

Government of India
NITI Aayog
(National Institute for Transforming India)
(PPPAU Division)

Sansad Marg, New Delhi 110001
Dated: 16th October 2017

NOTICE

Subject: Inviting comments from the general public, Government Ministries and all the other stakeholders on the Draft Model Public Private Partnership Policy Guidelines in Integrated Micro-Irrigation in India – regarding.

In order to facilitate the participation of private sector and to integrate various government subsidies at the farm level, with the objective to promote participatory farming at scalable levels and increase farmer's income by employing more efficient means of irrigation, NITI Aayog has prepared Draft Model Public Private Partnership Policy Guidelines in Integrated Micro-Irrigation in India.

2. The general public, Government Ministries and all the stakeholders are invited to send comments/ views, if any, on the captioned Concept Paper, which is attached herewith, to the undersigned latest by 30th November 2017

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Guidelines

Micro Irrigation through Public Private Partnership

“From The Source To The Roots”

- Draft Concept Note



NITI AAYOG

(Government of India)

PPPAU Division

October 17

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ABBREVIATIONS

CLR	: Marginal Cost Lending Rate
CPI	: Consumer Price Index
CSS	: Centrally Sponsored Scheme
DBFMT	: Design, Build, Finance, Maintain and Transfer
DEA	: Department of Economic Affairs
DIP	: District Irrigation Plan
EOI	: Expression of Interest
FPC	: Farmer Producer Company
FY	: Financial Year
Ha	: Hectare
IMI	: Integrated Micro-Irrigation
LOA	: Letter of Acceptance
MCLR	: Marginal Cost of Lending Rate
MI	: Micro Irrigation
MNREGA	: Mahatma Gandhi National Rural Employment Guarantee Act. 2005
MoA	: Ministry of Agriculture, Govt. of India
MSCA	: Modified Swiss Challenge Approach
NCA	: Net Cultivated Area
NIA	: Net-Irrigated Area
NMMI	: National Mission on Micro Irrigation
NMSA	: National Mission on Sustainable Agriculture
NBV	: Net Book Value
NPV	: Net Present Value
OBS	: Output Based Specifications
OFWM	: On Farm Water Management
PMC	: Project Management Consultant
PMKSY	: Pradhan Mantri Krishi Sinchayee Yojana
PPP	: Public Private Partnership
RFP	: Request for Proposal
RFQ	: Request for Qualification
SBI	: State Bank of India
SIA	: State Implementation Agency
TPC	: Total Project Cost
WPI	: Wholesale Price Index
WUA	: Water User Association

1. PREFACE

Water being a necessity for crop production is one of the most important natural resources for sustaining human life on earth. In the context of the Indian economy, the demand for this limited resource is increasing day-by-day due to two critical reasons. First, owing to the presence of large tracts of arid and semi-arid land, where the surface and sub-surface water resources are highly limited. Second, the spurt in industrial and domestic consumption of water due to a high rate of population growth that has exponentially increased the demand for this limited commodity in India. Furthermore, over-exploitation is depleting the existing water resources at critical rates, even in areas traditionally known for having abundant irrigation water supply, resulting in irrigation water becoming both scarce and expensive.

Now, in order to feed the growing population and to further increase farm incomes and livelihood of farmers in India, the overall agricultural production needs to be increased. One of the key ways to boost overall agricultural production is to implement better soil-water management techniques that would provide the arid and semi-arid lands better access to irrigation water, without actually increasing the stress on available water resources.

1.1. NEED FOR MICRO-IRRIGATION

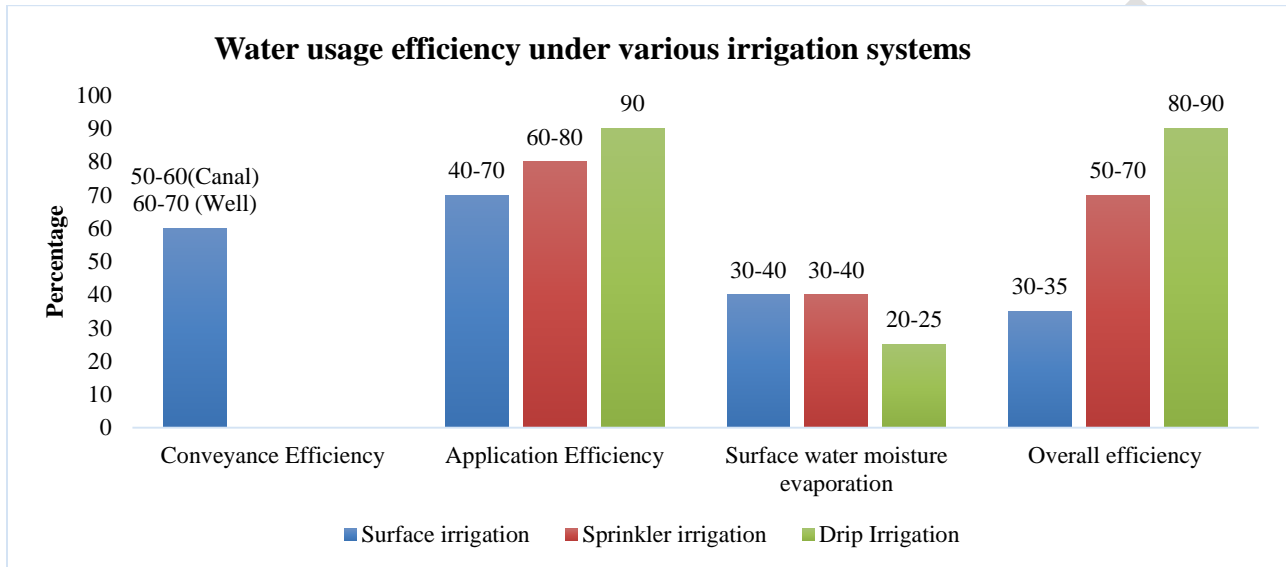
Globally, it's well established that Micro Irrigation ("MI") technologies increase crop yield, save water, improve crop quality, enhance the fertilizer/ chemical application efficiency, conserve energy, reduce labour cost, improve pest management, increase feasibility of irrigating difficult terrains, improve suitability of problem soils, improve tolerance to salinity etc. In MI, supply of optimum quantity of water in the form of tiny streams, fine spray or continuous drops mitigates water loss due to evaporation and on account of seepage and percolation. This further reduces water logging and improves soil health. Consequently, there is an increase in productivity and the quality of produce, thereby leading to a rise in the overall farm incomes. MI technology is promoted primarily for the following reasons: (1) as a means to save water in irrigated agricultural land (hereinafter referred to as the "Command Area"); (2) as an initiative to increase farmer incomes and reduce poverty; and (3) to enhance the food and nutritional security of rural households. Also, substantial dependence on rainfall makes cultivation a high risk and less productive activity, so assured irrigation and *in-situ* moisture conservation encourages farmers to invest more in farming technology and inputs that lead to productivity enhancement and increased farm income.

Further, the rate of return vis-à-vis farm productivity from investment in drip-irrigation is observed to be relatively higher than that of sprinkler irrigation and can be as high as 150%. Understandably, the minimum payback period has been found to be less than 1 year and the maximum to be 2- 3 years in both

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drip and sprinkler methods¹. A suitable framework to channelize investment into micro-irrigation in India will generate a beneficial social impact on farmers and positive environmental impact along with a rational financial return for the investor. A comparison among irrigation efficiencies of flow, sprinkler and drip irrigation is shown in the figure below:

Figure 1: Comparison: Flow, sprinkler and drip



Source: Accelerating growth of Indian agriculture, GT & FICCI 2016

1.1.1. CURRENT STATUS OF MI IN INDIA

Out of approximately 160 million Ha of cultivable land in the country, only approximately 65 million Ha (41%) is currently covered under irrigation (for FY 2012)². The current area under MI in India is only 8.6 million Ha³ compared to the potential of 69.5 million Ha⁴. Of the 8.6 million Ha under MI in India, 4.7 million Ha is under sprinkler irrigation (54.64%), while 3.9 million Ha is under drip irrigation (45.4%). States with the largest area under MI include, Rajasthan (1.75 million Ha-20% share), Andhra Pradesh (1.32 million Ha-15% share), Maharashtra (1.31 million Ha-15% share), Gujarat (1.1 million Ha-13% share), Karnataka (0.95 million Ha,-11% share), and Haryana (0.58 million Ha-7% share). These six states cover 81% of the total area under MI in the country. Information on the area under drip and sprinkler irrigation as per December 2016, provided by Ministry of Agriculture and Farmers Welfare are set out in **Annexure-2** of this note. The potential for adoption of MI by a state is positively correlated to the

¹ Source: Evaluation Study on Integrated Scheme of Micro-irrigation, Planning Commission, FY 2015

² Source: MoA, Horticultural Statistics-2016

³ Source: MoA, December-2016

⁴ Source: MoA, Task Force on MI, 2004

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proportion of net-irrigated area (“NIA”) to net cultivated area (“NCA”) and over-exploitation of ground water resources, and negatively correlated to the extent of rainfall⁵.

1.2. GOVERNMENT SPONSORED SCHEMES

Irrigation has been classified as a State subject in the Seventh Schedule of the Indian Constitution and has been given ‘Infrastructure’ status as per the notification on *Harmonized Master List of Infrastructure Sub-Sectors*, dated 30th March 2017 by the Department of Economic Affairs, Ministry of Finance.

The real thrust on promoting MI adoption in India started with the recommendations of the *Report of the Task Force on Micro Irrigation* in 2004. The report sought to increase the emphasis on MI technology and recommended the Centrally Sponsored Scheme (“CSS”), which was later launched by the Ministry of Agriculture in January, 2006. In 2010, CSS on MI was scaled up to National Mission on Micro Irrigation (“NMMI”), which continued until 2013-14. From 2014, NMMI was subsumed under the National Mission on Sustainable Agriculture (“NMSA”) and implemented as- On Farm Water Management (“OFWM”) during the FY 2014-15. From 1st April 2015, the MI component of OFWM has been subsumed under the Pradhan Mantri Krishi Sinchayee Yojana (“PMKSY”) which has been implemented as CSS for MI in FY 2015-16.

1.2.1. PMSKY

PMKSY has included MI within the scheme as an integral component. The scheme focuses on providing an end-to-end solution to the irrigation supply chain issues. The Government of India’s manifesto talks about “Har Khet Ko Paani” and “Per Drop More Crop.” While the infrastructure creation and development for irrigation projects, as mandated to be part of the Command Area Development & Water Management (“CADWM”) program is covered under the ‘Har Khet Ko Paani’ and ‘Watershed Development’ component, the implementation of bringing area under MI, is mandated to be part of the ‘Per Drop More Crop’ component of this scheme. The following are the key strengths and industry concerns for the scheme:

➤ KEY STRENGTHS:

- **Convergence and removal of redundancies:**

The government wants to converge various schemes and ensure that the additional/ further outlay of funds be used for filling gaps in the schemes “Har Khet Ko Paani” and “Per Drop More Crop” are firmly kept in mind.

⁵ Source: Evaluation Study on Integrated Scheme of Micro-irrigation, Planning Commission, FY 2015

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- **Greater responsibility and accountability at the district level**

With the District Irrigation Plans (“DIPs”) being the cornerstone of the scheme, the heads of the districts/ District Magistrates (“DMs”) are now directly responsible and accountable for the successful implementation of this scheme. This would ensure greater involvement and more consideration given to each DIP.

➤ **INDUSTRY CONCERNS:**

- **Focus on an overarching concept**

The current funds allocated for MI this fiscal year are lower than the previous year’s. Therefore, the funds are not keeping up with the increasing demand.

- **Area ceiling limit**

While only 15% of the farmers in India are large and medium scale farmers, they account for control over 55% of the total available land. Experts feel that increasing the cap to 10 Ha from the current ceiling of 5Ha would be extremely beneficial to the sector. This scheme, however, does not lift that cap. Only 10% of the total potential area (estimated to be 69million Ha in India) has been brought under MI as on date. Hence, area ceiling cap of 5 Ha may be increased to 10 Ha.

- **Lack of framework for scalability**

Under the extant schemes, there is limited incentive for the farmers and the private sector to enter/get involved in Participatory Integrated Micro-Irrigation Management at a scalable level

1.2.2. MGNREGA

Apart from the above and other extant schemes for funding MI and irrigation in India, **MGNREGA** scheme can also be suitably channelized for the on ground implementation of MI and irrigation networks. The aim of MGNREGA is to enhance the livelihood security of people in rural areas by providing at-least 100 days of wage employment in a year to all those rural households whose adult members volunteered to do unskilled manual work. Channelizing MGNREGA towards implementation of MI and irrigation networks would ensure efficient utilization of funds, in addition to achieving the overall objective of the scheme.

2. PUBLIC PRIVATE PARTNERSHIP

2.1. THE CONCEPT

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Public Private Partnership (“PPP”) is essentially an arrangement where the private sector participates in the provision of services traditionally provided by the government. It is usually characterized by an agreement between the government and the private sector, with the latter undertaking to deliver an agreed service on the payment of a unitary charge by the government, a user charge by the beneficiaries of the service and/or an upfront capital grant. The arrangement normally involves a whole-lifecycle approach with a predetermined period where the private partner is responsible for both construction and operation. There is also some degree of risk-sharing based on allocation of risks to the party best suited to manage them.

2.1.1. BENEFITS OF PPP APPROACH

Some benefits of the PPP approach in scaling up capacity in MI would be as follow:

- I. Availability of private capital and technology partnership;
- II. Access to functional and technical efficiency of private entities improvising the lifecycle cost;
- III. Risk of project completion and delivery of agreed outputs to be transferred to the private entity;
- IV. Public funds would be expended only upon delivery of agreed outcomes; and
- V. Achieving economies of scale.

With the target of the Government of India of achieving 0.5 million Ha per annum coverage under MI with a budget of just INR 1000 crore (USD 156 million) in PMKSY, it will take at least another 100 years to reach the overall MI potential in India. Therefore, it is essential to implement MI projects on scalable PPP models⁶. Also, in the absence of a formal PPP framework, with no long-term operation and maintenance (O&M) planning there has been a considerable decline in the quality of performance of irrigation networks, leading to loss of faith among the farmers. Farmers have instead opted to utilize small-scale standalone irrigation technology (e.g., motorized pumps, drawing water directly from open water sources etc.), primarily backed by Government sponsored schemes. Millions of farmers now make use of small groundwater irrigation schemes instead of existing public surface irrigation schemes. The rapid growth of these schemes has also led to concerns about excessive groundwater depletion.⁷

2.2. PPP FOR INTEGRATED MICRO-IRRIGATION IN INDIA

In India, irrigated agriculture projects, especially those involving smallholder farmers are difficult to fund on a commercial basis from day one because they cannot deliver short-term predictable financial returns due to various commercial and operational risks. Historically in many developing economies, public schemes have found it difficult to recover costs from farmers at a level sufficient to cover the O&M costs

⁶ Source: Accelerating growth of Indian agriculture, GT & FICCI 2016

⁷ Source: How to Achieve Sustainability in Irrigation with Private Sector Participation, World Bank, 2016

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associated with the scheme, let alone make a return on the investment. This is due to a number of inter-related reasons, notably a difficulty in getting farmers to accept that they should pay for irrigation services, farmers' basic inability to afford the required level of tariffs, the ineffectiveness of public institutions in collecting and remitting irrigation service fees, and political unwillingness either to raise fees to a level that will cover O&M costs or enforce the collection of fees.

Also, given the extant policy framework with limited impetus to post construction maintenance along with necessary capacity building measures of the beneficiary farmers, the overall life and efficiency of the MI system deteriorates considerably and hence the Government is unable fully to achieve its desired objective.

In view of the above commitments, through management or finance the private sector will only be forthcoming if it can have a degree of certainty that it shall be able to recover its investments optimally. The less certain private partners are that they will recover their time and financial commitments, the lower their appetite for participation and the greater the need for concessional or public-sector resources. Henceforth the structure of the financial model under a PPP framework with optimal structuring of financial returns for the private partners and risk sharing between the Government and the private partners is imperative to incentivize the private sector to undertake the implementation and maintenance of the MI system.

The proposed PPP scheme aims at implementation and maintenance of an Integrated Micro-Irrigation (hereinafter referred to as "IMI") network for providing water to the roots of the crops from the source irrigation canal. It also aims at amalgamation of various ongoing Central and State Government schemes and programs with a view to deliver outcomes that would ensure efficiency at the farm level and in return achieve economy of scale.

3. PROPOSED PPP-IMI SCHEME

3.1. KEY FEATURES

- I. The PPP scheme is phased in two stages:
 - a. **Stage 1 (Pre-bid Activities):** A private player will act as a project proponent (hereinafter referred to as "**Project-Proponent**") and undertake certain pre-bid activities in order to facilitate the implementation of the IMI network within the PPP framework
 - b. **Stage 2 (Post-LoA Activities):** The Concessionaire will undertake construction, installation, maintenance and management of the IMI network as depicted in Annexure-1

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of this note, during the concession period (hereinafter referred to as “PPP-IMI” or the “Project”). While the implementation and maintenance of the project shall be undertaken by the Concessionaire, the operation of the IMI network shall be done by the beneficiary farmers.

- II. The Project is proposed to be implemented under a organized participatory farming framework, wherein the farmers shall pool-in their land holdings in order to obtain economies of scale
- III. Impetus to sustainable source of water and on setting-up a framework that maintains its own viability by using techniques that allow for continual reuse
- IV. An active approach to integrate all ongoing efforts on MI and irrigation by the Central and respective State Government at the farm level needs to be undertaken for the closure of funding of the project and thereby achieve economies of scale
- V. Active participation of the beneficiary farmers to be an integral part of the scheme
- VI. Competitive bidding process for procurement to be followed
- VII. Close monitoring of outcomes based on pre-specified Outcome Based Specifications (“OBS”) during every stage of the project cycle by the State Government
- VIII. Impetus to flexibility of the farmers with discretion to choose the type of MI system as per their need and also the liberty to choose the extent of area to be covered under MI
- IX. Further beneficiary farmers to continue to own their land holdings
- X. Transfer of the assets to the State Government at the end of concession period

3.2. IMPLEMENTATION METHODOLOGY

3.2.1. LAND IDENTIFICATION

A. The framework for implementation of the PPP-IMI is proposed under the following two scenarios:

Scenario-1:- Land owned by the State Government- In this scenario, the location along with the framework for implementation of PPP-IMI shall be decided by the State Government prior to the bid of the contract

Scenario-2:- Land owned by the beneficiary farmers- In this scenario, PPP-IMI is proposed to be implemented under the following framework:

- I. All primary beneficiary farmers who own the land which shall be pooled for implementation of the IMI network, will form a Farmer Producer Company (“FPC”) and will become its members
- II. The members of FPC shall also be the members of an active Water User Association (“WUA”) or the land belonging to the members pooled to implement the IMI network will fall within the

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Command Area of an irrigation canal. This shall in-turn ensure that the cluster of the land identified for the implementation of the project will have a sustainable source of water

III. Cluster of 1000 Ha to 10,000 Ha land shall be pooled to implement a Project

B. In both the above scenarios the land required for construction of the pump house, sump and substation and other support infrastructure for the implementation of IMI shall be made available by the State Government on lease to the FPC, upon the payment of a token fee. The Government will also assist the Concessionaire in securing the right of way (“RoW”) for laying the PVC/HDPE pipes.

3.2.2. FORMATION OF FARMER PRODUCER COMPANY

Overview: FPC is a corporate body that is a hybrid between a Private Limited Company and a Cooperative Society. The following are its key features:

- a. Registered under the amended Companies Act, 1956
 - b. The terms of section 465 of the Companies Act, 2013 and the provisions of part IX A of the Companies Act, 1956 shall be applicable mutatis mutandis to a producer company
 - c. Only farmers (primary producers) who own the land cluster on which the project is being implemented can become members.
 - d. The liability of the members is limited to the unpaid amount of the shares held by them. Hence, the private assets of the members are safe from company losses
- I. Under the proposed framework there will be a ceiling of 10 Ha of land (per beneficiary member of the FPC), on which PPP-IMI shall be implemented.
 - II. The FPC shall work in close cooperation with the Project Proponent before the PPP-IMI bid for finalization of the Concessionaire. The board of FPC shall ensure that the Project Proponent shall be selected on the basis of a transparent and fair process that would comply with the criterions laid down in the RFQ

3.3. PRE-BID ACTIVITIES

The Project-Proponent shall undertake the following key pre-bid activities on behalf of the primary beneficiary farmers;

- I. Identify the suitable land cluster within the command limits of the irrigation canal
- II. Undertake a socio-economic analysis and land suitability analysis to establish the need for project in the particular area
- III. Use critical groups for canvassing among other eligible members about the need, urgency and benefits of FPC and PPP-IMI
- IV. Facilitate the formation of FPC structure with primary farmers (land owners) as members

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- V. Allow sufficient time to the potential members of the FPC to understand the idea/ concept. Make frequent visits to them, educate them, organize exposure and knowledge visits to functioning FPC's and clarify farmers' doubts.
- VI. Hold regular meetings with FPC members to discuss objectives and possible business ideas
- VII. Conduct the baseline and feasibility studies for the implementation of the project including an assessment of the current/ existing infrastructure situation on the selected site and the delivery capacity in existing infrastructure as also the need for expansion
- VIII. Subject to 'Permission to Proceed' by the State Government/ Agency, prepare the detailed project report
- IX. Once the Project-Proponent has obtained the 'Permission to Proceed', it shall finalize the Detailed Project Report ("DPR"), with consideration also to the instructions for preparation of DPR as per the notification No.N-18011/21//2016-CADWM - "Guidelines for Central Assistance for Command Area Development works in prioritized AIBP funded Irrigation Projects".
- X. The Project Proponent shall endeavor to provide reliable power for 24 hours each day through the express feeder, as this would be crucial in obtaining the desired results of PPP-IMI. Hence it is imperative to optimally design the Project and consider implementing solar panels/ alternate sources where considered necessary.
- XI. The Project Proponent may suggest innovative ways of implementing solar based pumps; also the hydraulic linking of the sump of the system with an alternate local water body if feasible, so that the water can be provided during the period of scarcity. However, the farmers cannot claim any crop compensation /damages from the concessionaire towards crop loss etc. on account of electricity and water scarcity
- XII. The Project Proponent shall capitalize all the pre-bid activities expenses and shall include it in the Total Project Cost ("TPC"). The pre-bid activities expenses to be capped at X% of the TPC or a lump-sum amount, whichever is lower.

3.4. ROLES AND RESPONSIBILITY OF CONCESSIONAIRE

3.4.1. INFRASTRUCTURE DEVELOPMENT BY CONCESSIONAIRE

A Design, Build, Finance, Maintain and Transfer ("DBFMT") model would be followed for implementing PPP-IMI from the State Government's perspective, while the Concessionaire shall be responsible for construction, financing and maintenance of the Project as per the configuration and design finalized under the Detailed Project Report ("DPR"). The Project shall entail implementing the requisite

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infrastructure to supply water from the source to the roots of the crops, as depicted in *Annexure-1* of the note and noted below:

- I. Laying of HDPE/ PVC pipeline for sourcing water from the minor-canal/ water outlet efficiently
- II. The Concessionaire will be responsible for the construction of the sump and the pump house; for laying the irrigation pipeline and for installation of on-farm MI network etc.

3.4.2. MAINTENANCE & MANAGEMENT BY THE CONCESSIONAIRE

- I. The Concessionaire shall maintain the IMI network for a period of 15 years. The cost of operation and maintenance beyond the concession period shall be borne by the farmers
- II. The water received from the outlet/ minor canal would be carried through pipelines and stored in a sump from where it will be distributed to the individual farmers through pipelines and on-farm MI systems.
- III. In case a farmer/ farmers stay away from the MI system, then the Concessionaire will make sure that water from the sump is made available to those farmers through a hydrant as and when water is provided in that section
- IV. The Concessionaire will ensure supply of water to the farmers, as per the concession agreement, subject to water release.
- V. The Concessionaire has to ensure its best endeavors to the collection of necessary water and electricity charges as per the concession agreement and their payments to the concerned authorities.
- VI. All the benefits from the farms will go to the land owner during the concession agreement
- VII. The Concessionaire has to undertake farmer oriented activities like capacity building, training and exposure visits, demonstrations, technology transfer, skill development in efficient water and crop management practices (crop alignment) including large scale awareness on “more crops per drop” of water through mass media campaigns, exhibitions, field days, and extension activities through short animation films etc.
- VIII. Annual maintenance charges of the project shall be reimbursed by the Government to the Concessionaire

3.4.3. USER CHARGES AND ADDITIONAL REVENUE FOR CONCESSIONAIRE

- I. The concession agreement shall provide an option to the Government/ Authority to include the levy and collection of user charges on the primary beneficiary farmers for operation and maintenance of the IMI network by the Concessionaire. In such a case, a pre-determined user fee would be specified for the entire concession period since this would be of importance in

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estimating the revenue streams of the project. The Government will have to ensure the provision of cross-subsidies for small farmers (Eg: <5 Ha of land) while levying user charges and that user charges escalation would happen in a phased manner in consideration of the income growth of the farmers

- II. The imposition of the user charge by the Government shall be to optimally share the risk of user charge collection with the Concessionaire, through the competitive bidding under PPP-IMI. The Concessionaire shall in consideration of historical analysis of risk w.r.t willingness to pay by the farmers, political events etc., optimally discount the user charge collection while submitting its bid.
- III. The Concession Agreement shall also provide an option to the Government to include provisions for Concessionaire of generating incremental revenue along with the FPC. The Concessionaire can be permitted to undertake and offer additional services like contract farming, marketing of farm products, sale of fertilizers and seeds, fisheries, tourism, advertisements, storage facilities, etc.
- IV. The Concessionaire should undertake the activity to generate incremental revenue with reference to the above, in collaboration (joint-venture/ MoU etc.) with the FPC.
- V. In case of a collaboration between the Concessionaire and the FPC, X% of the incremental revenue earned by the concessionaire shall be ploughed back into the FPC as management fees in order to ensure FPC's going concern
- VI. Under the scenario where the farm land is owned by the Government, Government may consider contract farming under a lease/ revenue share agreement with a third party and/or farmers

3.5. ROLES AND RESPONSIBILITY OF FPC'S/ BENEFICIARY FARMERS

- I. Farmers shall provide right of way from/to his farm to the Concessionaire for IMI network implementation.
- II. Farmers shall suitably pool-in their land holding and provide the requisite RoW, in order for the Concessionaire to implement the project
- III. FPC with the assistance of the Concessionaire shall facilitate sale of produce, by-products, processing of the agro produce etc.
- IV. The beneficiary farmer shall undertake day-to-day farming operations such as on-farm irrigation, operation of the IMI network, crop cultivation, harvesting etc.
- V. Pay necessary water and electricity charges to the concerned authorities
- VI. The farmer can choose cropping patterns of his/her choice with a flexibility of choosing the MI system

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- VII. The farmer also has the liberty to choose the extent of area to be covered under the MI system
- VIII. The farmers shall take part in all the training programs and capacity building programs arranged by the Concessionaire and/ or the Government.
- IX. FPC along with the Concessionaire shall formulate the policy for efficient operation of the IMI network, with proper monitoring and penalty provisions

3.6. ROLES AND RESPONSIBILITY OF THE STATE GOVERNMENT

The successful implementation of the project would be driven by the state's commitment to create mechanisms that resolve any institutional and governance issues and in the process enable effective decision making.

- I. The State Government shall constitute a suitable single window agency – State Implementation Agency (“SIA”) - to ensure that all clearances and approvals regarding implementation of PPP-IMI in the state are provided in a time-bound manner
- II. The SIA shall comprise a PPP project steering group, which shall overlook the completion of the competitive procurement process. This would include representatives from the key government agencies that are relevant to the project and individuals with necessary technical expertise to review and evaluate bids
- III. The State Government needs to intervene for convergence of investments in IMI (from the source of the water to roots of the crop) at the field level by integrating various ongoing schemes of the Central and the respective State Government.
- IV. The State Government may need to formulate appropriate guidelines or provide approvals to enable private partners to collect user charges from beneficiary farmers and/or to evaluate other commercial options which the Project Proponent may propose to successfully execute the project
- V. The concerned State Government may consider any fiscal concessions/ waiver that can be extended to the project, as proposed by the Project Proponent
- VI. The SIA shall also obtain exemption/ amendments under State Public Procurement guidelines if any, to proceed with the proposal
- VII. Insurance coverage covering the net book value (“NBV”) of the components in the IMI network to be provided by the State Government during the concession period
- VIII. State Government to take over all the assets created under PPP-IMI by the Concessionaire, immediately after the concession period is complete.

3.6.1. PROJECT MANAGEMENT CONSULTANT

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- I. The State Government in agreement with the Central Nodal Ministry may appoint a Project Management Consultant (“PMC”) on receiving the Expression of Interest (“EoI”) for the *suo moto* PPP-IMI opportunity, in order to undertake the following activities and to evaluate the proposal further:
 - a. PMC to prepare the Draft Concession Agreement (“DCA”) in-line with the Model Concession Agreement of the NITI Aayog
 - b. PMC may sub-appoint a Technical Consultant to audit the DPR and the TPC of the Project
 - c. It shall examine the technical feasibility of the DPR to identify aspects of the technology and design, and ensure that they are replicable through other means. (The guiding principle shall be ‘Output Based Specifications’ for meeting certain service objectives and not favoring any particular technology)
 - d. The PMC may undertake additional studies for independently determining the TPC, project revenues, project viability, risk analysis etc.
 - e. Value for Money test (in NPV terms) needs to be undertaken from the Government’s perspective, to ensure proper benchmarking
 - f. PMC shall negotiate the pre-Bid expenses submitted by Project Proponent and ensure that such costs are reasonable, justifiable and within the pre-specified level.
 - g. PMC shall assist the State Government to undertake the bidding activity and appointment of the Concessionaire
 - h. PMC to undertake monitoring during the PPP-IMI implementation period with the intent of continual improvement.
- II. Since payment to the Concessionaire will be based on Output Based Specifications (“OBS”), provisions for appropriate tests prior to commissioning of the Project and for monitoring system post the commissioning of the project shall be noted in the Concession Agreement and enforced as part of the concession framework.
- III. There would be stiff penalties for violation of the agreement or for shortfalls in key performance indicators while incentives would be payable for better performance.
 - a. State Government to undertake regular monitoring of the project, post PPP-IMI implementation and during the concession period, in coordination with the FPC

4. PAYMENT MECHANISM:

- A. Total project cost under both scenarios of land ownership as discussed, shall be funded as follows:

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Scenario-1:- Land owned by the State Government- The estimated total project cost shall be finalized by the Government/ Authority, while the Concessionaire shall be selected based on the competitive bidding.

Scenario-2:- Land owned by the beneficiary farmer- Under this scenario, the beneficiary farmers' (small, marginal and/or large) contribution is a must. This will instill the sense of ownership for the project so that it may be optimally used. The TPC is proposed to be funded as follows:

- I. The TPC may further be divided into two parts- a) cost of on-farm MI network; and b) cost of setting the irrigation network from the source (water outlet / minor canal) up to the farm gate
 - II. Beneficiary farmers on receiving subsidies from the Government for implementation of on-farm MI and solar equipment would transfer the same to the Concessionaire.
 - III. The farmers' contribution (both eligible and non-eligible farmers under the PMKSY Scheme) towards the on-farm MI network share of the TPC shall be in-line with the extant PMKSY Scheme ("Per Drop More Crop"). In the event the farmer requires loans for meeting such costs, the Concessionaire shall assist in arranging loans from financial institutions, provide such loans from its own resources, or provide an optimal credit enhancement mechanism for the comfort of the lenders.
 - IV. The Concessionaire will coordinate with the SIA to facilitate the funding for setting up the irrigation network from the source (water outlet / minor canal) up to the farm gate
 - V. The balance amount of the total Project Costs is proposed to be funded by the Concessionaire at the time of the financial closure. Eventually the Concessionaire shall recover its capital contribution, along with the requisite in-built return on capital by way of the capital grant from the State and the Central Governments.
- B.** Under both the above scenarios, the Net Present Value ("NPV") of TPC and grant for maintenance of the project during the concession period shall constitute the bidding parameter. Post the execution of the concession agreement the bid amount shall be disbursed by the Government/ Authority in the following manner:
- i. 40% of the capital grant disbursed during the construction period in line with an implementation schedule
 - ii. balance 60% of capital grant and the maintenance grant shall be disbursed in the form of bi-annual annuity payments over the concession period
 - iii. maintenance shall be fixed as a lump-sum financial support, computed on the amount quoted by the selected bidder and dispersed in the form of biannual payments where each instalment shall be the amount determined as per the bid and Price Index Multiple (w.r.t a base year and linked to variation in 70% of WPI and 30% of CPI)

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- iv. the Government shall also provide interest rate protection (SBI One Year MCLR + X%), which shall be co-terminus with the loan facility availed for capital expenditure by the concessionaire

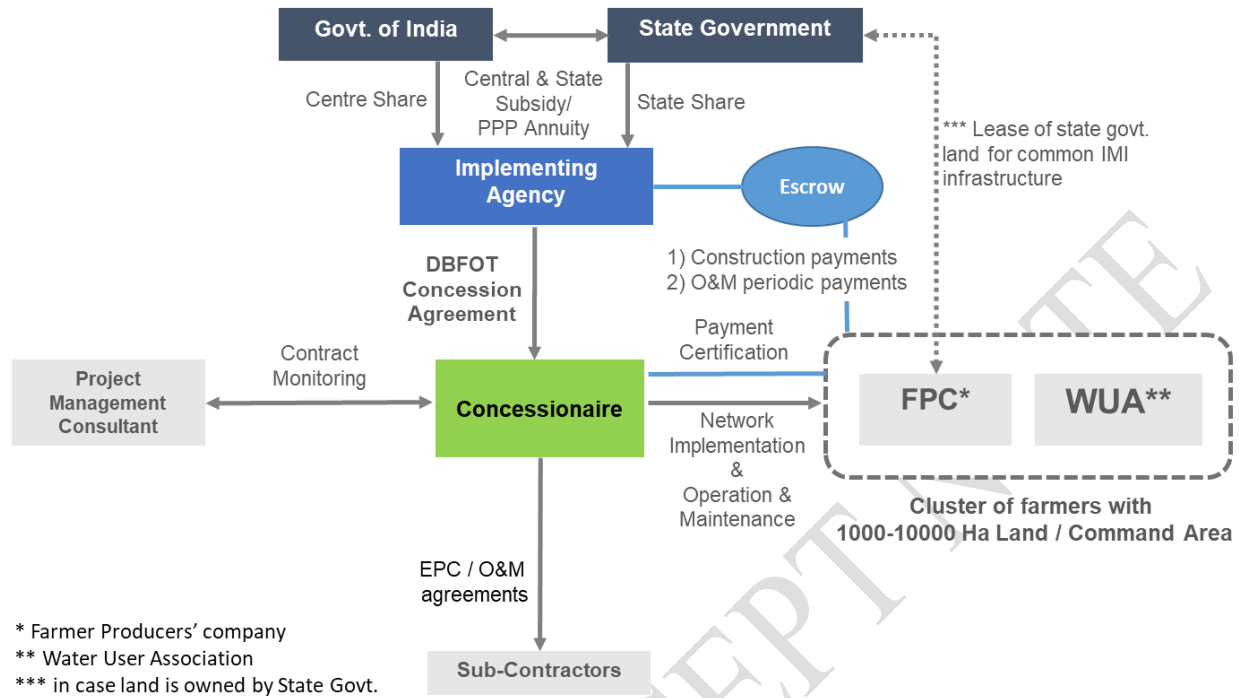
4.1. DISBURSEMENT LINKED TO OUTPUT PARAMETERS

The disbursements under this scheme shall be linked to Output Based Specifications. The OBS shall specify the pre-determined output requirements along with the constraints, such as the need to meet benchmarked standards and the need to interface with existing system. The incentives and penalties will be linked to key performance indicators to be specified clearly in the concession agreement.

5. TRANSACTION STRUCTURE

- I. The SIA on receiving the *suo-moto* proposal from the Project Proponent shall accord the 'Permission to Proceed', subject to the *suo-moto* proposal satisfying all the specified conditions of setting up PPP-IMI (i.e land availability, water source, formation of FPC etc.).
- II. Once the *suo-moto* proposal is granted the 'permission to proceed', the Project Proponent shall be given a 60 day period to undertake a detailed study (including of the DPR) required for the bidding purpose. In case the Project Proponent does not meet the deadline the state agency would in exceptional circumstances either extend the deadline by another 20 days or would exercise the option to develop the project on its own through its agencies or through any third party without the Project Proponent having any claims. Once the Project Proponent has submitted the DPR to the state agency no changes shall be permitted in the DPR except to offer any clarifications that may be required from the department. Clarifications shall be given as addenda and not as changes to the DPR.
- III. Subsequent to the successful bidding, once the concession agreement has been executed, the State and Central Governments shall directly release their share of funds, allocated to the PPP-IMI Scheme in the State and on basis of the approved annual action plan to the SIA. In addition, the State Governments may be allowed to disburse funds directly from their own corpus via SIA to the FPC and later get the same reimbursed from the Central Government. The beneficiary farmer's share of contribution is also passed on to the FPC. FPC will maintain a separate escrow account for the funds received from the SIA and the beneficiary farmers for the payments to be made to the Concessionaire as per the terms of the Concession and the Escrow Agreement. The above transaction mechanism is depicted in the diagram below:

Figure 2: PPP-IMI Transaction Structure



6. BIDDING PROCESS

Selection of the Concessionaire will be based on competitive bidding. Either the Project Proponent or a shortlisted bidder on basis of the RFQ shall become the Concessionaire based on the successful outcome of the bid and award of the contract subsequently.

6.1. SELECTION OF THE BIDDER

On receiving the *suo-moto* proposal, the process of marketing the PPP is crucial to ensure that sufficient interest is generated for the project amongst the potential bidders. To market the PPP opportunity, the government can simply advertise the launch of the process in at least one public platform with national coverage in English and in Hindi.

Further, the success of this scheme would depend on the experience and commitment of the private participant selected for this purpose. A consortium/ joint venture of private participants (including international firms) having requisite technology, financials, skills, and experience to operate MI System shall also be eligible for the bidding purpose. The Government should take appropriate measures to design the qualification criteria to optimally reflect the market of potential bidders—i.e., if all the firms willing to bid for PPP-IMI have no more than 2 years' experience in the country, the qualification criteria

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should not require bidding firms to have 5 years of experience. This shall ensure maximum competition for the bid for PPP-IMI.

In view of the above, the applicants for each PPP-IMI would be pre-qualified on the basis of a transparent and fair process. The selection would be prepared on the lines of the two-stage process as laid down by the Ministry of Finance for PPP projects:

- I. In the first stage (i.e Request for Qualification Stage), applicants will be short-listed based on proven track record or capacity to establish and manage such projects. SIA shall ensure that sufficient interest is generated for the project so that there are at least three potential bidders for the project bid to be successful. Seeking feedback from prequalified bidders is strongly advised before issuing an RFP in order to enhance overall competition of the bid.
- II. In the next stage (i.e RFP stage), the pre-qualified and the short-listed bidders shall be invited to submit their financial bid after complete scrutiny of the project.

A fair and transparent system of evaluation and scoring would be evolved and announced before inviting applications under this scheme.

6.1.1. COMPETITIVE BIDDING

A. Pursuant to the above, the competitive bidding under both the scenarios shall follow the following mechanism:

Scenario-1:- Land owned by the State Government- The overall project cost estimated by the Government / Authority shall be the criterion for the competitive bidding. For the PPP-IMI the bidder who bids the lowest NPV of Project Cost and the maintenance support from the Government would win the contract.

Scenario-2:- Land owned by the beneficiary farmer-The bidding shall be undertaken with the Modified Swiss Challenge Approach (hereinafter called “MSCA”). Under an MSCA the Project Proponent may submit a *suo-moto* proposal to the SIA for setting up a PPP-IMI, while the Concessionaire shall undertake the implementation of the PPP-IMI:

- I. The Project Proponent shall articulate and establish the clear public need for the project
- II. The Project Proponent shall provide - (a) Documents to support its eligibility as a competitive bidder as per the guidelines laid under the RFQ; (b) DPR with total project cost, operation and maintenance expenditure during the Concession Period along with the financing plan, extent of land being pooled, support sought from the Government with all support converted into monetary equivalents, utility relocation plan, environmental impact assessment, and social impact

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- assessment etc.; and (c) Cost incurred by the Project Proponent to undertake pre-bid activities, including but not limited to development studies related to the project
- III. The Government will examine the proposal and if the proposal stands eligible under the guidelines of PPP-IMI, then it may invite competing bids for counter proposals from others (in the spirit of 'Swiss Challenge approach') giving adequate time to evaluate
 - IV. All the project parameters such as the concession period, user charges, price indexation and technical parameters are to be clearly stated upfront
 - V. The bidder who bids the lowest NPV of Capital Grant and the Operation Maintenance Support from the Government would win the contract.
 - VI. Capital Grant can either be positive (taking grant from the government) or negative (paying a premium to the government)
 - VII. If the MSCA results in a superior proposal, the Project Proponent would be given an opportunity to match the competing counter proposal. In case the Project Proponent's bid value is within 15% of the superior bid value the Project Proponent shall win the bid and be given the Letter of Award ("LoA")
 - VIII. In the case where the Project Proponent declines to match the superior counter proposal, then the applicant who has made the superior bid would be given the LoA, while the state agency shall cause/arrange to reimburse to the Project Proponent, a part or the whole of the cost pertaining to pre-bid activities as determined upfront and declared in the bidding documents and may recover the same from the successful bidder.
 - IX. In case the project proposal is not taken-up by the state agency after the studies have been undertaken for any reason, then no cost of project preparation would be reimbursed to the Project Proponent.
- B. Under both the above cases all the qualified bidders shall submit to the state agency an interest-free bid security equivalent to 1% of the estimated TPC. The bid shall be summarily rejected if it is not accompanied by the bid security. Bid security shall be forfeited under conditions as prescribed in Model RFP issued by DEA, GoI.

6.2. CONCESSION AGREEMENT

Subsequent to the competitive bid, a concession agreement between the Concessionaire and the SIA, backed by a support agreement between the FPC and the SIA, specifying the rights and obligations of the concerned parties shall be executed. This will enable the Concessionaire to raise funds from the financial institutions for meeting its capital expenditure. The concession agreement will protect the interests of the public exchequer as well as the farmers while providing sufficient flexibility to the Concessionaire to

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manage the PPP-IMI. Regular monitoring would be undertaken by the State Government for enforcing the provisions of the Concession Agreement. The key features of the concession agreement are provided below:

- I. The scope of the Project: construction of the Project; maintenance of the Project; performance and fulfilment of all other obligations of the Concessionaire in accordance with the provisions of the Concession Agreement and matters incidental thereto or necessary for the performance of any or all of the obligations of the Concessionaire under the Concession Agreement
- II. Change of scope of the Project, along with provisions granting power to the State Government / SIA to undertake any such works
- III. Conditions Precedent required to be satisfied by the parties for the contract to come into force, along with provisions for damages for delay by the parties and waiver conditions
- IV. Duration of PPP that sets out the length of time for which the PPP arrangement will be in place
- V. Obligations of the Concessionaire
- VI. Obligations of the State Government
- VII. Performance Security – Upon the submission of the performance security by the Concessionaire the State Government/ SIA shall release the bid security to the Concessionaire
- VIII. Entry into commercial service, along with provisions for damages for delay by the Concessionaire
- IX. Financial Covenants, along with provisions for payments structure; revenue from the project; escrow account; insurance etc.
- X. Early termination payments: In case of early termination of the contract and project assets revert back to the public side, the contract should set out the compensation payment depending on the cause of the early termination. There are three broad reasons for early termination: a. default by the private party; b. termination by the public party whether due to default or for reasons of public interest; and c. early termination due to some external reason (force majeure).
- XI. Key performance indicators: This section of the contract specifies the required level of quality, quantity of performance for the responsibilities taken on board by the private parties to the agreement. The performance requirements should also specify the monitoring and enforcement mechanisms and the penalties that will apply for failure to achieve performance at the pre-defined level.
- XII. Handover arrangement and transfer of assets at the end of Concession Period
- XIII. Representations and warranties: This defines any warranties in place related to for example the quality of the assets included as part of the PPP arrangement, or the minimum levels of water to be provided to the scheme.

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- XIV. Dispute resolution mechanism
- XV. Monitoring & inspection mechanism
- XVI. User charge recoverability, along with tariffs and indexation
- XVII. Other obligations of parties and miscellaneous clauses

7. EXPECTED OUTCOMES

- I. PPP in MI is expected to deliver widespread benefits. Development of such integrated MI projects is the only effective and efficient way of distributing canal water homogeneously across farms to the farmers. Some of these are enumerated below:-
 - a. Irrigation efficiency is expected to increase substantially with the installation of IMI as compared to flow irrigation which provides only approximately 40 per cent efficiency;
 - b. Irrigation intensity based on the existing water allocation is also expected to increase substantially with IMI;
 - c. The precious natural resource- water will be conserved (which is presently lost by way of evaporation and seepage) and improved farming practices will be adopted leading to savings in input costs, fertilizer, energy, better yield and quality resulting into increase in income of the farmer.
 - d. Increase in incomes of farmers by employing more efficient means of irrigation.
 - e. Ensure an equitable supply of water to tail-end farmers through use of pipelines, which would also minimize land acquisition and water thefts. Further, the proposed system would require less maintenance to achieve longer equipment life
 - f. The scheme also envisages achieving better community participation as the implementation and operation of the scheme would require farmers' participation at all stages.
 - g. Benefit to both Government and farmers and the economy as whole

8. TIME FRAME

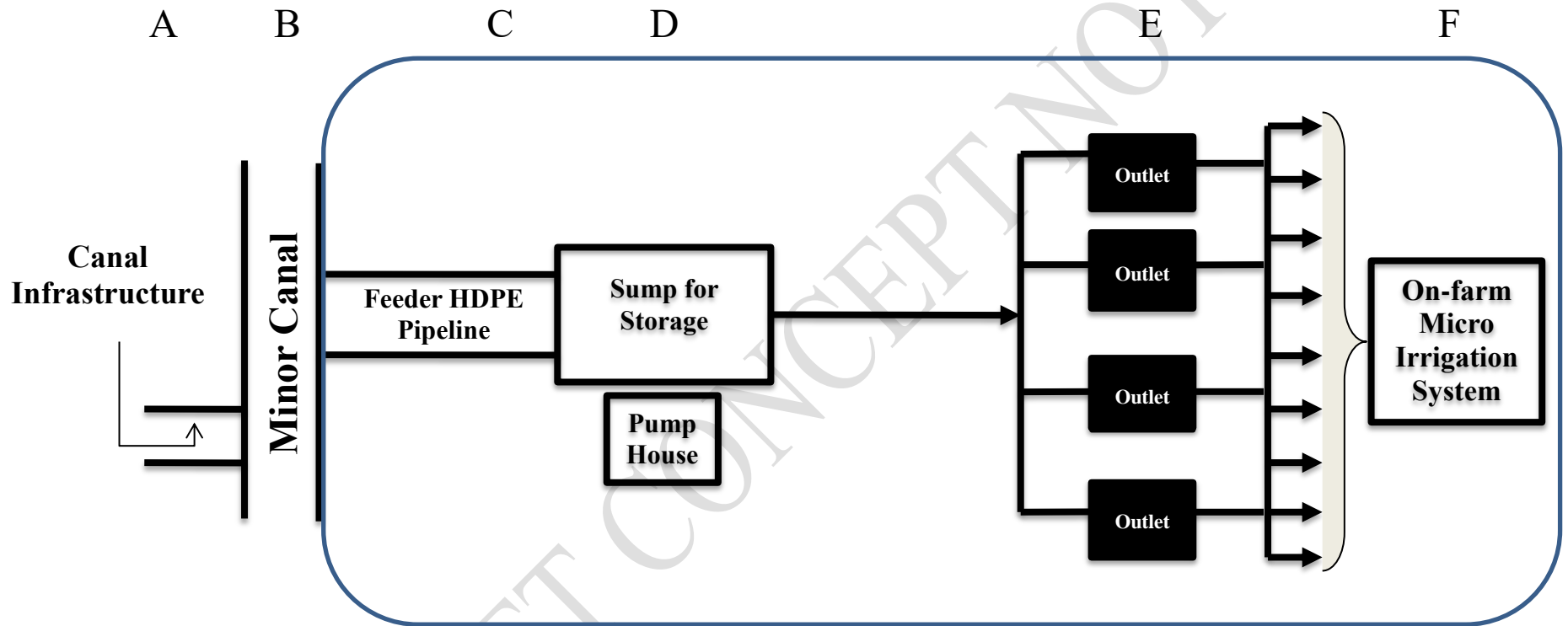
The draft guidelines envisage the following time frame for the key activities; post *suo-moto* submission of the PPP-IMI proposal by the Project Proponent to the SIA:

S.no.	Activities	Time (Days)
1.	Preliminary examination by SIA/ PMC	30
2.	Permission to proceed by SIA	15
3.	Submission of DPR and other studies/ details by Project-Proponent	60
4.	Detailed examination by SIA/PMC	45
5.	Bidding process – MSCA	15

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S.no.	Activities	Time (Days)
6.	Call for open tender and submission of challenger bid	75
7.	Evaluation of bids	15
8.	Additional time to Project-Proponent to match best bid, if any	15
9.	Approvals: Letter of Award & concession agreement	15
	Total Time	285 Days

Annexure -1: Structure of Project



Government

Concessionaire

PPP – IMI (Comprises of):

- Components C to E – Irrigation Infrastructure
- Component F – On-farm MI System

Annexure -2: State-wise Area under MI

(Area in Hectare)

S.No.	Name of State	Drip	Sprinkler	Total	Nation-wide
All India		45%	55%	8626784.7	100%
1	Rajasthan	12%	88%	1752670.7	20.3%
2	Andhra Pradesh	72%	28%	1323205.1	15.3%
3	Maharashtra	71%	29%	1309671.8	15.2%
4	Gujarat	50%	50%	1068814.7	12.4%
5	Karnataka	51%	49%	953347.7	11.1%
6	Haryana	4%	96%	576828.7	6.7%
7	Madhya Pradesh	52%	48%	430662.5	5.0%
8	Tamil Nadu	90%	10%	363359	4.2%
9	Chhattisgarh	7%	93%	271145.7	3.1%
10	Bihar	9%	91%	107921.6	1.3%
11	Odisha	18%	82%	104837.9	1.2%
12	Telangana	80%	20%	94967.6	1.1%
13	West Bengal	1%	99%	51180	0.6%
14	Punjab	74%	26%	47093.3	0.5%
15	Others	33%	67%	46500	0.5%
16	Uttar Pradesh	39%	61%	42659	0.5%
17	Kerala	75%	25%	30319	0.4%
18	Jharkhand	52%	48%	20750	0.2%
19	Sikkim	67%	33%	9086	0.1%
20	HP	55%	45%	7822.5	0.1%
21	Nagaland	4%	96%	5205	0.1%

Source: Department of Agriculture, Cooperation & Farmers Welfare (*December - 2016*)