The project implementing agency or the private partner should collect the data and required documentations of all farmers in the project and facilitate to access the assistance available under the PDMC scheme.
- d) The State Nodal Department/Agency of PDMC of the State may call for proposals from entities interested in carrying out the project and short list them based on applicant's experience. State can set up a committee to select and finalize the projects.
- e) Proposals shall be submitted to State Governments. The State Government will examine the project proposal from the viewpoint of suitability to need of the area. If found suitable, the proposal should be included in the Annual Action Plan of the State to be approved by the SLSC.
- f) Project should be implemented after approval of SLSC.

#### 7.28.6 Monitoring of the Projects:

In order to ensure transparency & accountability, robust technology based monitoring system must be ensured. Assets created under the project will be geo tagged and land area also be geo referenced. Payment to the beneficiary should be through DBT. Information related to the Project, cluster, funds provided etc. will be available in the public domain. An independent monitoring agency will be appointed by the State Government to closely track the performance of the projects including the quality aspects as well as benefits accruing to the farmers.

#### **7.29 Pilot Projects on Micro Irrigation in Irrigation Command Areas.**

Agriculture consumes the largest share of groundwater in India-the biggest user of ground water in the world. The past few decades have witnessed an alarming depletion of groundwater resources in the Country. It is observed that the water source for Micro Irrigation under PDMC Scheme is mostly ground water. Micro irrigation systems has not been sufficiently linked to surface water. On the other hand, the conventional flooding method of Irrigation is still largely used by farmers under command area which is highly inefficient. It is important to encourage the use surface water for Micro Irrigation for enhancing water use efficiency. Ministry of Jal Shakti has been given the goal of increasing the water use efficiency in India by 20%. For efficient use of surface water available under command area, Ministry of Jal Shakti and MA&FW have decided to promote network of Pressurized Piped Irrigation Command (PPIC) with assured supply of water at outlet provided at the farm gate in a cluster. This outlet will be linked to micro irrigation systems for use by the farmers. The initiative will be supported

under PDMC Scheme of Ministry of Agriculture. The Water User Society of the cluster will be strengthened with other schemes of the MoAFW to convert into an Economic Entity. The Economic Entity will sustain the created infrastructure on their own, relieving the Governments of burden of subsequent maintenance and subsidy.

As a joint effort, Ministry of Jal Shakti and MoAFW have decided to jointly work on a pilot project under PDMC funds. The PPIC will be created along with the micro irrigation systems (drip/sprinkler) in a pilot project. The pilot projects will cover an area of about 500 hectare or more with close proximity to achieve visible impact of the program and encourage local participation and market linkage of produce. The pilot project will emphasize on adoption/promotion on latest technologies in MI, such as sensor based MI, use of AI, IoT etc. Water User Societies/FOPs/SHGs/ Farmers Cooperatives should be actively involved in such pilot projects and shall be given the responsibility of managing/maintenance of the MI systems. NABARD may assist in mobilizing FPOs in providing market support to the farmers. Further, convergence with flagship schemes/Missions like, RKVY, Marketing, NFSM, MIDH, Mahatma Gandhi National Rural Employment Guarantee Scheme MGNREGS, Integrated Watershed Management Programme (IWMP) etc. will be emphasized which will enable better implementation outcome. These projects will help in training, capacity building and demonstrations on adoption of Micro Irrigation technologies to farmers and for future replication of the model in larger areas.

All the State/UTs/ICAR/Central Agencies are eligible to implement the pilot projects under PDMC. The proposals of pilot projects will be come through Ministry of Jal Shakti by the implementing agencies for funding under Head Quarter Budget of PDMC scheme within the budget limits. The total approved cost of the project will be provided to implementing agency as a 100% assistance during the project period. Assistance will be extended for adopting activities such as Pressurized Piped Irrigation Command (PPIC), Solar Power, Micro Irrigation systems and Water Use Efficiency applications for efficient delivery, distribution and monitoring of water. Efforts will be made for development of the cluster Water User Society into an FPC, once the project is handed over to Water User Society. The projects will be monitored by Ministry of Jal Shakti as per their standard operating Procedures. An MoU may be executed between Commissioner CADWM, MOJS, JS (NRM), MoAFW, State level Implementing Agency and the Water User Society for successful implementation of the Pilot Projects.

### **7.30 Micro Irrigation Demonstration plots in KVKs/ICAR Centers.**

Micro irrigation is generally perceived as technology intensive; hence, its acceptance by farmers needs much persuasion as well as capacity building. Extension services/on field demonstration of MI systems for the farmers/farmers groups is important to achieve the desired results. Demonstration plots for micro irrigation may be set up in KVKs and ICAR institutes across the country where demonstration of MI systems shall be conducted with underlying objectives of

collating, creating and imparting knowledge useful for the farmers to address the issues like administration processes and practices adopted, effectiveness, crops wise impact, effect of water/ energy, labour saving, income and employment generation etc. Such plots will also carry out demonstration of new technologies such as automation, solar based MI systems, AI/IoT based MI systems etc. and develop database. KVKs will coordinate with the State Implementing agencies/Agriculture/Horticulture Departments for training farmers/farmers groups on MI technology through these demonstration plots. The information and experience gain will also be an important asset for future research purposes.

Low MI penetration States/UTs, Vibrant Villages, Aspirational Districts shall be given priority for developing such water smart plots. The proposals for developing such plots will be submitted by the concerned/implementing ICAR/KVKs to the Ministry for funding under Head Quarter Budget of PDMC scheme within the budget limits. The total approved cost of the proposal will be provided to the ICAR/KVK as a 100% central assistance.

## **8. Operational Aspects:**

- 8.1 The Implementing Agency need to widely publicize the importance of the scheme at block and village levels through its existing networks to create awareness among the farmers. Organize District Level Seminars/Workshops involving MI Manufactures/Companies. Further, the State Agriculture Extension Units should organize camps and Trainings in collaboration with MI Manufactures/Companies to explain system components and their functions, type of micro irrigation for crop, post installation services and frequency of maintenance etc. Trainings/camps to target the family, not individual beneficiary. The MI manufacturer / company may provide irrigation schedule to farmers, make efforts for linkage to agronomic practices.
- 8.2 Dedicated Implementing Agency/Special Purpose Vehicle (SPV): States/UTs with good micro irrigation coverage have shown that dedicated Implementing Agency/Special Purpose Vehicle (SPV) can accelerate the scheme success with overall efficiency. Therefore, States/UTs should setup a dedicated Implementing Agency/Special Purpose Vehicle (SPV) at the state level with dedicated manpower to ensure that the needed attention is given in the implementation of the scheme.
- 8.3 Dedicated portal for implementation: States having dedicated portal for implementation have performed better with high level of transparency. Hence, all States/UTs should develop their own portal dedicated for the implementation of the scheme. Government of India will also develop a reference portal for use of States. States using its own portals should make data available to the Government of India portal through APIs.

- 8.4 All level of implementation including receipt of applications, work order, work completion, verification, payment release, monitoring, feedback etc. shall be captured by the State portal developed for the purpose. Also, the Portal should have online workflow, mapping all levels of implementation to ensure effective monitoring.
- 8.5 The States/UTs shall adopt bio-metric/facial authentication enabled Aadhar based registration of applicant developed by DA&FW. The details of the applicant, such as, Name, Gender, Date of Birth, Identifier Name (Father/Spouse Name), etc should be captured as per the Aadhar eKYC. The assistance should be transferred to the Aadhar seeded and DBT enabled active bank account of the beneficiary through DBT. In case it is given in kind through Companies, the intimation should be conveyed as SMS to the beneficiary on his mobile phone with details of assistance. The States/UTs should ensure that disbursement of subsidy is made a time bound activity
- 8.6 All land based interventions 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 automatically link with the State MIS portal through API.
- 8.7 The State Implementing Agency will engage Third Party Inspection Agencies (TPIAs) for conducting inspection/physical verification of the installed Micro Irrigation Systems at every farmer field. The installed site will be verified by these agencies for material supplied and also conduct Trial Run at the site. TPIAs should capture and upload photographs/videos/report of the MI installation at site which should be made available in the State portal. States/UTs should ensure timely installation and third party verification of MI installation. The Implementing Agencies must complete the timely inspection/physical inspection of the MI systems to avoid delay. Ideally, the physical inspection should be completed within 60 days of installation. Due penalty should be imposed on supplier if any delay in installation is observed. States/UTs must also ensure timely release of subsidy/top-up to the beneficiaries.
- 8.8 All scheme related information including progress and achievements should be captured by State portal which may be integrated with the National portal through API to ensure seamless flow of information.
- 8.9 The beneficiary shall be free to choose MI equipment from any MI manufacturer out of the approved list of registered manufacturers and also to choose the type of MI system to be installed as per the system design compatible with his/her cropping pattern.

- 8.10 The State Implementing Agency/ SPV should conduct inspections at the factory site of the Supplier(s) through Third Party technical agencies such as Central Institute of Plastics Engineering and Technology (CIPET), ICAR Institutes, State Agriculture Universities etc. However, if any State/UT has already conducted such inspection of a supplier, the inspection report (of the supplier) may be considered by other States/UTs also.
- 8.11 All the Micro Irrigation Systems will be QR Coded. The QR code of the system will be linked to Unique application no./Sanction ID of the farmer on installation of the system.
- 8.12 The MI manufacturer/supplier should necessarily generate e-invoice for micro irrigation system supplied with details of all its components and the e-invoice shall be captured by the State Portal.
- 8.13 A module/hand book may be devised by the Implementing Agency/SPV for the benefit of the farmers with basket of services which includes Farmer Education & Training (Agronomy services), maintenance & operating Micro Irrigation Systems etc.
- 8.14 The MI supplier Agency should provide necessary services to farmers after installation trail run of the system for at least three years free of cost. The List of service centers/offices/offices of authorized distributors with full address/telephone numbers/e-mail should be widely published (Inspection/repair/replacement).
- 8.15 A toll free customer care number will be provided by the State implementing agency for providing information related to Micro Irrigation Systems. Also grievance redressal and feedback system of the beneficiaries should be provided.
- 8.16 To ensure strict adherence to quality standards in the use of MIS Components, the Implementing Agency of the State will ensure the BIS standards of supplied equipment.
- 8.17 States to develop modules on several aspects; fertigation schedule, acid treatment, issue of salts/salinity in water, linkage to agronomic practices, selection of the right system etc. Further, States to conduct trainings and best practices demonstrations for the beneficiaries as well as officials/staff for better learning.

## **9. Drip Irrigation System for states where it has been well accepted by farmers and good infrastructure is available**

- 9.1 The scheme is well accepted by the farmers and substantial coverage has been made under micro irrigation system compared to other parts of the country with

required infrastructure and service facilities in the States namely Andhra Pradesh, Delhi, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu and Telangana. These states are considered to be category "A" States with comparatively better penetration of micro irrigation technologies.

- 9.2 Drip Irrigation technology involves irrigating root zone through emitters fitted on a lateral tube as well as inserted within the tubing as emitting pipe. The use of different emitters will depend upon specific requirements, which may vary from crop to crop.
- 9.3 Fertigation is important for getting maximum benefits out of the micro irrigation technology. Therefore, it is mandatory to use a fertigation device by the farmers such as venturi injector or fertilizer tank on which the subsidy is available.
- 9.4 Water requirement, age of plant, plant to plant spacing, soil type, water quality and availability etc are some of the factors which decide the choice of emitting system. The indicative cost of drip irrigation systems (assuming peak water requirement with source of water at the corner of plot), for different lateral spacing and plot sizes has been provided in the guidelines. An indicative list of system components required for installing a drip irrigation system in the areas ranging from 0.2 ha to 5 ha is at **Annexure-IV a to g**, on the basis of which subsidy will be calculated as per Table 1:

**Table 1: Indicative cost of Drip Irrigation System for calculation of subsidy**  
(Cost in Rs.)

Spacing (mxm)	0.2 ha	0.4 ha	1 ha	2 ha	3 ha	4 ha	5 ha
12x12	10526	18009	24586	39098	60704	75521	96166
10x10	10854	18652	26181	42226	65487	82025	104292
9x9	11091	19114	27304	44469	68853	86606	110024
8x8	11330	19711	28777	47314	73272	92615	117529
6x6	12400	21693	34687	57987	93688	113618	142566
5x5	13144	23486	39378	67199	97110	123409	165815
4x4	14602	24326	41534	72799	113560	148684	176964
3x3	15792	26190	47751	82654	127306	160103	200455
2.5x2.5	19516	35393	68234	124216	189724	266274	325233
2x2	23932	41303	83085	161263	234280	325469	399494
1.5x1.5	28106	46995	97245	185324	276767	382246	470306
2.5x0.6	20201	35000	71733	131824	201464	279770	343433
1.8x0.6	24569	42992	91560	173298	260868	355323	442484
1.5x0.6	28003	50116	109531	207860	313909	425189	530905
1.2x0.6 (or lower spacing)	31436	57241	127501	242422	366950	495055	619326

- 9.5 In case of crops with plant spacing other than those mentioned in above table, the amount of assistance could be calculated on pro rata/average basis of the nearest plant area (Row to row x plant to plant spacing in metre). The example is given below.

- a. If a subsidy has to be calculated for 1.5 x 1.5m spacing i.e. between 1.0 ha (₹97245) and 2.0 ha (₹185324), the cost would be : ₹97245 + [(₹185324-₹97245) / (2.0 ha-1.0ha) x (1.5ha-1.0ha)].
- b. If a subsidy has to be calculated for 1.0 ha and 3.5 x 3.5m spacing i.e. between 4.0x4.0m (₹41534) and 3.0x3.0m (₹47751) the cost would be: ₹41534+[(₹47751-₹41534)/(4.0x4.0-3.0x3.0)X(4.0x4.0-3.5x3.5)].
- 9.6 The unit cost of Drip Irrigation system varies with respect to plant spacing and location of the water source. The farmer can avail other interventions as per **Annexure-XIII** as per specific requirement of the field in which micro-irrigation system is to be installed.
- 9.7 Assistance under the scheme is available for all types of drip irrigation systems such as on-line & in-line drip irrigation systems.
- 9.8 As small farm holdings may not have individual source of water, it would be preferable to encourage a group of farmers to avail the benefits of drip irrigation through a common water source.
- 9.9 A beneficiary having farms located at different places and having different water source may avail the subsidy as per the guidelines. However, a beneficiary cannot split area at one location into small pockets of the same crop for claiming assistance under the scheme. If a beneficiary has more than one crop with different crop spacing being grown separately in his/her land holding, assistance will be available for installing the drip irrigation system as per the individual crop spacing, the combined area of which will not exceed 5 ha per beneficiary.
- 9.10 In case of inter-cropping, assistance will be available for the prescribed plant spacing/ area, subject to the condition that the assistance will be provided only for one crop as per the farmers' choice.

## 10. Drip Irrigation System in states with low penetration

- 10.1 Based on the prevailing coverage and acceptance by farmers, states namely Bihar, Chhattisgarh, Jharkhand, Odisha, Uttar Pradesh, West Bengal, Goa, Punjab and Union Territories have been identified as states with low penetration of micro irrigation technology. These states are considered as category "B" in terms of implementation of micro irrigation. The cost of drip system is likely to be higher in these states due to various factors such as lesser presence of manufacturing companies in these states leading to higher cost of transportation, the companies will have to make considerable efforts in making the farmers ready for adoption of technology, and higher cost involved in providing after sales service in these states etc. Thus, 15% higher cost has been taken in consideration while working out the unit cost

of drip system in the table below for these states for the purpose of subsidy calculation as per indicative list of system components given at **Annexure-IV a to g**.

**Table 2: Indicative cost of Drip Irrigation System for calculation of subsidy in the states where penetration level is low**

*(Cost in Rs.)*

Spacing (mxm)	0.2 ha	0.4 ha	1 ha	2 ha	3 ha	4 ha	5 ha
12x12	12105	20710	28274	44962	69810	86849	110591
10x10	12482	21450	30109	48560	75310	94329	119935
9x9	12755	21981	31399	51139	79181	99597	126527
8x8	13030	22667	33094	54412	84263	106507	135159
6x6	14260	24947	39890	66685	107741	130661	163951
5x5	15115	27009	45285	77279	111676	141921	190687
4x4	16792	27975	47765	83719	130594	170987	203508
3x3	18161	30119	54913	95052	146402	184119	230523
2.5x2.5	22444	40702	78469	142848	218183	306215	374018
2x2	27522	47498	95547	185453	269421	374289	459418
1.5x1.5	32322	54044	111832	213122	318282	439583	540852
2.5x0.6	23231	40250	82493	151597	231684	321735	394948
1.8x0.6	28255	49441	105295	199293	299998	408621	508857
1.5x0.6	32203	57634	125960	239039	360995	488967	610541
1.2x0.6 (or lower spacing)	36151	65827	146626	278786	421992	569313	712224

10.2 In case of crops with plant spacing other than those mentioned in above table, the amount of assistance could be calculated on pro rata/average basis of the nearest plant area (Row to row x plant to plant spacing in metres) similar to example given in 9.5.

10.3 The assistance will be available for all types of drip irrigation systems; on-line and in-line drip irrigation systems.

10.4 In case of inter-cropping, assistance will be available for the prescribed plant spacing/area, subject to the condition that the assistance will be provided only for one crop as per the farmers' choice.

## **11. Drip Irrigation System for North Eastern and Himalayan States**

11.1 The coverage of MI system in North Eastern and hilly region is much low due to poor infrastructure and difficult terrain. The states namely Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Sikkim, Jammu & Kashmir, Himachal Pradesh and Uttarakhand are considered under category "C". In the Hilly states, following points need to



be kept in mind while designing a drip irrigation system keeping in view the sloppy and terraced land:

- It is difficult to lay PVC main and sub-main lines below the ground surface and therefore HDPE pipes are required in place of PVC.
- The undulating and vertical slopes would lead to comparatively larger length of pipes.
- To maintain uniform pressure and to irrigate upper most terrace of land, control valve should be provided at sub-main/main lines at 4m vertical drop. Accordingly, the number of flush valves will also increase.

11.2 The cost of drip system is likely to be higher in North Eastern & Himalayan states because of the terrain, higher transport cost, lesser presence of manufacturing companies etc. Therefore, unit cost of micro irrigation systems is taken 25% higher in these states for the purpose of subsidy calculations and is given in table below (including 25%) for the indicative list of system components is at **Annexure-IV h to n**.

**Table 3: Unit cost for NE&H states**

*(Cost in Rs.)*

<b>Spacing (mxm)</b>	<b>0.2 ha</b>	<b>0.4 ha</b>	<b>1 ha</b>	<b>2 ha</b>	<b>3 ha</b>	<b>4 ha</b>	<b>5 ha</b>
12x12	13157	22511	30733	48872	75881	94402	120207
10x10	13567	23315	32727	52783	81859	102531	130365
9x9	13864	23893	34130	55586	86066	108258	137530
8x8	14163	24638	35971	59143	91590	115768	146912
6x6	15500	27116	43358	72484	117110	142023	178207
5x5	16430	29357	49223	83999	121387	154262	207269
4x4	18252	30408	51918	90999	141950	185855	221205
3x3	19740	32738	59688	103318	159132	200129	250569
2.5x2.5	24395	44242	85292	155270	237156	332842	406542
2x2	29915	51628	103856	201579	292849	406836	499367
1.5x1.5	35132	58744	121556	231655	345959	477807	587883
2.5x0.6	25251	43750	89666	164780	251830	349712	429292
1.8x0.6	30712	53740	114451	216622	326085	444153	553106
1.5x0.6	35003	62645	136914	259825	392386	531486	663631
1.2x0.6 (or lower spacing)	39295	71551	159377	303028	458687	618819	774157

11.3 In case of crops with plant spacing other than those mentioned in above table, the amount of assistance could be calculated on pro rata/average basis of the nearest plant area (Row to row x plant to plant spacing in metres) similar to example given in 9.5.

## 12. Sprinkler Irrigation

- 12.1 In sprinkler irrigation, water is discharged under pressure in the air through a set of nozzles attached to a network of High Density Poly Ethylene (HDPE) pipes, simulating the rainfall. Sprinkler irrigation systems are suitable for irrigating crops where the plant density is very high. It is widely used for cereals; pulses; seeds; spices; and field crops.
- 12.2 Financial assistance would be restricted as per the cost of High Density Poly Ethylene(HDPE)pipesusedinsprinklerirrigationsystems,eventhough,thebeneficiaries may use aluminium pipes as well. The sprinkler irrigation systems may be portable, mini sprinklers, micro sprinklers, semi-permanent sprinklers and large volume sprinkler systems (Rain-guns).Additional 25% and 15% on the indicated unit cost may be considered for calculation of subsidy for Hilly states including NE region and low penetrating State respectively.

### 12.3 Portable Sprinkler Irrigation System

- 12.3.1 In portable sprinkler irrigation systems the HDPE pipes are used for mains and sub-mains which can be shifted from one place to another as per the irrigation schedule with respect to design layout. These can be used in both, plains as well as in undulating terrains.
- 12.3.2 The indicative number of components required for various area range of sprinkler irrigation system is annexed. Financial assistance will be provided based on the number of pipes procured by the beneficiary for the area under reference. An indicative list of system components required for installing portable sprinkler irrigation system is at **Annexure-V** on the basis of which subsidy will be calculated. The indicative cost for various area ranges and pipe sizes is given below in Table 4below:

**Table 4: Indicative Cost of Portable Sprinkler Irrigation System  
(Cost in Rs)**

Area	Pipe Dia. (mm)		
	63	75	90
Upto 0.4 ha	13211	NA	NA
1 ha	21588	24194	0
2 ha	31167	34657	0
3 ha	NA	NA	46779
4 ha	NA	NA	58995
5 ha	NA	NA	66789

- Note: i) In case of area other than those mentioned in above table, the amount of assistance could be calculated on pro rata/average basis of the nearest area.  
ii) In case of low penetrating states and hilly states including NE region, 15% and 25% higher indicative cost respectively may be taken for calculation of subsidy.

## 12.4 Micro Sprinklers

12.4.1 Micro Sprinklers are mostly used for irrigating leafy vegetables, nurseries, hardening of seedlings and a few vegetables. Apart from providing irrigation, the micro sprinkler also helps in changing the micro climatic conditions near the plant. Micro sprinklers are low radius sprinklers. The selection of micro sprinklers depends on the type of crop, soil, types etc.

12.4.2 An indicative list of system components required for installing a micro sprinkler system is at **Annexure-VI**. The indicative cost of Micro Sprinkler irrigation system at different lateral spacing & area is given in **Table5**:

**Table 5: Indicative cost of Micro Sprinkler Irrigation System**

(Cost in Rs)

Area(ha)	Spacing (mxm)	
	5 x 5	3 x 3
0.4	32713	38263
1	65102	74259
2	114426	133821
3	164937	191078
4	222721	263852
5	281557	321462

- Note: i) In case of area other than those mentioned in above table, the amount of assistance could be calculated on pro rata/average basis of the nearest area.  
ii) In case of low penetrating states and hilly states including NE region, 15% and 25% higher indicative cost respectively may be taken for calculation of subsidy.

## 12.5 Mini Sprinklers

They are commonly used for close growing crops like groundnut, potato, onion, ginger, short statured fodder crops, etc. Mini sprinklers are also suitable for frost protection. An indicative list of system components required for installing a mini sprinkler irrigation system is enclosed at **Annexure VII**. The indicative cost of Mini Sprinkler irrigation system at different lateral spacing and area is given below in **Table 6**below:

**Table 6:- Indicative Cost of Mini Sprinkler Irrigation System**

(Cost in Rs)

Area (ha)	Spacing (mxm)	
	10 x 10	8 x 8
0.4	45694	47528
1	94134	103873
2	176766	187929
3	268422	290935
4	345497	380031
5	423236	469890

- Note: i) In case of area other than those mentioned in above table, the amount of assistance could be calculated on pro rata/average basis of the nearest area.  
ii) In case of low penetrating states and hilly states including NE region, 15% and 25% higher indicative cost respectively may be taken for calculation of subsidy.

## 12.6 Semi-Permanent Sprinkler Irrigation System

- 12.6.1 In Semi-Permanent Sprinkler System, the piping network for main line and lateral lines are permanently buried with risers fitted on the lateral lines. The sprinkler nozzles are fitted on each riser pipe and can be easily shifted from one place to another to irrigate the required area in shifts as per the irrigation schedule or the crop water requirement.
- 12.6.2 The indicative number of components required for various area ranges of semi-permanent sprinkler irrigation systems is enclosed at **Annexure VIII**
- 12.6.3 The estimated unit cost for various area ranges is given below in Table 7 below:

**Table 7: Indicative Cost of Semi-Permanent Sprinkler System**

Area (Ha)	Cost (in Rs)
0.4	24919
1	40440
2	77113
3	104083
4	132997
5	161345

- Note: i) In case of area other than those mentioned in above table, the amount of assistance could be calculated on pro rata/average basis of the nearest area.
- ii) In case of low penetrating states and hilly states including NE region, 15% and 25% higher indicative cost respectively may be taken for calculation of subsidy.

## 12.7 Large Volume Sprinkler Irrigation System (Raingun)

- 12.7.1 Large volume sprinkler irrigation systems (Rain guns) are used where larger areas are to be covered with one or two sprinklers. These sprinklers have a discharge ranging from 10,000 lph to 32,000 lph and radius of throw from 24 m to 36 m. These systems require high pressure and high discharge pipes & pumps to operate them. These are preferred for irrigating crops spread over large areas in short time. The indicative list of components is enclosed at **Annexure IX**.
- 12.7.2 Pivot Irrigation system is used for a much larger area & are not suitable for the beneficiaries targeted under PDMC. However, if some beneficiary is interested, may avail financial assistance as per unit cost norms of rain-gun system. The estimated unit cost for various area is given in Table 9:

**Table: 9 Indicative Cost of Large Volume Sprinklers(Rain-gun)**

*(Cost in Rs)*

Area (Ha)	Pipe Dia. (mm)		
	63	75	90
1	31684	38127	NA
2	NA	48370	NA
3	NA	NA	62767
4	NA	NA	72751
5	NA	NA	79894

- Note: i) In case of area other than those mentioned in above table, the amount of assistance could be calculated on pro rata/average basis of the nearest area.  
ii) In case of low penetrating states and hilly states including NE region, 15% and 25% higher indicative cost respectively may be taken for calculation of subsidy.

### **13. Optional Components**

13.1 The use of optional components depends upon the agro climatic conditions of the place & requirement of the beneficiary. The provision is kept to provide the said component on the then existing rate of subsidy to the beneficiary; if required & provided. These components are:

- i. Fertilizer tank - to increase fertilizer use efficiency, fertilizer tanks have been included in the list of equipment eligible for financial assistance. The beneficiary can opt for either fertilizer tank or venturi system or automated dosing system equipment and financial assistance will be provided for either of those components.
- ii. Sand filters/media filters- to remove organic matter and inorganic contaminants from water sources like rivers, tanks and open wells. Sand/media filters have been included the financial assistance.
- iii. Hydro Cyclone Filters/Sand Separators - to remove particles of the size of 75 microns (200 mesh) which have a higher density than water, hydro cyclone filters/sand separators have been introduced as an optional item for which financial assistance will be provided. These equipments require minimum maintenance and are useful for cleaning river water, canal water and tube well water which may contain sand.
- iv. Drip Line Winder- for wrapping the drip laterals has been included for financial assistance.

13.2 States may take up sources creation -Other Interventions (OI) activities under the scheme and must be linked with Micro Irrigation to make potential use of the available funds for higher water use efficiency. These activities should be based on actual requirement and as per the needs of the farmer who adopts

the Micro irrigation system. The details of eligible OI activities for financial assistance and cost Norms is provided at **Annexure XIII**.

13.3 The detailed guideline for water quality & filters selection is provided at **Annexure X&XI** respectively. The indicative cost of optional components such as sand filters, hydro cyclone filters and fertilizer tanks is annexed at **Annexure XII**

13.4 Optional items if any other than above may be allowed. However, cost of these items will be borne by the beneficiary.

#### **14. Key Administrative requirements**

14.1 The unit cost norms indicated in the guidelines for various technologies/specifications are for the purpose of calculating subsidy ceiling amount only i.e. it can be less but not more than the indicated amount if the cost is more. The actual cost of the system, however, would vary as per design of the field and other agro climatic conditions. It is to be ensured that all compulsory system components are provided to the farmer. The BOQ given in the table is indicative & may vary case to case.

14.2 An individual eligible to receive the benefits under the scheme is required to furnish proof of possession of Aadhaar Number or undergo Aadhaar registration. If one individual is eligible but do not possess the Aadhaar number she/he can get enrolled visiting the Aadhaar enrolment centre. State Government/Union Territories Administration is required to offer Aadhaar registration facilities to the beneficiaries who are not enrolled and in case no Aadhaar enrolment centre is available in certain blocks/ taluka/ tehshil, the nodal department through its implementing agency is required to provide enrolment facilities at convenient locations in coordination with the Registrars of UIDAI. Till the time Aadhaar is assigned to individual, she/he can avail the benefit of the scheme on production of the following documents Aadhaar enrolment ID slip/ Copy of request for Aadhaar enrolment and Voter Identity Card/ PAN/ Passport/ Ration Card /Employee Govt. ID/Passbook of bank or post office/MGNREGS card/ Kissan photo passbook/ Driving License/ any other document as specified by State/UT.

14.3 Aadhaar details need to be linked through a web based registration process. The assistance if given in cash, need to be transferred to the bank account of the beneficiary and in case it is given in terms of kind through Companies, the intimation be conveyed as SMS to the beneficiary mobile phone with details of assistance. It should be ensured that no eligible beneficiary suffers for want of Aadhaar and it would be the responsibility of implementing agency to ensure that Aadhaar enrolment of such beneficiaries is carried out on priority. The notification issued in this respect is given at **Annexure-XIV**

- 14.4 It must be ensured that at least 50% of the allocation is utilised for small, marginal farmers of which, at-least 30% should be women beneficiaries/farmers. Further, 16.5% and 8.5% of the total allocation or in proportion of SC/ST population in the district should be utilised for Special Component Plan (SCP) & Tribal Sub Plan (TSP) respectively.
- 14.5 Transparency in beneficiary selection – It should be ensured that the Implementing Agency follows uniform procedures and full transparency in selection of beneficiaries and release of assistance to the beneficiaries in an efficient manner. Enlisting of the beneficiaries should be open round the year facilitating submission of applications by beneficiaries any time for availing the benefit of financial assistance under the scheme. The state implementing agency need to adopt a web based IT model for implementation of the scheme. Implementing Agency should ensure that selection of beneficiaries is done as per details included in the Annual Action Plan for the component for the year which has been derived from the DIP.
- 14.6 All level of implementation shall be in the State portal platform developed for the purpose. The Portal should have online workflow, mapping all levels of implementation to ensure effective monitoring.

#### 14.6.1 Pre-installation activities

- i. The Implementing Agency need to widely publicize the scheme at the block and village levels through its existing networks.
- ii. Appoint a nodal officer who is responsible for coordination of the scheme implementation with the Districts.
- iii. Disseminate the list of suppliers and rate list approved by SLSC to the farmers.
- iv. Organize at least one District Level Seminar/Workshop with the participation of Industry.
- v. Compile the application submitted by the farmers and scrutinize, codify and forward the same to the company's/Manufacturer's local office indicated by the farmer.
- vi. The beneficiary share may be deposited with manufacturer/their representative or the state nodal agency as per the practices to be adopted by the state with the approval of SLSC.
- vii. The beneficiary shall be free to purchase MI equipment from any MI manufacture out of the approved list of registered manufacturers.

#### 14.6.2 The manufacturer/company will do/provide the following:

- i. Assess the crop water requirement as per the crop for which the system is to be provided.
- ii. Design the system as per the crop water requirement.
- iii. Prepare an estimate of cost and submit it to Implementing agency duly

indicating the time frame in which the system will be installed in the farmer's field once work order is issued.

- iv. The Implementing agency will approve the estimate, issue work order and ensure installation
- v. Efforts will be made by the MIS Supplier to ensure coverage of MI in the water scarce, stressed area, critical ground water districts/blocks and in potential & untapped area of the State.

14.6.3 The Company will install the system and commission it to the satisfaction of the beneficiary duly ensuring that:

- i. Quality components having BIS marking are installed in the farmer's field, and while making payment the implementing agency will ensure the BIS standard of supplied equipment, whichever the BIS standard exists.
- ii. The date of manufacturing should be printed on the components as per prevailing statutory norms.
- iii. Implementing agency will ensure that MI system installed in each field bears separate QR code.
- iv. The installed system should match the water requirement of the crop.
- v. Necessary orientation and training is given to the beneficiary on the system maintenance & irrigating the crop with drip/sprinkler irrigation.
- vi. Proper warranty and a user's manual for running & maintenance of the system - whether drip or sprinkler or both- as the case may be is provided to the beneficiary.
- vii. A certificate towards successful installation/commissioning of the system is obtained from the beneficiary.

14.6.4 Disbursement of assistance post installation.

- i. Financial assistance to the beneficiary will be limited to the prescribed subsidy as per unit cost as prescribed under the guidelines or the actual Bill of Quantities (BoQ) whichever is less. On physical verification of satisfactory installation of the system & a certificate to that effect from the beneficiary, Implementing Agency will release payment to the beneficiary electronically in his/ her bank account.
- ii. The Implementing Agency shall ensure proper invoice with statutory commercial details i.e. Serial number, GSTIN number etc. printed on it and countersigned by the authorized representative of the MI System manufacturer is issued to the beneficiary & subsidy released on the same.
- iii. The manufacturer will install the system as per the agreement with the state nodal agency and the procedure for payment as decided by the SLSC may be adopted. Electronic mode of payment is required to be followed for most of the transactions for implementation of the programme. In case the amount is placed with manufacturers/ companies/financial institutions on



behalf of beneficiary, the consent of beneficiary is required and the transaction details need to be conveyed to him over SMS immediately and subsequently in writing too.

- 14.7 Micro irrigation system may be insured for the period of its expected life and the premium may be borne by beneficiary/state government based on the decisions to be taken by States.

## **15 Registration of manufacturing companies**

- 15.1 Registration of micro irrigation system manufacturers shall be done with the approval of SLSC for a period of five years. The registration will be open round the year and a company can apply at any time. Only those manufacturing companies, which have all the facilities to ensure supply of quality product as per BIS standards and can provide prompt after sales services will be registered. The registration will be subject to the satisfactory performance of the company as assessed by the state implementing agency and repeated failures will lead to the de-registration by SLSC.
- 15.2 The companies willing to participate in the scheme should be manufacturing below mentioned components and own BIS in their name:
- 15.3 In the case of drip irrigation, company must manufacture at least laterals and emitting devices as specified conforming to BIS standards. For online drip irrigation systems the company should be manufacturing lateral tubing as well as drippers as per BIS and for inline drip irrigation systems, the company should be a manufacturer of inline emitting pipe.
- 15.4 In the case of portable sprinkler irrigation system the company should manufacture coupled HDPE pipes or sprinklers and should possess respective BIS.
- 15.5 In the case of other sprinkler irrigation systems viz. Mini, Micro, Semi-permanent sprinkler irrigation systems the company should manufacture either of HDPE/PVC/PE pipes/nozzles and should possess respective BIS.
- 15.6 In the case of large volume sprinkler irrigation system (rain gun sprinklers) the company should manufacture HDPE pipes or nozzle and should possess respective BIS.
- 15.7 The company must provide guarantee of quality assurance of other components which are not manufactured by them in various technologies covered under the scheme.

- 15.8 The company must provide free after sales service to the farmers for three years from the date of installation of system. Moreover, they should set up service centres for providing technological support at the grass root level.
- 15.9 The registration under the scheme should be open throughout the year to enable maximum flexibility and open participation.
- 15.10 The company will supply only BIS marked material. The list of relevant BIS components is given at **Annexure XV**.
- 15.11 In case the company intends to supply imported components, it shall be eligible for subsidy under the scheme subjected to indigenization of manufacturing of the component within a period of two years. In case of imported equipment, the techno- economic analysis report will be provided by NCPAH after proper examination and verification and submit report to DA&FW.
- 15.12 The material should be supplied directly by the manufacturer or their authorized distributors/dealers. In all cases, the manufacturer should authenticate the invoices. Such manufacturers shall furnish a Bank Guarantee of quantum of which will be prescribed by SLSC valid for the period of registration.
- 15.13 Each company may have its own pricing system. However, the company would be required to submit the same to the Registering Authority/SLSC at the beginning of the year and as and when the prices are revised by the company.

## **16 After sales services & campaigns**

- 16.1 Operation and Maintenance of the system requires adequate training of beneficiaries for system operation etc. The manufacturers should have required network for providing training and after sales service in their areas of operation. The manufacturers should provide detailed operational and maintenance manual in the local vernacular language at the time of installation of the system. The beneficiaries should be advised to follow the instructions provided by the manufacturers for the operation and maintenance of drip/sprinkler irrigation systems.
- 16.2 Service centres and / or offices of drip / sprinkler system manufacturers / authorised distributors should have facilities to provide technical guidance on system maintenance schedules, supply spare parts and ensure satisfactory performance of the system during the warranty period. The manufacturer must also operate a toll free customer care number where beneficiaries can register their complaints. List of service centres/offices/offices of authorised distributors with full address/telephone numbers/e-mail should be widely published.

- 16.3 After sales service should be provided by the manufacturer/authorized distributor, free of cost for at least a period of three years. The company shall repair or replace any components/instruments of the MI system free of cost within warranty period, if they are found to have manufacturing defects or workmanship defects.
- 16.4 Due to normal wear and tear, if any parts/components require repairing/replacement, the company shall supply the same and recover the cost from the beneficiary after the free period is over. The company or its authorised representatives shall provide acid/chlorine treatment to drip system once during the first year of operation of the system. However, the company should provide training to the beneficiary on this aspect to enable him to do further treatment by himself.
- 16.5 If any system manufacturer fails to provide such service, the same should be brought to the notice of district level committee and SLSC. The manufacturer would be responsible for any dispute arising from the supply of their product/component directly or through their authorised distributors/dealers. The Implementing Agency/ SLSC of each State shall evolve a process and modus operandi to redress the disputes, if any. In cases where product quality related complaints from beneficiaries are received due sampling process mentioned in the guidelines shall be followed.
- 16.6 The SLSC may take measures against erring companies or their authorized dealers, as well as their own staff after due hearing in order to safeguard the interests of farmers/beneficiaries and to ensure effective utilization of public funds. However, before initiating any action, principle of natural justice should be followed.
- 16.7 There could be extension campaigns by the MI companies at a centralized location having area nodal officials, farmers & other related officials. Various aspects of system maintenance, acid treatment, fertigation etc. could be covered. The technical support group NCPAH would maintain a data appropriately to monitor these activities.
- 16.8 The State agencies ensure the campaigns by companies should cover all beneficiaries under warranty period & could be asunder:
- |  |             |
|--|-------------|
| More than 5000 ha area coverage in the state | 6 campaigns |
| 1000-5000 ha area coverage in the state      | 4 campaigns |
| Less than 1000 ha area coverage in the state | 2 campaigns |
- 16.9 The States should develop a grievance redresser system for farmers with a unique toll free number to assist the farmers for their queries and after sale service. If required, Micro Irrigation installing Company may also be asked to provide a Toll Free number.

## **17 Violations & Penalties**

- 17.1 The Central & State Governments, micro irrigation suppliers/manufacturers and other stake holders are putting in a lot of efforts for effective operations of micro irrigation systems. Any wrong operations could lead to system failure & financial loss to the beneficiary apart from loss of faith in the technology. It is, therefore, important to have well defined measures / terms for violation of norms by the stake-holders. Any violation to the quality, maintenance and other parameters need be viewed seriously. The list of violations mentioned below is not exhaustive and any other deviations, which affect the implementation of the scheme adversely may be considered by the DMIC/SLC as deemed fit for smooth functioning of the same.
- 17.2 A due process, where show cause is issued and adequate time is allowed for response, shall be followed and the MI companies as well as the beneficiary shall be adequately heard and natural justice provided.
- 17.3 In case of violations in respect of failure in quality control & quality assurance and to provide maintenance & after sales service, following penalties shall be imposed:
- i. First time in a year, a warning letter may be issued to the manufacturer instructing to rectify the short coming immediately.
  - ii. Second time in same year, a warning letter may be issued to the manufacturer instructing to rectify the shortcoming immediately with a penalty of 10% of invoice value.
  - iii. Third time in same year, a penalty of 25% of invoice value may be charged.
  - iv. Fourth time in same year, a show cause notice may be issued to the company and the case may be refer to SLSC for de-listing the company for a period of one year or more as decided by SLSC.
- 17.4 The violations with regard to submission of bills without installation/partial installation, wrong invoicing, variations in component specifications, submission of wrong documents with reference to pump/system discharge, improper installation, quoting higher price than approved, deviations from prescribed material specifications etc. may be dealt with by the SLSC suitably apart from initiating suitable action under the relevant sections of Indian penal code and other relevant/ appropriate statutory enactments.
- 17.5 In case of sale of the MI system to other farmers before expiry of average life of the system, for which subsidy has been claimed by the beneficiary, legal proceedings against the beneficiary as per applicable law may be initiated and the beneficiary may be blacklisted from availing any government assistance in future.

## 18 Quality Control

- 18.1 Crucial aspect of supply of micro irrigation systems is the quality of hardware which is delivered to the farmer. It needs to be ensured that quality components having BIS marking (wherever applicable) are installed in the beneficiary field. Poor quality has an adverse impact on performance of the system which may affect yield of the crop, quantity of water applied, quantity of fertilizer delivered to the plant etc. It may also increase energy consumption. In fact, sub-standard system will not only adversely impact performance, but could also reduce the durability and the life of the components and/or system.
- 18.2 The SLSC shall form joint inspection teams for field inspection and frequent surveillance by inspection teams will be a regular feature under the Scheme. They will draw random samples periodically from the field, within a period of three years from the date of installation of the system. At the time of inspection, the system should be fully functional. The report should be submitted to the competent authority under SLSC for further action.
- 18.3 While one surveillance visit per operative year shall be kept as the general norm, more or less inspections may be planned depending on the performance or specific guidelines issued by SLSC.
- 18.4 Samples for testing should be collected jointly by the joint inspection team, state nodal official and the company representatives in triplicate and properly labelled, sealed and signed. The samples are collected for all major system components, especially pipes & tubing. One set of samples should be sent to CIPET/BIS or any other approved product testing laboratory for testing as the SLSC may deem fit, another set is to be preserved in the custody of nodal officer and the third one is to be with the manufacturer. After collection of samples at random, they should be coded as per BIS guidelines for the purpose of security and further reference.
- 18.5 Collection of samples with batch number is mandatory. The samples may be collected from the beneficiaries' fields as well as the supply chain of the manufacturer after the product has been dispatched from the manufacturing unit.
- 18.6 The quantity of material required for conducting the test is as detailed below:

Sl. No.	Test	Test samples required
<b>Laterals as per IS : 12786 &amp; Emitting Pipes as per IS : 13488</b>		
1	Identification & composition analysis	15 meters for laterals. 50 meters for emitting pipe.
2	Thickness	
3	Pressure Test	
4	Dimensions	

<b>HDPE Pipes IS: 17425:2020</b>		
1	Identification & composition analysis	1 mts
2	Thickness	
3	Pressure Test	
4	Dimensions	
<b>UPVC Pipes IS: 4985</b>		
1	Identification & composition analysis	1 mts
2	Thickness	
3	Pressure Test	
4	Dimensions	
<b>Emitters / drippers as per IS : 13487</b>		
1	Identification & composition analysis	50 Nos
2	Flow Rate	

18.7 The expenditure towards the testing charges shall be met from the administrative charges under the scheme.

18.8 The state nodal officer will do proper scrutiny of the test report provided by the testing laboratory and draw conclusion from the findings regarding conformity or otherwise of the samples under the test. After scrutiny, the details of test report and results of conformity/non-conformity shall be placed before SLSC for consideration. In case of non-conformity, SLSC may take action against the company/its authorised dealers as per penalty clause mentioned in the scheme guidelines. The SLSC shall follow principle of natural justice and the company as well as the beneficiary shall be heard before taking a final action in the matter.

## **19 Human Resource Development and Media**

19.1 Human resource development is an important component of the scheme. Under the programme training of farmers, entrepreneurs, field level workers, officers, micro irrigation technician and farm pond lining technician and trainers' training may be taken up.

19.2 The financial provisions for the same would be as under:

<b>a) Training of stake holders</b>		
i) Within the State	Rs. 1000/day per farmer including transport	100% of the cost.
ii) Outside the State	Project based as per actual	100% of the cost.
<b>b) Exposure visit of stake holders</b>		
i) Outside the State	Project based as per actual	100% of the cost.

ii) Outside India	Rs. 4.00 lakh/ participants	Project Based 100% of air/rail travel. Course fee cost to be funded under Mission Management
<b>c) Study tour of technical staff/ field functionaries</b>		
i) Within the State	Rs. 300/day per participant plus TA/ DA as admissible	100% of the cost.
ii) Study tour to progressive States/units (group of minimum 5 participants)	Rs. 800/day per participant plus TA/ DA as admissible	100% of the cost
iii) Outside India	Rs. 4.00 lakh per participant	100% of air/rail travel and course fee cost to be funded under Mission Management

19.3 For organization of a workshop/conference or participation in an international event the financial provision is given below. However, prior approval of DA & FW will be required for participation in international events.

International level event	Rs. 7.50 lakh per event.	100% of the cost per event of 4 days, on pro rata basis.
National level event	Rs. 5.00 lakh per event.	100% of the cost per event of two days.
State level event	Rs. 3.00 lakh per event	100% of the cost per event of two days.
District level event	Rs. 2.00 lakh per event	100% of the cost per event of two days.

19.4 Area wise/District wise Awareness/Publicity creation - awareness creation and publicity of the micro irrigation technology will be undertaken through print and electronic media and other methods. The publicity campaigns at block/district/state level need be undertaken by the state nodal agencies.

19.5 The expenses for above Human Resource Development activities and awareness programmes etc. will be met from the administrative expenses earmarked under the scheme.

## **20 Pattern of Assistance & funding pattern**

20.1 The total financial assistance available to the beneficiary under the micro irrigation scheme from both Central and State Governments would be 55% for small & marginal farmers & 45% for other farmers. The unit cost would be

limited to the Indicative costs mentioned in the guidelines for various technologies and areas as given at **Annexure Nos. IV to IX**. For the purpose of calculating subsidy the unit cost shall include the applicable GST.

- 20.2 Funding of financial assistance - under PDMC the subsidy amount payable to the beneficiary will be shared in the ratio of 60:40 between the Central & State Governments for all states except North Eastern & Himalayan states, where the sharing will be in the ratio of 90:10. In the case of Union Territories, the scheme will be funded 100% by the Central Government.

## **21 Monitoring and Evaluation**

- 21.1 Government of India has been emphasizing the use of IT such as online monitoring and information system. All Implementing Agencies/ SPVs of the States/UTs should develop a dedicated portal for the implementation of the scheme. States should ensure transparency and information should be accessible to all the stake holders as well as the public. The State portals should be integrated with the National portal or information to be made accessible through API for seamless flow of information. The State portal should be operational round the year for acceptance of farmers applications and also enabling registration facility at remote places. The State Portal should have online work flow mapping all levels of implementation to ensure effective monitoring. The State portal should also have information like scheme guidelines, application forms, procedures, policies etc. for easy access and facilitation to beneficiary and other stakeholders
- 21.2 Periodic review meeting of the scheme would be conducted under Chairmanship of Additional Secretary/ Joint Secretary of DA&FW with all the States. The physical & financial progress must be uploaded on web-portal on monthly basis by 5<sup>th</sup> of every month for the preceding month.
- 21.3 It may also be ensured that each micro irrigation installation will be given a unique digital QR code and the same will appear on the web portal of the scheme. The physical/ financial progress report is to be submitted by 5<sup>th</sup> of next month as per the format at Annexure-III-a and III-b. Biometric registration of beneficiary & geo tagging/referencing should be made compulsory. 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 automatically link with the State MIS portal through API.
- 21.4 Geo-tagged photograph of the installation and the beneficiary acknowledgement will be mandatory for every installation covered under the scheme and shall be made available in the State Portal.
- 21.5 National Committee on Precision Agriculture and Horticulture (NCPAH) will be involved in monitoring and reviewing the progress of scheme at the National



level. NCPAH secretariat will provide necessary logistic support to the Ministry for this purpose and maintain statistical data base/information on various aspects of the Micro Irrigation.

- 21.6 DA&FW will evolve suitable mechanism for concurrent evaluation of implementation of PDMC. DA&FW may also engage suitable agency for conducting state specific/pan-India/ implementation monitoring and/or mid-term/end-term evaluation of the scheme. Defined number of projects/cases selected on scientific sampling basis shall have to be compulsorily taken up for third party monitoring and evaluation by the implementing States. Such study should be carried by establishing accurate baseline data. In general parameters such as water use efficiency, change in use of fertilizer, soil health, change in income of farmers etc. shall be evaluated.
- 21.7 Action plan for monitoring and evaluation will be decided by SLSC at the beginning of every year based on project cost, importance of the project and other parameters, preferably covering all sectors. The State Government will be free to choose any reputed agencies for conducting the monitoring and evaluation work in their states. Requisite fees/cost towards monitoring & evaluation will be met by the state government from the provision of administrative expenses of the scheme. The performance of the states will be reflected in the Outcome Budget document of the respective Ministry/Department.
- 21.8 In order to have cross learnings, the entire thematic activities and outcomes may be documented with the help of ICAR, SAUs for the benefit of stakeholders. Best practices if any, be documented which can be showcased across the States/UTs.

## **22 Release of Funds**

- 22.1 60% of fund will be released as first installment to the States/UTs upon receipt of proposal in the prescribed format along with specified documents including Annual Action Plan approved by State Level Sanctioning Committee (SLSC) along with minutes of SLSC meeting approving the Annual Action Plan of the State. Suggestive formats for Annual Action Plan are enclosed at **Annexure-II**. The State will submit the utilisation certificate, corresponding physical and financial progress report along with requisite information to the DA&FW regularly.
- 22.2 The guidelines issued by the Ministry of Finance, Government of India regarding procedure for release of funds under Centrally Sponsored Schemes shall be followed for release of installments during the financial year.
- 22.3 If a State fails to submit proposal for release of funds with specified documents within reasonable period of time, the balance funds may be re-allocated to better performing States.

## **23 Administrative Expenses and Contingencies**

Administrative expenses may be met on pro-rata basis from the programme following the general guidelines of RKVY at each level to strengthen coordination, scientific planning and technical support for effective implementation. Administrative expenditure for functioning of coordinating agency/Institutions responsible for implementing the scheme, engagement of contractual staff for monitoring and operating the MI System, payments to consultants, outsourcing of specific activities, recurring expenses of various kinds, procurement of android driven smart phones/tablets for uploading of App for geo tagging, staff costs etc. are admissible. However, no permanent employment can be created, nor vehicles can be purchased. States may supplement any administrative expenditure in excess of the provisions of RKVY Guidelines from their own resources.

**Recommended norms for use of treated sewage quality for specified activities at point of use**

S.N	Parameter	Toilet flushing	Fire Protection	Vehicle Exterior washing	Non-contact impoundments	Landscaping, Horticulture & Agriculture			
						Horticulture, Golf course	Crops		
							Non edible Crops	Raw	Cooked
1	Turbidity (NTU)	<2	<2	<2	<2	<2	AA	<2	AA
2	SS	nil	Nil	Nil	Nil	nil	30	nil	30
3	TDS	2100							
4	pH	6.5 to 8.3							
5	Temperature °C	Ambient							
6	Oil & Grease	10	nil	Nil	Nil	10	10	nil	nil
7	Minimum Residual Chlorine	1	1	1	0.5	0	Nil	nil	nil
8	Total Kjeldahl Nitrogen as N	10	10	10	10	10	10	10	10
9	BOD	10	10	10	10	10	20	10	20
10	COD	AA	AA	AA	AA	AA	30	AA	30
11	Dissolved Phosphorous as P	1	1	1	1	2	5	2	5
12	Nitrate Nitrogen as N	10	10	10	5	10	10	10	10
13	Faecal Coliform in 100 ml	nil	Nil	Nil	Nil	nil	230	nil	230
14	Helminthic Eggs/ litre	AA	AA	AA	AA	AA	<1	<1	<1
15	Colour	Colourless	Colourless	Colourless	Colourless	Colourless	AA	Colourless	Colourless
16	Odour	Aseptic which means not septic and no foul odour							

All units in mg/l unless specified; AA-as arising when other parameters are satisfied;  
A tolerance of plus 5% is allowable when yearly average values are considered.

## Format for Annual Action Plan– Per Drop More Crop (PDMC)

## A) Micro Irrigation:

## (i) District wise details:

Sr. No.	District (Ensure to cover all Aspirational Districts, and Namami Gange Districts )	Drip irrigation						Sprinkler irrigation						Total			
		Field Crops			Horticultural Crops			Field Crops			Horticultural Crops						
		Area	Farmers to be benefitted	Cost	Area	Farmers to be benefitted	Cost	Area	Farmers to be benefitted	Cost	Area	Farmers to be benefitted	Cost	Area	Farmers to be benefitted	Cost	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15=3+6+9+12	16=4+7+10+13	17=5+8+11+14	
						Note: Major Crop wise details of both field & horticultural crops may be mentioned											

**(ii) State Summery (MI):**

**Rs. in Lakh**

<b>S No</b>	<b>Activity</b>	<b>Area (ha)</b>	<b>No of Farmers to be benefitted</b>	<b>Subsidy</b>			<b>Farmers Contribution</b>	<b>Total Cost</b>
				<b>GOI Share</b>	<b>Matching State Share</b>	<b>Total</b>		
1	Drip Irrigation system							
2	Sprinkler Irrigation system							
Total A								
Administrative cost- B								
Total A+B								
% MI cost to total AAP			.....%					

**B) Other Interventions (Optional)- Linked with Micro irrigation**

**(i) District wise details:**

**Rs. in lakh**

<b>SN</b>	<b>District</b>	<b>Activity1</b>				<b>Activity2.....</b>
		<b>Quantity</b>	<b>Unit</b>	<b>Unit rate(Rs.)</b>	<b>cost</b>	

**(ii) State Summary (OI):**

**Rs. in Lakh**

S N	Activity	Quantity	Unit	Unit rate	No of Farmers to be benefitted	Subsidy			Farmers contribution	Total Cost
						GOI Share	Matching State Share	Total		
1	2	3	4	5	6	7	8	9	10	11
<b>Total A</b>										
<b>Administrative cost- B</b>										
<b>Total A+B</b>										
<b>% OI cost to total AAP</b>						.....%				

**Format for Physical Progress Monitoring Report for Per Drop More Crop (Micro Irrigation)**

	<b>Name of the State:</b>				<b>Period of the report:</b>							
	<i>Area in hectare:</i>											
Name of District	Physical Target				Total Physical Target	Physical Achievement				Total Physical Achievement	% Achievement	
	Horticulture		Agriculture			Horticulture		Agriculture				
	Drip	Sprinkler	Drip	Sprinkler		Drip	Sprinkler	Drip	Sprinkler			



**Format for Financial Progress Monitoring Report for Per Drop More Crop (Micro Irrigation)**

Name of District	Name of the State:													Period of the report:			
	Rs. in Lakh																
	Financial Target							Financial Achievement									% Achievement
	Horticulture		Agriculture		Training	Seminar / Exhibition	Scheme Admin. Cost	Horticulture		Agriculture		Training	Seminar / Exhibition	Scheme Admin. Cost	Total Financial Achievement		
Drip	Sprinkler	Drip	Sprinkler	Drip				Sprinkler	Drip	Sprinkler							

**Annexure- IV a**

**Drip Irrigation Technology - Indicative Bill of Quantities for 0.2 ha at farmer's field**

SN	Component/ Lateral to Lateral x Dripper spacing (mxm)	Unit	12x12	10x10	9x9	8x8	6x6	5x5	4x4	3x3	2.5x2.5	2x2	1.5x1.5	2.5x0.6	1.8x0.6	1.5x0.6	1.2x0.6
<b>Control Unit</b>																	
1	Screen filter 10 m <sup>3</sup> /hr/ Disc filter	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
2	Ventury& manifold (1 1/2")	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
3	Air release Valve 1"	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
4	Non Return Valve - 1.5"	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
5	By-pass Assembly - 1.5"x1.5"	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
<b>Field Unit</b>																	
6	PVC Pipe 50 mm, class-III; 6 kg/cm <sup>2</sup>	m	-	-	-	-	-	-	-	-	-	48	48	48	48	48	48
7	Lateral 12 mm, Class II ; 2.5 kg/ cm <sup>2</sup>	m	-	-	-	-	-	-	-	-	-	1010	1347	20	27	32	40
8	Emitting Pipe 12 mm; Class II: (0.6 m x 1 to 4lph)	m	-	-	-	-	-	-	-	-	-	0	0	808	1122	1347	1683
9	Emitter/ Dripper 4/ 8 lph	No.	-	-	-	-	-	-	-	-	-	1020	907	0	0	0	0
10	Control Valve 50 mm	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
11	Flush Valve 50 mm	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
12	Throttle Valve - 1.5"	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
13	Fittings/installation & Accessories @5%	set	-	-	-	-	-	-	-	-	-	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

**Annexure- IV b**

**Drip Irrigation Technology - Indicative Bill of Quantities for 0.4 ha at farmer's field**

SN	Component/ Lateral to Lateral x Dripper spacing (mxm)	Unit	12 X 12	10 X 10	9 x 9	8 X 8	6 X 6	5 X 5	4 X 4	3 X3	2.5 X 2.5	2 X 2	1.5 X 1.5	2.5 X 0.6	1.8 X 0.6	1.5 X 0.6	1.2 X 0.6
<b>Control Unit</b>																	
1	Screen filter 10 m <sup>3</sup> /hr/ Disc filter	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Ventury& manifold (1 1/2")	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Air release Valve 1"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Non Return Valve - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	By-pass Assembly - 1.5"x1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
<b>Field Unit</b>																	
6	PVC Pipe 63 mm, class-II; 4 kg/ cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	30	30	30	0	0	0	0
7	PVC Pipe 50 mm, class-III; 6 kg/ cm <sup>2</sup>	m	96	96	96	96	96	96	96	96	66	66	66	96	96	96	96
8	Lateral 12mm, Class II; 2.5 kg/ cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	1616	2020	2693	38	53	64	79
9	Emitting Pipe 12 mm; Class II: (0.6 m x 1 to 4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	1616	2245	2693	3367
10	Lateral 12 mm, Class II ; 2.5 kg/ cm <sup>2</sup>	m	339	406	452	508	677	813	1016	1355	0	0	0	0	0	0	0
11	Emitter/ Dripper 4/ 8 lph	No.	113	163	201	255	453	653	510	907	1293	2010	1796	0	0	0	0
12	Control Valve 63 mm	No.	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
13	Control Valve 50 mm	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	Flush Valve 63 mm	No.	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
15	Flush Valve 50 mm	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	Throttle Valve - 2"	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
17	Throttle Valve - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
18	Fittings/Installation& Accessories @5%	set	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

**Annexure- IV c**

**Drip Irrigation Technology - Indicative Bill of Quantities for 1.0 ha at farmer's field**

SN	Component/ Lateral to Lateral x Dripper spacing (mxm)	Unit	12 X 12	10 X 10	9 x 9	8 X 8	6 X 6	5 X 5	4 X 4	3 X 3	2.5 X 2.5	2 X 2	1.5 X 1.5	2.5 X 0.6	1.8 X 0.6	1.5 X 0.6	1.2 X 0.6
<b>Control Unit</b>																	
1	Screen filter 20 / 25 m <sup>3</sup> / hr/ Disc filter	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Ventury & manifold (2")	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Air release Valve 1"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Non Return Valve - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	By-pass Assembly - 1.5"x1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
<b>Field Unit</b>																	
6	PVC Pipe 75 mm, class-II; 4 kg/ cm <sup>2</sup>	m	0	0	0	0	0	0	0	54	54	54	54	54	54	54	54
7	PVC Pipe 63 mm, class-II; 4 kg/ cm <sup>2</sup>	m	0	0	0	0	54	156	156	102	102	102	102	102	102	102	102
8	PVC Pipe 50 mm, class-III; 6 kg/ cm <sup>2</sup>	m	156	156	156	156	102	0	0	0	0	0	0	0	0	0	0
9	Lateral 16 mm, Class II; 2.5 kg/ cm <sup>2</sup>	m	833	1000	1111	1250	1667	2000	2500	3333	4000	5000	6667	60	83	100	125
10	Emitting Pipe 16 mm; Class II: (0.6 m x 1 to 4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	4040	5611	6733	8417
11	Emitter/ Dripper 4/ 8 lph	No.	278	400	494	625	1111	1600	1275	2267	3232	5050	4489	0	0	0	0
12	Control Valve 75 mm	No.	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0
13	Control Valve 63 mm	No.	0	0	0	0	1	1	1	0	0	0	0	1	1	1	1
14	Control Valve 50 mm	No.	1	1	1	1	0	0	0	0	1	1	1	1	1	2	2
15	Flush Valve 63 mm	No.	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2
16	Flush Valve 50 mm	No.	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
17	Throttle Valve - 2"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
18	Fittings/Instalation& Accessories @5%	set	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

**Annexure- IV d**

**Drip Irrigation Technology - Indicative Bill of Quantities for 2.0 ha at farmer's field**

SN	Component/ Lateral to Lateral x Dripper spacing (mxm)	Unit	12 X 12	10 X 10	9 x 9	8 X 8	6 X 6	5 X 5	4 X 4	3 X3	2.5 X 2.5	2 X 2	1.5 X 1.5	2.5 X 0.6	1.8 X 0.6	1.5 X 0.6	1.2 X 0.6
<b>Control Unit</b>																	
1	Screen filter 20 / 25 m <sup>3</sup> / hr/ Disc filter	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Ventury& manifold (2")	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Air release Valve 1"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Non Return Valve - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	By-pass Assembly - 1.5"x1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
<b>Field Unit</b>																	
6	PVC Pipe 75 mm, class-II; 4 kg/ cm <sup>2</sup>	m	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
7	PVC Pipe 63 mm, class-II; 4 kg/ cm <sup>2</sup>	m	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
8	Lateral 16 mm, Class II; 2.5 kg/ cm <sup>2</sup>	m	1850	2130	2350	2600	3500	4200	5200	6900	8250	11000	14000	120	150	170	200
9	Emitting Pipe 16 mm; Class II: (0.6 m x 1 to 4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	8200	11500	13600	17000
10	Emitter/ Dripper 4/ 8 lph	No.	600	800	1000	1300	2300	3300	2600	4800	6600	10400	9000	0	0	0	0
11	Control Valve 75 mm	No.	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1
12	Control Valve 63 mm	No.	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2
13	Flush Valve 63 mm	No.	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
14	Throttle Valve - 2"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	Fittings/Instalation& Accessories @5%	set	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## Drip Irrigation Technology - Indicative Bill of Quantities for 3.0 ha at farmer's field

SN	Component/ Lateral to Lateral x Dripper spacing (mxm)	Unit	12 X 12	10 X 10	9 x 9	8 X 8	6 X 6	5 X 5	4 X 4	3 X 3	2.5 X 2.5	2 X 2	1.5 X 1.5	2.5 X 0.6	1.8 X 0.6	1.5 X 0.6	1.2 X 0.6
<b>Control Unit</b>																	
1	Screen filter 30 m <sup>3</sup> / hr/ Disc filter	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
2	Screen filter 20 / 25 m <sup>3</sup> / hr/ Disc filter	No.	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
3	Ventury& manifold (2")	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Air release Valve 1"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Non Return Valve - 2"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
6	Non Return Valve – 1.5"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
7	By-pass Assembly - 2"x1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
<b>Field Unit</b>																	
8	PVC Pipe 90 mm, class-II; 4 kg/ cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	90	90	90	90	90	90	90
9	PVC Pipe 75 mm, class-II; 4 kg/ cm <sup>2</sup>	m	0	0	0	0	216	216	216	216	132	132	132	132	132	132	132
10	PVC Pipe 63 mm, class-II; 4 kg/ cm <sup>2</sup>	m	216	216	216	216	336	336	336	336	174	174	174	174	174	174	174
11	PVC Pipe 50 mm, class-III; 6 kg/ cm <sup>2</sup>	m	336	336	336	336	0	0	0	0	0	0	0	0	0	0	0
12	Lateral 16 mm, Class II; 2.5 kg/ cm <sup>2</sup>	m	2500	3000	3333	3750	5000	6000	7500	10000	12120	15150	20200	156	217	260	325
13	Emitting Pipe 16 mm; Class II: (0.6 m x 1 to 4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	12120	16833	20200	25250
14	Emitter/ Dripper 4/ 8 lph	No.	833	1200	1481	1875	3333	2400	3750	6667	9696	15150	13467	0	0	0	0
15	Control Valve 90 mm	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
16	Control Valve 75 mm	No.	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2
17	Control Valve 63 mm	No.	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4
18	Control Valve 50 mm	No.	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0
19	Flush Valve 75 mm	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
20	Flush Valve 63 mm	No.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
21	Throttle Valve - 2"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
22	Throttle Valve – 1.5"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
23	Fittings/Installation& Accessories @5%	set	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## Drip Irrigation Technology - Indicative Bill of Quantities for 4.0 ha at farmer's field

SN	Component/ Lateral to Lateral x Dripper spacing (mxm)	Unit	12 X12	10 X 10	9 x 9	8 X 8	6 X 6	5 X 5	4 X 4	3 X 3	2.5 X 2.5	2 X 2	1.5 X 1.5	2.5 X 0.6	1.8 X0.6	1.5 X 0.6	1.2 X 0.6
<b>Control Unit</b>																	
1	Screen filter 30 m <sup>3</sup> / hr/ Disc filter	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
2	Screen filter 20/ 25 m <sup>3</sup> /hr/ Disc filter	No.	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
3	Ventury& manifold (2")	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Air release Valve 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Non Return Valve - 2"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
6	Non Return Valve – 1.5"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
7	By-pass Assembly - 2"x1.5"	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
8	By-pass Assembly – 1.5"x1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
<b>Field Unit</b>																	
9	PVC Pipe 90 mm, class-II; 4 kg/ cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	138	138	138	138	138	138	138
10	PVC Pipe 75 mm, class-II; 4 kg/ cm <sup>2</sup>	m	222	222	222	222	222	222	222	222	276	276	276	276	276	276	276
11	PVC Pipe 63 mm, class-II; 4 kg/ cm <sup>2</sup>	m	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402
12	Lateral 16 mm, Class II; 2.5 kg/ cm <sup>2</sup>	m	3400	4080	4533	5100	6800	8160	10200	13600	16160	20200	26933	180	250	300	375
13	Emitting Pipe 16 mm; Class II: (0.6 m x 1 to 4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	16000	22000	26950	33100
15	Emitter/ Dripper 4/ 8 lph	No.	1133	1632	2015	2550	4533	4896	7700	9244	12800	20000	17800	0	0	0	0
16	Control Valve 90 mm	No.	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2
17	Control Valve 75 mm	No.	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2
18	Control Valve 63 mm	No.	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4
19	Flush Valve 75 mm	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	Flush Valve 63 mm	No.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
21	Throttle Valve - 2"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
22	Throttle Valve – 1.5"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
23	Fittings/Installation& Accessories @5%	set	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## Drip Irrigation Technology- Indicative Bill of Quantities 5.0 ha at farmer's field

SN	Component/ Lateral to Lateral x Dripper spacing (mxm)	Unit	12 X 12	10 X 10	9 x 9	8 X 8	6 X 6	5 X 5	4 X 4	3 X3	2.5 X 2.5	2 X 2	1.5 X 1.5	2.5 X 0.6	1.8 X0.6	1.5 X 0.6	1.2 X 0.6
<b>Control Unit</b>																	
1	Screen filter 30 m <sup>3</sup> / hr/ Disc filter	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
2	Screen filter 20/ 25 m <sup>3</sup> /hr/ Disc filter	No.	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
3	Ventury& manifold (2 1/2")	No.	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
4	Ventury& manifold (2")	No.	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
5	Air release Valve 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Non Return Valve – 2.5"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
7	Non Return Valve – 2"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
8	By-pass Assembly – 2.5"x2"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
9	By-pass Assembly - 2"x1.5"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
<b>Field Unit</b>																	
10	PVC Pipe 90 mm, class-II; 4 kg/cm <sup>2</sup>	m	114	114	114	114	114	114	114	114	168	168	168	168	168	168	168
11	PVC Pipe 75 mm, class-II; 4 kg/cm <sup>2</sup>	m	168	168	168	168	168	168	168	168	342	342	342	342	342	342	342
12	PVC Pipe 63 mm, class-II; 4 kg/cm <sup>2</sup>	m	450	450	450	450	450	450	450	450	456	456	456	456	456	456	456
13	Lateral 16 mm, Class II; 2.5 kg/cm <sup>2</sup>	m	4250	5100	5667	6375	8500	10200	12750	17000	20200	25250	33667	268	373	447	559
14	Emitting Pipe 16 mm; Class II: (0.6 m x 1 to 4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	20200	28056	33667	42083
15	Emitter/ Dripper 4/ 8 lph	No.	1417	2040	2519	3188	5667	8160	6500	11556	16160	25250	22444	0	0	0	0
16	Control Valve 90 mm	No.	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2
17	Control Valve 75 mm	No.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	Control Valve 63 mm	No.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
19	Flush Valve 75 mm	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	Flush Valve 63 mm	No.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
21	Throttle Valve – 2.5"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
22	Throttle Valve – 2"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
23	Fittings/Installation& Accessories @5%	set	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.



## Annexure- IV h

### NEH States-Drip Irrigation Technology - Indicative Bill of Quantities for 0.2 ha at farmer's field

SN	Component/ Lateral to Lateral x Dripper spacing (mxm)	Unit	12x12	10x10	9x9	8x8	6x6	5x5	4x4	3x3	2.5x2.5	2x2	1.5x1.5	2.5x0.6	1.8x0.6	1.5x0.6	1.2x0.6
	<b>Control Unit</b>																
1	Screen filter 10 m <sup>3</sup> /hr/ Disc filter	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
2	Ventury& manifold (1 1/2")	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
3	Air release Valve 1"	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
4	Non Return Valve - 1.5"	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
5	By-pass Assembly - 1.5"x1.5"	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
6	<b>Field Unit</b>																
7	HDPE Pipe 50 mm; 4 kg/cm <sup>2</sup>	m	-	-	-	-	-	-	-	-	-	54	54	54	54	54	54
8	Lateral 12 mm, Class II ; 2.5 kg/cm <sup>2</sup>	m	-	-	-	-	-	-	-	-	-	1010	1347	20	27	32	40
9	Emitting Pipe 12 mm; Class II:(0.2-0.3 m x 1 to 2-4 lph)	m	-	-	-	-	-	-	-	-	-	0	0	808	1122	1347	1683
10	Pressure regulating Emitter/ Dripper 2/ 4/ 8 lph	No.	-	-	-	-	-	-	-	-	-	1020	907	0	0	0	0
11	Control Valve 50 mm	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
12	Control Valve 63 mm	No.	-	-	-	-	-	-	-	-	-	1	1	0	0	0	0
13	Flush Valve 50 mm	No.	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2
14	Throttle Valve - 1.5"	No.	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
15	Fittings/Installation& Accessories @5%	set	-	-	-	-	-	-	-	-	-	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## Annexure- IV i

## NEH States- Drip Irrigation Technology- Indicative Bill of Quantities for 0.4 ha at farmer's field

SN	Component/ Lateral to Lateral x Dripper spacing (mxm)	Unit	12 X 12	10 X 10	9x9	8X8	6 X 6	5 X 5	4 X 4	3 X 3	2.5 X 2.5	2 X 2	1.5 X 1.5	2.5 X 0.6	1.8 X 0.6	1.5 X 0.6	1.2 X 0.6
	<b>Control Unit</b>																
1	HDPE Pipe 50 mm; 4 kg/cm <sup>2</sup>	m	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104
2	HDPE Pipe 63 mm; 4 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	30	30	30	0	0	0	0
3	Lateral 12 mm, Class II ; 2.5 kg/cm <sup>2</sup>	m	339	406	452	508	677	813	1016	1355	0	0	0	0	0	0	0
4	Lateral 16 mm, Class II; 2.5 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	1616	2020	2693	38	53	64	79
5	Emitting Pipe 16 mm; Class II: (0.2-0.3 m x 1 to 2-4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	1616	2245	2693	3367
6	Pressure regulating Emitter/ Dripper 2/ 4/ 8 lph	No.	113	163	201	255	453	490	765	1360	1306	2010	3627	0	0	0	0
7	Control Valve 50 mm	No.	6	6	6	6	6	6	6	6	6	6	6	4	4	4	4
8	Control Valve 63 mm	No.	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
9	Flush Valve 50 mm	No.	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4
10	Air release Valve 1"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	Non Return Valve - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	Throttle Valve - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	Screen filter 10 m <sup>3</sup> / hr/ Disc filter	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	By-pass Assembly - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	Ventury& manifold - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	Fittings/Installation& Accessories	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## Annexure- IV j

## NEH States - Drip Irrigation Technology- Indicative Bill of Quantities for 1.0 ha at farmer's field

SN	Component/ Lateral to Lateral x Dripper spacing (mxm)	Unit	12 X 12	10 X10	9x9	8X8	6 X 6	5 X5	4 X 4	3 X3	2.5 X 2.5	2 X 2	1.5X 1.5	2.5X0.6	1.8X0.6	1.5 X 0.6	1.2X0.6
	<b>Control Unit</b>																
1	HDPE Pipe 40 mm; 6 kg/cm <sup>2</sup>	m	172	172	172	172	112	0	0	0	0	0	0	0	0	0	0
2	HDPE Pipe 50 mm; 4 kg/cm <sup>2</sup>	m	0	0	0	0	60	172	172	172	172	172	172	0	0	0	0
3	HDPE Pipe 63 mm; 4 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	60	60	60	60	118	118	118	118
4	HDPE Pipe 75 mm; 4 kg/cm <sup>2</sup>	M	0	0	0	0	0	0	0	0	0	0	0	62	62	62	62
5	Lateral 12 mm, Class II ; 2.5 kg/cm <sup>2</sup>	m	980	1150	1300	1400	1800	2000	2500	3333	0	0	0	0	0	0	0
6	Lateral 16 mm, Class II; 2.5 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	4040	5050	6733	60	83	100	125
7	Emitting Pipe 16 mm; Class II: (0.2-0.3 m x 1 to 2-4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	4040	5611	6733	8717
8	Pressure regulating Emitter/ Dripper 2/ 4/ 8 lph	No.	350	440	540	650	1150	1224	1913	3400	3232	5050	9067	0	0	0	0
9	Control Valve 40 mm	No.	10	10	10	10	0	0	0	0	7	7	7	0	0	0	0
10	Control Valve 50 mm	No.	0	0	0	0	10	10	10	0	3	3	3	4	4	4	4
11	Control Valve 63 mm	No.	0	0	0	0	0	0	0	10	0	0	0	1	1	1	1
12	Control Valve 75 mm	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
13	Flush Valve 50 mm	No.	1	1	1	1	1	0	0	0	1	1	1	4	4	4	4
14	Flush Valve 63 mm	No.	0	0	0	0	0	1	1	1	0	0	0	1	1	1	1
15	Air release Valve 1"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	Non Return Valve - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	Throttle Valve - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
18	Screen filter 10 m3/ hr/ Disc filter	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
19	By-pass Assembly - 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	Ventury& manifold - 2"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	Fittings/Installation& Accessories	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

**Annexure- IV k**

**NEH States-Drip Irrigation Technology - Indicative Bill of Quantities for 2.0 ha at farmer's field**

SN	Component Lateral to Lateral x Dripper spacing (mxm)	Unit	12x12	10x10	9x9	8x8	6x6	5x5	4x4	3x3	2.5x2.5	2x2	1.5x1.5	2.5x0.6	1.8x0.6	1.5 X 0.6	1.2x0.6
1	HDPE Pipe 50 mm; 4 kg/cm <sup>2</sup>	m	165	165	165	165	165	165	165	165	165	165	165	120	120	120	120
2	HDPE Pipe 63mm; 4 kg/cm <sup>2</sup>	m	88	88	88	88	88	88	88	88	88	88	88	80	80	80	80
3	HDPE Pipe 75mm; 4 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	0	0	0	90	90	90	90
4	Lateral 12 mm, Class II ; 2.5 kg/cm <sup>2</sup>	m	1850	2130	2350	2600	3500	4200	5200	6900	0	0	0	0	0	0	0
5	Lateral 16 mm Class II, 2.5 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	8400	11400	14600	120	150	170	200
6	Emitting Pipe 16 mm; Class II: (0.2-0.3 m x 1 to 2-4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	8200	11500	13600	17000
7	Pressure regulating Emitter/ Dripper 2/ 4/ 8 lph	No.	600	800	1000	1300	2300	2448	3825	6800	6600	10400	18133	0	0	0	0
8	Control Valve 50 mm	No.	12	12	12	12	12	12	12	12	12	12	12	8	8	8	8
9	Control Valve 63 mm	No.	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
10	Control Valve 75 mm	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
11	Flush Valve 50 mm	No.	3	3	3	3	3	3	3	3	3	3	3	8	8	8	8
12	Flush Valve 63 mm	No.	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4
13	Air Release Valve 1"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	Non Return Valve 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	Throttle Valve 1.5"	No.	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1
16	Throttle Valve 2"	No.	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0
17	Screen Filter 10 m <sup>3</sup> /hr/ Disc filter	No.	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
18	Screen Filter 30 m <sup>3</sup> /hr/ Disc filter	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
19	By-pass Assembly-1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	Venturi & Manifold 2"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	Fittings/Installation& Accessories	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## NEH States- Drip Irrigation Technology- Indicative Bill of Quantities 3.0 ha at farmer's field

SN	Component Lateral to Lateral x Dripper spacing ( mxm)	Unit	12x12	10x10	9x9	8x8	6x6	5x5	4x4	3x3	2.5x2.5	2x2	1.5x1.5	2.5x0.6	1.8x0.6	1.5 X 0.6	1.2x0.6
1	HDPE Pipe 90mm; 4 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	105	105	105	0	0	0	0
2	HDPE Pipe 75mm; 4 kg/cm <sup>2</sup>	m	0	0	0	0	240	240	240	240	144	144	144	105	105	105	105
3	HDPE Pipe 63mm; 4 kg/cm <sup>2</sup>	m	240	240	240	240	380	380	380	380	190	190	190	150	150	150	150
4	HDPE Pipe 50 mm; 4 kg/cm <sup>2</sup>	m	380	380	380	380	0	0	0	0	0	0	0	200	200	200	200
5	Lateral 16 mm Class II, 2.5 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	12120	15150	20200	156	217	260	325
6	Lateral 12 mm, Class II ; 2.5 kg/cm <sup>2</sup>	m	2500	3000	3333	3750	5000	6000	7500	10000	0	0	0	0	0	0	0
7	Emitting Pipe 16 mm; Class II: (0.2-0.3 m x 1 to 2-4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	12120	16833	20200	25250
8	Pressure regulating Emitter/ Dripper 2/ 4/ 8 lph	No.	833	1200	1481	1875	3333	3672	5738	10200	9696	15150	26933	0	0	0	0
9	Control Valve 90 mm	No.	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
10	Control Valve 75 mm	No.	3	3	3	3	3	3	3	3	5	5	5	1	1	1	1
11	Control Valve 63 mm	No.	8	8	8	8	8	8	8	8	8	8	8	2	2	2	2
12	Control Valve 50 mm	No.	0	0	0	0	0	0	0	0	0	0	0	8	8	8	8
13	Flush Valve 75mm	No.	3	3	3	3	3	3	3	3	5	5	5	0	0	0	0
14	Flush Valve 63mm	No.	8	8	8	8	8	8	8	8	8	8	8	1	1	1	1
15	Flush Valve 50mm	No.	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4
16	Air Release Valve 1"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	Non Return Valve 1.5"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
18	Non Return Valve 2"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
19	Throttle Valve 1.5"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
20	Throttle Valve 2"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
21	Screen Filter 30 m <sup>3</sup> /hr/ Disc filter	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
22	Screen Filter 20/25 m <sup>3</sup> /hr/ Disc filter	No.	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0
23	Screen Filter 10 m <sup>3</sup> /hr/ Disc filter	No.	1	1	1	1	1	0	0	0	1	1	1	0	0	0	0
24	By-pass Assembly-2"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25	Venturi & Manifold 2 "	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
26	Fittings/Installation & Accessories	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## NEH States- Drip Irrigation Technology- Indicative Bill of Quantities 4.0 ha at farmer's field

SN.	Component Lateral to Lateral x Dripper spacing (mxm)	Unit	12x12	10x10	9x9	8x8	6x6	5x5	4x4	3x3	2.5x2.5	2x2	1.5x1.5	2.5x0.6	1.8x0.6	1.5 X 0.6	1.2x0.6
1	HDPE Pipe 90mm; 4 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	160	160	160	150	150	150	150
2	HDPE Pipe 75mm; 4 kg/cm <sup>2</sup>	m	245	245	245	245	245	245	245	245	300	300	300	300	300	300	300
3	HDPE Pipe 63mm; 4 kg/cm <sup>2</sup>	m	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275
4	HDPE Pipe 50 mm; 4 kg/cm <sup>2</sup>	m	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167
5	Lateral 16 mm Class II, 2.5 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	16160	20200	26933	180	250	300	375
6	Emitting Pipe 16 mm; Class II: (0.2-0.3 m x 1 to 2-4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	16000	22000	26670	33100
7	Lateral 12 mm, Class II ; 2.5 kg/cm <sup>2</sup>	m	3400	4080	4533	5100	6800	8160	10200	13600	0	0	0	0	0	0	0
8	Pressure regulating Emitter/ Dripper 2/ 4/ 8 lph	No.	1133	1632	2015	2550	4533	4896	7700	13600	12800	20000	35911	0	0	0	0
9	Control Valve 90 mm	No.	0	2	0	0	0	0	0	0	2	2	2	2	2	2	2
10	Control Valve 75 mm	No.	0	0	0	0	3	3	3	3	3	3	3	2	2	2	2
11	Control Valve 63mm	No.	5	5	5	5	3	3	3	3	8	8	8	5	5	5	5
12	Control Valve 50mm	No.	3	3	3	3	2	2	2	2	4	4	4	3	3	3	3
13	Flush Valve 75mm	No.	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1
14	Flush Valve 63mm	No.	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4
15	Flush Valve 50mm	No.	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2
16	Air Release Valve 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	Non Return Valve 1.5"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
18	Non Return Valve 2"	No.	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
19	Non Return Valve 2.5"	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
20	Throttle Valve 1.5"	No.	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
21	Throttle Valve 2"	No.	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0
22	Throttle Valve 2.5"	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
23	Screen Filter 30 m <sup>3</sup> /hr/ Disc filter	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
24	Screen Filter 20/25 m <sup>3</sup> /hr/ Disc filter	No.	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0
25	Screen Filter 10 m <sup>3</sup> /hr/ Disc filter	No.	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
26	By-pass Assembly-2"	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
27	By-pass Assembly-1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
28	Venturi & Manifold 2 "	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
29	Fittings/Installation & Accessories	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## NEH States- Drip Irrigation Technology- Indicative Bill of Quantities 5.0 ha at farmer's field

SN	Component Lateral to Lateral x Dripper spacing ( mxm)	Unit	12x12	10x10	9x9	8x8	6x6	5x5	4x4	3x3	2.5x2.5	2x2	1.5x1.5	2.5x0.6	1.8x0.6	1.5 X 0.6	1.2x0.6
1	HDPE Pipe 90mm; 4 kg/cm <sup>2</sup>	m	124	124	124	124	124	124	124	124	180	180	180	180	180	180	180
2	HDPE Pipe 75mm; 4 kg/cm <sup>2</sup>	m	180	180	180	180	180	180	180	180	372	372	372	375	375	375	375
3	HDPE Pipe 63mm; 4 kg/cm <sup>2</sup>	m	300	300	300	300	300	300	300	300	300	300	300	310	310	310	310
4	HDPE Pipe 50 mm; 4 kg/cm <sup>2</sup>	m	212	212	212	212	212	212	212	212	212	212	212	200	200	200	200
5	Lateral 16 mm Class II, 2.5 kg/cm <sup>2</sup>	m	0	0	0	0	0	0	0	0	20200	25250	33667	268	373	447	559
6	Emitting Pipe 16 mm; Class II: (0.2-0.3 m x 1 to 2-4 lph)	m	0	0	0	0	0	0	0	0	0	0	0	20200	28056	33667	42083
7	Lateral 12 mm, Class II ; 2.5 kg/cm <sup>2</sup>	m	4250	5100	5667	6375	8500	10200	12750	17000	0	0	0	0	0	0	0
8	Pressure regulating Emitter/ Dripper 2/ 4/ 8 lph	No.	1417	2040	2519	3188	5667	6120	9563	17000	16610	25250	44889	0	0	0	0
9	Control Valve 90 mm	No.	2	2	2	0	0	0	0	0	0	0	0	2	2	2	2
10	Control Valve 75 mm	No.	4	4	4	4	4	4	4	4	4	4	4	2	2	2	2
11	Control Valve 63 mm	No.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
12	Control Valve 50 mm	No.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
13	Flush Valve 75 mm	No.	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1
14	Flush Valve 63 mm	No.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
15	Flush Valve 50 mm	No.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	Air Release Valve 1.5"	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	Non Return Valve 1.5"	No.	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
18	Non Return Valve 2.5"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
19	Throttle Valve 1.5"	No.	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
20	Throttle Valve 2"	No.	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0
21	Throttle Valve 2.5"	No.	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
22	Screen Filter 30m <sup>3</sup> /hr/ Disc filter	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
23	Screen Filter 20/25 m <sup>3</sup> /hr/ Disc filter	No.	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0
24	Screen Filter 10 m <sup>3</sup> /hr/ Disc filter	No.	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
25	By-pass Assembly-2.5"	No.	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1
26	By-pass Assembly-2"	No.	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
27	Venturi & Manifold 2 "	No.	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
28	Fittings/Installation & Accessories	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## Indicative Bill of Quantities (BoQ) for Portable Sprinkler Irrigation System

Using 63 mm coupler								
SN	Components/ Area (Ha)	Unit	0.4	1	2	3	4	5
1	HDPE Pipes with Quick coupled (Pipe of Class II; 3.2 kg/cm <sup>2</sup> IS:17425:2020 63 mm diameter & 6m long)	No	18	30	41	NA	NA	NA
2	Quick coupled HDPE 63mm Foot batten Assembly ;	No	3	5	9	NA	NA	NA
3	GI/PP/ PVC Riser Pipe 3/4" diameter x 75 cm long	No	3	5	9	NA	NA	NA
4	Sprinkler Nozzles (1.7 to 2.8 kg/cm <sup>2</sup> ) ;IS 12232 Part I Brass/Plastic	No	3	5	9	NA	NA	NA
5	Quick coupled HDPE Bend with Coupler 90 <sup>0</sup> (63/50 mm) ;	No	1	1	1	NA	NA	NA
6	Quick coupled HDPE Pump Connecting Nipple 63 mm;	No	1	1	1	NA	NA	NA
7	Quick coupled HDPE End Plug (63 mm) ;	No	1	2	2	NA	NA	NA
8	Quick coupled HDPE Tee with Coupler (63mm) ;	No	1	1	1	NA	NA	NA
Using 75 mm coupler								
SN	Components/ Area (Ha)	Unit	0.4	1	2	3	4	5
1	HDPE Pipes with Quick coupled (Pipe of Class I; 2.5 kg/cm <sup>2</sup> IS:17425:2020, 75 mm diameter & 6m long)	No	NA	30	41	NA	NA	NA
2	Quick coupled HDPE 75mm Foot batten Assembly;	No	NA	5	9	NA	NA	NA
3	GI/PP/ PVC Riser Pipe 3/4" diameter x 75 cm long	No	NA	5	9	NA	NA	NA
4	Sprinkler Nozzles (1.7 to 2.8 kg/cm <sup>2</sup> ) ;IS 12232 Part I Brass/Plastic	No	NA	5	9	NA	NA	NA
5	Quick coupled HDPE Bend with Coupler 90 <sup>0</sup> (75 mm) ;	No	NA	1	1	NA	NA	NA
6	Quick coupled HDPE Pump Connecting Nipple , 75 mm;	No	NA	1	1	NA	NA	NA
7	Quick coupled HDPE End Plug (75 mm) ;	No	NA	2	2	NA	NA	NA
8	Quick coupled HDPE Tee with Coupler (75 mm);	No	NA	1	1	NA	NA	NA
Using 90 mm coupler								
SN	Components/ Area (Ha)	Unit	0.4	1	2	3	4	5
1	HDPE Pipes with Quick coupled (Pipe of Class I; 2.5 kg/cm <sup>2</sup> ; IS:17425:2020, 90 mm diameter & 6m long)	No	NA	NA	NA	41	52	58
2	Quick coupled HDPE 90mm Foot batten Assembly ;	No	NA	NA	NA	11	14	16
3	GI/PP/ PVC Riser Pipe 3/4" diameter x 75 cm long	No	NA	NA	NA	11	14	16
4	Sprinkler Nozzles (1.7 to 2.8 kg/cm <sup>2</sup> ) ;IS 12232 Part I Brass/Plastic	No	NA	NA	NA	11	14	16
5	Quick coupled HDPE Bend with Coupler 90 <sup>0</sup> (90 mm) ;	No	NA	NA	NA	2	2	4
6	Quick coupled HDPE Pump Connecting Nipple, 90 mm;	No	NA	NA	NA	1	1	1
7	Quick coupled HDPE End Plug (90 mm) ;	No	NA	NA	NA	2	2	2
8	Quick coupled HDPE Tee with Coupler (90 mm);	No	NA	NA	NA	1	1	2

Note: In the cases of area up to 2 ha, the beneficiary may be allowed for using higher dia HDPE pipe as per his choice. However, financial assistance may be allowed as per the indicative Unit cost for 75 mm dia HDPE pipe.



## Annexure-VI

### Indicative Bill of Quantities (BoQ) for Micro Sprinkler Irrigation System

SN	Components/ Area (Ha)	5mx5m						3m x 3m						
		Unit	0.4	1.0	2.0	3.0	4.0	5.0	0.4	1.0	2.0	3.0	4.0	5.0
1	PVC Pipe 90 mm, class-II; 4 kg/cm <sup>2</sup>	m	0	0	0	0	160	0	0	0	0	0	150	
2	PVC Pipe 75 mm, class-II; 4 kg/cm <sup>2</sup>	m	30	54	80	100	252	600	30	54	100	140	220	520
3	PVC Pipe 63 mm, class-II; 4 kg/cm <sup>2</sup>	m	66	102	150	180	402	0	66	102	150	180	380	0
4	20 mm LLDPE plain laterals, Class II; 2.5 kg/cm <sup>2</sup>	m	0	2000	4000	6000	8000	10000	0	3350	6660	10000	13330	16600
5	Lateral 16 mm, Class II; 2.5 kg/cm <sup>2</sup>	m	800	0	0	0	0	1336	0	0	0	0	0	0
6	Micro sprinkler Set	No.	160	400	800	1200	1600	2000	444	1111	2222	3333	4444	5556
7	Control Valve 90 mm	No.	0	0	0	0	2	2	0	0	0	0	0	1
8	Control Valve 75 mm	No.	1	1	1	1	4	4	1	1	1	1	4	4
9	Control Valve 63 mm	No.	1	1	4	4	0	0	1	1	4	4	0	0
10	Flush Valve 75 mm	No.	0	0	0	0	4	6	0	0	0	0	4	4
11	Flush Valve 63 mm	No.	1	1	1	1	0	0	1	1	1	1	0	0
12	Flush Valve 50 mm	No.	2	0	0	0	0	0	0	0	0	0	0	0
13	Air release Valve - 1"	No.	1	1	1	1	1	1	1	1	1	1	1	1
14	Non Return Valve - 2"	No.	1	1	0	0	0	0	1	1	1	1	1	1
15	Non Return Valve - 2.5"	No.	0	0	1	1	1	1	0	0	0	0	0	0
16	Throttle Valve - 2"	No.	1	1	0	0	0	0	1	1	1	1	1	1
17	Throttle Valve - 2.5"	No.	0	0	1	1	1	1	0	0	0	0	0	0
18	Screen filter 30 m <sup>3</sup> / hr	No.	0	1	1	1	1	1	0	1	1	1	1	1
19	Screen filter 20/25 m <sup>3</sup> / hr	No.	1	0	0	0	0	0	1	0	0	0	0	0
20	By-pass Assembly - 2 .5"x2"	No.	0	0	1	0	0	0	0	0	0	0	0	0
21	By-pass Assembly - 2"x1,5"	No.	1	1	0	1	1	1	1	1	1	1	1	1
22	Venturi & manifold - 2"	No.	1	1	1	1	1	1	1	1	1	1	1	1
23	Fittings/Installation & Accessories		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## Annexure-VII

### Indicative Bill of Quantities (BoQ) for Mini Sprinkler Irrigation System

SN	Components/ Area (Ha)	Unit	10x10						8x8					
			0.4	1.0	2.0	3.0	4.0	5.0	0.4	1.0	2.0	3.0	4.0	5.0
1	PVC Pipe 90 mm, class-II; 4 kg/cm <sup>2</sup>	m	0	0	80	210	235	310	0	0	80	210	235	310
2	PVC Pipe 75 mm, class-II; 4 kg/cm <sup>2</sup>	m	30	60	150	320	420	480	30	60	150	320	420	480
3	PVC Pipe 63 mm, class-II; 4 kg/cm <sup>2</sup>	m	66	110	0	0	0	0	66	110	0	0	0	0
4	25/32 mm LLDPE plain laterals, 2.5 kg/cm <sup>2</sup> - Class II	m	400	1000	2000	3000	4000	5000	500	1250	2500	3750	5000	6250
5	Mini Sprinkler Head/ Nozzle	No.	40	100	220	300	400	500	63	156	312	470	625	780
6	Riser Assembly (MS/Plastic)	No.	40	100	220	300	400	500	63	156	313	470	625	781
7	Control Valve 90 mm	No.	0	0	0	0	2	2	0	0	0	0	2	2
8	Control Valve 75 mm	No.	0	1	1	1	4	4	0	1	2	4	4	4
9	Control Valve 63 mm	No.	1	1	2	0	0	0	1	1	2	0	0	0
10	Control Valve 32 mm	No.	0	20	34	52	68	84	0	24	36	54	72	90
11	Flush Valve 75 mm	No.	0	0	1	4	4	4	0	1	2	4	4	4
12	Flush Valve 63 mm	No.	1	1	0	0	0	0	1	0	0	0	0	0
13	Air release Valve - 1"	No.	1	1	1	1	1	1	1	1	1	1	1	1
14	Non Return Valve - 2.5"	No.	0	1	1	1	1	1	0	1	1	1	1	1
15	Non Return Valve - 2"	No.	1	0	0	0	0	0	1	0	0	0	0	0
16	Throttle Valve 3"	No.	0	0	0	0	1	1	0	0	0	0	1	1
17	Throttle Valve - 2.5"	No.	0	1	1	1	0	0	0	1	1	1	0	0
18	Throttle Valve - 2"	No.	1	0	0	0	0	0	1	0	0	0	0	0
19	Screen filter 30 m <sup>3</sup> / hr	No.	0	0	1	1	1	1	0	0	1	1	1	1
20	Screen filter 20/25 m <sup>3</sup> /hr	No.	1	1	0	0	0	0	1	1	0	0	0	0
21	By-pass Assembly - 2"x1.5"	No.	0	0	0	0	0	1	0	0	0	0	0	1
22	By-pass Assembly - 1.5"x1.5"	No.	1	1	1	1	1	0	1	1	1	1	1	0
23	Venturi & manifold - 2"	No.	1	1	1	1	1	1	1	1	1	1	1	1
24	Fittings/Installation & Accessories	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Note: Installation of PVC or HDPE pipes for main/sub mains may be the choice of beneficiary. However, financial assistance will be limited to the PVC pipe and differential amount to be borne by beneficiary.

## Annexure-VIII

### Indicative Bill of Quantities (BoQ) for Semi Permanent Sprinkler Irrigation System

SN	Particulars/ ha area	0.4	1	2	3	4	5
1	PVC Pipe 90 mm, class-II; 4 kg/cm <sup>2</sup>	0	0	0	0	0	173
2	PVC Pipe 75 mm, class-II; 4 kg/cm <sup>2</sup>	0	0	110	135	156	0
3	PVC Pipe 63 mm, class-II; 4 kg/cm <sup>2</sup>	96	154	273	340	395	440
4	PVC Pipe 25 mm Class-V; 10 Kg/cm <sup>2</sup>	350	950	1904	0	0	0
5	32 mm LLDPE plain laterals, 2.5 kg/cm <sup>2</sup> - Class II	0	0	0	3006	4000	5014
6	Control Valve 63 mm	1	1	2	2	2	2
7	By-pass Assembly - 2 .5" x 2"	1	1	1	1	1	1
8	Control Valve 25 mm	12	20	42	51	80	88
9	Sprinkler Nozzles (1.7 to 2.8 kg/cm <sup>2</sup> ) ;IS 12232 Part I Brass/Plastic	12	12	12	12	12	12
10	Screen filter 20/25 m <sup>3</sup> /hr	1	1	1	1	1	1
11	Fittings/Installation & Accessories	5%	5%	5%	5%	5%	5%

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## Annexure-IX

### Indicative Bill of Quantities (BoQ) for Rain-gun Sprinkler Irrigation System

<b>Using 63 mm coupler</b>						
<b>SN</b>	<b>Components/ Area (ha)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1	HDPE Pipes with Quick coupled (Pipe of Class 3; 4 kg/cm <sup>2</sup> IS:17425:2020 63 mm diameter & 6m long)	30	NA	NA	NA	NA
2	Raingun Sprinkler 1.25" female threaded connection	1	N.A	N.A	N.A	N.A
3	Tripod Stand with adapter to feeder line 1.25"x1.5 m	1	N.A	N.A	N.A	N.A
4	Quick coupled HDPE Bend with Coupler 90 <sup>0</sup> (63/50 mm) ;	1	N.A	N.A	N.A	N.A
5	Quick coupled HDPE Pump Connecting Nipple 63 mm;	1	N.A	N.A	N.A	N.A
6	Quick coupled HDPE End Plug (63 mm) ;	1	N.A	N.A	N.A	N.A
7	Quick coupled HDPE Tee with Coupler (63mm) ;	1	N.A	N.A	N.A	N.A
8	Screen filter 20/25 m3/hr	1	N.A	N.A	N.A	N.A
9	By-pass Assembly - 2"x1,5"	1	N.A	N.A	N.A	N.A
<b>Using 75 mm coupler</b>						
<b>SN</b>	<b>Components/ Area (ha)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1	HDPE Pipes with Quick coupled (Pipe of Class 3; 4 kg/cm <sup>2</sup> IS:17425:2020 75 mm diameter & 6m long)	30	42	NA	NA	NA
2	Raingun Sprinkler 1.25" female threaded connection	1	1	N.A	N.A	N.A
3	Tripod Stand with adapter to feeder line 1.25"x1.5 m	1	1	N.A	N.A	N.A
4	Quick coupled HDPE Bend with Coupler 90 <sup>0</sup> (75 mm) ;	1	1	N.A	N.A	N.A
5	Quick coupled HDPE Pump Connecting Nipple , 75 mm;	1	1	N.A	N.A	N.A
6	Quick coupled HDPE End Plug (75 mm) ;	1	1	N.A	N.A	N.A
7	Quick coupled HDPE Tee with Coupler (75 mm);	1	1	N.A	N.A	N.A
8	Screen filter 20/25 m3/hr	1	1	N.A	N.A	N.A
9	By-pass Assembly - 2"x1,5"	1	1	N.A	N.A	N.A
<b>Using 90 mm coupler</b>						
<b>SN</b>	<b>Components/ Area (ha)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1	HDPE Pipes with Quick coupled (Pipe of Class 3; 4 kg/cm <sup>2</sup> IS:17425:2020 90 mm diameter & 6m long)	NA	NA	45	52	60
2	Raingun Sprinkler 1.5" female threaded connection	N.A	N.A	1	1	1
3	Tripod Stand with adapter to feeder line 1.5"x1.5 m	N.A	N.A	1	1	1
4	Quick coupled HDPE Bend with Coupler 90 <sup>0</sup> (90 mm);	N.A	N.A	1	1	1
5	Quick coupled HDPE Pump Connecting Nipple, 90 mm;	N.A	N.A	1	1	1
6	Quick coupled HDPE End Plug (90 mm) ;	N.A	N.A	1	1	1
7	Quick coupled HDPE Tee with Coupler (90 mm);	N.A	N.A	1	1	1
8	Screen filter 30 m3/ hr	N.A	N.A	0	1	1
9	Screen filter 20/25 m3/hr	N.A	N.A	1	0	0
10	By-pass Assembly - 2"x1,5"	N.A	N.A	1	0	0
11	By-pass Assembly - 2 .5"x2"	N.A	N.A	0	1	1

Note: The above items/components are indicative for calculation of subsidy. Deviation if any, from the above items/components is subject to ceiling of cost and differential amount to be borne by the beneficiary.

## Annexure X

### Water Quality Criteria in Relation to Clogging

The criteria for water quality for conventional irrigation is different from the one meant for irrigating through drip. The clogging hazard with different water qualities are presented below:

#### Extent of Clogging on the Basis of Quality of Irrigation Water

Quality of Water	Clogging Hazard		
	Slight	Moderate	Severe
Suspended Solids (ppm)	<50	50-100	>100
pH	<7.0	7.0-8.0	>8.0
TDS (ppm)	<500	500-2000	>2000
Manganese (ppm)	<0.1	0.1-1.5	>1.5
Iron (ppm)	<0.1	0.1-1.5	>1.5
Calcium and Magnesium (ppm )	<20	20-40	>40
Hydrogen sulphide (ppm)	<0.5	0.5-2.0	>2.0
Bacterial population (No./ml)	<10000	10000-50000	>50000

**Source:** Dasberg and Dani, 1999

### Guidelines for Selection of Filter

Water Quality	Type of Filter	Remarks
Good without any physical and biological impurities.	Screen	Screen filters shall be suggested only if the physical impurity do not call for cleaning of filter element more than once a day
Water sources with heavy physical and biological impurities.	Only screen filter will not be sufficient	Additional filter is required depending upon the type of water impurity
Water sources with sand and other heavier particles.	Hydro cyclone Separator or Hydro cyclone of matching flow capacity.	Disc/Screen Filter shall be provided after hydro cyclone
Water sources with heavy of Biological impurities such as Algae, trash and other debris.	Media / sand filter	Disc/screen filter should be provided after Media filter
Water sources with heavy sand and other biological impurities such as Algae and trash.	Combination of Hydro Cyclone followed by a Sand Filter	Screen/disc filter should be after sand filter

## Indicative Price of Optional Components

<b>SN</b>	<b>Optional Component</b>	<b>Appr. Price (Rs)</b>
<b>1</b>	<b>Sand Filter with back wash assembly IS 14606</b>	
a	10 m <sup>3</sup> /hr x 1.5"	9775
b	20 m <sup>3</sup> /hr x 2"	13225
c	25 m <sup>3</sup> /hr x 2"	16100
d	30 m <sup>3</sup> /hr x 2.5"	18400
<b>2</b>	<b>Hydro cyclone Filter IS 14743</b>	
a	20 m <sup>3</sup> /hr x 2"	4025
b	25 m <sup>3</sup> /hr x 2"	4600
c	30 m <sup>3</sup> /hr x 2.5"	6325
<b>3</b>	<b>Fertilizer Tank with Assembly IS 14483 - Part III</b>	
a	30 litres	3220
b	60 litres	5750
<b>4</b>	<b>Winder</b>	
	Drip Line Winder	2000

## Annexure- XIII

**Other Interventions to be provided as optional, if and only if a farmer opted to install micro-irrigation System in his/her field**

SN	Activities	Cost Norms
1	Water harvesting system for individuals	50% of cost (Construction cost - Rs. 125 for plain/ Rs. 150 per cum for hilly areas) limited to Rs. 75000 for plain areas and Rs. 90000 for hilly areas including lining. For smaller size of the ponds/ dug wells, cost admissible on pro rata basis. Cost for non-lined ponds/tanks will be 30% less.
2	Construction of Tube wells / Bore wells (Shallow / Medium) only in areas which are not categorized under over-exploited, critical & semi- critical zones by Central Ground Water Board.	<b>50% of the total cost</b> of installation limited to Rs. 25,000 / - per unit
3	Restoration / Renovation of small tank	<b>50% of the cost</b> of renovation limited to Rs. 15,000 / - per unit
4	Recharge of defunct bore well	<b>50% of the cost</b> of recharging limited to Rs. 5000 / - per unit
5	Pipe/pre-cast distribution system	<b>50% of the cost</b> of system limited to Rs. 10,000 / - per ha
6	Water Lifting Devices (Electric, Diesel, wind / Solar)	<b>50% of the cost</b> of installation limited to Rs. 15,000/ - per electric / diesel unit and Rs. 50,000/- per solar / wind unit
7	Petrol Irrigation Pumps- up to 15 hp	<b>Rs. 10000/unit or 50% of the cost</b> of the system (including installation) whichever is less.



रजिस्ट्री सं० डी० एल०-33004/99

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**भारत का राजपत्र**  
**The Gazette of India**

असाधारण

EXTRAORDINARY

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PART II—Section 3—Sub-section (ii)

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कृषि एवं किसान कल्याण मंत्रालय

(कृषि, सहकारिता एवं किसान कल्याण विभाग)

अधिसूचना

नई दिल्ली, 17 मार्च, 2017

का.आ. 893(अ).— सेवाओं या फायदों या सहायिकियों के परिदान के लिए एक पहचान दस्तावेज के रूप में आधार का उपयोग सरकारी परिदान प्रक्रियाओं का सरलीकरण करता है, पारदर्शिता और दक्षता लाता है और फायदाग्राहियों को सुविधापूर्वक और निर्बाध रीति में उनकी हकदारियों को मीधे प्राप्त करने में समर्थ बनाता है और आधार किमी व्यक्ति की पहचान को साबित करने के लिए बहुल दस्तावेज प्रस्तुत करने की आवश्यकता को समाप्त करता है;

और जबकि भारत सरकार में कृषि एवं किसान कल्याण मंत्रालय (जिसे इसमें इसके पश्चात मंत्रालय कहा गया है) अनुमोदित वित्त पोषण पद्धति के अनुसार राज्य सरकार अथवा मंच राज्य क्षेत्र प्रशासन के अधीन नोडल विभागों (जिसे इसमें इसके पश्चात विभाग कहा गया है) को अनुदान सहायता प्रदान करके केन्द्रीय प्रायोजित स्कीम के रूप में प्रधानमंत्री कृषि सिंचाई स्कीम (पीएमकेएसवाई) (जिसे इसमें इसके पश्चात स्कीम कहा गया है) के "प्रति बूंद अधिक फसल घटक" का कार्यान्वयन कर रहा है।

और जबकि स्कीम के अधीन दी जा रही अनुदान सहायता राज्य नोडल अभिकरणों अथवा रजिस्ट्रीकृत अथवा पैनलीकृत कम्पनियों (जिसे इसमें इसके पश्चात कार्यान्वयन अभिकरण कहा गया है) के माध्यम से किसानों (जिसे इसमें इसके पश्चात लाभार्थी कहा गया है) को सहायता प्राप्त सूक्ष्म सिंचाई प्रणालियां तथा अन्य फायदे अथवा अन्य सेवाएं प्रदान करने के लिए है।

और जबकि स्कीम के अधीन प्रदान किए गए फायदों में भारत की संचित निधि से उपगत पूर्ण अथवा आंशिक आवर्ती व्यय अंतर्नित है।

अतः अब, केन्द्रीय सरकार आधार (वित्तीय और अन्य सहायिकियों, प्रसुविधाओं और सेवाओं का लक्षित परिदान) अधिनियम, 2016 (2016 का 18) (जिसे इसमें इसके पश्चात अधिनियम कहा गया है) की धारा 7 के उपबंधों के अनुसरण में निम्नलिखित अधिसूचित करती हैं, अर्थात्:-

1522 GI/2017

(1)

1. (1) स्कीम के अधीन फायदा प्राप्त करने के पात्र व्यक्ति से अपेक्षा की जाती है कि वह आधार संख्या रखने का सबूत प्रस्तुत करे अथवा आधार अधिप्रमाणन करवाए।

(2) इस स्कीम के अधीन फायदे प्राप्त करने के हकदार व्यक्ति, जिसके पास आधार संख्या नहीं है अथवा जिसने आधार के लिए नामांकन नहीं करवाया है, परंतु वह इस स्कीम के अधीन फायदा प्राप्त करने का इच्छुक है, के लिए 31.12.2017 तक आधार नामांकन के लिए आवेदन करना आवश्यक है परन्तु वह उक्त अधिनियम की धारा 3 के अनुसार आधार अधिप्राप्त करने का हकदार हो और ऐसा व्यक्ति आधार के लिए नामांकन करवाने के लिए किसी भी आधार नामांकन केंद्र (भारतीय विशिष्ट पहचान प्राधिकरण की वेबसाइट [www.uidai.gov.in](http://www.uidai.gov.in) पर उपलब्ध सूची) पर जा सकते हैं।

(3) आधार (नामांकन और अद्यतन) विनियम, 2016 के विनियम 12 के अनुसार कार्यान्वयन अभिकरणों राज्यों अथवा संघ राज्य क्षेत्रों में स्कीम के कार्यान्वयन का भारसाधक संबंधित विभाग, जो किसी व्यक्ति से आधार प्रस्तुत करने की अपेक्षा करता है, से अपेक्षा की जाती है कि वह उन फायदाग्राहियों को आधार नामांकन सुविधा प्रदान करे जिन्होंने आधार के लिए अभी तक नामांकित नहीं किया है और यदि संबद्ध ब्लॉक अथवा तालुका अथवा तहसील में कोई भी आधार नामांकन केंद्र स्थित नहीं है तो राज्यों अथवा संघ राज्य क्षेत्रों में स्कीम के कार्यान्वयन से संबंधित भारसाधक विभाग कार्यान्वयन अभिकरण के माध्यम से अपेक्षित है कि वह भारतीय विशिष्ट पहचान प्राधिकरण के वर्तमान रजिस्ट्रार के सहयोग से अथवा स्वयं भारतीय विशिष्ट पहचान प्राधिकरण रजिस्ट्रार बनकर सुविधाजनक स्थान पर आधार नामांकन सुविधाएं प्रदान करे।

परन्तु यह कि उस व्यक्ति को आधार समनुदेशित किए जाने के समय तक उक्त स्कीम के अधीन फायदा निम्नलिखित पहचान दस्तावेज प्रस्तुत करने के अधीन रहते हुए ऐसे व्यक्तियों को प्रदान किया जाएगा, अर्थात:-

(क) (i) आधार नामांकन पर्ची, यदि हिताधिकारी ने आधार के लिए नामांकन दिया है;

अथवा

(ii) हिताधिकारी द्वारा पैरा-2 के उप पैरा (ख) में यथा विनिर्दिष्ट आधार नामांकन के लिए किए गए अनुरोध की प्रति; और

(ख) (i) मतदाता पहचान पत्र; अथवा (ii) स्थाई खाता संख्यांक (पैन) कार्ड; अथवा (iii) पासपोर्ट; अथवा (iv) राशन कार्ड; अथवा (v) सरकारी कर्मचारी का आईडी कार्ड; अथवा (vi) बैंक/पोस्ट ऑफिस पासबुक फोटो के साथ; (vii) मनरेगा कार्ड; अथवा (viii) किसान फोटो पासबुक; अथवा (ix) मोटर अधिनियम, 1988 (1988 का 59) के अंतर्गत अनुज्ञापन प्राधिकारी द्वारा जारी चालन अनुज्ञप्ति; अथवा (x) सरकारी लैटर हैड पर किसी राजपत्रित अधिकारी अथवा तहसीलदार द्वारा जारी ऐसे सदस्य की फोटो वाला पहचान प्रमाण पत्र; अथवा (xi) राज्य सरकार अथवा संघ राज्यक्षेत्र प्रशासन द्वारा यथाविनिर्दिष्ट अन्य कोई दस्तावेज;

परन्तु यह और कि इस उद्देश्य के लिए राज्य सरकार अथवा संघ राज्य क्षेत्र प्रशासन द्वारा विनिर्दिष्ट रूप से पदाभिहित अधिकारी द्वारा उपयुक्त दस्तावेज की जांच की जाएगी।

2. इस स्कीम के अधीन हिताधिकारियों को सुविधाजनक व बाधामुक्त फायदे प्रदान करने के लिए अभिकरणों राज्य सरकार अथवा संघ राज्य क्षेत्र प्रशासन में स्कीम के कार्यान्वयन का भारसाधक संबंधित विभाग सभी आवश्यक व्यवस्थाएं, जिनमें निम्नलिखित भी हैं, करेंगे अर्थात:

(क) इस स्कीम के अधीन आधार की आवश्यकता के बारे में हिताधिकारियों को जागरूक बनाने के लिए कार्यान्वयन अभिकरणों के माध्यम से मीडिया व्यष्टिक सूचना के माध्यम से व्यापक प्रचार किया जाए और यदि आवेदक ने नामांकन नहीं

करवाया है तो उन्हें 31.12.2017 तक अपने क्षेत्रों में उपलब्ध निकटतम नामांकन केंद्रों पर नामांकन करवाने की सलाह दी जाए और उन्हें स्थानीय रूप से उपलब्ध नामांकन केंद्रों ([www.uidai.gov.in](http://www.uidai.gov.in) पर सूची उपलब्ध) की सूची उपलब्ध कराई जाएगी।

(ख) यदि निकट आसपड़ोस जैसे ब्लॉक अथवा तहसील अथवा तालुका में नामांकन केंद्रों की अनुपलब्धता के कारण इस स्कीम के अधीन हिताधिकारी आधार के लिए नामांकन करवा पाने में समर्थ नहीं है, कार्यान्वयन अभिकरणों के माध्यम से राज्य सरकार या संघ राज्य क्षेत्र प्रशासन में स्कीम के कार्यान्वयन के भारसाधक संबंधित विभाग से सुविधाजनक अवस्थानों पर आधार नामांकन सुविधाएं सृजित करना अपेक्षित है और इस उद्देश्य के लिए कार्यान्वयन अभिकरणों अथवा वेब-पोर्टल के माध्यम से संबंधित अधिकारियों को अपना नाम, पता व मोबाइल नंबर और पैरा 1 के उप पैरा (3) के परंतुक में यथाविनिर्दिष्ट अन्य ब्यौरा देकर आधार नामांकन के लिए रजिस्ट्रीकरण करवाने का हिताधिकारियों से अनुरोध किया जाये।

3. यह अधिसूचना असम, मेघालय और जम्मू-कश्मीर को छोड़कर सभी राज्यों और संघ राज्य क्षेत्रों में राजपत्र में इसके प्रकाशन की तारीख से प्रभावी होगी।

[फा. सं. 19-59/2016-आरएफएम-III]

आर. बी. मिन्हा, संयुक्त सचिव

**MINISTRY OF AGRICULTURE AND FARMERS WELFARE**  
(Department of Agriculture Cooperation and Farmers Welfare)

**NOTIFICATION**

New Delhi, the 17th March, 2017

**S.O. 893(E).**—Whereas, the use of Aadhaar as identity document for delivery of services or benefits or subsidies simplifies the Government delivery processes, brings in transparency and efficiency, and enables beneficiaries to get their entitlements directly in a convenient and seamless manner and Aadhaar obviates the need for producing multiple documents to prove one's identity;

And whereas, the Ministry of Agriculture and Farmers Welfare (hereinafter referred to as Ministry) in the Government of India is implementing the "Per Drop More Crop" component of the Prime Minister Krishi Sinchayee Yojana (PMKSY) (hereinafter referred to as the Scheme) as a Centrally Sponsored Scheme by providing Grant-in-Aid to the concerned nodal Departments (hereinafter referred to as Department) under the State Government or Union territory Administration, as per the approved funding pattern;

And whereas, the Grant-in-Aid given under the Scheme is meant for providing subsidized Micro-Irrigation System and other benefits or services (hereinafter referred to as the benefits) to the farmers (hereinafter referred to as beneficiaries) through the State Nodal Agencies or Registered or Empanelled Companies (hereinafter referred to as Implementing Agencies);

And whereas, the benefits offered under the Scheme involve full or partial recurring expenditures incurred from the Consolidated Fund of India;

Now, therefore, in pursuance of the provisions of section 7 of the Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act, 2016 (18 of 2016) (hereinafter referred to as the said Act), the Central Government hereby notifies the following, namely:-

1. (1) An Individual eligible to receive the benefits under the Scheme is hereby required to furnish proof of possession of Aadhaar number or undergo Aadhaar authentication.
- (2) Any Individual entitled to receive the benefits under the Scheme, who does not possess the Aadhaar number or, has not yet enrolled for Aadhaar, but desirous of availing the benefits under the Scheme, is hereby required to make application for Aadhaar enrollment by 31.12.2017, provided she or he is entitled to obtain Aadhaar as per section 3 of the said Act and such individuals shall visit any Aadhaar enrolment centre (list available at Unique Identification Authority of India (UIDAI) website [www.uidai.gov.in](http://www.uidai.gov.in)) to get enrolled for Aadhaar.
- (3) As per regulation 12 of Aadhaar (Enrolment and Update) Regulations, 2016, the concerned Department in charge of implementation of the Scheme in the States or Union territories through its Implementing Agencies, which requires an individual to furnish Aadhaar, is required to offer Aadhaar enrolment facilities for the beneficiaries who are not yet enrolled for Aadhaar, and in case there is no Aadhaar enrolment centre located in

the respective Block or Taluka or Tehsil, the concerned Department in charge of implementation of the Scheme in the States or Union territories through its Implementing Agencies is required to provide Aadhaar enrolment facilities at convenient locations in coordination with the existing Registrars of UIDAI or by becoming UIDAI Registrar themselves;

Provided that till the time Aadhaar is assigned to the individual, benefits under the Scheme shall be given to such individuals subject to the production of the following identification documents, namely:-

- (a) (i) if she or he has enrolled, her or his Aadhaar Enrolment ID slip; or
  - (ii) a copy of her or his request made for Aadhaar enrolment, as specified in sub-paragraph (b) of paragraph 2 below; and
- (b) (i) Voter Identity Card; or (ii) Permanent Account Number (PAN) Card; or (iii) Passport; or (iv) Ration Card; or (v) Employee Government ID Card; or (vi) Bank / Post office Passbook with Photo (vii) MGNREGS card; or (viii) Kisan Photo passbook; or (ix) Driving license issued by the Licensing Authority under the Motor Vehicles Act, 1988 (59 of 1988); or (x) Certificate of identity having photo of such member issued by a Gazetted Officer or a Tehsildar on an official letter head; or (xi) Any other document as specified by the State Government or Union territory Administration;

Provided further that the above documents shall be checked by an officer specifically designated by State Government or Union territory Administration for that purpose.

2. In order to provide convenient and hassle free benefits under the Scheme to the beneficiaries, the concerned Department in charge of implementation of the Scheme in the State Government or Union territory Administration, shall make all the required arrangements including the following, namely:-

(a) Wide publicity through media and individual notices through shall be given through its Implementing Agencies to the beneficiaries to make them aware of the requirement of Aadhaar under the Scheme and they may be advised to get themselves enrolled at the nearest Aadhaar enrolment centres available in their areas by 31.12.2017, in case they are not already enrolled and the list of locally available enrolment centres (list available at [www.uidai.gov.in](http://www.uidai.gov.in)) shall be made available to them.

(b) In case, the beneficiaries under the Scheme are not able to enroll for Aadhaar due to non-availability of enrolment centres in the near vicinity such as in the Block or Taluka or Tehsil, the concerned Department in charge of implementation of the Scheme in State Government or Union territory Administration through its Implementing Agencies is required to create Aadhaar enrolment facilities at convenient locations, and the beneficiaries may be requested to register their requests for Aadhaar enrolment by giving their names, addresses, mobile numbers and other details as specified in the proviso to sub-paragraph (3) of paragraph 1, with the concerned official of the Implementing Agencies or through the web portal provided for the purpose.

3. This notification shall come into effect from the date of its publication in the Official Gazette in all States and Union territories except the States of Assam, Meghalaya and Jammu and Kashmir.

[F. No. 19-59/2016-RFS-III]

R. B. SINHA, Jt. Secy.

## List of BIS Standards

SN	Component Description	BIS
1	Polyethylene pipes for Irrigation- Laterals with amendment number 6	IS 12786: 1989 (reaffirmed 2009)
2	Irrigation Equipment-Emitters- Specification	IS 13487: 1992 (reaffirmed 2009)
3	Irrigation Equipment-Emitting pipes system- Specification (first revision)	IS 13488: 2008 (reaffirmed 2014)
4	Irrigation Equipment-Strainer type filters Specification (first revision)	IS 12785: 1994 (reaffirmed 2011)
5	Irrigation equipment rotating sprinkler Part I, Design and Operational requirements (1st revision)	IS 12232 (Part I) -1996 (reaffirmed 2011)
6	Irrigation equipment rotating sprinkler Part 2, Test method for uniformity of distribution (1st revision)	IS 12232 (Part 2) -1995 (reaffirmed 2011)
7	Fertilizer and Chemicals Injection system Part I Venturi Injector	IS 14483 (Part 1) 1997 (reaffirmed 2009)
8	Irrigation Equipment-Media Filters- Specification	IS 14606: 2022
9	Irrigation Equipment-Hydro cyclone filter-Specification	IS 14743: 1999 (reaffirmed 2009)
10	Unplasticized PVC pipes for agriculture - Specifications	IS 4985 – 2021 TYPE B
11	Irrigation Equipment –Quick Coupled Polyethylene Pipes and Fittings for Sprinkler Irrigation Systems.	IS 17425:2020
12	High Density Polyethylene Pipes for water supply- Specification (fourth revision)	IS 4984 : 2016
13	Fertilizer & Chemical Injector System- Part 2 Water Driven Chemical Injector Pump	IS:14483 Part 2 – 2002
14	Fertilizer & Chemical Injector System- Part 3 Fertilizer Tank	IS:14483 Part 3 – 2018
15	Irrigation equipments- Micro sprayers-Specifications	IS:14605:1998
16	Agricultural Irrigation equipment- Manually operated serviceable plastic valves- Specifications	IS: 18286 :2023
17	Injection Moulded PVC Socket Fittings with solvent Cement Joints	IS:7834:1987 (Part1 to Part7)
18	Fabricated PVC-U fittings	IS:10124:2009 (Part1 to Part13)
19	Injection moulded/machined polyethylene fittings	IS:8008:2022
20	Fabricated Polyethylene fittings	IS:8360:2022

Source: Online catalogue of Bureau of Indian Standards

## LAYOUT DESIGN OF DRIP & SPRINKLER IRRIGATION SYSTEMS

