

## **National Institute of Food Technology Entrepreneurship and Management (NIFTEM)**

An Institute of National Importance (INI) under Ministry of Food Processing Industries, GOI, Plot No 97, Sector-56, HSIIDC Industrial Estate, Kundli-131028, District-Sonepat (Haryana)

EOI No. N/FE/D/2024/43/42

## **EXPRESSION OF INTEREST (EOI)**

# SUBJECT: EOI FOR TRANSFER OF TECHNOLOGY IN POST-HARVEST MANAGEMENT & FOOD PROCESSING MACHINERY.

National Institute of Food Technology Entrepreneurship and Management, Kundli, an Institute of National Importance under the Ministry of Food Processing Industries (MoFPI) has developed the following Post-Harvest Management & Food Processing machinery:

- 1. Solar Assisted Reefer Transportation with Hybrid controls and Intelligence (SARTHI)
- 2. IoT enabled IR- assisted refractance window dryer
- 3. Boondi Dispenser Machine
- 4. Infrared assisted Evacuated tube Hybrid solar dryer
- 5. Coconut Water Extraction Equipment

The details of the technologies are available under Annexure IV

Applications are invited from eligible organizations with relevant experience in manufacturing and commercializing the above mentioned 1-5 technologies to participate in the Technology Transfer (ToT) process for this product **on CPPP e-Procurement website** <a href="https://eprocure.gov.in/eprocure/app from eligible bidders">https://eprocure.gov.in/eprocure/app from eligible bidders</a> at NIFTEM Campus, Kundli, Distt.- Sonepat, Haryana.

## **Important Date & Time**

S.N.	Particulars	Important Dates	Time
1.	Issue of EOI documents	22.04.2025	03.00 PM
2.	Pre-bid Meeting	28.04.2025	11.00 PM
3.	Bid submission start date and time	01.05.2025	04.00 PM
4.	Last date & time for submission of EOI	12.05.2025	03.00 PM
5.	Date & time of opening of Technical Bids	13.05.2025	03.30 PM
6.	Date & time of opening of Financial Bids	Will be intimated separately to the successful bidders	

## **Definitions**

- NIFTEM Kundli: The owner and developer of the above mentioned 1-4 technologies
- Industry Partner: The selected company or organization licensed to use the technology.
- **Technology:** inclusive of all design, specifications testing etc.
- Checklist: A comprehensive list of mandatory compliance requirements for the production process.

Dated: 22.04.2025



#### 1. ABOUT NIFTEM-K

NIFTEM-Kundli (Institute of National Importance) is a premier academic and research institution under the Ministry of Food Processing Industries (MoFPI), Government of India. It is dedicated to advancing food technology, entrepreneurship, and management. The institute's state-of-the-art facilities and innovative research focus on bridging gaps between academic knowledge and industry requirements to create solutions that address food safety, sustainability, and global competitiveness.

#### 2. BRIEF DESCRIPTION OF THE PRODUCT

• The details of the technologies are available under Annexure IV.

## 3. SCOPE OF THE TOT PROCESS

The Technology Transfer (ToT) will be conducted on a **non-exclusive basis**, providing the selected industry partner with:

- **Comprehensive Technical Documentation**: Includes protocols, testing methodologies, and production guidelines.
- **Licenses and Rights**: A non-exclusive, non-transferable license to manufacture, commercialize, and distribute the product.
- Bill of Materials: Detailed documentation of materials and equipment required for manufacturing.
- **Training and Support**: Provision of training to the industry partner's technical team, along with handholding support during the initial phases of technology adoption.
- **Test Plans and User Manuals**: Guidelines for product testing and operation.

#### 4. ELIGIBILITY CRITERIA FOR INDUSTRY PARTNERS

To qualify for consideration, industry partners must:

- The bidder must be a registered and legal entity in India, fulfilling the requirements of the *Make in India* initiative.
- The bidder should have prior experience in manufacturing food processing machinery as per the regulatory standards.
- The bidder should have possessed or commit to establishing ISO certified facilities, ensuring quality control and regulatory compliance.

## 5. REQUIREMENTS AND OBLIGATIONS OF THE INDUSTRY PARTNER

## A. Quality Assurance and Control -

The selected industry partner will be required to:

• Implement and maintain rigorous Quality Control (QC) and Quality Assurance (QA) measures throughout the production process.



#### 6. TECHNOLOGY TRANSFER CHECKLIST

The following checklist outlines key pre-transfer and post-transfer requirements that must be met by the industry partner before and during the technology transfer process and **audited by the NIFTEM-K Committee:** 

## **Pre-Transfer:**

- a) Ensure the availability of a trained technical team for process implementation.
- b) Sign a non-disclosure agreement (NDA) for the protection of proprietary information.
- c) Manufacturing Facility Requirements:

## • State-of-the-Art Equipment

- The manufacturing facility must be equipped with the latest instruments and technologies required for the production of the Reefer Van/Post harvest/Food Processing Equipment.
- All critical and necessary equipment (Annexure-III), including automation, assembly lines, and quality control instruments along with proof of purchase documents, which must meet the specifications outlined in NIFTEM's technology transfer documentation.

#### **Post-Transfer:**

- Ensure proper labelling, packaging, and storage conditions as per regulatory guidelines.
- Adhere to regulatory guidelines for product registration, if applicable.

#### 7. CORRIGENDUM/ADDENDUM

Corrigendum / addendum, if any, would only be appear on CPP Portal or NIFTEM's Website and by no other mode, therefore, all the bidders are advised to visit regularly. Any amendments will be binding on all interested bidders. NIFTEM-K also reserves the right to extend the bid submission deadline. In such cases, all rights and obligations of NIFTEM-K and the bidders under the previous deadline will remain applicable for the extended period.

#### 8. EVALUATION PROCEDURE

- Interested organizations are required to submit their Eol application in the prescribed format, provided in Annexure-I (Part A and Part B [(B1, B2, B3)] & Annexure-II, along with all supporting documents through CPP Portal.
- 2. The eligibility of bidders and their technical bid will be evaluated by a duly constituted Technical Evaluation Committee on the basis of documents submitted by the bidders with their Technical Bid in support to eligibility and other terms & conditions.
- 3. During the evaluation process, NIFTEM-K may ask for clarifications, if any, from the bidders regarding their claim. These requests, along with the bidders' responses, shall be through CPP Portal or any other mode as communicate. No post-submission modifications or unsolicited clarifications from the bidders will be entertained.



- 4. The bidders that are fulfilling the technical eligibility criteria as per Annexure-I (Part- **B1, B2**) will be invited to present their business plans before NIFTEM-K's for Technology Transfer as a part of the evaluation process on the date and time decided by the Committee.
- 5. Besides above, the Committee of NIFTEM-K may also conduct site visits to the bidders' premises, with prior notice, to inspect and assess the facilities mentioned in their EoI submissions to access the capability.
- 6. The bidder(s) who will score minimum 100 marks out of 200 marks in technical parameters and found fully capable in all respects, shall be considered qualified and will be eligible for technology transfer for initial period.
- **9. License/ Award:** The Institute/Committee is at liberty to license more than one agency for transfer of technology.

#### 10. GENERAL TERMS AND CONDITIONS

- 1. Acceptance of the EOI will be intimated to the successful agency(s) through a Letter of Intent (LOI)/ duly signed by the authorized signatory of the Institute.
- 2. NIFTEM-K reserves the right to reject any or all applications without providing any justification.
- 3. Incomplete or non-compliant EoI submissions that do not meet the requirements specified in this document or fail to adhere to the prescribed format (Annexure-I (Part A and Part B) & Annexure-II,III) may be rejected without further correspondence.
- 4. Canvassing in any form will result in disqualification.

## 11. INTELLECTUAL PROPERTY RIGHTS

NIFTEM-K retains all intellectual property rights to the technology. The industry partner is granted a non-exclusive, non-transferable license to use the IP for production and commercialization on agreed terms and conditions. Any modifications or improvements made by the partner to the technology must be reported to NIFTEM-K, and any new IP may be subject to joint ownership agreements.

## 12. LIABILITY AND WARRANTY

- The industry partner is responsible for ensuring regulatory compliance throughout the production process.
- NIFTEM-K provides the technology on an "as-is" basis and assumes no liability for claims, damages, or losses arising from its use in production or commercialization.
- The industry partner agrees to indemnify NIFTEM-K against any third-party claims related to the product's production or distribution.

#### 13. COMMERCIALIZATION AND BRANDING

The test kit's branding and marketing will be under the industry partner's discretion; however, acknowledgment of NIFTEM Kundli's technology development contributions is required in all product literature and advertisements.



## 14. TERMINATION CLAUSE

NIFTEM-K reserves the right to terminate the agreement in cases of non-compliance with the terms outlined or failure to maintain quality and regulatory standards.

## 15. GOVERNING LAW AND DISPUTE RESOLUTION:

- This agreement shall be governed by the laws of India.
- Any disputes arising under this agreement will be resolved through arbitration, with the venue being New Delhi, India.

## 16. For further clarification regarding this EoI document, please contact:

## **Purchase related queries:**

Purchase Division NIFTEM, Kundli, Sonepat (Haryana) – 131028 Phone No. - 0130-2281057 E-mail ID - <u>purchase.niftem@gmail.com</u>

## **Technical queries:**

Dr. Vinkel Kumar Arora
Associate Professor, Food Engineering
NIFTEM, Kundli, Sonepat (Haryana) – 131028
Phone No. – 0130-2281035
E-mail ID – vinkelarora17@gmail.com

(Registrar, NIFTEM)



**ANNXURE-I** 

## (The following details should be submitted along with Eol / Application for licensing)

#### Part - A

#### Note:

- 1. Certificate of Incorporation
- 2. The disclosure document of the Respondent's entity, which should reveal its shareholding pattern and its relation to the subsidiaries. This document should comply with the SEBI regulations.
- 3. Certificate issued by the practicing CA/CS regarding the shareholding pattern of the respondent as on the date of EOI along with Unique Document Identification Number (UDIN).
- 4. In case any shareholder of the respondent is not an individual, then, the details showing who are the ultimate individual beneficial shareholders of the respondent.
- 5. A certificate stating the list of directors, partners who are managing the entity.

3. A certificate stating	the list of directors, par	thers who are managin	ig the chitty.	
Company Details				
Name				
Registered Address				
Phone Number				
Email Id				
TAN				
PAN Number				
GSTIN				
State code				
<b>Contact Person Details</b>		·		
Name				
Address				
Phone Number				
Email Id				
Size of company		•	·	
Small		Medium		Large
Structure of company				
Start-up/MSME/DIIPT	Sole Proprietorship	Limited Liability	Partnership	Corporate
Start ap, 11131112, 2111 1	Sole i rophictorsimp	company	i di di ci ci si iip	Corporate
Ownership of company				
Indian		MNC		Foreign owned
Nature of your compan	y's business			



Products or services offered
Number of employees in your company
Do you have manufacturing facilities? If Yes, Details please
Attachments required
·
Copy of Pan
Copy of Tan
Copy of MoA
Copy of Company Brochure
Audited Balance Sheet (at least of last three year)
Qualifications of employees, experts, partners, and network including Technical/Scientific (Mandatory)
Details of facilities
Proof of registration and in operation of the company
A brief commercialization plan
(include a description of the manufacturing, marketing, financial and technical resources available)



## Part-B1

## **PRE-QUALIFICATION CRITERIA**

S.N.	Pre-Qualification Criteria	Supporting documents to be submitted in EOI
1	The Bidder must be an existing Company registered under the Companies Act, 1956 or a partnership firm registered under the Partnership Act, 1932 or registered under LLP Act, 2008.	Certificate of incorporation  Memorandum and Articles of Associations  Valid GST Registration Certificate  Copy of PAN
2	The bidder should be in the business of refer containers/Post Harvest/ Food Processing Technologies manufacturing for last three years as on date of submission of bid.	Copy of Work Order/ Contract Agreement/ Client Testimonial
3	Bidder should have an Average Annual Turnover of Rs. 5.0 Crores or above for the financial years (FY2021-22, FY2022-23 & FY 2023-24)	Audited Balance Sheets for (FY 2021-22, FY 2022-23 & FY 2023-24) along with Profit and loss statements. CA Certified Average Annual Turnover for last 3 financial years.
4	Bidder must have an experience of minimum (01) Project with minimum project in reefer van for any Government Department/UN or Public Sector Undertaking in the last 3 years	Copy of Work Order/ Contract Agreement/Client Testimonial
5	Bidder shall not be under declaration of ineligibility for corrupt or fraudulent practices/ shall not be blacklisted by Government.	Self-declaration on company's letter head duly signed by authorized personnel should be attached as a documentary proof for the same from all the companies
6	License/Compliance: The Bidder should have valid GST Registration Certificate and PAN No.	Copy of relevant certifications should be attached with the bid
7	Consortium Not Allowed	Self- Declaration on company's letterhead duly signed by authorized signatory of the bidder should be attached.

## Note:

The Party/ Parties are expected to respond to the EoI using the forms given in this section and all documents supporting Pre-Qualification / EOI Criteria. Proposal / Pre-Qualification Bid shall comprise.

## **Declaration**

I, the undersigned, hereby declare that the information pr	rovided in this <i>Invitation for Expression of Interest (EOI)</i>
for Transfer of Technology (ToT) for	is accurate and correct to the best of my knowledge.
This document reflects current and comprehensive de	tails regarding the technology transfer opportunity,
including eligibility requirements, scope of transfer, and s	submission guidelines.

Place:

Date:



## Part-B2

В.	ESSENTIAL REQUIREMENTS	Marks	
1.	The organization must be a reputed firm/ Company/ SME/Start-up/ R&D company incorporated in India withstanding of at least 3 years.	10	
2.	Annual Average Turnover of the Bidder during last three financial years should not be less than Rs. 5.00 Cr. During last three F.Y. (2021-22, 2022-23 & 2023-24). Attach documentary evidence (Audited Balance Sheets/Profit & Loss Account Statements/ ITRs for last 03 financial years).  INR 1.00 Cr. = 12 Mark  INR 3-1.01 – 1.50 Cr. = 14 Marks  INR 1.51 – 2.00 Cr. = 16 Marks  INR 2.01 – 3.00 Cr. = 18 Marks  INR 3.01 Cr. and above = 20 Marks	20	
3.	Company profile, giving details of current activities and management/personnel structure including evidence of incorporation. The company should be registered and ISO 9001 or equivalent certified.	10	
4.	Details of absorption/transfer of technology for a product/knowhow that has been taken up on production scale in the past may also be given in separate document	10	
5.	The in-house technological expertise available to be furnished. The manpower strength (Technical: Mechanical, Electrical, Electronics, Software Food Technologist/ Microbiologist, etc & Non- Technical etc.) at various levels to be furnished. Technical: A. B.E./B. TECH/M. TECH/PhD (01/2/3) mark for each employees) B. DIPLOMA (0.5 mark each per employee) C. SKILLED TECHNICIANS (01 mark for each employee) D. UNSKILLED (0.5 mark for each employee) Non-technical: (0.25 mark for each employee)	20	
6.	The complete list of equipment's & facilities available for inspection and quality control to be furnished.  (Refer Annexure-III)  (4 marks for each equipment/ facility upto Rs. 50.00 Lakh and 02 mark for each equipment/facility of above Rs. 50.00 Lakh but not maximum to 50 marks)	50	
8.	The details of sales, marketing and maintenance network to be furnished.	10	



	Complete Network with 25 persons 10 marks		
	Complete Network with 20 persons 8 marks		
	Complete Network with 15 persons 6 marks		
	Complete Network with 10 persons 4 marks		
	Complete Network with 5 persons 2 marks		
9.	The list of technical collaborations for various ongoing products may be furnished (05 mark for each ongoing product).	10	
10.	Expression of Interest: Spell out the extent of interest and envisaged market potential	10	
11.	GMP/GHP/ISO/HACCP/FSAAI certification  2 marks for each certification  (but not maximum to 10 marks)	10	
12.	Interaction-cum-PPT Presentation to present their business plans before NIFTEM-K's Technology Transfer (ToT) Committee	40	
		200	
		Marks	

I hereby declare that the above information is true to the best of my knowledge.

Signature with Name & Seal	Signature	with	Name	&	Seal	ŀ
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Place:

Date:

## Part-B3

The Committee of NIFTEM-K may also conduct site visits to the technically qualified bidders' premises, with prior notice, to inspect and assess the facilities mentioned in their EoI submissions to access the capability.



#### **ANNEXURE-II**

## Financial Bid Submission Format for Post-Harvest Management & Food Processing Machinery ToT

- 1. Minimum Base Price: (Rs.) + Applicable Taxes
  - 1. Solar Assisted Reefer Transportation with Hybrid controls and Intelligence (SARTHI):- 2.00 Lakh + GST
  - 2. IoT Enabled IR-Assisted Refractance Window Dryer:- 1.00 Lakh + GST
  - 3. Boondi Dispenser Machine: 50,000/- + GST
  - 4. Infrared Assisted Evacuated Tube Hybrid Solar Dryer:- 1.00 Lakh + GST
  - 5. Coconut Water Extraction Machine: 1.00 Lakh + GST
- 2. Process involved in Technology Transfer: Interested companies/manufacturers are invited to join hands with NIFTEM-K for co-development/further development & commercialization of the Technology/ Product(s). Under this EoI, the manufacturers/companies who are responsive and fulfilling all the technical need will be shortlisted based on their GMP facilities and capabilities. Qualified companies/manufacturers will only be contacted for execution of MoA/MoU/Agreement for partnership/collaboration/technology transfer, etc. Subsequent to the execution of the Agreement such companies/manufacturers shall be responsible to pay the Royalty, at the rate of \_\_% (On mutual Agreement) on net sales in line with "NIFTEM-K Guidelines for Technology Development Collaboration".

#### 3. Terms and Conditions:

- 1. **License Validity:** The royalty agreement will remain valid throughout the licensing period as defined in the ToT agreement (**Non-exclusive for 5 years**).
- 2. The final decision of technology transfer on the basis of technical and financial evaluation will be made by NIFTEM-K.
- 3. The copy of the license agreement for the technology transfer can be downloaded from the link below: <a href="https://niftem.ac.in/newsite/?page\_id=82">https://niftem.ac.in/newsite/?page\_id=82</a>

## **Authorized Signatory**

Signature:		
Name:		
Designation:	Place:	
Company Seal:	Date:	
This format ensures all financial elements r	related to the ToT of the	are clearly outlined, aligning
with NIFTEM-K's Eol requirements.		



Annexure - III

Instruments to be covered	during inspection	(Check list)
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Following Instruments/machines are required as per requirement of ToT.

# (SARTHI)

# Instrument List (Manufacturing)

S.N.	Name	Preferable Make or any other similar quality reputed Make	If not available with the mentioned brand then Brand/Make available	Availability (Y/N)
1	Sheet Bending Machine			
2	Laser/Plasma cutting machine			
3	Lathe machine			
4	Drilling machine			
5	Surface/Bench grinders			
6	Metal Arc welding			
7	Argon welding			
8	Gas Welding			
9	Hydraulic Press			
10	Shearing machine			
11	Riveting machine			
12	Hand grinder/cutter			
13	Jig & Fixture			



#### **Annexure IV**

1. Solar Assisted Reefer Transportation with Hybrid controls and Intelligence (SARTHI):- It is an intervention to reduce Post Harvest losses while transporting fruits and vegetables. Transporting fruits and vegetables at different temperatures and relative humidity conditions in a single reefer container has not been attempted in the country so far. Fruits and vegetables being live commodities continue to respire even after harvest and temperature variation during transportation leads to drastic physiological changes, resulting in spoilage. Yet another challenge is the long breaks due to traffic jam, rest, food, etc result in temperature variation and moisture migration to the surface. Smart Reefer transportation system (SARTHI) has dual compartments to store fruits and vegetables at different temperatures. Fruits, if stored at temperatures lower than their optimal temperatures are amenable to chilling injury, while vegetables, especially leafy vegetables, if stored at temperatures higher than their optimal requirements lose turgidity and texture owing to evaporation. Because of different storage requirements for fruits and vegetables, it becomes imperative to have different compartments for storage and transportation to obtain a good shelf life for the nutritionally dense fruits and vegetables which suffer from extensive Post Harvest losses. The temperature in SARTHI ranges from 0-5°C in one compartment and 7-12°C in the other compartment with a provision for temperature alterations based on specific requirements.. SARTHI has a unique refrigeration unit capable of running on engine power and standard 220 V Alternating current, 50 Hz power. During halts and interruptions, the stand by compressor unit with single phase AC power supply can be used to maintain the temperature. Temperature, Relative Humidity, Ethylene, and carbon dioxide in two different compartments is monitored using specific sensors. The data acquired from the sensors is integrated with IoT (Internet of Things) and sent to the cloud which can be downloaded using a mobile app for getting a real time information about the quality parameters and physiological changes occurring during transportation of fresh fruits and vegetables. This will help in making effective decisions about the quality of perishables inside the closed containers, thereby assisting in their better Post Harvest management. The vehicle may off load the produce in a nearby market based on the quality assessment, rather than carrying spoiled/ rotten and damaged produce to the destination, resulting in huge nutritional loss, increased carbon footprint and energy wastage. A solar PV system is provided on the SARTHI's roof top with a charge controller, battery, and inverter to run the air handling unit fans for air circulation and maintain desired temperature for short periods during intermittent halts.







# SOLAR ASSISTED REFER TRANSPORTATION WITH HYBRID CONTROL AND INTELLEGENCE



Ready to Transfer

SARTHI

Hybrid power Supply **Engine Power & AC 220V** 

Cooling in Stand by/ Hauling/Loading/Unloading Modes

> Air Circulation through Solar 1 Kw (roof mounted)



Inventors' Details: Dr. Harinder Singh Oberoi Dr. Vinkel Kumar Arora

One Tonne **Loading Capacity** 

**Dual Compartment for** Fruits & Vegetables

Online Monitering of Patrameters like Temp., RH. CO2 and Ethylene

> Useful in Pre cooling Storage & Vending Fruits & Vegetables

researchniftem@gmail.com

99 National Institute of Food Technology Entrepreneurship and Management An Institute of National Importance (INI) under Ministry of Food Processing Industries (MOFPI) Govt. of India NIFTEM Campus, Plot No. 97, Sector-56, HSIIDC Industrial Estate, Kundli, Sonepat-131628



2. IoT enabled IR- Assisted Refractance Window Dryer:- This dryer integrates the refractance window drying techniques combined with the Infrared techniques, which coupled with IoT's intelligence. It consists of two heating elements, two IR heater along with the IoT circuit. The RW dryer operates by transferring heat through a thin film of plastic, creating an efficient drying environment that minimizes thermal degradation. Infrared assistance further enhances drying efficiency by providing uniform heat distribution, reducing drying time, and improving energy efficiency. By leveraging IoT circuit and its connectivity, this advanced drying system enables real-time data acquisition and analysis of critical drying parameters such as temperature and humidity.



Dryer Capacity: 2.2 kg per batch with 5 mm thickness spreading of papaya pulp

**Dimensions:** 100 cm x 60 cm x 160 cm **Drying Temperature Range:** 30 to 85  $^{\circ}$ C

Material: Stainless steel

Membrane Material: Mylar (PET) film

Membrane Thickness: 200 µm

**Power Required:** 5.4 kW

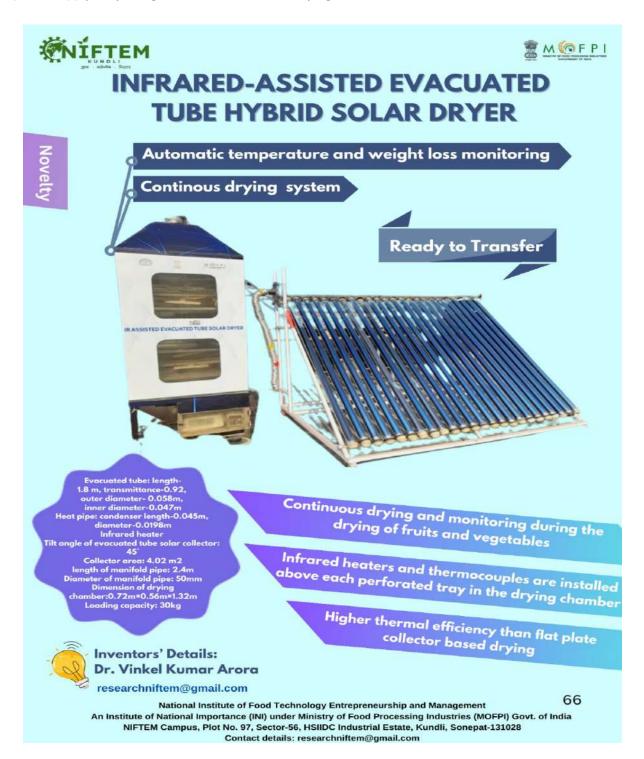


**3. Boondi Dispenser and Fryer:** NIFTEM has developed the technology for Boondi Dispenser. The capacity is 30-50 kg/hr for sweet boondi and oil capacity is 30 litres per batch.





**4. Infrared-Assisted Evacuated tube Hybrid Solar Dryer**: NIFTEM has also developed the **Infrared assisted Evacuated tube Hybrid solar dryer**. The capacity is 30-50 kg/hr of dried products per batch. The auxiliary power supply is by using infrared heaters in the drying chamber after the sunshine hours.





**5. Coconut Water Extraction Equipment:** NIFTEM has also developed a Coconut water extraction Equipment capable of Extracting water from a mature or tender coconut. A novel suction & piercing tool is designed for water extraction. The material of construction is Stainless steel 304. The machine has been Patented by NIFTEM.

