

GOVERNMENT OF PUNJAB



EXPRESSION OF INTEREST

FOR

**PILOT PROJECT FOR IMPLEMENTATION OF SMART FARMING
SOLUTION (SFS)**

FOR

KHARIF-2018



DEPARTMENT OF AGRICULTURE, PUNJAB

Kheti Bhawan, Phase -6, Ind Area

Mohali, Punjab, India

Tel No. 0172-2970602

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DISCLAIMER**Kindly Note:**

1. This document is not transferable
2. Though adequate care has been taken for preparation of this document, the bidder shall satisfy himself that the document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any bidder within five days from the date of issue of the bid document, it shall be considered that bid document is complete in all respects and has been received by the bidder.
3. The Department of Agriculture, Punjab reserves the right to modify, amend or supplement this bid document keeping in view the necessity in implementation of the scheme.
4. While the bid has been prepared in good faith, neither DoA nor their employees or advisors make any representation, warranty, express or implied or accept any responsibility or liability, whatsoever, in respect of any statements or omissions herein, or the accuracy, completeness or reliability of information, and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability and completeness of this bid document, even if any loss or damage is caused by any act or omission on their part.
5. The decision of Director, Agriculture shall be final in case of any dispute arising out of interpretation of the bid document.
6. The Department of Agriculture is not responsible for any issues regarding uploading of bids/supporting documents/payment of fee on online e-tendering portal. No claims what so ever shall be entertained for such issues.
7. For Downloading Detailed Notice Inviting Rates including Bid Documents, bidder has to pay requisite Form fee and processing fee as prescribed on e-tendering portal.
8. For any clarification reg EoI document, scope of work; please contact Jagtar, Singh Brar, Joint Director Agriculture(Inputs), Department of Agriculture, Kheti Bhawan, Phase -6, Ind Area, Mohali, Tel No. 8146553551

Government of Punjab
DEPARTMENT OF AGRICULTURE, PUNJAB
Kheti Bhawan, Phase-6, Ind Area, Mohali, Punjab
Expression of Interest No.– DA/SFS/1-2018

The Director Agriculture, Punjab invites bids/item rates on 2-bid system for work as per detail below

Name of the Work	Fee Details	Schedule Details
Pilot Project for Implementation of Smart Farming Solution(SFS) for Kharif Season-2018	<ul style="list-style-type: none"> ▪ Form Fee: ₹ 1000.00 ▪ Processing Fee: As per e-Tendering website ▪ EMD: ₹ 50000 	<ul style="list-style-type: none"> ▪ Pre Bid Meeting 17.4.2018 at 11.00 AM ▪ Last Date of Submission: 19.4.2018 upto 3.00 PM ▪ Technical Bid Opening: 19.4.2018 at 3.30 PM ▪ Process Presentation: 20.4.2018 at 11.00 AM ▪ Financial Bid Opening: 24.4.2018 at 3.00 PM

For participating in the bidding process, the bidders shall have to get themselves registered with <http://etender.punjabgovt.gov.in> and get user ID & password. Class-3 Digital Signature Certificate (DSC) is mandatory to participate in the e-tendering process. For any clarification/difficulty regarding e-tendering Process flow, please contact on helpdesk numbers 8901010014

Dated: 10.4.2018

Jasbir Singh Bains
Director Agriculture

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SECTION-1

GENERAL DETAILS

1.1 DEFINITIONS

1. The **"Government"** or the State Government" shall mean the Governor of Punjab.
2. **DoAP** means Department of Agriculture, Punjab herein the Department floating the EoI.
3. **DA, Punjab** means Director Agriculture, Punjab the head of DoAP, under whom the project shall be implemented.
4. **JDA, Inputs** means Joint Director Agriculture, Inputs and in-charge of Project
5. **"Bidder"** means firm/ company who submits proposal in response to this Request for Proposal document.
6. **"Committee"** means committee constituted for evaluation of Proposals.
7. **"Agency or Organization"** means the firm/ company, selected through competitive tendering in pursuance of this EoI, for providing the services under the contract.
8. **"Contract"** means the Contract entered into by the parties for providing consultancy services along with the entire documentation specified in the EoI.
9. **"Department"** means the Department of Agriculture Punjab.
10. **"GCC"** means General Contract Conditions, specified in Section 3 of EoI.
11. **"ITB"** means Instructions to Bidders, specified in Section 2 of EoI.
12. **"IFP"** means Invitation for Proposals, specified in Section 1 of Eoi.
13. **"Personnel"** means professional and support staff provided by the Consultant to perform services to execute an assignment and any part thereof.
14. **"Proposals"** means proposal submitted by bidders in response to the EoI issued by the Department for selection of Project Consultant.
15. **"SOW"** means Scope of Work for the Consultant, specified in Section 4 of EoI.
16. The word Bidder, Contractor, Tenderer as mentioned in this document are synonyms of each other

1.2 INTRODUCTION

Punjab the "land of five rivers" has total geographical area of 5.03 million hectare which extends from the latitudes 29.30° north to 32.32° north and longitudes 73.55° east to 76.50° east. This region, with its fertile alluvial soils, slopes gently from an elevation of about 900 feet (275 metres) in the northeast to about 550 feet (170 metres) in the southwest. The south-western part of the plains, formerly strewn with sand dunes, has mostly been levelled off with the expansion of irrigation projects. Some two-fifths of Punjab's population is engaged in the agricultural sector, which accounts for a significant segment of the state's gross product. Indian Punjab is called the "Granary of India" or "India's bread-basket". It produces 10.26% of India's cotton, 19.5% of India's wheat, and 11% of India's rice

There are large disparities in the state-wise consumption of fertilizers in the country and Punjab state is the ranked one with respect to its per hectare use. Fertilizer consumption per hectare also varies across farm size categories, with skewed tendency towards small farmers, irrigated areas and rabi season (winter season) indicating possibility of increasing agricultural production through fertilizers along with other complementary inputs. Therefore, the present study was conducted to examine the trend, pattern and determinants in the use of different fertilizer nutrients in the Punjab state. The economic efficiency of fertilizers use on farms in different regions of the Punjab state was also estimated to examine their impact on profitability and economic scope of their increased application. The information on fertilizer use and other variables was gathered for major crops i.e. wheat and rice, which use more than 80 per cent of total fertilizers. In state, the use of major nutrients (N+P+K) went up from just 65.3 thousand tonnes in triennium ending (TE) 1968 to 1463.7 thousand tonnes in TE 2004. The use of K in Punjab soils is not high because soils are rich in K-illitic mineral. Punjab state alone consumes about 9 per cent of the total fertilizers in India and the use is the highest on per unit area basis at 223.46 kg/ha of gross cropped area against 90 kg/ha in all India. The pattern of growth in consumption of fertilizers in Punjab was not different from India. The highest CGR of 25.65 per cent for N, 49.18 for P and 46.35 per cent for K was observed in first period 1965-66 to 1973-74, while CGR declined to 9.06, 10.93, and (-) 0.5 percent respectively in 1974-75 to 1988-89. The least growth was observed in 1989-90 to 2003-04 period, when use of N grew at 1.96 per cent, P205 at 0.6 per cent only and K20 at 10.17 per cent per annum. The growth pattern of fertilizer use matched with that of foodgrains production over time. The production of food grains grew at the rate of 12.6 per cent in the first period but the growth rate declined to 5.75 per cent in the second and further to 2.09 per cent in the third period. Fall in relative price of fertilizers, increase in yield and greater availability of institutional agricultural credit helped increasing use of chemical fertilizers in rice and wheat crops in the state. The impact of area under high yielding varieties on fertilizers consumption was the largest in wheat. Farmers applied more chemical fertilizers to raise productivity of high yielding varieties due to higher responsiveness. Primary data from farmers were used to examine the level of use of fertilizers, fertilization practices and their impact on productivity of wheat and rice in three districts of Punjab state categorized as low (Bathinda), medium (Amritsar)

and high fertilizer (Ludhiana) using districts. The average application of P in wheat was almost around the recommended dose in Amritsar and Bathinda districts whereas in Ludhiana it was higher by 25.2 per cent. The use of N was invariably higher (by 25 per cent on an average farm) than the recommended dose of 50 kg/acre due to its strong visible impact on plant growth. There was no trend in its differential use on different farm size categories. Use of N was the highest in Ludhiana district and the lowest in Bathinda district. Method of application of fertilizer nutrients and use of green manure has significant impact on productivity of crops. Only 15 per cent of the farmers adopted green manuring and they perceived its impact on yield as positive. Majority of the farmers have not adopted green manuring due to its high cost..

Farmers depend more on informal advice of fertiliser dealers, peer groups, friends and relatives rather than expert/scientific advice with regard to application of major and micro nutrients. In low fertilizer using Bathinda district, nitrogen, farm yard manure (FYM), micro-nutrients and chemicals (weedicides, fungicides and pesticides) were estimated to have significantly influenced rice productivity, while the impact of phosphorous, irrigation, human labour and machinery (tractor) was non-significant. For wheat crop, N and P, as well as FYM significantly increased productivity on sample farms. In Amritsar district, the impact of FYM and micro-nutrients on rice productivity was significantly positive whereas in wheat crop, use of N, P and FYM significantly increased its productivity. The response of wheat and rice productivity to major nutrients such as N and P was not significant in high fertilizer using district of Ludhiana. Yet, the impact of FYM and micro-nutrients was significantly positive in rice. The study concludes that use of nitrogen and phosphorous in wheat in low and medium fertilizer using areas and nitrogen in rice in low fertilizer using area was economically efficient. Their use can be profitably enhanced on some sample farms, where it is smaller than recommended levels. The use of P was irrational in rice crop leading to fall in profits. The farm yard manure and micro nutrients were significant determinants of productivity of wheat and rice warranting their application for improving soil properties, organic matter and availability of minor elements. However, use of production inputs in Punjab has reached to a level where their higher use increases productivity marginally.

Unscientific" use of NPK (nitrogen, phosphorous, potassium) nutrient ratio has had a "shocking" impact on nutrient elements in the soil and reduced the crop yields in the grain bowl of the country. A parliamentary panel report on "National Project of Organic Farming" tabled in Parliament says alarming level of 39:9:1 NPK ratio in the key agrarian state against an ideal combination of 4:2:1 and national average of 7:3:1 has resulted in drastic reduction in crop yields over the years.

1.3 ROLE OF DEPARTMENT OF AGRICULTURE, PUNJAB

1.3.1 Functions & Duties of Department Of Agriculture

- a) Imparting training to the farmers about latest technology developed by research institutes for the production of different crops.
- b) Monitoring the supply and quality of Agricultural inputs like seeds, fertilizers, pesticides, irrigation water and machinery & equipments etc.
- c) Monitoring the soil health and health of crops in the field and to promoted Integrated Nutrient Management (INM) for balanced use of fertilizers.
- d) To propagate the minimum the use of pesticides and to control the environmental pollution with adoption of integrated pest management. (IPM)
- e) Diversification of areas from traditional crops to oilseeds & pulses crops, sugarcane, maize, cotton etc.
- f) Implementation of beneficiary oriented schemes for economic up-liftment of farming community e.g. Contract farming, Bee-Keeping, vermiculture, etc.
- g) Promotion of Resource Conservation Technologies (RCT) for NRM
- h) To promote judicious use of irrigation water through better on farm water management and to monitor the water level behavior and its quality.

1.3.2 Major Programmes of the Department are:-

- ❖ Training camps of farmers at the district level where scientists of the PAU update the progressive farmers and field staff of the Deptt. of Agriculture about the latest scientific techniques on crop production and marketing. These are organized both in Kharif and Rabi seasons at all the district head quarters. Later on, the staff of the Deptt. of Agriculture organizes farmers training camps at block and village level. Every year about 3 lakhs farmers are trained on scientific crop production.
- ❖ Soil Health Card Scheme (SHC) has been launched to issue soil health cards to every farmer in every 2 years, so that the fertilizer can be used on recommendation basis.
- ❖ Punjab State Seeds Corporation and other agencies produce certified seed of various crops and distribute to the farmers, Deptt. of Agriculture procures seeds from the Punseed and makes available to the farmers through the centres of the Department.
- ❖ Field staff of the Deptt. of Agriculture organizes demonstration plots particularly on the use of seed treatment against pests, method of sowing, irrigation and pests control.
- ❖ Integrated Pest Management is one of the major programmes launched by the Deptt. of Agriculture so that excessive use of pesticides is minimized. For this purpose farmers are trained about the use of insecticides, economic thresh-hold level of the damage caused by pests and minimum use of pesticides.
- ❖ For balanced & judicious use of fertilizers, the Integrated Nutrients Management (INM) is promoted.

- ❖ To reduce cost of inputs & Resource conservation technologies (RCT) are encouraged amongst the farmers.
- ❖ Beneficiaries' schemes are implemented for the economic uplift of farming community.
- ❖ Various schemes under Work Plan, Technology Mission and Second Push in Agriculture are implemented for the benefit of the farmers.
- ❖ Major stress on diversified crops like Cotton, Oilseed, Pulses, Sugarcane etc.

1.3.3 Department's Structure

- The Department of Agriculture in the state of Punjab is headed by Director of Agriculture (DA) under the administrative control of Financial Commissioner (Development) at the government level. All the Centrally sponsored /State schemes are implemented after the administrative & financial approval of Financial Commissioner (Development) and Technical personnel in the department are classified into four wings i.e. administrative, engineering, statistical and geological. All the four wings are manned by Joint Directors of Agriculture in their respective category. There are seven officers of the rank of Joint Director in administrative wing, two in the statistical wing, and one each in engineering and geological wing.
- In addition to the four technical wings, there is a establishment wing consisting of Joint Director of Agriculture (Admn- PCS Officer), Deputy Director of Agriculture (Head Quarter- DDA HQ) and Establishment Officer (EO). All the three officers are supported by different branches. Also, there is a finance wing headed by Joint controller of Finance and Accounts (JC&FA). Budget and Planning is looked after by Assistant Director (Budget & Planning) under the direct control of DA Punjab.
- Administrative wing is manned by seven joint directors of agriculture namely inputs, plant protection, innovation and pulses, extension and training, cash crop, high yielding varieties and a Cane Commissioner for sugarcane development. Each joint director is assisted by Agriculture Development Officer (ADO)/ Technical Assistant (TA) and office superintendent for official purposes. Information received from the districts is processed by respective joint directors. Similarly progress of the various schemes is also monitored by the respective joint directors.
- Some of the joint directors of the administrative wing have direct control of the specialized sections (like seed testing labs, fertilizer, pesticide testing labs, Bio fertilizer Prod. lab, Bio Control Agent Prod. lab and Agmark Labs) headed by state level officers. JDA (Input) controls fertilizer-testing labs stationed at Ludhiana and Faridkot. Another state level officer i.e. Field Manure Officer (FMO) is also under the direct control of JDA (Input). CIF - responsible for implementing 'Fertilizer Control Order' is under the direct control of JDA (Inputs) Similarly JDA (PP) controls three labs for testing of pesticides/weedicides located at Ludhiana, Amritsar and Bhatinda. Another state level officer-DDA (LCPP) coordinates with

Chief Agricultural Officers for procurement of various pesticides, weedicides and plant protection equipment etc and is also under the direct control of JDA (PP). JDA (HYVP) controls three seed testing labs situated at Ludhiana, Gurdaspur and Faridkot. Another state level officer DDA (seeds) assists JDA (HYVP) regarding seed related issues.

- JDA (CC) controls the marketing wing of the department. In addition a state level officer-DDA (Oil seeds) is also under the direct control of JDA (CC). Assistant Maize Development Officer (AMDO) looks after the development of maize in the state and is also under the direct control of JDA (CC). JDA (Innovation and Pulses) looks after the subjects related to pulses and cotton.
- JDA (E & T) looks after the most important activity of the department i.e. extension and training. He is assisted by District Training Officer at the district level who is under the direct control of Chief Agricultural Officer at district level. JDA (E & T) is assisted by Agriculture Information Officer who is responsible for publication of the literature for the department and issue the press releases etc.
- Cane Commissioner of the rank of joint director of agriculture looks after the production of sugarcane in the state. The officer is also responsible for enforcing various acts, rules and orders in this regard. In the field, he is assisted by one Project Officer and eight Assistant Cane Development Officer who are under his direct administrative control.
- Assistant Director (Budget & Planning) assists DA for preparing the various budget proposals and work plan of different schemes. He is also responsible for distribution of the budget to the respective DDO's for implementing the various schemes. The Accounts section of the department at the directorate level is looked after by JC&FA assisted by ACFA's (2). The accounts wing is responsible for maintaining the salary expenditure, GPF accounts of the employees and monitoring of the loans and other account related cases etc. The accounts wing is also responsible for affecting purchases through 'Departmental Purchase Committee' by inviting tenders etc.
- JDA (Engineering) supervises the work of 3 state level officers viz 2 Agriculture Engineer (Implements) for development and popularization of farm machinery, bio-gas etc. and Agriculture Engineer (Tube wells) for installation of tube wells etc. The officer of the implement section also assists NABARD in fixing the unit cost of various implements/ farm machinery for providing incentive/subsidies to the farmers. In the field both AE's (Imp) are assisted by 17 Assistant Agricultural Engineers who are under the administrative control of CAO. Agriculture Engineer (Tube well) looks after construction and development of efficient tube-wells. Four Assistant Agriculture Engineers are under the direct control of AE (TW).
- Under the statistical wing, there are two Joint Directors of Agriculture namely statistical and census. JDA (Statistics) scrutinizes and finalizes the statistical data in respect of area, yield and production in coordination with Director Land Records, Punjab. The officer is responsible

for preparing the document on Minimum Support Prices (MSP) for various crops. JDA (Statistics) also coordinates for the national/zonal conferences for making arrangements of various agriculture inputs. These conferences are held in Ministry Agriculture Government of India. JDA (Census) arranges the agriculture census and minor irrigation census in the state. Both the Joint directors are assisted by a state level officer - Statistician at head quarter. All the field reports pertaining to statistical and various census are forwarded to statistician for scrutiny & compilation. Statistician after scrutiny forwards the same to the respective Joint Director.

- Geological wing is controlled by Joint Director of Agriculture (Hydro-geology). The hydrogeological wing is responsible for assessment and monitoring of the ground water regime. Projects related to water harvesting, water logging etc are also implemented by this wing. Geological wing assists NABARD in fixing the unit cost and standard design of tube wells in different parts of the state. JDA (HG) is assisted by two state level officers viz Geologist/ Hydrologist. There are eleven Assistant Geologists in the field working under both the Geologists for monitoring and collection of the data. There are three chemical labs for analysis of the water samples for irrigation located at Chandigarh, Bhatinda and Kapurthala. Geophysical surveys for site selection and electrical logging of the pilot holes is carried out on customary basis. As representative of DA Punjab, JDA (HG) is the member of the Competent State Authority for pollution and environmental clearance of the industrial projects. The wing is under the direct administrative control of JDA (HG).
- There are 22 districts in the state of Punjab. At district level, activities of the department are coordinated and monitored by Chief Agriculture Officer (CAO). CAO is assisted by Statistical Officer, District Training Officer (DTO), and Project Officer & Assistant Agriculture Engineer (Implements). At the district head quarter, he is assisted by Agriculture Officer. In the field, CAO's are assisted by Agricultural officers (BAO) at block level. These officers are in turn assisted by ADO's. There are about 66 soil and water-testing labs located all over the state. Chemical tests are conducted for determining the deficiency and category of the soil and water. Statistical wing at the field level is directly under the administrative control of CAO. Similarly, AAE's of the implement section are also under the control of CAO. These officers assist CAO in installation of biogas units, popularization of agricultural implements/farm machinery, demonstration of improvised implements etc.
- The field officers and staff of Geological wing, Tube well section, Marketing section and Cane section are under the direct control of their respective Joint Directors.. In addition, various specialized testing labs like seed, fertilizer, pesticides/weedicides Agmark and Bio-fertilizer testing labs are also under the direct control of their respective state level officers.

SECTION-II
INSTRUCTIONS TO BIDDERS
(ITB)

2.1 GENERAL INSTRUCTIONS TO THE BIDDERS

1. The Director Agriculture (DA) Punjab is the EoI accepting authority.
2. The DA, Punjab is the EoI Inviting Authority and reserves all rights w.r.t. contents and conditions of this document.
3. EoI shall have to be submitted in accordance with the instructions and format provided.
4. The word Bidder, Contractor, Tenderer as mentioned in this document are synonyms of each other
5. The bid forms "along with conditions of contract" to be fulfilled can be obtained online from website <http://etender.punjabgovt.gov.in>. as per schedule in Expression of Interest through online mode. Bidder have to pay the processing fee through online mode as mentioned in e-tendering website, online by net banking/IPG as DD's and other physical means of payment are not acceptable.
6. The "Bidder" shall mean the individual or firm or company or consortium whether incorporated or not undertaking the work and shall include the legal personal representative or the persons comprising such firm or company or the successor of such firm or company as well as the assignees of such individual or firm or company whose bid offer has been accepted.
7. Bidders are advised to go through the tender document carefully before submitting the tender. No changes or additions shall be allowed after opening of bids.
8. Bidders, who wish to submit bids can access bid documents on the website as per schedule mentioned, fill it and submit the completed bids document into on the website itself. Bidders shall attach scanned copies of all the papers i.e. Earnest Money, Bid Form Cost and other supporting documents/certificates as required in Eligibility criteria.
9. Corrigendum / Addendum / Corrections, if any will be published on the e-tendering website itself. No newspaper advertisement shall be given for the same.
10. No physical bid documents are accepted. No claims what so ever shall be entertained after the time and date fixed.
11. Bids without requisite EMD shall be rejected unless EMD exemption certificate from concerned authority is attached.
12. Only documents uploaded on tendering website shall be considered. No documents submitted through physical means shall be considered, however DA, Punjab may ask for physical production of documents in case of error regarding opening of uploaded documents or non-readable quality of documents or for verification purposes
13. The bidder shall be deemed to have carefully examined the terms and conditions before bidding.
14. Both Technical Bids and Financial Bids need to be uploaded separately. Technical bids without supporting documents shall not be entertained.
15. The date of opening of technical and financial bids is notified in EoI document itself.
16. All mandatory fields have to be filled with relevant information. If the information provided is not in conformation with the mandatory field, then the agency is automatically deemed

ineligible.

17. The EMDs of unsuccessful bidders shall be returned after the award of work.
18. Selected bidder shall have to enter into an agreement with the Department of Agriculture, Punjab.
19. The Terms of Reference of EoI/Agreement can be revised by DA, Punjab or with mutual consent at the time of signing of agreement, depending upon any instructions issued by Govt of India or Govt of Punjab regarding implementation of programme.
20. It is mandatory for the selected agency to provide requisite Bank Guarantee for 6 months within 15 days of awarding of contract, as Performance Guarantee.
21. Bank Guarantee(BG) shall be for an amount equivalent to 10% of the estimated total cost (or contract value) for the period of agreement. Agencies shall have to submit acceptance letter for furnishing of BG. Financial Bid of bidder not submitting such acceptance, shall be rejected.
22. The DA, Punjab reserves the right to accept/reject any bid or cancel the EoI process without assigning any reason what so ever.
23. Any changes/addendums/corrigendum's regarding this EoI shall be updated/uploaded only on Punjab Govt e-Tendering website.
24. No subletting of work is allowed. The agency, which is awarded the task, should not sub-contract assigned task to another party and be able to complete the task on its own as required by the DA, Punjab. The award shall be revoked in case the agency sublets whole or any part of work.
25. In case the EoI is cancelled, the EMD shall be refunded to the bidders. No interest shall be paid in case of refund. The form fee and processing fee is non- refundable.
26. All disputes will be subject to Mohali, Punjab jurisdiction only.
27. The e-tender term used in this particular document may be read as synonym to EoI.
28. For any clarification reg EoI document, scope of work; please contact Jagtar, Singh Brar, Joint Director Agriculture(Inputs), Department of Agriculture, Kheti Bhawan, Phase -6, Ind Area, Mohali, Tel No. 8146553551
29. DA, Punjab is not responsible for any technical issues regarding uploading of EoI documents on e-tendering portal by the bidders. The bidders must have valid Class-III DSC for participation along with registration with Punjab Infotech for participation. In case of any such issues bidders must contact Punjab Infotech at helpdesk numbers.

Note: In interpreting of this "EOI" singular means plural, male means female and vice versa.

2.3 QUALIFICATION CRITERIA

A. PRE-QUALIFICATION BID

Companies/Government Agencies that are eligible to apply should meet the following criterion. Proofs in form of scanned copies of documents have to be uploaded

- a) EoI is being floated for Implementation of Pilot Project for Improvement/Augmentation in Agriculture Practices/Productivity/Production for the state of Punjab, Republic of India
- b) Individual/Partnership/Consortiums/Pvt Ltd//Ltd/Public sector, National and International firms having experience as per ITB's and conditions of contract is eligible to participate in the EoI.
- c) Proof of Nature of Firm (Individual/Partnership/Pvt Ltd//Ltd/Public sector) Registration Certificate of the firm/company as the case may be has to be provided.
- d) Individual/Partnership/Pvt Ltd//Ltd/Public sector, International Firms must have requisite permissions from Govt of India for undertaking work in Republic of India-Proof to be provided
- e) In case of Consortium, one consortium partner shall have to be made principal bidder and shall be responsible for submitting bid, on other partners behalf- Proof of Authorization from other consortium partners needs to be attached
- f) If Principal bidder in case of consortium is International Firm, proof as per S.No. (d) above, needs to be provided
- g) The agency submitting the bid should either itself be the technology provider or it should have a strategic partnership with technology developer- Proof to be enclosed
- h) Core business areas of operations, number of years in the business, ownership and organizational structure of the firm.
- i) Should have average annual turnover of 1.00 crore during the last three financial years. For consortium, at least one of the consortium partner should have turnover of 1.00 cr during the last three financial years
- j) Audited Financial statements for the last 3 years showing financial capability. The revenue generated from along with profit after tax for the last 3 years should be clearly stated
- k) For Consortiums, atleast one of the partner needs to meet the financial and technical criteria
- l) Proof of Earnest Money Deposit (EMD)
- m) Declaration on non judicial stamp paper, of not having been debarred/blacklisted by Govt/Semi Govt/Corporation anywhere in India.

B. TECHNICAL BID AND PROCESS PRESENTATION

- a) The Agency should have executed projects in the field of agricultural, horticulture or animal husbandry for public agencies or Government, International or National, with a total value of atleast 1.00 cr during last 3 years- Enclose the list of projects and attach necessary documentary proofs.
- b) The technological solution to be implemented should have compliance to atleast following features

S.No.	Parameter	Minimum Compliance
1	Units Support	Should be compatible to interoperable conversion of all units eg. dimension/application/ concentration etc unit formats
2	Nutrient Support	Sufficient Algorithms for Calculation of precise Nutrient balance and fertilizer rate including macro and micro nutrients on the basis of nutrient ratio with effect of cations/ions balance and EC
3	Crop Support	Should have Database for maximum number of crops and varieties grown in the State of Punjab
4	Farm Management and Quality Support	Mapping tools for fields integrated with information support mechanisms w.r.t. soil and water testing including analysis and interpretation
5	Fertilizer Support	Should support all major solid, liquid chemical besides organic fertilizers including provision for adjustment of concentrations, prices etc
6	Tissue Analysis Support	Should have adequate interpretation tools for analysis of plant tissues including recommendation for the same
7	Nutrient Cost Support	Generation of Optimum Nutrient plan based on chemical composition and cost
8	Alert Support	Should have alert system in case of detection of breach of limit, lower or higher doses or undesirable application of concentrate
9	Governance Support	Ability to access live weather and satellite data Creation of plans and management tools to track activities including past trends
10	Interoperability Support	Should have open integration support with external data sources including devices.

- c) The firm should have a team composition of atleast; 1 Senior Project managers, 2 Agronomists, 1 Extension Expert and 1 software expert. - List of manpower with qualification and experience to be provided.

- d) Name and short CVs' of key staff proposed to be deployed and Client reference for similar projects. Attach separate statement indicating names, qualifications, experience and skills sets and details of projects handled.
- e) Participating firm have to make presentation about the Interventions, Methodology to be adopted for proposed pilot project along with demonstration of similar past experiences. Demonstration of the similar solution would be an added advantage.
- f) The date and time of process presentation has been provided in EoI document
- g) The Bidder is free to offer any more or advanced technological solution than as mentioned in S.No. (c) and the same should be presented in process presentation. In case the advanced solution being compatible with the project objective, adequate weightage shall be given to it in presentation.
- h) Kindly read Scope of Work carefully for preparation of Process Presentation

C. FINANCIAL BID

- a) The Financial bid is to be submitted in lumpsum Project cost (INR)
- b) The financial bid containing the commercial proposal in INR, has to be uploaded separately as per format prescribed

IMPT NOTE: PLEASE NOTE CAREFULLY, THERE ARE 2 EXCEL SHEETS OF TECHNICAL BID, ONE IS PREQUALIFICATION AND SECOND IS TECHNICAL BID

2.2 OTHER IMPORTANT INSTRUCTIONS FOR BIDDERS

1. **SCOPE OF BID**

- DA, Punjab invites Expression of Interest for Pilot Project for the implementation of Smart Farming Solution (SFS) for Kharif-2018 from reputed Companies/firms who have proven wide experience in similar field
- Before filling the bid, the bidder shall understand scope, nature and extent of work. No Claim, what so ever, on such account shall be entertained by the department in any circumstances.
- The successful bidder will be expected to complete the projects by the intended completion date specified in the work order.
- Throughout these are bidding documents of EOI, the terms 'bid' and 'tender' and their derivatives (bidder/tenderer, bid/tender, bidding/tendering etc) are synonymous.

2. **SOURCE OF FUNDS**

- The expenditure on this project will be met from the funds to be released to the DA, Punjab by the Government of Punjab.
- The DA, Punjab shall not be responsible for non-release or delayed release of funds by the Department of Finance. No interest shall be paid for delayed payment.

3. **ELIGIBLE BIDDERS**

- This EOI is open to established and reputed contracting agencies/firms who fulfil the requirements laid down in *Eligibility Criteria* of ITB.
- Individual/Partnership/Consortiums/Pvt Ltd//Ltd/Public sector, National and International firms having experience as per ITB's and conditions of contract is eligible to participate.
- Each bidder shall submit only one bid, by himself only. A bidder who submits more than one bid, will be disqualified.

4. **BIDDING DOCUMENTS**

- As provided in separate excel sheets in form of Technical and Financial bids. Every part of bids is mandatory to be filled as required. Any bidder not filling these bids as required shall be disqualified.

5. **EARNEST MONEY DEPOSIT (EMD)**

- The bidder shall furnish, as part of his Bid, an earnest money deposit in the amount as shown in appropriate column of the table of EOI.
- This EMD has to be submitted online only on e-tendering website as prescribed, no physical means of payment shall be accepted, whatever may be the reasons.
- Any bid not accompanied by an acceptable EMD shall be automatically rejected.
- No interest shall be paid to any bidder on EMD.
- The Bid Security may be forfeited.
 - a) If the Bidder withdraws the Bid after Bid opening during the period of Bid Validity.

- b) If the Bidder does not accept the correction of Bid Price, in case of errors in bid; or
- c) In the case of a successful Bidder, if the Bidder fails within the specified time limit to
 - i) Sign the Agreement
 - ii) Furnish the required Performance Security.

6. CURRENCIES OF BID, PAYMENT AND TAXES

- The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees(INR). All payment shall be made in Indian Rupees.
- The rates to be submitted shall have to be inclusive of all taxes. No claims whatsoever regarding taxes shall be accepted.
- The bidder cannot lay claim, in case the Govt increases the applicable tax, however benefits on account of lowering of tax rate by Govt shall have to be passed onto the Department

7. PRE-BID MEETING

- The Bidder or his official representative is invited to attend a pre-bid meeting which will take place at the address, venue, time and date as indicated in EOI.
- The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- The bidders are requested to submit questions in writing.
- Non-attendance at the pre-bid meeting will not mean disqualification

8. AMENDMENT OF BIDDING DOCUMENTS

- Before the deadline for submission of bids, the DA, Punjab may modify the bidding documents by issuing addenda/corrigenda.
- The bidders should keep checking the website for any addenda/corrigenda to the notice/bidding documents till the date of submission of bids, and the bidder should incorporate the same in his bid documents. The Employer will assume no responsibility for not taking the modifications in the bidding documents.
- To give prospective bidders reasonable time in which to take an addendum/corrigendum into account in preparing their bids, the Employer may, at his discretion, extend as necessary the deadline for submission of bids.

9. LANGUAGE OF THE BID

- All documents relating to the Bid shall be in the English Language.

10. FORMAT AND SUBMISSION OF BID

- The bids will only be accepted online only as per instructions of e-tendering Authority, Govt of Punjab and DA, Punjab.
- The bid shall be typed in the prescribed formats provided on the e-tendering website and shall be digitally signed by the bidders or a person duly authorized to digitally sign on behalf

of the bidder. All pages of the bid document containing the entries and all corrections or amendments made therein shall be initiated by the person or persons signing the bid.

- The Bid shall contain no alterations or additions except those to comply with instructions issued by DA, Punjab.
- The bidders shall bear all costs associated with the preparation and submission of his bid and the Department shall in no case be liable for these costs.
- Incomplete bids not fulfilling any of the specified condition, shall be rejected.

11. LATE BIDS

- Bid submission shall be online only as per schedule provided.
- Any Bid received by the DA, Punjab through physical means either within or after the deadline prescribed in will not be accepted.

12. BID OPENING

- The bids shall be opened as per schedule provided in EOI, any change in dates of opening shall be notified online only, no separate newspaper advertisement shall be published
- The bids accompanied with valid and requisite EMD shall be taken up for technical evaluation with respect to the Qualification Information and other information furnished in EOI, subject to confirmation of the EMD by the issuing Bank, if such confirmation is considered desirable by the tender committee
- The bidder or its authorized representative/s can witness opening of bids at place as notified by DA, Punjab in case of any networking or other such issues; as case may be

13. PROCESS PRESENTATION

- Participating firm have to make presentation about the methodology to be adopted for proposed pilot project along with demonstration of similar past experiences. Demonstration of the similar solution would be an added advantage.
- The Date and time of presentation is mentioned in EoI. The company not participating in process presentation as scheduled shall be rejected

14. EVALUATION OF BIDS

Department will constitute Evaluation Committee to evaluate the Proposals submitted by Bidders for a detailed scrutiny. Subject to terms mentioned in the EoI, a three-stage process, as explained hereinafter, will be adopted for evaluation of Proposals submitted by the specified date and time.

➤ Pre-Qualification Bid - Evaluation

- a) Preliminary Scrutiny: Preliminary scrutiny of the Proposals for eligibility will be done to determine whether the Proposals are generally in order and complete, whether the requisite documents have been uploaded. Proposals not conforming to such preliminary requirements are subject for being rejected.

- b) Conformance to eligibility criteria: Proposal responses conforming to preliminary scrutiny requirements will be checked for conformance to the eligibility qualifications.

➤ **Technical Bid (Tb) - Evaluation**

- a) Technical Bids(Tb) would be evaluated only for those Bidders, who qualify the Pre-qualification evaluation and shall carry weightage of 75% in final evaluation
- b) The Technical evaluation would be based on following parameters and weightages:

S.No.	Criteria	Weightage	
1.	Experience of Agriculture based projects worth 5.00 cr during last 3 years	20	
2.	Technological Features of Application as per S.No. (c) of Technical Bid provided under Section –II of ITB		
	a Units Support	3	
	b Nutrient Support	3	
	c Crop Support	3	
	d Farm Management and Quality Support	3	30
	e Fertilizer Support	3	
	f Tissue Analysis Support	3	
	g Nutrient Cost Support	3	
	h Alert Support	3	
	i Governance Support	3	
	j Interoperability Support	3	
3.	Profiles of Requisite Project Implementation Team	15	
4.	Process Presentation- Understanding of Work & Methodology	35	
TOTAL MARKS		100	

- c) The bidders would be required to give a presentation about their technical proposal. The presentation should focus on the project parameters and methodology for implementation of project. It would be preferred that the presentation is made by the project team who will be involved in the assignments. Special attention shall be laid on the approach, methodology and understanding of project by bidder.
- d) Evaluation Committee may, at its discretion, call for additional information from the bidder(s). Such information has to be supplied within the set out time frame, otherwise Evaluation Committee shall make its own reasonable assumptions at the total risk and cost of the bidders and the proposal is liable to be rejected. Seeking clarifications cannot be treated as acceptance of the proposal. The bidders shall provide all the necessary documents, samples and reference information as desired by the committee. The bidders

shall also assist the committee in getting relevant information from the bidders' references.

- e) For calculating the Technical Score (TS) the individual scores, as per respective weightages, for each of the parameters mentioned above will be summed up. In order to qualify technically, a proposal must secure a minimum of 70 marks out of 100 after summing up. Only those proposals which have a minimum score of 70 will be considered for further evaluation.
- f) Marks of Technical bid shall be calculated as follows

Formula for Evaluation of Technical Bid (Tb):
Marks for technical bid (Tb): Marks scored (Assessment Score + Process Presentation)/100*75

➤ **Financial Bid (Fb)- Evaluation**

- a) Financial bids of only those bidders would be opened who qualify the technical evaluation, as per technical evaluation process described above.
- b) Financial Bid shall carry a weightage of 25 %
- c) Minimum 70% marks are required to be obtained in Technical Bid process in order to be eligible for Financial bids opening
- d) The bidder submitting with lowest financial bid will be designated as L1. The formula as described below shall calculate weightage of financial bid

Formula for evaluation of financial bid (Fb):
Marks for Ln = $(L1/Ln)*25$
Where L1 is cost quoted in lowest bid and Ln is quoted cost of bid in question

➤ **Final Evaluation (Tb + Fb)**

- a) A composite score shall be calculated for technically qualified bids only. The weightage for the composite evaluation is as described below:
- i. Technical – 75%
 - ii. Commercial – 25%
- b) Final selection of firm/agency will be done on merit of marks i.e highest marks obtained, taken together for Technical(Tb) and Financial Bid(Fb) out of 100.

Formula for Final Evaluation
Total Marks(100%) = Tb Marks(max 75%) + Fb Marks(max 25%)
Where Tb is Technical Bid and

- c) In case of a tie in the final composite score the bidder with the higher Score in Technical bid shall be selected.

➤ **Evaluation Related Instructions**

- a) The DA, Punjab does not bind itself to accept the lowest rate or any bid and reserves to himself, the right of accepting the whole or part of the bid and bidder shall be bound to perform the same at the quoted rates.
- b) Bids received shall be checked by the Evaluation Committee for any arithmetical errors in computation and summation. Error will be corrected by the Committee as follows: Where there is a discrepancy between amount in figures and in words, lower amount will govern.
- c) Evaluation Committee may also reject any financial bid too low or too high if it is found non-justifiable.
- d) The committee reserves the right to accept or reject any bid/s, however the reasons there-off on action shall be recorded and conveyed to the bidders

15. DISQUALIFICATIONS

Department may at its sole discretion and at any time during the evaluation of Proposal, disqualify any Bidder, if the Bidder has:

- Made misleading or false representations in the forms, statements and attachments submitted in proof of the eligibility requirements;
- Exhibited a record of poor performance such as abandoning works, not properly completing the contractual obligations, inordinately delaying completion or financial failures, etc. in any project in the preceding three years;
- Submitted a proposal that is not accompanied by required documentation or is non-responsive;
- Failed to provide clarifications related thereto, when sought;
- Declared ineligible by the Government of India/State/UT Government for corrupt and fraudulent practices or blacklisted.
- Submitted a proposal with price adjustment/variation provision.

16. PROCESS TO BE CONFIDENTIAL

- Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful bidder has been announced.
- Any effort by a Bidder to influence the members of tender committee processing the Bids, or award decisions may result in the rejection of his bid.

17. AWARD CRITERIA

- Work shall be awarded to firm on basis of technical capability including process presentation and rate quoted in financial bid
- Financial bids of only those who technically qualify shall be opened.
- Both technical and financial bid carry certain marks and firm scoring highest marks shall be awarded the work.
- The work shall be awarded to a single bidder only but in case the competent authority feels the completion of work within stipulated time is not possible by single agency, the work can be assigned to more than one firm.

18. VALIDITY OF PROPOSALS

- Proposals shall remain valid for a period of 30 (thirty) days from the date of opening of Proposal. The Department reserves right to reject a proposal valid for a shorter period as non-responsive.
- In exception circumstances, the Department may solicit the bidder's consent to an extension of the period of validity. The request and the response thereto shall be made in writing. Extension of validity period by the bidder should be unconditional. A bidder may refuse the request without forfeiting the Earnest Money Deposit. A bidder granting the request will not be permitted to modify its Proposal.
- The earnest money shall be forfeited and further necessary action will be taken if the bidder withdraws or modifies his offer within the validity period or fails to accept the offer.

19. RIGHT TO ACCEPT OR REJECT PROPOSAL(S)

- The Department reserves the right to annul the EoI process, or to accept or reject any or all the bids in whole or part at any time without assigning any reasons and without incurring any liability to the affected bidder(s) or any obligation to inform the affected bidder(s) of the grounds for such decision.

20. CONFLICT OF INTEREST

- The selected consultants should provide professional, objective, and impartial advice and at all times hold the Department's interests paramount, strictly avoid conflicts with other assignments/jobs or their own corporate interests and act without any consideration for future work.

21. NOTIFICATION OF AWARD AND SIGNING OF AGREEMENT

- The Bidder whose bid has been accepted will be notified of the award by the DA, Punjab by auto e-tendering portal information systems and also if available by e-mail, telex or facsimile, registered letter; as required or as case may be.
- The successful bidders shall have to enter into an agreement with the DoAP.
- The agreement will incorporate all relevant correspondence between the DA, Punjab and the successful Bidder.

22. CORRUPT OR FRAUDULENT PRACTICES

- The employer will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract with DA, Punjab and any other Agencies, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contract, or in execution.
- For the purpose of this clause, "Corrupt Practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.
- "Fraudulent Practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish contract prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition."

IMPT NOTE: PLEASE NOTE CAREFULLY, THERE ARE 2 EXCEL SHEETS OF TECHNICAL BID, ONE IS PREQUALIFICATION AND SECOND IS TECHNICAL BID

SECTION-III
SCOPE OF EOI/WORK

3.1 SCOPE OF EOI

3.1.1: INTRODUCTION

Being primarily an agrarian state, the Govt. of Punjab focuses on empowering rural especially farmer community and maintains that all of the farming community, including the resource poor, deserves equal access to all modern agro-technologies, best practices and appropriate knowhow at affordable costs. In addition, for continuation of achieving sustainability agriculture in Punjab, the Govt. also craves to enhance tracking agriculture activities, such as famers, crops, fertilizer usage, soil quality, water quality and tissue analysis using agro based technologies across the globe. In context, the Govt. of Punjab wishes to implement Smart Farming Solution by establishing the State Digital Agriculture Platform. The cornerstone of developing this Platform shall be supporting farmers with various Digital Agriculture Technologies, will help in optimizing returns in agriculture sector. The Government of India has also launched an ambitious effort of doubling farmers income by 2022 and Punjab which has always been at a centre stage position in agriculture, the resolve for providing sustaining solutions to farmers along with lowering input costs in agriculture deepens. A large chunk of input costs comprises of costs accrued on fertilizers by the farmers, which limits the returns farmers are obtaining. Overuse along with misuse of fertilizers is a key cause for concern leading to contamination of soils, aquatic pollution and subsequently causing reduction in yields and crop quality. The present project has been formulated with a key aspect on optimization of fertilizer use plans through advanced technology and field based solutions. The platform so developed shall help support diverse variety of agricultural/vegetable crops in multiple growing, irrigation and fertilization methods.

The Govt. of Punjab invites National and International Organizations having expertise and experience in implementing such solutions to develop and implement the Pilot Project on Smart Farming Solution(SFS)

3.1.2 : OBJECTIVES

- To demonstrate the benefits of using the technology through simulating a common growing season where the demonstrated technology focuses only on fertilizer use
- Demonstrate the benefits of the State Digital Agriculture Platform
- Create an implementation plan for the State for up-scaling.

3.1.3 : NAME OF WORK

"Pilot Proposal for Implementation of Smart Farming Solution(SFS) for Kharif-2018 including; use of unique software for development of optimal fertilizer application plans, agronomic practices, soil sampling and training of all stakeholders in order to

develop best practices and provide the resource poor farmers an access to the modern agro technologies."

3.1.4 SCOPE OF WORK

- The project will be implemented during upcoming kharif season i.e. From mid April-2018 to mid October-2018 for approx six months to obtain desired results from the project upon completion of a cycle of selected crop.
- The work on pilot project shall commence upon sinning of agreement between selected agency and Agriculture Department, Punjab.
- The Department of Agriculture, Punjab shall select plots of 24 farmers having 6 different crops with various growing and fertilizer methods.
- As per the climatic conditions of the State, four crops namely cotton, paddy, basmati and maize will be opted to implement the project.
- Total 16 farmers i.e., 4 farmers per each crop shall be selected. Each farmer will have 2 plots of 1 acre (total 2 acres per farmers and total 32 plots).
- In addition, 2 vegetable crops suitable for the kharif season shall also be selected, meaning thereby that 24 farmers who each have 2 plots of 1 acre available – total 48 plots of 1 acre.
- Half of the plots will be plots under the technology intervention and half of the plots will be control plots.
- **Project Area Description shall be**

Evaluated plots	Control plots
4 plots – 1 acre - paddy	4 plots – 1 acre - paddy
4 plots – 1 acre – basmati	4 plots – 1 acre – basmati
4 plots – 1 acre – maze	4 plots – 1 acre – maze
4 plots – 1 acre – cotton	4 plots – 1 acre – cotton
4 plots – 1 acre – vegetable 1	4 plots – 1 acre – vegetable 1
4 plots – 1 acre – vegetable 2	4 plots – 1 acre – vegetable 2
Total 24 evaluated plots	Total 24 control plots

- The Agency in consultations with Agriculture Department, Punjab will decide jointly on KPI's (Key performance indicator)
- The Agency in collaboration with Agriculture Department, Punjab shall conduct an inception seminar in order to sensitize and educate the participating farmers

- The selected bidder will setup and customize the State Digital Agriculture Platform as per technology demonstrated.
- The cultivation practices (including irrigation, pesticides, choosing of varieties or any such other operations) shall be done as per prevailing practices.
- The Agency with assistance of Agriculture Department, Punjab shall conduct elaborate soil and water tests.
- The Agency will create a dedicated fertilizer use plan for each of the selected farmer based on technological parameters.
- Monitoring and recording of different parameters shall be ongoing process as per project deliverables and outcomes
- The Agency will monitor and record quantities of fertilizer application of each farmer throughout the season and at season end backed by documentary evidence i.e still photography, audio/visual clips.
- Conventional farmer fertilizer use practice and fertilizer use based on technology recommendations shall have to be evaluated.
- Elaborate Capacity Building and Training programmes for all stakeholders shall be inherent feature of the project.
- Continuous technological support has to be provided by the agency.
- Demonstrating and proving the benefits of the Platform for both Farmer and the State.

Soft Launch Conclusion

- The Agency will measure outcomes based on defined KPI's
- The Agency will create and submit a final report and state implementation plan

3.1.5 DURATION OF PROJECT

6 Months (Mid April 2018- Mid October 2018) Kharif Season

3.1.6 DETAILED PROJECT INTERVENTIONS

As the project is being implemented for first time in the State, the Agriculture Department along with selected agency shall chalk out the strategy for execution of the project. The bidder though has to provide, the details of project interventions that he intends to undertake. It must detail all the interventions that the agency shall carry out in the field as per time period/stage of growth of crop. The training and capacity building shall be inherent feature of the project and shall be carried out at every stage of the project. In order to segregate the effectiveness of the intervention, all parameters besides the intervention should be kept as per common practices in Punjab so real benefits to farmers can be demonstrated. The brief outline on which the agency have shall to base its project interventions shall be as per following parameters and time spans of the project

1. Start of Project (during mid March-mid April):

- The Department of Agriculture, Punjab in partnership with the selected Organization/firm and organize an inception Seminar to educate the participating farmers shall also be organized.

2. Sampling and Testing:

- All relevant plots will be sampled sent for soil and water analysis in the pre-designated lab before sowing

3. Initial stage and also during the crop season

- State Agriculture platform to be developed.
- Fertilizer plans to be prepared along with monitoring and recording application of fertilizer quantities (type, amount and price) which will include recording documentary evidence, still photography, audio/visual clips of each farmer throughout the season

4. Mid-season

- A mid-season study to evaluate project progress will be conducted.

5. End - season

- The final outcomes report to be prepared and submitted and based on the final report, a state level implementation plan shall be prepared.

6. Other Interventions:

- The agency shall provide on-site monitoring and support throughout the entire project with designated team
- The agency shall coordinate with the Agriculture Department at all times and shall notify the concerned officer before undertaking any activity.
- The farmers must also be notified in advance before implementation of activity in the plot
- The agency cannot share outcomes with any other agency unless and until verified by Agriculture Department, Punjab
- All the reports have to be submitted in hard and soft copy

Note: Detail of Project Interventions should be made part of Process Presentation. A detail of Project Interventions need to be submitted in hard copy format at time of presentation.

3.1.7 : EXPECTED BENEFITS:

A. General:

- To develop and implement a Robust State Digital Agriculture Management system for monitoring farmer's agricultural crops, yields, fertilizer usage and more.
- To empower farmers with advanced modern agro based technologies for bettering crop yields and at the same time also protecting soil health.

B. Farmers:

- Increasing farmers' income by augmenting crop yields.
- Improving crop qualities.
- Reducing Input costs of farmers by optimizing fertilizer use.
- Increasing crop productivity and production levels of the State.
- Providing farmers' an access to advanced agro technologies and encouraging technology use in agriculture
- Protecting soil health and maintaining soil fertility status.
- Preventing further environmental degradation and deterioration of farmer's ecosystem.
- Protection of Water Bodies and Ground water aquifers from chemical contamination.
- Enabling farmers a opportunity for technology based monitoring of crop behaviour in relation to inputs.

C. Centre/State Government

- Development of advanced technological based solution based on real time information.
- Issuing appropriate agricultural based advisories for the State.
- Encouraging private investments in agriculture sector for creating large agro centres.
- Create dashboards adaptable for the different levels providing data such as planned crop growth for each farmer, planned fertilizer usage, soil quality status etc
- Better management, monitoring and evaluation of state agriculture status (Agricultural fields, Crop, Inputs; Status Information)
- Increase decision making capability and implementation of allied infrastructure projects based on improved data availability.
- Protecting the environment and soil quality for future generations and making the farming sustainable and remunerative.
- Protecting surface and ground water resources from chemical pollution.
- Encouraging diversification of crops through evaluation of behaviour and yields of different crops.

3.1.8 DELIVERABLES/ OUTCOMES:

Parameter	Outcome
Digital Agriculture Management Platform	<p>View farmer data of all soft launch farmers in digital system on map</p> <p>View location and plots of each farmer</p> <p>View soil status of each farmer</p> <p>View soil interpretation for each farmer</p> <p>View crop type for each farmer</p> <p>View water tests</p> <p>Create and view fertilizer plan per farmer</p> <p>Platform to store yield outcome per farmer</p> <p>Platform online availability 99.9%</p>
Fertilizer advice	Creation of customized fertilizer use plan per farmer
Data analytics and projections	<p>View crops variability</p> <p>View fertilizer use projections</p> <p>View projection of expected yields (based on target yields entered by the farmers)</p> <p>View soil trends</p>
Key Performance Indicators for Crops	<p>Crop yield</p> <p>Fertilizer usage quantities and price comparison</p> <p>Profitability / income (yield and savings together)</p> <p>Crop specific data on health and pest/weather/disease resistance where available</p>

3.1.9 PAYMENT TERMS:

Payments for the pilot project would be linked to deliverables at the following stages:-

S. No.	Stage	Deliverable	Days	% Payment
1.	Project Inception	Submission of Project Initiation Report	15	20 % of project cost
2.	Technology customization	Platform Inception	45	25% of project cost
3.	Implementation of Fertilizer Use Plans	Fertilizer Plans for all selected farmers	90	25 % of project cost
4.	Final Completion of Project	Submission of final report	180	30 % of project cost

SECTION : IV

PROJECT UNDERSTANDING AND

NECESSISATION

4.1 FERTILIZER USE/OVER-USE IMPACT

While fertilizer is generally a good thing for most crops, there is certainly too much of a good thing. The nutrients/fertilizer application to plants can also damage them if used in excess. But the damage from the misuse of fertilizer doesn't stop at your plants. It creates problems for the environment, especially contamination of water resources besides increasing input costs thus lowering farm incomes. Major Impacts of fertilizer overuse are

❖ **Impact on Soils/Crops**

- **Root burn:** It is a condition in which the roots of plants suffer damage from the overuse of fertilizers. Over fertilizing can also lead to root burn due to an overabundance of soluble salts in the soil. The salts essentially burn the roots, and even sometimes the foliage. Plants that suffer from root burn become stunted, wilted and are often unable to flower. In severe cases of root burn, the roots may not be able to carry any water to the plant.
- **Diminished Plant Growth:** While the addition of nutrients found in fertilizer increases plant growth, too much fertilizer can negatively affect their health. For example Studies show that over fertilizing sunflowers can cause weak stems and fewer flowers
- **Pests and Diseases:** Plants that produce greener, more lush leaves because of over fertilization may attract more pests. The increased vigor of the foliage can attract unwanted insects, which feed on the leaves.
- **Soils tend to loose fertility over the time due to excessive use of fertilizers. Development of solid pans or salt accumulation is also augmented due to its overuse.**

❖ **Environment Issues**

Excessive fertilizer that washes into storm drains eventually makes its way into bodies of water, such as rivers and lakes, causing pollution. Although the environmental impact is considerably larger from the overuse of fertilizers on farms; simply due to the amount they use. The misuse of fertilizer often has negative effects on aquatic life. Algae feed off of the nutrients in fertilizers, using up oxygen that fish and other animals need. Additionally, ammonia released by fertilizer is harmful to fish thus affecting food chain

❖ **Increasing Input Costs of Farmers**

As fertilizers come at a price, and is one of the major contributor in input costs of farmers. The overuse of fertilizers have considerably drained farmer's resources thereby lowering or sometimes draining entire income margins

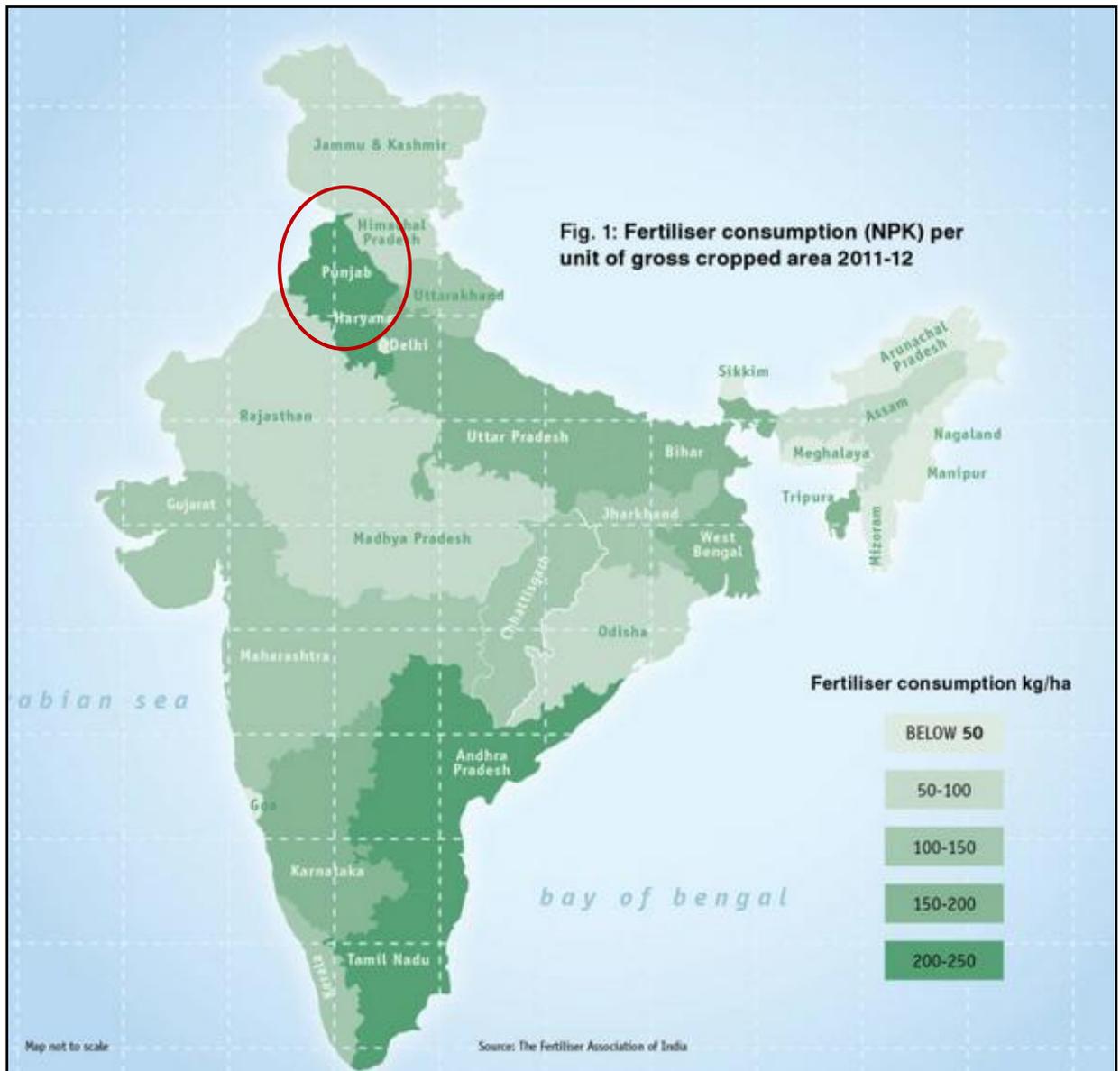
❖ **Drain on Country's Resources**

As majority of fertilizers used are imported, its overuse is also a drain on Country's and State's, forex and financial resources respectively. Government is also providing subsidies on fertilizers, which also means additional financial burden in case of overuse

4.2 FACTORS INFLUENCING FERTILIZER CONSUMPTION IN THE STATE

- Package of Practices recommended by Punjab Agriculture University, Ludhiana entails that when a farmer has applied recommended dosage of DAP during the Rabi season, there is no need to use DAP in ensuing kharif season, even then the majority of farmers are again using DAP during Kharif season, which not only lead to increase in input cost but also leads to suppress the availability of other nutrients.
- Dosage: The State's farmers have mindset that higher use of fertilizer shall give higher yields are therefore not using recommended dosage which is also leading to higher input cost.
- Non-timely Application: The farmers are not applying fertilizers as per time recommended schedule
- Soil Health Status: There is vast variability in soil health in the state but the irony is that farmers are using almost same dosage of fertilizers throughout the State
- Crop- Rotation: The farmers are following same crop rotation year after year, and it is observed that crop yields decline if same pattern is followed year after year. This also forces farmer to apply more and more fertilizer year after year.
- Non Uniformity in Application: There is certain degree of non uniformity in fertilizer application methodologies which also lead to higher fertilizer application in some fields

4.3 FERTILIZER CONSUMPTION IN COUNTRY-STATE WISE



PUNJAB HAS HIGHEST FERTILIZER CONSUMPTION RATE IN COUNTRY

4.4 NECESSITATION OF PILOT PROJECT

A. Optimum and Sustainable Fertilizer Planning for

- ❖ Finding the ideal combination of fertilizers and their application rates
- ❖ Applicability in all growing methods - open field, fertigation, greenhouses ; as the case may be
- ❖ Providing complete fertilizer schedules, according to crop growth stages
- ❖ Integrating crop characteristics, field data and yield goals.
- ❖ Balancing nutrients in soil
- ❖ Developing algorithms for ensuring a precise nutrient balance in future

B. Data Driven Fertilizer and Farm Management for

- ❖ Managing fertilizer programs and field test results (soil, water) for farm
- ❖ Managing planting dates, fertilizer schedules and harvest
- ❖ Precise plotting of field, using an interactive mapping system
- ❖ Providing dynamic fertilizer schedules per plot
- ❖ Advance dashboard, providing actionable insights on farm fertility status and crop yields

C. Interpretation of field test results for

- ❖ Preparing Algorithms for required nutrient application rates, based on the field test results
- ❖ Presenting interpretations in charts/flow charts or such tools
- ❖ Interpreting fertilizer application impact for different crops
- ❖ Interpreting fertilizer application impact for different growth stages of the crop
- ❖ Comprehensive interpretation of soil and water testing w.r.t. fertilizer application

D. Cost optimization for

- ❖ Fertilizer Program - Cost Analysis and optimization
- ❖ Fertilizers consumption and costs analysis
- ❖ Nutrient cost analysis

SECTION – V
GENERAL
CONTRACT CONDITIONS (GCC)

5.1 GENERAL CONTRACT CONDITIONS (GCC)

➤ **Application**

These general conditions shall apply to the extent that provisions in other parts of the Contract do not supersede them. For interpretation of any clause in the EoI or Contract Agreement, the interpretation of department shall be final and binding.

➤ **Relationship between the Parties**

Nothing mentioned herein shall be constructed as relationship of master and servant or of principal and agent as between Department and the selected bidder. The bidder subject to this contract for selection has complete charge of its personnel in performing the services under the Project from time to time. The bidder shall be fully responsible for the services performed by it or any of its personnel on behalf of the it hereunder.

➤ **Standards of Performance**

The selected agency shall perform the services and carry out its obligations under the Contract with due diligence, efficiency and economy in accordance with generally accepted professional standards and practices. The agency shall always act in respect of any matter relating to this contract as faithful advisor to the Department. The bidder shall always support and safeguard the legitimate interests of the Department, in any dealings with the third party. The bidder shall abide by all the provisions/Acts/Rules etc. laid down by Government.

➤ **Personnel Deployment**

- a) The Agency shall deploy and provide such qualified and experienced personnel as may be required to perform the services under the project. It is desirable from the bidder to deploy the domain/ subject specialists, who have adequate experience in the domain related with the project.
- b) Ordinarily, the Agency would not replace its personnel deployed for the assignments. However, the replacement will only be allowed with prior permission of Department.

➤ **Applicable Law**

Applicable Law means the laws and any other instruments having the force of law in India as may be issued and in force from time to time. The Contract shall be interpreted in accordance with the laws of the Union of India and the State of Punjab.

➤ **Intellectual Property Rights**

No services/assets covered under the Contract shall be sold or disposed by the Agency in violation of any right whatsoever of third party, and in particular, but without prejudice to the generality of the foregoing, of any patent right, trademark or similar right, or any charge mortgage or lien. The Agency shall indemnify Department from all actions, costs, claims,

demands, expenses and liabilities, whatsoever, resulting from any actual or alleged infringement as aforesaid and at the expenses of the Agency, Department shall be defended in the defense of such proceedings.

➤ **Governing Language**

The Contract shall be written in English or Punjabi Language. All correspondences and other documents pertaining to the contract, which are exchanged between the parties, shall be written in the English or Punjabi Language.

➤ **Performance Bank Guarantee (PBG)**

- a) Within 15 days of notifying the acceptance of proposal for the award of contract, the Agency shall furnish a Performance Bank Guarantee, as per Annexure A, amounting to the 10% of the entire contract value valid for contract period as its commitment to perform services under the contract.
- b) Failure to comply with the requirements shall constitute sufficient grounds for the forfeiture of the PBG.
- c) The PBG shall be released immediately after expiry of contract provided there is no breach of contract on the part of the Agency.
- d) No interest will be paid on the PBG.

➤ **Performance Assessment**

This EoI is for selection of the Agency for execution of the assignments under the EoI. If during execution of the contract, following problems are found, then a penalty of 1% of the Contract value per week (subject to maximum of 20%) may be imposed by the Department, which will be the part of the EoI:

- a) Quality of deliverable is not up to mark, (till quality is improved to the required extent).
- b) Delays in deliverables.
- c) Not assigning adequate resources in time.
- d) Not deploying resources on a dedicated basis, when required.
- e) Assigning resources that do not meet Department's requirements.
- f) Inadequate interaction with Department.
- g) The work is either not complete or not completed satisfactorily as per the approved time schedule or the quality of deliverable.

If the delay is beyond 5 weeks then Department may rescind the Contract and shall be free to get it done from some other source at the risk and costs of the Agency. The Agency may be debarred for participation in future assignments.

➤ **Termination of Contract**

The Agency's association with the Department will terminate in following ways:

- a) The term of Contract expires
- b) Termination of Contract by the Department due to non-performance during the execution of Project
 - i. Performance is below expected level.
 - ii. Non adherence to the timelines of the Project.
 - iii. Quality of work is not satisfactory.

➤ **Termination for Insolvency, Dissolution etc**

Department may at any time terminate the Contract by giving written notice to the Agency, if the agency becomes bankrupt or otherwise insolvent or in case of dissolution of firm/company or winding up of firm/company. In this event termination will be without compensation to the agency, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to Department.

➤ **Termination for Convenience**

Department reserves the right to terminate, by prior written notice, the whole or part of the contract, at any time for its convenience. The notice of termination shall specify that termination is for Department's convenience, the extent to which performance of work under the contract is terminated, and the date upon which such termination becomes effective.

➤ **Force Majeure**

- a) The Agency shall not be liable for forfeiture of its PBG or termination of contract for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- b) For purposes of this clause, "Force Majeure" means an event beyond the control of the agency and not involving the agency's fault or negligence, and not foreseeable. Such events may include, but are not restricted to, acts of Department in their sovereign capacity, wars or revolutions, riot or commotion, earthquake, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- c) If a Force Majeure situation arises, the Agency shall promptly notify Department in writing of such condition and the cause thereof. Unless otherwise directed by Department in writing, the Agency shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

➤ **Taxes and Duties**

- a) The Agency shall be entirely responsible for all taxes; duties, etc. incurred.
- b) Department shall not pay any increase in duties, taxes and surcharges or any other charges on account of any revision, enactment during the period of validity of proposals or during the contract period.
- c) The Agency however shall have to refund amount to the Department in case of lowering of duties, taxes and surcharges or any other charges by Government

➤ **Resolution of Disputes**

If any dispute arises between parties, then these would be resolved in following ways:

❖ **Amicable Settlement**

Performance of the Contract is governed by the terms and conditions of the Contract, however at times dispute may arise about any interpretation of any term or condition of Contract including the scope of work, the clauses of payments etc. In such a situation either party of the contract may send a written notice of dispute to the other party. The party receiving the notice of dispute will consider the Notice and respond to it in writing within 30 days after receipt. If that party fails to respond within 30 days, or the dispute cannot be amicably settled within 60 days following the response of that party, then the second Sub-clause of resolution of disputes shall become applicable.

❖ **Resolution of Disputes**

In case dispute arising between the Department and the Consultant, which has not been settled amicably, the Agency can request the Department to refer the dispute for Arbitration under Arbitration and Conciliation Act. Such disputes shall be referred to the Director Agriculture, Punjab. The Indian Arbitration and Conciliation Act and any statutory modification or reenactment thereof, shall apply to these arbitration proceedings. Arbitration proceedings will be held at Department's Headquarters. The decision of the arbitrator shall be final and binding upon both the parties. All arbitration awards shall be in writing and shall state the reasons for the award. The expenses of the arbitration as determined by the arbitrator shall be borne by the Agency. However, the expenses incurred by each party in connection with the preparation, presentation shall be borne by the party itself.

❖ **Legal Jurisdiction**

All legal disputes between the parties shall be subject to the jurisdiction of the Courts situated in Punjab only.

ANNEXURE A

Annexure D: PERFORMANCE BANK GUARANTEE FORMAT

<<Name & Address of the Department>>

This deed of Bank Guarantee made this <<day>> day of <<month>> <<year>> by <<Name of Bank>> having its office at <<office address of the Bank>>, hereinafter referred to as "**The Bank**" which expression shall include their successors, in favour of <<Name of the Department>> situated at << Address of the Department>> (hereinafter referred to as "The Department" which expression shall include their successors).

2. Whereas the Department issued work order no. <<Work order no.>> dated <<date of notification>> to M/s <<Name of the Company>> having its registered office at <<registered office address>> and place of business at <<business address of company>> hereinafter referred to as "**The Company**" (which term or expression unless excluded by or repugnant to the subject or context shall mean and include its successors-in-office and assigns) for Selection as Project Implementation Agency for Smart Farming System in Punjab State.
3. In consideration DEPARTMENT selecting the Company as Project Implementation Agency for Smart Farming System in Punjab State as per the terms and conditions of the Agreement entered into between DEPARTMENT and the Company, we the Bank, hereby irrevocably and unconditionally guarantee to pay the Department on first demand without demur any sum upto Rs. [REDACTED] (Rupees [REDACTED] Only) <<10% of total contract value>> merely on claim or demand by telex and/ or writing by the Department by reason of breach by the Company of any of the terms or conditions contained in the said Agreement or by reason of the Company's failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee.
4. We, the Bank, undertake to pay to the Department any money so demanded notwithstanding any dispute(s) raised by the Company in any suit or proceeding pending before any court or Tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the Company shall have no claim against us for making such payment.
5. The Bank's liability herein contained in this guarantee shall not be impaired or discharged by any extension of time or any forbearance of neglect on the part of the Department or any variations or alterations made, considered or agreed to with or without knowledge or consent of the Bank by or between the Department and the Company.
6. The guarantee shall remain in all force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of DEPARTMENT under or by virtue of the said Agreement have been fully paid and its claim

satisfied or discharged or upto 24 (twenty-four) months from the date of its execution i.e. upto <<day>> day of <<month>> <<year>>. or the Department certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the Company and accordingly discharges this guarantee

7. We, the Bank, further agree with the Department that the Department shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Company from time to time or to postpone for any time or from time to time any of the powers exercisable by the Department against the Company and to forbear or enforce any terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the Company or for any forbearance, act or omission on the part of the Department or any indulgence by the Department to the said Company or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.
8. The Bank Guarantee shall not be discharged due to any change in the constitution of the Bank or the Company.
9. NOTWITHSTANDING anything contained herein,
 - a. Our liability under this Bank Guarantee is restricted to _____ (Rupees _____ Only) <<10% of total contract value>>.
 - b. This Bank Guarantee shall be valid up to dd.mm.yyyy inclusive of the claim period, and
 - c. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if DEPARTMENT serve upon us a written claim or demand on or before dd.mm.yyyy.
10. We, the Bank, undertake not to revoke this Bank Guarantee during its currency except with the previous written consent of DEPARTMENT in writing and the guarantee shall be continuous and irrevocable upto the sum stated hereinabove.

Place

Date

(Signature of Authorized signatory & Stamp of Bank)

TECHNICAL BID

DEPARTMENT OF AGRICULTURE, PUNJAB		
EoI No. DA/SFS/1-2018		
TECHNICAL BID - Pre Qualification		
Name of work :- Pilot Project for Implementation of Smart Farming Solution(SFS) for Kharif Season-2018		
Name of the Bidder/Firm		
Address, Contact Details of the Bidder		
S. No	Description	Compliance
1	Proof of Nature of Firm (Individual/Partnership/Consortium/Pvt Ltd//Ltd/Public sector) Registration Certificate of the firm/company as the case may be	
2	Requisite permissions from Govt of India for undertaking work in India for Individual/Partnership/Pvt Ltd//Ltd/Public sector, International Firms	
3	Principal Bidder, in case of Consortium. Authorization from other consortium partners needs to be attached	
4	Proof of company operating in business of software development for at least five years and doing similar assignments with State Govt/ Central Govt/ PSUs.	
5	In case, Principal bidder of consortium being International Firm, proof of having requisite permissions to undertake assignments in India	
6	Proof of Bidder being Technology Developer or Proof of having Strategic Partnership with Technology Developer	
7	Core business areas of operations, number of years in the business, ownership and organizational structure of the firm	
8	Proof of average annual turnover of 5.00 crore during the last three financial years OR in. consortium, at least one of the consortium partner having turnover of 5.00 cr during the last three financial years	
9	Audited Financial statements for the last 3 years showing financial capability. The revenue generated from along with profit after tax for the last 3 years should be clearly stated	

10	Proof of Online Transfer of Earnest Money	
11	Declaration on non judicial stamp paper of not having been debarred/blacklisted by Govt/Semi Govt/Corporation anywhere in country.	
NOTE : SCAN COPIES OF THE ABOVE DOCUMENTS SHOULD BE ATTACHED WITH THE BID AS PROOF		

Technical Bid –Evaluation Sheet

DEPARTMENT OF AGRICULTURE, PUNJAB					
EoI No. DA/SFS/1-2018					
TECHNICAL BID - Evaluation Sheet					
Name of work :- Pilot Project for Implementation of Smart Farming Solution(SFS) for Kharif Season-2018					
Name of the Bidder/Firm					
Address, Contact Details of the Bidder					
S.No	Evaluation Criteria	Max Marks	Marks Claimed	Supporting Documents	Marks Awarded
1	Proof of Agency having executed projects in the field of agricultural, horticulture or animal husbandry for public agencies or Government, International or National, with a total value of atleast 5.00 cr during last 3 years	20			
	Technological Features of Application as per S.No. (c) of Technical Bid provided under Section –II of ITB				
	(a) Units Support	30			
	(b) Nutrient Support (3 marks)				
	© Crop Support (3 marks)				
	(d) Farm Management and Quality Support (3 marks)				
	(e) Fertilizer Support (3 marks)				
	(f) Tissue Analysis Support (3 marks)				
	(g) Nutrient Cost Support (3 Marks)				
	(h) Alert Support (3 Marks)				
	(i) Governance Support (3 Marks)				
	(j) Interoperability Support (3 Marks)				
3	List of Project team composition of atleast; 1 Senior Project managers, 2 Agronomists, 1 Extension Expert and 1 software expert	15			

7	Process Presentation: Presentation about the proposed solution, interventions and methodology of Project Implementation. Demonstration of the similar solution would be an added advantage.	35			
TOTAL MARKS		100	0		0
Note	Bidder to Quote Marks in Marks Claimed column as per capability and upload supporting documents for the claimed marks				
	Marks Claimed but not Supported by Documents shall not be awarded by the Department				
	All Claimed Supporting Documents have to be uploaded in form of scanned copies				
	Financial bids of companies scoring minimum 70/100 in technical evaluation would be opened.				