

**17.3.14 b – Progress against SDG14  
– Collaboration for shared  
Aquatic Ecosystems**

*Dem 307*

**MEMBRANE HITEC**  
A division of Titanium Equipment and  
Anode Manufacturing Company (P) Ltd

*SDG-14*



## MEMORANDUM OF UNDERSTANDING

between

**MEMBRANE HITEC Division of Titanium Equipment and Anode  
Manufacturing Company (P) Ltd,**  
'TEAM House', GST Road, Vandalur, Chennai 600048

and

**B.S.Abdur Rahman Crescent Institute of Science & Technology**  
GST Road, Vandalur, Chennai 600048

*Q. R. Mahapatra*



*A. S. S.*

REGISTRAR  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology  
Vandalur, Chennai-600 048

## MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (hereinafter called the 'MOU') is executed on this 25<sup>th</sup> Day of March 2021

BETWEEN

President, **MEMBRANE HITEC Division of Titanium Equipment and Anode Manufacturing Company (P) Ltd** (here in after referred to as "**MHT**" which expression shall unless repugnant to the context or meaning thereof, include its successors and assigns) of the **First Party**.

AND

Registrar, **B.S.Abdur Rahman Crescent Institute of Science & Technology**, GST Road, Vandalur, Chennai 600048, (here in after referred to as "**BSACIST**" which expression shall, unless it be repugnant to the context or meaning thereof, be deemed to mean and include its successors and permitted assigns) of the **Second Party**.

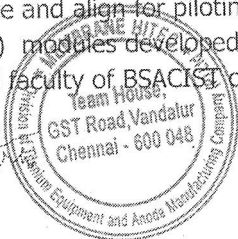
### WHEREAS:

- A. MHT** is a pioneer in Technology Research, Development and Manufacturing in Water and Waste Water Treatment, Purification and is into manufacturing of Various Filtration Equipment's including Ultra Filtration Membranes, Membrane Bio Reactors etc.
- B. BSACIST** is one of the oldest of the premier teaching, training, research and development institutions in India, employing highly qualified, trained, and established scientific personnel with knowledge and expertise in many branches of Science and Engineering and is in constant interaction with industry by providing access to Institute's knowledge base and human and physical resources.
- C. MHT and BSACIST** have agreed to collaborate to do trials and test Membrane Bio Reactor type Sewage Treatment Plant with Membrane Hitec make Membrane Bio Reactor Modules which shall prove submerged application of Ultra Filtration Range of membranes and shall also give exposure to the students of BSACIST to latest technologies relevant to municipal and industrial sewage / effluent treatment and shall make them industry ready while graduating.
- D. Now, therefore, MHT and BSACIST** agree as follows:

#### 1. The Project Objective:

To collaborate and align for piloting and testing of Membrane Bio Reactor (Submerged and External) modules developed by Membrane Hitec while giving exposure of students and faculty of BSACIST on latest technologies and relevant industrial best

*Q. R. Mohapatra*



*A. S.*

REGISTRAR  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology  
Vandalur, Chennai-600 048

practices for water and waste water treatment, waste management and treatment data collection and analysis.

## 2. Location

The location of the project shall be B.S Abdur Rahman Crescent Institute of Science and Technology, Vandalur

## 3. Role and Responsibilities

### a) Responsibilities of Membrane HITEC

**MHT** shall make available the following for the purpose of installation and testing of MBR at the STP plant in B.S Abdur Rahman Crescent Institute of Science and Technology, Vandalur

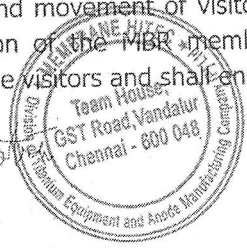
- Membrane Bio Reactor (MBR) Tank with aeration chamber and Membrane Chamber, PLC Controller, along with necessary Air Blowers, Backwash pumps and dosing pumps for MBR Operation, complete with electrical and instrumentation system
- Set of Small tanks for cleaning and chemical dosing requirements
- Membrane Modules (Submerged)
- External Membrane Modules (Optional – based on further developments)
- Trained staff for supervision of operation and erection of the MBR system
- To and fro transport of the above from MHT works during and after the installation and testing.
- Testing procedures, data logging & reporting formats etc.

### b) Responsibilities of BSACIST

**BSACIST** shall make available the following for the purpose of installation and pilot testing of MBR at the STP plant in BSACIST Campus

- Space for keeping the MBR tanks, modules along with other accessories
- Power Connection to the feed pumps, PLC, electrical panels etc as required
- Raw Sewage as per the requirement for operation of the MBR
- Manpower for installation and operation of the testing modules
- Selected Student – Faculty candidates to take part in the daily operations and collection of associated data.
- Access to testing laboratories within the campus for analysing COD, BOD, TSS, Turbidity, Dissolved Oxygen, Alkalinity etc.
- Free pass and movement of MHT personnel within the BSACIST campus (especially the STP and laboratory area) for the purpose of erection – commissioning, operation and de commissioning of the MBR system
- Free pass and movement of visitors & prospective clients of MHT desiring to witness the operation of the MBR membrane system. (MHT will give advance information regarding the visitors and shall ensure necessary Covid-19 Protocol)

*Q. Q. Mohapatra*



*A. A. S.*

REGISTRAR 3  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology  
Vandalur, Chennai-600 048

4. Ownership of tools and equipment supplied by MHT shall be to Membrane Hitec
5. **BSACIST** shall ensure that the building infrastructure with necessary facilities like electricity, water, internet connectivity, lighting etc. for setting up the MBR shall be made available by the **BSACIST**.
6. Details pertaining to the objective of this pilot trail / test study is furnished as **Annexure A** to this MOU. MHT shall arrange for delivery of the MBR equipment at BSACIST Campus and shall also provide the maintenance services for the equipment as and when required.

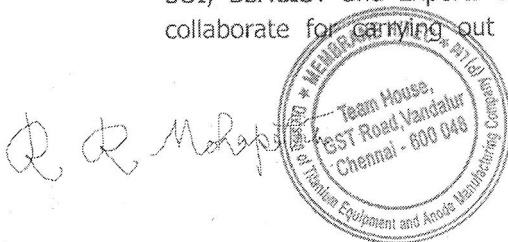
**MHT** shall provide subject experts and supervise the candidates selectively posted by BSACIST for the purpose of imparting training on the operation of the Membrane Bio Reactors and shall assist them in analysing data so collected. The candidates may use this data for their project work with the consent of MHT. However, a prior written consent should be sought to ensure that no Intellectual right infringement occurs by publishing of such data. If required, MHT will provide placement support, wherever feasible, for trained candidates. MHT will provide industrial insights for keeping up with the international standard. MHT will provide an assessment report at the end of every month for all the trainees / candidates opting for the interaction. On successful completion of training and acquiring desired level of skill competency and industry interaction, the trainees proposed by the BSACIST will be furnished with a certificate of appreciation

7. **MHT** shall have the right to publicize the role of BSACIST as the partner for the Testing of MBR.
8. **MHT** confirms that the IP used in the technology testing is developed by MHT and both parties agrees that any IP obtained during the course of testing and trials of MBR using Ultra Filtration membranes at BSACIST as per this MOU shall be the exclusive property of MHT. Title to any Invention made or conceived pursuant to the project belongs to the Company ("Company Project IP") and may be commercialized at Company's sole discretion. However, Institute shall be entitled to use the same for educational and research purposes only and upon availing prior written consent from MHT.

## 9. OTHER AREAS OF COLLABORATION

### 9.1 Project Work

Project Works identified by MHT to be carried out by students of School of Infrastructure (SOI), BSACIST under the joint supervision of the faculty members of SOI, BSACIST and Experts of MHT and also SOI, BSACIST and MHT shall jointly collaborate for carrying out identified projects of mutual interest. The roles and



Handwritten signature of the Registrar.

REGISTRAR  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology  
Vandalur, Chennai-600 048

responsibilities of such identified projects shall be discussed and decided mutually on a case to case basis.

### 9.2 Innovation Award

**MHT** shall consider instituting innovation award called "MEMBRANE HITEC innovation award" applicable to UG and research scholars of SOI, BSACIST every year under the broad theme " Sustainable water and wastewater treatment Solutions".

### 9.3 Faculty Training

To enable faculty members to have industrial exposure, MHT will consider providing training to the SOI, BSACIST faculty for short duration. The time and duration of such training will be decided by both SOI, BSACIST and MHT, taking in to consideration the workloads of both parties so that the core activities of the parties are not affected.

### 9.4 Campus Recruitment

**MHT** will consider the students of both UG and PG programmes of SOI, BSACIST for placement with MHT depending upon their need.

### 9.5 Guest Lectures

Guest lectures on current industrial practices shall be delivered by the personnel of MHT for the benefit of students and faculty of SOI, BSACIST

### 9.6 Internship for Students

To enable students to have industrial exposure, MHT will consider providing internship for UG and PG students of SOI, BSACIST for duration of minimum of 15 days


## 10. Nullity

**MHT** and **BSACIST** agree that the mutually-accepted nullity of any of the provisions of this agreement shall not cause the agreement to be null and void and shall not affect the validity of the other provisions.

## 11. Binding Intent

This MOU is an expression of the Parties' intent to enter into good faith discussions regarding the Proposed Project. The provisions of this MOU, reflect the Parties' current understanding of the matters described herein and constitutes a complete statement or a legally binding or enforceable agreement or commitment.

*Q. R. Mahapatra*



*A. S.*

REGISTRAR  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology  
Vandalur, Chennai-600 048

## 12. Dispute Resolution

**MHT** and **BSACIST** will undertake to resolve any unforeseen events, disputes or misunderstanding in a consensual and amiable manner. Any misunderstanding arising from different interpretations of the clauses on this agreement or emerging from the field activities will in the first instance be the subject of negotiation on the part of **MHT** and **BSACIST** conducted by the representative designated by each organization.

Notwithstanding the provision of resolution of difference and disputes through courts, the Parties may refer the dispute/difference to conciliator to explore possibility of an amicable settlement before resorting to court proceedings, on request of either side, a conciliator may be appointed **MHT** within 15 days of receiving the request of other Party.

This Agreement shall be governed by and construed in accordance with the laws of India, and shall benefit and be binding upon the Parties hereto, their respective successors and assigns. In case of any dispute between the Parties the courts of Chennai shall have exclusive jurisdiction.

## 13. Term

This MOU shall remain in force for 5 years from the date of MoU signing, unless terminated earlier in accordance herewith. The MOU may be extended if required on mutual written consent.

## 14. Termination

This MOU may be terminated in whole or in part by any party by giving ninety (90) days' written notice to the other party, if there is any occurrence which in the opinion of the terminating party is sufficient to defeat or substantially prevent or delay the achievement of the objective of the project.

This MOU may also be terminated in the following circumstances:

- (a) By written agreement of the parties here to;
- (b) By any of the parties hereto subject to ninety (90) days' prior written notice being sent by the terminating party to the other parties;
- (c) Forthwith by **MHT** by issuing a written notice to **BSACIST**, should **BSACIST** commit any material breach of this MOU;
- (d) Forthwith by **BSACIST** by issuing a written notice to **MHT**, should **MHT** commit any material breach of this MOU;
- (e) By any of the parties here to by sending a written notice to the other parties if the terminating party ceases to undertake the activities that it is presently engaged in.

*Q. R. Marapoti*



*A. S.*

REGISTRAR  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology  
Vandalur, Chennai-600 048

To the extent feasible, the termination shall not be effected in the middle of a running batch of trials and tests and all efforts will be made to finish the batch and then terminate the MOU.

In case of termination of this MOU, MHT has the right to take back the entire equipment, tools and apparatus which has been installed and / or funded **by MHT** under this MOU.

#### 15. Miscellaneous

- a. Each party hereto shall perform this MOU in a timely, diligent, professional and ethical manner, and shall extend all necessary co-operation in connection with this MOU to the other parties hereto.
- b. **MHT** accepts full responsibility and liability for the persons engaged by it in the execution of the Project
- c. **BSACIST** hereby undertakes to keep and hold MHT and its respective officers, directors, shareholders, employees, agents, successors and assigns indemnified and harmless against any losses, legal proceedings (including attorney's fees and court fees), damages, charges, penalty, fines, expenses, claims, liabilities, including out of, resulting from or occurring in connection with:
- d. any third-party claim against **MHT** for bodily injury/death or loss or damage to tangible property caused in the execution of the Project; or
- e. any claim against **MHT** by any staff/person engaged by **BSACIST** or its legal heirs; or
- f. any negligence, wilful misconduct, wrongful act or unlawful, fraud, act of omission or commission by the person/staff engaged **BSACIST** in the execution of the Project.
- g. In no event shall **MHT** or its affiliates, employees, officers, and directors be liable for any punitive, consequential, incidental, special, or indirect damages, in any action arising from or related to this Agreement, whether based in contract, tort (including negligence), intended conduct or otherwise, including without limitation, damages relating to the loss of profits, business, income, savings, use, goodwill or revenue..
- h. This MOU will also not be construed to create or imply any agency, or joint venture, or employer-employee relationship.
- i. This MOU will be governed by the laws of India.
- j. This MOU is not assignable by any party hereto without the prior written consent of the other parties.
- k. This MOU constitutes the entire understanding between the parties on the subject matter hereof and supersedes all previous understandings, agreements,

*Q. R. Mahapatra*



*A. S.*

REGISTRAR  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology  
Vandalur, Chennai-600 048



communications and representations, whether written or oral, concerning the subject matter of this MOU.

- I. This MOU cannot be superseded, amended or modified except by a written document executed by the authorized signatories of the parties hereto.

**16. Confidentiality Obligations:**

- a. May be disclosed by law.
- b. Upon termination of this Agreement or upon written request submitted by the disclosing Party, whichever comes first, the receiving Party shall return or destroy, at the disclosing Party's choice, all of the disclosing Party's Confidential Information.
- c. Parties will not use each other's logo, trademark or tradename except for the "Confidential Information" shall mean any and all information in any form that each Party provides to each other in the course of the Agreement and that either (i) has been marked as confidential; or (ii) is of such nature that a reasonable person would treat as confidential under like circumstances. Confidential Information does not include information which (i) is already known to the other Party at the time of disclosure; (iii) is independently developed without the benefit of the other's Confidential Information; (iv) is received from a third party that is not under any confidentiality obligation towards the owner of the information; or (v) has entered the public domain through no fault of the recipient.
- d. Each Party retains ownership of its Confidential Information.
- e. Each Party agrees to (i) protect the other's Confidential Information in the same manner as it protects the confidentiality of its own proprietary and confidential materials but in no event with less than reasonable care; (ii) use the other's Confidential Information only in relation to the Agreement.
- f. Neither Party shall, except with respect to their employees, contractors or agents with a need to know for purposes of this Agreement, disclose to any person any Confidential Information of the other Party without the other Party's prior written consent, except where Confidential Information purpose stipulated in this Agreement. Any violation of this clause shall be considered an event of breach and shall be ground for immediate termination of this Agreement.
- g. These confidentiality obligations shall terminate five (5) years after the expiration or termination of this Agreement, whichever comes first.

*Q Q M. Rajitha*



*A. S. J.*

REGISTRAR  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology  
Vandalur, Chennai-600 048

**17. Relationship Between Parties:**

Nothing contained in this Agreement shall be construed or have effect as constituting a relationship of employer and employee or principal and agent between the Parties or the persons engaged by the Parties.

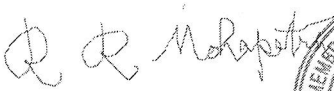
Pursuant to this Agreement, **MHT** shall be responsible for all acts and omissions of its staff and any persons engaged by **MHT** whether or not in the course of implementing the Project and for the health, safety and security of such persons or entities and their property.

**18. FORCE MAJEURE**

Neither party hereto shall be responsible for delays or failures in performance resulting from acts beyond its reasonable control and without its fault or negligence.

**IN WITNESS WHEREOF** the parties herein have affixed their respective signatures to this MoU on the day, month and year first above written in the presence of the witnesses:

Signed and delivered by

  
**Rashmi Ranjan Mohapatra**  
(President)



**Membrane Hitec**

**Division of Titanium Equipment and  
Anode Manufacturing Company (P) Ltd,  
Chennai**

WITNESS:

Name *George Jacob Mathew, DGM -*  
*Membrane Hitec*  
Signature 

Signed and delivered by

  
**Dr. A. Azad**  
Registrar

REGISTRAR  
B.S. Abdur Rahm  
**Crescent**  
Institute of Science & Technolo  
Vandalur, Chennai-600 048

**B.S. Abdur Rahman Crescent Institute of  
Science & Technology, Chennai**

WITNESS:

Name *Dr. Vasanthi Padmanabhan, Dean, SOI,*  
*BSACIST*

Signature *Vasanthi Padmanabhan*

DEAN  
School of Infrastructure  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology  
Vandalur, Chennai-600 048.

**ANNEXURE A**  
**DETAILS OF THE PILOT PLANT & OBJECTIVES**

**A. Objective of work:** Piloting of MBR membrane for Sewage water treatment applications.

**B. MBR Dimensions:**

1. Length of Tank – 2500 mm
2. Height of Tank – 2500 mm
3. Width of Tank – 1000 mm

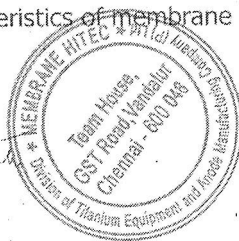
**C. List Of Materials included in MBR:**

Sr. No	Description	Quantity
1	Bar screen	1No
2	Aeration Tank	1No
3	Air Blower	1No
4	Permeate Pump	1No
5	Backwash pump	1No
6	Solenoid valve	1No
7	Chlorine Dosing Pump	1No
8	Rotameter	2No
9	UPVC Pipe and Fittings	1No
10	Float Switch	2 Nos
11	Caustic Dosing pump	1No
12	Electrical control panel and PLC with HMI Display	1No
13	Air Diffusers ( Tubular Forms)	1 No
14	Air Blower 30 m3/hr capacity	1 No
15	DO Analyzer	1 No
16	Level Switch	2 Nos

**D. Parameters to be studied:**

- Raw water inlet flow rate
- Dissolved Oxygen in Aeration tank
- Rate of Aeration
- MLSS in Aeration /Membrane tank
- Permeate Outlet parameter
- Dosing of chemical
- Solid Retention time
- Hydraulic Retention time
- COD/ BOD ratio
- Temperature
- Alkalinity & pH
- Fouling Characteristics of membrane

*Q. Q. Mohapatra*



*A. J. S.*

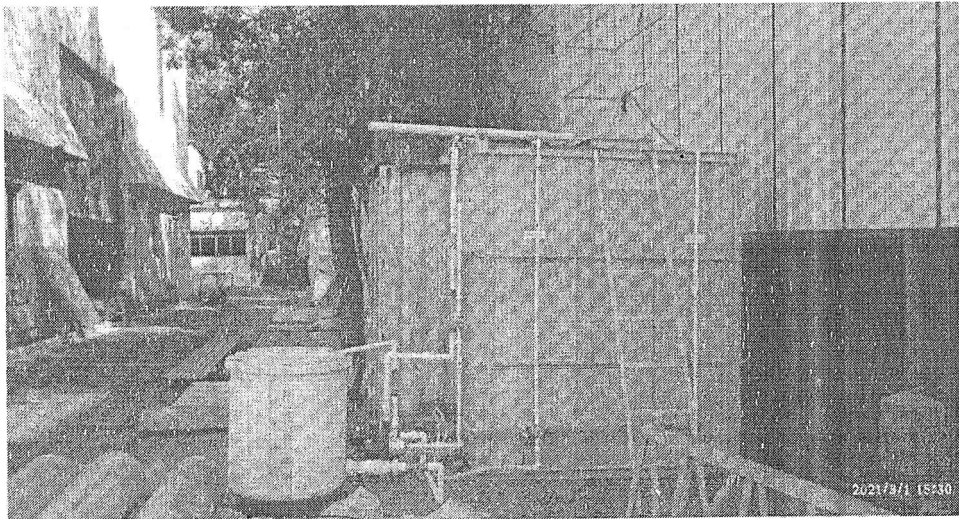
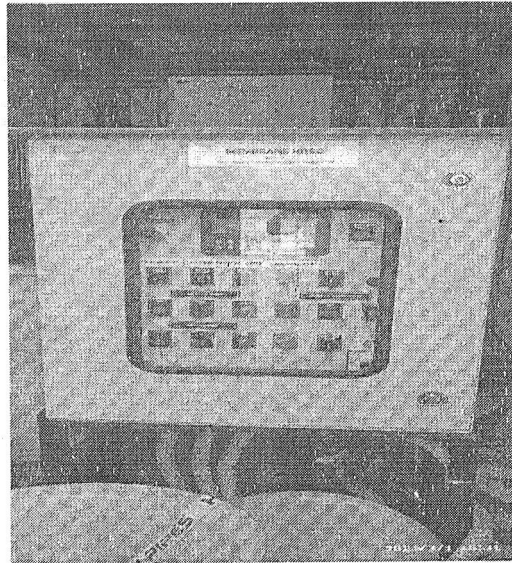
REGISTRAR  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology

**E. Arrangements to be done by BSACIST :**

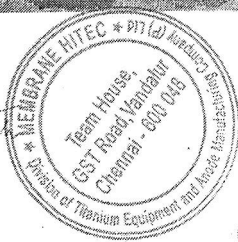
- a. Three Phase supply
- b. Location arrangement to assemble the system near to BSACIST Admin/Institute STP plant.
- c. Tap water arrangement
- d. Feed line from BSACIST STP Aeration tank to MHT MBR –Aeration tank.

**F.**

**MBR Pilot Plant & Control Panel :**



*Q Q Mohapatra*



*A. S. S.*

REGISTRAR  
B.S. Abdur Rahman  
**Crescent**  
Institute of Science & Technology

# CRESCENT SCHOOL OF LAW

Date: 31/03/2021

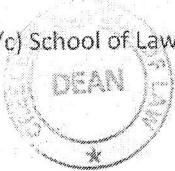
## Legal Opinion

**Legal Opinion for MoU between MEMBRANCE HITECH Division of Titanium Equipment and Anode Manufacturing Company (P) Ltd (MHT) and B.S. Abdur Rahman Crescent Institute of Science & Technology (BSACIST)**

1. I have gone through the Memorandum of Understanding (MoU) between MEMBRANCE HITECH Division of Titanium Equipment and Anode Manufacturing Company (P) Ltd. (MHT) and B. S. Abdur Rahman Crescent Institute of Science & Technology (BSACIST). To the best of my knowledge all the terms, conditions and stipulations are legally valid.
2. It is good point to be noted that both parties are collaborating to work in the field of Water and Waste Water Treatment, Waste Management and etc.
3. The terms, conditions and stipulations can be proceeded with.

  
Prof. PVN Sarma

Dean (i/c) School of Law



**MEMBRANE HITEC**  
Division of  
Titanium Equipment and Anode Manufacturing Company (P) Ltd

April 17, 2021

TO

B.S. ABDUR RAHMAN CRESCENT INSTITUTE OF  
SCIENCE & TECHNOLOGY  
GST ROAD,  
VANDALUR,  
CHENNAI - 600048

KIND ATTN: DR. A.K. KALILUTHIN, DY. DIRECTOR

Dear Sir,

**Sub: Submission of Two Sets of Original Memorandum of Understanding**

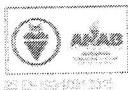
With reference to the above, we are sending herewith two sets of Original Memorandum of Understanding duly stamped and signed by us. (Signature of our President is electronically affixed as he is physically unavailable due to COVID-19 quarantine):

We request you to return one set of the same duly stamped and signed, back to us for our records.

Thanking you,

Yours Truly,  
For Membrane Hitec  
Division of Titanium Equipment and  
Anode Manufacturing Company (P) Ltd.

Gems Jacob Mathew



CIN No.: U41200TN1975PTC007817  
Member - Dr. Rao's Group of Companies

Regd. Off & Works: 'TEAM House', G.S.T. Road, Vandalur, Chennai - 600 048, India.

Ph: +91 44 22750323/66795695, Fax: +91 44 22750771, E-mail: team@drasaholdings.com, info@drasaholdings.com, www.team.co.in NS 09048 8887 7887

