

## JODHPUR S&T CLUSTER

23<sup>rd</sup> November 2021

### Pre-read slide – Jodhpur S&T Cluster Organization & Team

1. Date of approval of proposal by PRMC – 29<sup>th</sup> July 2020
2. Date of 1<sup>st</sup> funding received - 29<sup>th</sup> July 2020
3. Status of legal entity/SPV of the cluster – **Jodhpur City Knowledge and Innovation Foundation (JCKIF) Established on 31<sup>st</sup> March, 2021 under Section 8 of the Companies Act, 2013 (Non-Profit Organization)**
4. Cluster Website & Social Media -

|          |                                                                                                         |
|----------|---------------------------------------------------------------------------------------------------------|
| Website  | <a href="http://www.jckic.in">www.jckic.in</a>                                                          |
| Facebook | <a href="https://www.facebook.com/JCKICJodhpurCluster">https://www.facebook.com/JCKICJodhpurCluster</a> |
| Linkedin | <a href="http://www.linkedin.com/in/JCKICJodhpurCluster">www.linkedin.com/in/JCKICJodhpurCluster</a>    |
| Twitter  | <a href="https://twitter.com/jckic_jodhpur">https://twitter.com/jckic_jodhpur</a>                       |

## Jodhpur City Knowledge and Innovation Foundation



### Office Inauguration By

28<sup>th</sup> September, 2021



Hon'ble Governor of Rajasthan  
Shri Kalraj Mishra



Hon'ble Vice President of India  
Shri M. Venkaiah Naidu



Hon'ble Minister of Energy, GoR  
Shri B. D Kalla



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## Pre-read slide – Jodhpur S&T Cluster Organization & Team

### 5. Cluster Thematic Areas –

#### As per approved protocol

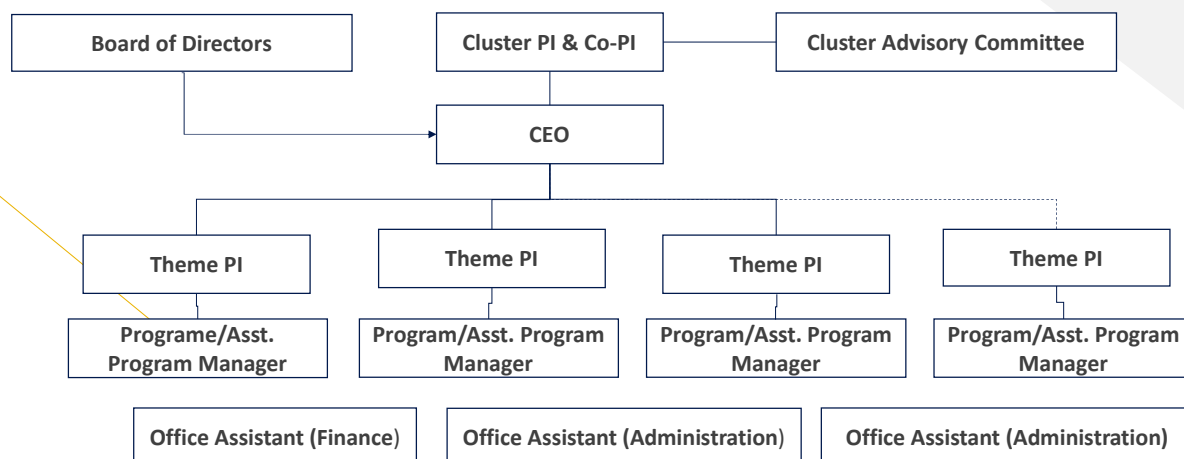
1. Medical Technologies: Project Med Tech
2. Handicrafts and Handlooms: Project CRAFT
3. Governance: Project I-Governance
4. Water & Environment

#### New Vertical

- Thar DESIGNS (Desert EcoSystem Innovations Guided by Nature & Selection)

## Pre-read slide – Jodhpur S&T Cluster Organization & Team

### Organogram



## Pre-read slide - Cluster Partners - A

| Type / Area or Project                       | Medical Technologies                                                                                                                                                                                                                                                        | Handicrafts and Handlooms                                                                                                                                                                                         |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Academic institutes                          | <ol style="list-style-type: none"> <li>1. AIIMS Jodhpur</li> <li>2. IIT Jodhpur</li> <li>3. Dr. Sampurnanand Medical College (SNMC), Jodhpur</li> <li>4. Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur</li> <li>5. MBM University, Jodhpur*</li> </ol> | <ol style="list-style-type: none"> <li>1. NIFT Jodhpur*</li> <li>2. IIT Jodhpur</li> <li>3. Footwear Design and Development Institute (FDDI), Jodhpur*</li> <li>4. Jai Narain Vyas University, Jodhpur</li> </ol> |
| R&D labs (Govt./ private)                    | <ol style="list-style-type: none"> <li>1. ICMR-NIIR-NCD</li> </ol>                                                                                                                                                                                                          |                                                                                                                                                                                                                   |
| Industry / Startups / MSMEs                  | <ol style="list-style-type: none"> <li>1. Jodhpur Industry Association</li> </ol>                                                                                                                                                                                           | <ol style="list-style-type: none"> <li>1. Rupayan Sansthan (NGO)*, Jodhpur</li> </ol>                                                                                                                             |
| Govt Dept. (Ministry/ State or local admin.) | <ol style="list-style-type: none"> <li>1. Rajasthan State Industrial Development and Investment Corporation (RIICO) Jaipur, Ministry of Industry, Govt. of Rajasthan</li> </ol>                                                                                             | <ol style="list-style-type: none"> <li>1. District Industries Centre Jodhpur, Govt. of Rajasthan</li> <li>2. Indian Institute of Handloom Technology Jodhpur, Ministry of Textile Govt. of India</li> </ol>       |
| International partners                       |                                                                                                                                                                                                                                                                             | <ol style="list-style-type: none"> <li>1. Swiss Federal Institute of Technology in Lausanne, Switzerland*</li> </ol>                                                                                              |

\* In principle agreed for signing MoU. Awaiting permission from their respective head office.

## Pre-read slide - Cluster Partners - B

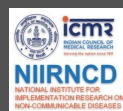
| Type / Area or Project                       | Water and Environment                                                                                                  | I -Governance                                                                                                                                        | Thar DESIGNS                                                                                                                                                           |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Academic institutes                          | 1. IIT Jodhpur<br>2. MBM College University, Jodhpur*                                                                  | 1. IIT Jodhpur<br>2. Sardar Patel University of Police, Jodhpur*                                                                                     | 1. AIIMS Jodhpur<br>2. IIT Jodhpur<br>3. Seth Gyaniram Bansidhar Poddar College, Jhunjunu<br>4. Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur     |
| R&D labs (Govt./ private)                    | 1. Defence Laboratory (DRDO) Jodhpur<br>2. ICAR-CAZRI, Jodhpur<br>3. RRSC-W, ISRO, Jodhpur*                            | 1. Defence Laboratory (DRDO) Jodhpur<br>2. RRSC-W, ISRO, Jodhpur*                                                                                    | 1. Defence Laboratory (DRDO) Jodhpur<br>2. ICAR-CAZRI, Jodhpur<br>3. ICMR-NIIR-NCD, Jodhpur<br>4. AFRI*, Jodhpur<br>5. RRSC-W, ISRO, Jodhpur*<br>6. ICAR-NRCC, Bikaner |
| Industry / Startups / MSMEs                  | 1. Jodhpur Industry Association<br>2. CETP (JPNT)                                                                      |                                                                                                                                                      | 1. Rupayan Sansthan (NGO)*, Jodhpur                                                                                                                                    |
| Govt Dept. (Ministry/ State or local admin.) | 1. Rajasthan State Pollution Control Board (CPCB), Jodhpur & Jaipur<br>2. Jodhpur Development Authority (JDA), Jodhpur | 1. Jodhpur Development Authority (JDA),<br>2. Department of Information Technology & Communication(DOIT&C), Jaipur<br>3. Jodhpur City Administration | 1. Jodha Rao Park, Jodhpur<br>2. ZSI*, Jodhpur                                                                                                                         |
| International partners                       | 1. Fraunhofer Institute, Germany (NGO)*                                                                                |                                                                                                                                                      |                                                                                                                                                                        |

\* In principle agreed for signing MoU. Awaiting permission from their respective head office.

## MoU Signing Ceremony

JCKIC and its partner institutions signed MoU on 5<sup>th</sup> September, 2021 at IIT Jodhpur to foster the process of synergy and collaboration to propel the holistic & sustainable growth of the city of Jodhpur and region

### MoU Signed with



## Pre-read slide - Cluster financial summary

Summary of financial statement: (15<sup>th</sup> November 2021)

| In Rs Lakhs | Sanctioned | Released (so far) | Spent | Balance | External funding raised for R&D/ operations                                                                                                                                                                         |
|-------------|------------|-------------------|-------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recurring   | 874.7      | 74.1              | 55.19 | 18.91   | 1. BioNEST-4.45cr<br>2. DMD Centre-4.6 cr<br>3. JSM Chair Professor – 4cr<br>4. Pollution Assessment of Kota -1.15 cr<br>5. Water-JSM 72L<br>6. CSR Funding a Siemens: 21L b. Canara Bank 40L<br>Total: Rs.15.53 cr |
| Capital     | 75         | 75                | 31.92 | 43.08   |                                                                                                                                                                                                                     |

## Summary of projects approved in original proposal

| S. No. | Thematic Area        | Project Name                   | Proposed Outcomes (quantifiable)                                                                                                                                                                                                                                                                                                      | Progress against outcomes                                                                                                                                                                                                                                                      | Impact goals (quantifiable)                                                                                                                                                                                             | Proposed revision (if any) |
|--------|----------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 1      | Medical Technologies | Setting of MED-TECH Eco-system | 1 – Innovation Focussed Masters and Ph.D programme on Medical Technologies Program - Jointly by AIIMS Jodhpur and IIT Jodhpur<br><br>2 - Deep-Tech Biodesign Centre: A Multi-disciplinary centre to train, nurture and transform clinicians and engineers into the Deep-Tech innovators in the field of Medical/Healthcare Technology | Successfully implemented<br><br>2020-21: 25 Students<br>2021-22: 19 Students<br><br>Proposal was presented in Department of Biotechnology and revised as advised by the committee. Revised proposal (INR 307 Lakhs) was approved by DBT. Funds Awaited.CSR funding Rs 21 lacs. | - Producing Entrepreneurial MedTech Professionals<br>-Development of Indigenous Medical devices<br>-Start-ups per year<br><br>To create a pool of potential, successful medical technology entrepreneurs and start-ups. | NA<br><br>NA               |

## Summary of projects approved in original proposal

| S. No. | Thematic Area        | Project Name                  | Proposed Outcomes (quantifiable)                                                                                                                                                                                                                                                                                   | Progress against outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Impact goals (quantifiable)                                                                                                                                                                                                                                                                                                                                                                 | Proposed revision (if any) |
|--------|----------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 1      | Medical Technologies | Setting of MED-TECH Ecosystem | <p>3- BioNEST (Bioincubators Nurturing Entrepreneurship for Scaling Technologies) to promote / support entrepreneurship in Healthcare / Medtech/ agrotech/ pharma segment and allied areas. DBT 4.45 crore. Rs 2 crore needed to support preincubates</p> <p>4 – Medical Device Park (MedTech Park) Rs 100 Cr.</p> | <p>- Total 18 pre-incubates, 3 start-ups being supported, 2 start-ups under BIRACBIG grant</p> <p>- Connect with stakeholders in and outside IITJ being developed</p> <p>- Team of mentors and Management team on boarded</p> <p>- Pre-incubates supported from CSR funding from Siemens and JCKIC.</p> <p>- 3 prof recruited.jckic support for start ups as loan.</p> <p>Advocacy Meeting MoU Signed between JCKIF and RIICO and IIT Jodhpur for knowledge Partnership</p> | <p>- Targeted 40 incubates at the end of 3 years</p> <p>- MoUs and joint programmes with other institutes/organization</p> <p>- Supporting and mentoring Start-ups on all the aspects like technology, IP, Commercialization etc.</p> <p>Common Facilities Centre:</p> <ol style="list-style-type: none"> <li>1. Research &amp; Development</li> <li>2. MedTech Park development</li> </ol> | <p>NA</p> <p>NA</p>        |

## MoU Signed with RIICO for Medical Devices Park

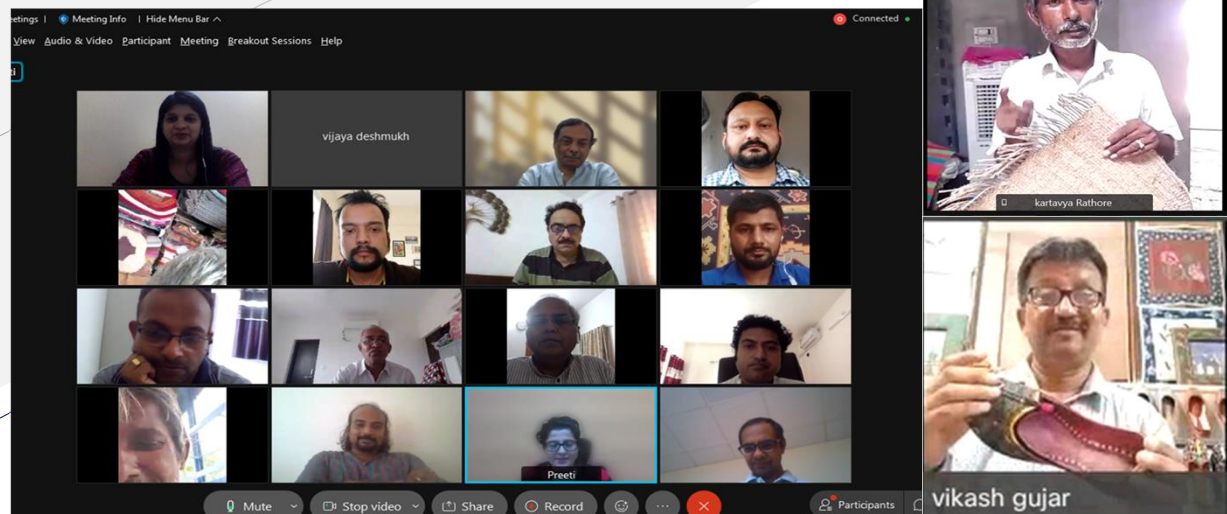
MoU signed between Rajasthan State Industrial Development and Investment Corporation Ltd. (RIICO), Govt. of Rajasthan and Indian Institute of Technology Jodhpur and Jodhpur City Knowledge and Innovation Foundation (JCKIF) for the development of a Medical Devices Park in Jodhpur, Rajasthan in the august presence of Shri Parsadi Lal Meena, Hon'ble Minister of Industry, Govt. of Rajasthan.



## Summary of projects approved in original proposal

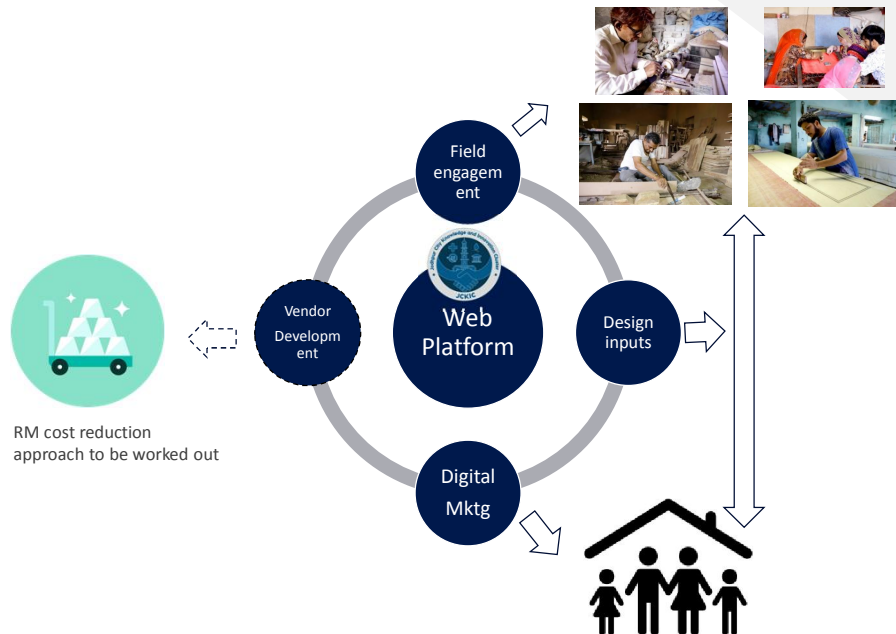
| S. No. | Thematic Area | Project Name                                                               | Proposed Outcomes (quantifiable)                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Progress against outcomes                                                                                                                                                                                                                                                                                                                                                                                     | Impact goals (quantifiable)                                                                                                                                                                                                                        | Proposed revision (if any) |
|--------|---------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 2.     | Project Craft | Establish a Lab & Museum of Crafts For growth of craft clusters of Jodhpur | <p><b>A. Digitization of Designs</b></p> <p>A(i) Mapping of community life, organic skill building, production process and business cycle of craft clusters (Number of craft clusters codified in completeness)</p> <p>A(ii) Development of proprietary Digital resource (pictures and videos generated - Gigabytes)</p> <p>A(iii) Creation of an ethical web platform enabling alternative access to market, raw material and design for artisans (Launch of web platform.)</p> | <ul style="list-style-type: none"> <li>- Initiation of engagement with artisan communities towards need assessment (work initiated with 5 clusters)</li> <li>- Pilot exercise to capture images /videos from representative craft clusters (~ 8 GB)</li> <li>- Digital Humanities program (MSc / PhD) launched at IIT J</li> <li>- Platform design and business model development process underway</li> </ul> | <p>Number of craft clusters brought to the platform; Number of artisans active on platform</p> <p>Average daily visitors, enquiries and transaction volume</p> <p>Cumulative savings in raw materials costs</p> <p>Number of new craft designs</p> | NA                         |

## A Glimpse of Need Assessment Workshops with Artisans



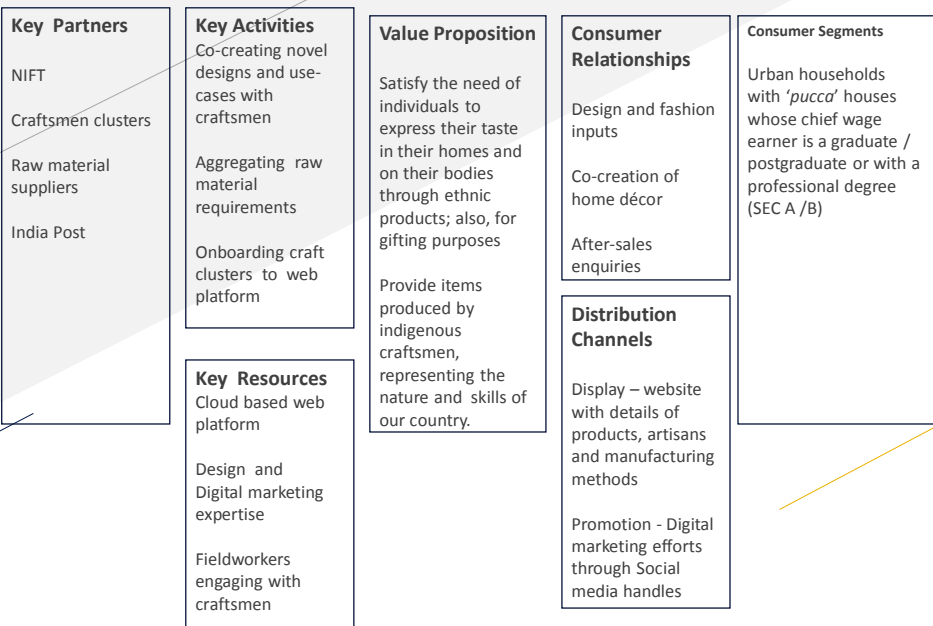
# Web Version 1 : Leveraging technology and design expertise to dis-intermediate the craft cluster – consumer chain

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## Business Model Canvas for Web Version 1

Illustrative



## Summary of projects approved in original proposal

| S. No. | Thematic Area | Project Name                                                               | Proposed Outcomes (quantifiable)                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Progress against outcomes                                                                                                                                                                                                                                                                                                                                                                                                 | Impact goals (quantifiable)                                                                                                                                                                                                             | Proposed revision (if any)                            |
|--------|---------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| 2      | Project Craft | Establish a Lab & Museum of Crafts For growth of craft clusters of Jodhpur | <p><b>B. Craft Museum: Phygital Experiencing and Consuming Craft</b></p> <p>B(i) Development of a Digital museum with VR enabled navigation guided by avatars and linked to real world instrumented craft clusters, enabling phygital experience and associated commerce</p> <p>(Launch of digital museum)</p> <p>B(ii) Development and launch of a physical museum with AR/VR and mixed reality enabled immersion for visitor, and buyer experience space for commerce</p> <p>(Launch of physical museum)</p> | <ul style="list-style-type: none"> <li>- Need assessment workshop with five clusters Science and Heritage Research Initiative (SHRI) proposal submitted to DST (TPN – 68535)</li> <li>- Project DPR for MoC is under preparation by an expert group</li> <li>- Rajasthan sate Govt. has expressed explicit willingness to allocate <i>Urban Haat</i> (Jodhpur) property for Physical museum and market project</li> </ul> | <p>Number of craft clusters registered and active in the digital museum;</p> <p>number of visitors, average navigation time spent and transaction volume</p> <p>% of city tourists visiting the physical museum; average time spent</p> | Urban Hut Centric Phygital museum cum marketing space |

## Summary of projects approved in original proposal

| S. No. | Thematic Area | Project Name                                                               | Proposed Outcomes (quantifiable)                                                                                                                                                                                                                                                                                                                                                                                                                                        | Progress against outcomes                                                                                                                                                                                                                                                                                               | Impact goals (quantifiable)                                                                                                                                                                                                   | Proposed revision (if any) |
|--------|---------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 2      | Project Craft | Establish a Lab & Museum of Crafts For growth of craft clusters of Jodhpur | <p><b>C. Livelihood Incubation</b></p> <p>C(i) Creation of proposals for Livelihood Business Incubator</p> <p>(Number of ideas incubated)</p> <p>C(ii) Skill Development for Craftsmen :</p> <ul style="list-style-type: none"> <li>-Design Competencies</li> <li>- Digital Literacy</li> <li>-Marketing, Pricing and Valuation Competencies</li> </ul> <p>(Number of craftsmen trained)</p> <p>C(iii) E-commerce platform for direct access to market for artisans</p> | <ul style="list-style-type: none"> <li>- Trust building and interactions at grass root level initiated with 5 clusters at Jodhpur</li> <li>- Livelihood incubator project submitted</li> <li>- Cluster development under SFURTI scheme (IITJ is a nodal tech partner)</li> <li>- Slow Progress; due to COVID</li> </ul> | <p>Number of craft based livelihood businesses launched in the market</p> <p>Number of young (&lt;30 years of age) members initiated into crafts business</p> <p>Number of new craft designs developed in training center</p> | NA                         |

### Summary of projects approved in original proposal

| S. No. | Thematic Area         | Project Name                                                                     | Proposed Outcomes (quantifiable)                                                                                                                             | Progress against outcomes                                                                                                                                                    | Impact goals (quantifiable)                                                                                              | Proposed revision (if any)                                                                     |
|--------|-----------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 3      | Water and Environment | Clean Purified Drinking Water in Rural Schools of Jodhpur District (INR 40 Lakh) | Water Purification Systems for producing clean drinking water in Twenty-Five (25) Rural Schools of Jodhpur District in Three (3) years time wef October 2021 | Twenty-Five (25) schools have been identified in the rural areas of Jodhpur District. CSR funding has been sanctioned. Part of CSR Funding for first year has been received. | Twenty-Five (25) schools                                                                                                 | Nil                                                                                            |
| 4      | Water and Environment | Point-of-use and in-line coliforms sensors for smart water management.           | A point of use paper-based colorimetric sensor for the detection of coliforms in water and wastewater.                                                       | Proposal was presented in Jal Jeevan Mission and revised as advised by the committee. Revised proposal (INR 72 Lakhs) was approved by DDWS JJM.                              | Development of a point of use sensor for the real time monitoring of coliforms in water useful for 'Har Ghar Nal Se Jal' | Approved by DDWS JJM. Revised proposal was submitted to DDWS, Jal Jeevan Mission and approved. |

### Summary of projects approved in original proposal

| S. No. | Thematic Area         | Project Name                                                                                                               | Proposed Outcomes (quantifiable)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Progress against outcomes                                                          | Impact goals (quantifiable)                                                                                                                                                             | Proposed revision (if any) |
|--------|-----------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 5      | Water and Environment | Source apportionment study, Emission Inventory and Carrying capacity for Kota city, Rajasthan (Project Cost: INR 115 Lakh) | <ol style="list-style-type: none"> <li>1. Air Quality monitoring, source apportionment and emission inventory development</li> <li>2. Traffic analysis (traffic profile, hotspots, vehicle inflow, travel time analysis etc.) of Kota city</li> <li>3. Assessment of seasonal variation of water quality in the five major reservoirs/water bodies including barrage of Kota using geo-spatial technology and water quality parameters</li> <li>4. Assessment of Kota's Solid Waste Collection, Transport, and Disposal using geo-spatial technology</li> </ol> | After the approval of the project in October 2021, MOU has been signed with RSPCB. | Technical report on the project will be made available publically and provide directions to the regulatory authorities to design and implement pollution control strategies or policies | Nil                        |

### Summary of projects approved in original proposal

| S. No. | Thematic Area         | Project Name                                            | Proposed Outcomes (quantifiable)                                                                                         | Progress against outcomes                                                                                                                                                            | Impact goals (quantifiable)                                                                                                                                                                                                                                                                                                                                                           | Remarks                                                                                       |
|--------|-----------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 6      | Water and Environment | Smart Graded - Water Supply Grid                        | Demonstration Centre for Smart Graded-Water Supply Grid (INR 198 Lakh)                                                   | Proposal prepared jointly by JCKIC IITJ and Fraunhofer Institute                                                                                                                     | Demonstrate a Smart Graded-Water Supply Grid of 1 MLD capacity in the IIT Jodhpur campus and optimally utilize the capabilities of locally available water and energy resources and deliver graded water supply; thus establishing a first-of-its-kind JCKIC-IITJ model for replication.                                                                                              | Initial work is initiated through inhouse seed funding (10 lakhs). Additional Funding needed. |
| 7      | Water and Environment | Advanced Wastewater Treatment at Sangaria CETP, Jodhpur | Design and demonstration of a pilot plant test unit with recycle and reuse keeping sustainability aspects (INR 225 Lakh) | JCKIC-Fraunhofer jointly organised a workshop of stakeholders on 28/10/2021 inaugurated by Dr Seth, O/o PSA. Proposal is being updated based on the discussions during the workshop. | Design, development and installation of 50 Kilo-Litres per Day (KLD) pilot plant test unit using sustainable technologies. Performance evaluation, water auditing and water budgeting for recycle and reuse of treated wastewater as a step forward towards circular economy. Establishing a sustainable JCKIC-Fraunhofer model for replication and scale up for difficult effluents. | Funding needed. O/o PSA may advise.                                                           |

### Summary of projects approved in original proposal

| S. No. | Thematic Area | Project Name                                                                                                      | Proposed Outcomes (quantifiable)                                                                                                                                                                                                                                                                                                        | Progress against outcomes                                                                                                                                                                                                                                                              | Impact goals (quantifiable)                                                                                                                                                                                                  | Proposed revision (if any)                                                                                                                                                 |
|--------|---------------|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8      | I-Governance  | Live identification of non-conformance of traffic rules from Surveillance Videos using Computer Vision Techniques | <ul style="list-style-type: none"> <li>-A software that will automatically detect the events from surveillance camera data.</li> <li>-Generate appropriate alarms to the stakeholders.</li> <li>- Potentially integrate with the existing software.</li> <li>- These features typically not available with existing packages</li> </ul> | <ul style="list-style-type: none"> <li>- CCTV traffic surveillance Data obtained from Abhay Command Centre.</li> <li>-ML based detection of Vehicles/Crosswalk/ People carried out on sample images</li> <li>-CV/ML based automated detection of vehicles on Crosswalk done</li> </ul> | <ul style="list-style-type: none"> <li>-Better Traffic Management To be first deployed in Jodhpur City in coordination with the Police and Abhay Command Centre.</li> <li>-May be expanded later to other cities.</li> </ul> | <ul style="list-style-type: none"> <li>Seed Funding provided Additional funding to be raised.</li> <li>Co-development with industry</li> <li>TIH to be explored</li> </ul> |

## Summary of projects approved in original proposal

| S. No. | Thematic Area | Project Name                                                                           | Proposed Outcomes (quantifiable)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Progress against outcomes                                                                                                                                                                                                                                                                                                                                                    | Impact goals (quantifiable)    | Proposed revision (if any) |
|--------|---------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------|
| 9      | I- Governance | Development of a Traffic Modeling and Management Framework for Jodhpur City, Rajasthan | <ul style="list-style-type: none"> <li>-To measure traffic flow patterns in the selected network and analyze various scenarios</li> <li>-To develop a microsimulation model of traffic flow in the selected network.</li> <li>-To develop and implement algorithms for real-time signal control in the selected corridor/network.</li> <li>-To develop and implement models for analysis of specific transportation strategies on traffic patterns in the network.</li> <li>-To develop and implement models for analysis of employment and land-use changes on traffic patterns in the network.</li> </ul> | <ul style="list-style-type: none"> <li>• GIS Data regarding road infrastructure obtained from Jodhpur Development Authority.</li> <li>• Primary analysis of junctions, accident prone zones, traffic flow carried out.</li> <li>• Traffic simulation of one of the busiest junctions, 'Jalori Gate' is being carried out</li> <li>• Proposal prepared for funding</li> </ul> | The traffic network of Jodhpur | Nil                        |

## Summary of projects approved in original proposal

| S. No. | Thematic Area | Project Name               | Proposed Outcomes (quantifiable)                                                                                                                                                                                                                                                                                                                                                                             | Progress against outcomes                                                                             | Impact goals (quantifiable)                                                                                                                    | Proposed revision (if any)                                                                                                                                                   |
|--------|---------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10     | I- Governance | Camera Tampering Detection | <ul style="list-style-type: none"> <li>- A software that will automatically detect whether the surveillance cameras installed at various location in the city of Jodhpur is tampered or not.</li> <li>- Tampering categories considered               <ul style="list-style-type: none"> <li>- Camera Defocused</li> <li>- Camera view changes (movement)</li> <li>- Camera Occlusion</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>- Algorithm developed on publicly available dataset</li> </ul> | <ul style="list-style-type: none"> <li>- An accuracy of 85% is achieved</li> <li>- The entire camera network of the city of Jodhpur</li> </ul> | <ul style="list-style-type: none"> <li>- A co-development model with Industry partner is planned</li> <li>- Funding is yet to be raised. OPSA may advise on this.</li> </ul> |

## Summary of projects beyond original proposal

| S. No. | Thematic Area        | Project Name                                                                                  | PRMC Approval Date (or if pending) | Proposed Outcomes (quantifiable)                                                                                                                      | Progress against outcomes                    | Impact goals (quantifiable)                                                              | Proposed revision (if any) |
|--------|----------------------|-----------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------|----------------------------|
| 11     | Medical Technologies | Development of Potential Therapeutic Leads for Duchenne Muscular Dystrophy for Clinical Trial |                                    | To develop molecular agonists for biogenesis of utrophin for Phase II/III clinical trial                                                              | Therapeutic leads Development is in progress | Cost of per patient per year ~ 2 crores INR (Unaffordable!!), reduce it to ~ 5 Lakhs INR | NA                         |
|        |                      |                                                                                               |                                    | To restore dystrophin function through exon skipping by cell-penetrating antisense oligonucleotides and its clinical validation                       | Development is in progress                   | Increase Bioavailability and reduce the cost                                             | NA                         |
|        |                      |                                                                                               |                                    | To develop engineered peptide antagonists for Vb2-CD8+ cytotoxic T-cell receptors to stop T-cell mediated cytotoxicity against diseased muscle cells. | Will be initiated soon                       | Exploration of alternative strategy                                                      | NA                         |

## Summary of projects beyond original proposal

| S. No. | Thematic Area        | Project Name                                                 | PRMC Approval Date (or if pending) | Proposed Outcomes (quantifiable)                                                                                                                                                            | Progress against outcomes                                                                                                                                                                   | Impact goals (quantifiable)                                                                            | Proposed revision (if any) |
|--------|----------------------|--------------------------------------------------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------|
| 12     | Medical Technologies | AIOT based Bed Occupancy Detection in a Hospital Setup       |                                    | - Load sensors to detect if the bed is occupied or not along with a microcontroller and wireless unit connected to hospital wifi<br>- Optional battery support to run without power supply. | Completed, 30 units installed at Neurosurgery Department, MDM Hospital, Jodhpur                                                                                                             | Dashboard for public to know the status of bed occupancy                                               | NA                         |
| 13     | Medical Technologies | Development of Low Cost Oxygen Concentrator for Domestic Use |                                    | A low-cost oxygen concentrator that can provide the required flow of concentrated oxygen to patients with breathing problems allowing them to manage themselves in a home environment.      | The portable concentrator is made with two cylinders. Switching of the cylinders are done. Smart switching of cylinder operation, based concentration requirement and flow rate is planned. | Minimization of the hospitalisation costs and reducing the stress on the formal medical infrastructure | NA                         |

## Summary of projects beyond original proposal

| S. No. | Thematic Area                                                              | Project Name                                                                                                                                                                                                   | PRMC Approval Date (or if pending) | Proposed Outcomes (quantifiable)                                                                                                                                                                                                                      | Progress against outcomes                                                                                                                                                                                                                        | Impact goals (quantifiable)                                                                                                                                                                                                          | Proposed revision (if any) |
|--------|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 14     | Thar-DESIGNS (Desert EcoSystem Innovations Guided by Nature and Selection) | Ecosystem phenomics inspired solutions for one health<br>1. Bat and Camel inspired biodesign<br>2. Ayurveda for Desert Medicine<br>3. Biological soil crusts of the Thar desert<br>4. Citizen Science for Thar | New Proposal                       | <ul style="list-style-type: none"> <li>Knowledge grid creation for Thar Xerocoles</li> <li>Technology enabled monitoring solutions using people participatory projects (PPP)</li> <li>Genomic diversity assessment of Thar endemic species</li> </ul> | <ul style="list-style-type: none"> <li>building for eco-system phenomics.</li> <li>Mobile application developed for citizen science initiative at IIT Jodhpur</li> <li>Test bed being created at IIT Jodhpur for ecological rewilding</li> </ul> | Awareness creation on the vulnerable Thar ecoregion<br>•Recommendations for an effective policy framework for the vulnerable Thar ecosystem<br>•Innovations in engineering design<br>•Precision-health framework for desert medicine | NA                         |

## Summary of projects beyond original proposal

| S. No. | Thematic Area | Project Name                                                                                        | PRMC Approval Date (or if pending) | Proposed Outcomes (quantifiable)                                                                                                                                                                                                  | Progress against outcomes                                                                                                                                                                                                                                             | Impact goals (quantifiable)           | Proposed revision (if any) |
|--------|---------------|-----------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------|
| 15     | AIOT Fab      | Setting up of an AIOT Fab for feeding to technology requirements of MedTech and other entrepreneurs | New Proposal                       | <ul style="list-style-type: none"> <li>Setting up of an AIOT Fab - End-to-end till pre-commercial pilot</li> <li>Making use scientific and intellectual resources of IITJ and other institutions in the city and state</li> </ul> | - Supported by State Government (in principle approval provided for about 70 crores)<br>- Industry Partnership (expected commitment 5 crores)<br>- MeiTy Funding Sought<br>- Target outlay 250 crores<br>- Support from PSA's office sought for MeiTy support for CoE | This will be a resource for the state | NA                         |

## Details of Project 1: Setting of MED-TECH Park

### 1.1 Programmes on Medical Technologies

- Envisioned Project Impact : Indigenous Medical Technology Products
  - Project end beneficiary(s) –Medical Industries, Medical professionals and Engineers
  - Project partners – AIIMS Jodhpur and IIT Jodhpur
- PI : Director, AIIMS Jodhpur and Director, IIT Jodhpur

**Team:** ➤ Prof. Surajit Ghosh, Dean (R&D), IIT Jodhpur  
 ➤ Dr Kuldeep Singh, Dean (Research), Prof. of Pediatrics, AIIMS, Jodhpur  
 ➤ Dr Shilpi Dixit, Vice-Dean (Academics), AIIMS, Jodhpur  
 ➤ Dr Somanth Ghosh, Assistant Professor & Associate Dean, Academic-PG Programs  
 ➤ Dr Sushmita Jha, Associate Professor, Department of Bioscience and Bioengineering  
 ➤ Dr Ravi K R, Associate Professor, Dept. of Metallurgical and Materials Engineering

| S. No. | Milestone                                          | Timeline            | Present status                                                                                                |
|--------|----------------------------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------|
| 1      | Academic year 2020 – 2021<br>1 <sup>st</sup> Batch | July 2020-June 2023 | Immersion, Problem Identification, Problem Definition, Problem Solution, Pre-Incubation; 26 students enrolled |
| 2      | Academic year 2021 – 2022<br>2 <sup>nd</sup> Batch | July 2021-June 2024 | 19 students Enrolled.                                                                                         |

## Details of Project 1: Setting of MED-TECH Park

### 1.2 Deep-Tech Biodesign Centre

- Envisioned Project Impact : Create a pool of potential, successful medical technology entrepreneurs and start-up
- Project end beneficiary(s) – Indigenous healthcare technology products into public health systems
- Project partners – Faculties from IIT Jodhpur and AIIMS Jodhpur

| S. No. | Milestone                                                                                                                                              | Timeline           | Present status                               |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------|
| 1      | Immersive training of Medical Technology Innovator.                                                                                                    | Nov.2021-Oct. 2024 | Fund Not Released under BIRAC Planning Stage |
| 2      | Provide support to build business models, project management and IP management plan/strategies to the budding innovators.                              | Nov.2021-Oct. 2024 |                                              |
| 3      | Establishing and enabling research ecosystem for generation of novel technologies and products for meeting current and future challenges in healthcare | Nov.2021-Oct. 2024 | CSR Funding of 21 lakhs received             |
| 4      | Provisioning for technological and financial support for translational transformation of innovation to product                                         | Nov.2023-Oct.2024  |                                              |

## Project 1: Setting of MED-TECH Park

### 1.2 Deep-Tech Biodesign Centre Outcomes and Dependencies

| S. No. | Measurable Outcomes / Success Metrics          | Progress made against imperative |
|--------|------------------------------------------------|----------------------------------|
| 1      | Training of 24 Medical Technology Innovators   |                                  |
| 2      | Filing 10 Patents in healthcare technology     |                                  |
| 3      | Creation 4 Startups                            | Planning                         |
| 4      | Fabrication of 8 Prototypes                    |                                  |
| 5      | Development 6 Medical Devices                  |                                  |
| 6      | 4 Technology Transfer in healthcare technology |                                  |

| S. No. | Dependencies / Success Imperatives               | Any Support needed      |
|--------|--------------------------------------------------|-------------------------|
| 1      | Total funding INR 20 Lakh                        | CSR Funding raised      |
| 2      | Key partners AIIMS Jodhpur and Med-Tech Industry | Key partners on-boarded |

## Details of Project 1: Setting of MED-TECH Park

### 1.3 Incubator under BioNEST

- **Envisioned Project Impact:**
  - To promote India centric affordable healthcare technologies
  - To promote bio-entrepreneurial initiatives of IITJ Faculties, Students, Staff and allied institutions
  - Nurturing start-ups benefitting rural and social systems
- **Project end beneficiary(s)** – Under served and bottom-of-the pyramid segment
- **Project partners:**
  - **Partnering Organization:** Biotechnology Industry Research Assistance Council (BIRAC)
  - **PI:** Dr. Surajit Ghosh, Professor, Department of Bioscience and Bioengineering & Dean R&D IIT Jodhpur
  - **Team:** Dr. Sankalp Pratap, Faculty-in-Charge, IITJ-Technology Innovation and Start-up Center  
Mr. Kulbir Lamba, CEO, IITJ-Technology Innovation and Start-up Center  
Mr. Shah Nawaz, Incubator Manager

## Project 1: Setting of MED-TECH Park

### 1.3 Incubator under BioNEST Outcomes and Dependencies

| S. No. | Measurable Outcomes / Success Metrics              | Progress made against imperative                                                                                                                                                                                       |
|--------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Number of Incubatees                               | 23 Total Incubation (02 BIG+ 03 Startup +18 Pre-Incubatee)                                                                                                                                                             |
| 2      | Infrastructure readiness                           | <ul style="list-style-type: none"> <li>Lab furniture being procured,</li> <li>Complete space is Internet &amp; WiFi enabled</li> </ul>                                                                                 |
| 3      | Awareness in the Eco-system                        | <ul style="list-style-type: none"> <li>Interaction with Mentors/ Outside experts being done on continuous basis</li> <li>Development of fully functional dynamic website being initiated for wider outreach</li> </ul> |
| S. No. | Dependencies / Success Imperatives                 | Any Support needed                                                                                                                                                                                                     |
| 1      | Total funding required                             | Funding of Rs 4.45 Cr received from BIRAC, <b>Additional 2 Crores Fund Required to support Pre-Incubatees</b>                                                                                                          |
| 2      | Key partners needed (Govt./industry/international) | <ul style="list-style-type: none"> <li>BIRAC</li> <li>AIIMS Jodhpur for Masters in Medical Technology programme</li> <li>Connect with Industry/ research and academic institutes being established</li> </ul>          |

## Details of Project 2

### Establish a Lab & Museum of Crafts for growth of craft clusters of Jodhpur

- Envisioned Project Impact : Improving the economic condition of artisans, protecting local craft traditions and stopping the flight of next generation from craft communities
- Project end beneficiary(s) – Artisans from unorganized sector
- Project partners – IIT Jodhpur, NIFT Jodhpur, District Industries Center (DIC) Jodhpur, Handicraft and handloom industry Artisans in and around Jodhpur

| S. No. | Milestone                                           | Timeline   | Present status                                                                                                                                                                                                                                                                               |
|--------|-----------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Web platform launch                                 | March 2022 | <ul style="list-style-type: none"> <li>Engagement with local craft clusters initiated</li> <li>Creation of Digital resources initiated; Digital Humanities program (MSc / PhD) launched at IIT J</li> <li>Design and business model development process for the platform underway</li> </ul> |
| 2      | Training center and livelihood incubator activation | June 2022  | Incubation center (TISC) has employed CEO and Manager in October 2021                                                                                                                                                                                                                        |
| 3      | Digital Museum launch                               | March 2023 | Science and Heritage Research Initiative (SHRI) proposal submitted to DST (TPN – 68535) ;<br>DPR preparation for MoC under progress                                                                                                                                                          |
| 4      | Physical Museum inauguration                        | March 2024 | DPR preparation for MoC under progress                                                                                                                                                                                                                                                       |

## Project 2

### Establish a Lab & Museum of Crafts for growth of craft clusters of Jodhpur

#### Outcomes and Dependencies

| S. No | Measurable Outcomes / Success Metrics                                                                   | Progress made against imperative               |
|-------|---------------------------------------------------------------------------------------------------------|------------------------------------------------|
| 1     | Number of craft clusters codified in completeness                                                       | Initiated with 5 clusters in Jodhpur           |
| 2     | Launch of web platform enabling ethical and experiential commerce                                       | Business model and Design development underway |
| 3     | Number of craft clusters brought to the digital platform; Number of artisans active on digital platform | N/A at this stage                              |
| 4     | Average daily visitors, enquiries and transaction volume on digital platform                            | N/A at this stage                              |
| 5     | Cumulative savings in RM costs through digital platform based aggregated sourcing                       | N/A at this stage                              |
| 6     | Number of craft based livelihood businesses launched in the market                                      | N/A at this stage                              |
| 7     | Number of young (<30 years of age) members initiated into crafts business                               | N/A at this stage                              |
| 8     | Number of new designs developed in training center                                                      | N/A at this stage                              |
| 9     | % of city tourists visiting the physical museum; average time spent                                     | N/A at this stage                              |

## Project 2

### Establish a Lab & Museum of Crafts for growth of craft clusters of Jodhpur

#### Outcomes and Dependencies

| S. No. | Dependencies / Success Imperatives                 | Any Support needed                                                                             |
|--------|----------------------------------------------------|------------------------------------------------------------------------------------------------|
| 1      | Total funding required                             | Seed Funding (30L) provided.<br>Additional funding to be raised<br>Phygital Set-up : 20 crores |
| 2      | Key partners needed (Govt./industry/international) | Key partners on-boarded                                                                        |

### Details of Project 3 'Clean Purified Drinking Water in Rural Schools of Jodhpur District (Project Cost: INR 40 Lakh)'

- Envisioned Project Impact : Clean Drinking Water in Rural Areas
- Project end beneficiary(s) – School children in villages
- Project partners – Dr Anand Plappally (PI) JCKIC IITJ, Prof Pradip Tewari (Co-PI) JCKIC IITJ, HEFA, Principal and School Children of 25 Schools

| S. No. | Milestone                                                                                        | Timeline           | Present status                                                                                     |
|--------|--------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------|
| 1      | Survey, Water Analysis, System Design                                                            | Nov.2021-Oct. 2022 | Twenty Five (25) schools in the rural areas of Jodhpur have been identified. MOU signed with HEFA. |
| 2      | Completion of installation, testing and commissioning of water purification units in 13 schools. | Nov.2022-Oct.2023  | Already planned                                                                                    |
| 3      | Completion of installation, testing and commissioning of water purification units in 12 schools. | Nov.2023-Oct.2024  | Already planned                                                                                    |

### Project 3 – Outcomes and Dependencies 'Clean Purified Drinking Water in Rural Schools of Jodhpur District'

| S. No. | Measurable Outcomes / Success Metrics                                                                                                                                                            | Progress made against imperative           |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| 1      | Water purification units were installed in rural schools of Jodhpur, Sirohi, Jhunjhunu and Pali for providing clean drinking water to school children.                                           | Successfully completed.                    |
| 2      | The above success story paved the way for getting CSR funding from HEFA for design, installation, testing and commissioning of water purification units in 25 rural schools of Jodhpur district. | Partial funding received in November 2021. |

| S. No. | Dependencies / Success Imperatives | Any Support needed      |
|--------|------------------------------------|-------------------------|
| 1      | Total funding INR 40 Lakh          | CSR Funding raised      |
| 2      | Key partners 25 Schools            | Key partners on-boarded |

## Details of Project 4 'Point-of-use and in-line coliforms sensors for smart water management (Project Cost: INR 72 Lakh)'

- Envisioned Project Impact : Point of use online sensors for coliforms monitoring have huge potential in smart water and wastewater management and supply of safe drinking water in Har Ghar Jal program
- Project end beneficiary(s) – Urban and rural population
- Project partners – Dr Meenu Chhabra JCKIC IITJ PI, Dr Sakshi Dhanekar (Co-PI), and team

| S. No. | Milestone                                                                                                        | Timeline          | Present status                                               |
|--------|------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------|
| 1      | Sensor fabrication and development; Sensor characterization and output optimization, Smart phone app development | Dec 2021-May 2022 | First instalment of funding yet to be received from DDWS JJM |
| 2      | Sensor distribution and installation; On-line sensors coupling with IoT devices; Performance evaluation          | Jun 2022-Nov 2022 | Already planned as per milestone.                            |

## Project 4 – Outcomes and Dependencies 'Point-of-use and in-line coliforms sensors for smart water management'

| S. No. | Measurable Outcomes / Success Metrics                                                                            | Progress made against imperative                                                             |
|--------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| 1      | Sensor fabrication and development; Sensor characterization and output optimization, Smart phone app development | Project sanctioned and approved by DDWS JJM. First instalment of funding yet to be received. |
| 2      | Sensor distribution and installation; On-line sensors coupling with IoT devices; Performance evaluation          | As above                                                                                     |

| S. No. | Dependencies / Success Imperatives | Any Support needed                                 |
|--------|------------------------------------|----------------------------------------------------|
| 1      | Total funding required INR 72 Lakh | Funding raised through DDWS JJM                    |
| 2      | Key partners JCKIC IITJ            | Key partners on-boarded from different Departments |

### Details of Project 5 'Source apportionment study, Emission Inventory and Carrying capacity for Kota City, Rajasthan (Project Cost: INR 115 Lakh)'

- Envisioned Project Impact : Technical report on the project will be made available publically and provide directions to the regulatory authorities to design and implement pollution control strategies and policies
- Project end beneficiary(s) – Kota City (Rajasthan)
- Project partners – Dr Deepika Bhattu JCKIC IITJ PI, Prof Pradip Tewari (Co-PI), Dr Anand Plappally, Dr Ranju Mohan and Dr Vikky Anand (Co-PIs)

| S. No. | Milestone                                                                | Timeline          | Present status                                                             |
|--------|--------------------------------------------------------------------------|-------------------|----------------------------------------------------------------------------|
| 1      | MOU signing, Selection of sampling sites, Initiation of Monitoring       | Nov 2021-Apr 2022 | MOU has been signed. Discussion for selection of sampling sites initiated. |
| 2      | Quality Monitoring, Data Collection at different sites at different time | May 2022-Oct 2022 | Already planned as per milestone.                                          |
| 3      | Data Analysis, Report Writing and Recommendations                        | Nov 2022-Apr 2022 | Already planned as per milestone                                           |

### Project 5 – Outcomes and Dependencies 'Source apportionment study, Emission Inventory and Carrying capacity for Kota City, Rajasthan'

| S. No. | Measurable Outcomes / Success Metrics                                                 | Progress made against imperative                               |
|--------|---------------------------------------------------------------------------------------|----------------------------------------------------------------|
| 1      | MOU Signing, Quality Monitoring, Data Collection at different sites at different time | Project sanctioned and approved by RSPCB. MOU has been signed. |
| 2      | Data Analysis, Report Writing and Recommendations                                     | Planned as per Milestone                                       |

| S. No. | Dependencies / Success Imperatives  | Any Support needed                                                                    |
|--------|-------------------------------------|---------------------------------------------------------------------------------------|
| 1      | Total funding required INR 115 Lakh | Funding raised through RSPCB.                                                         |
| 2      | Key partners JCKIC IITJ             | Key partners on-boarded from Departments of C&I, Chemical and Mechanical Engineering. |

### Details of Project 6: 'Smart Graded -Water Supply Grid (Project Cost: INR 198 Lakh)'

- Envisioned Project Impact : Demonstrate a Smart Graded-Water Supply Grid of 1 MLD capacity in the IIT Jodhpur campus and optimally utilize the capabilities of locally available water and energy resources and deliver graded water supply; thus establishing a demonstrated concept of AIoT enabled smart water management
- Project end beneficiary(s) – Urban and rural areas
- Project partners – Dr Shobhana (PI), Dr Suchetana, Dr Abhilasha, Dr Anand Plappally, Prof Pradip Tewari from JCKIC-IITJ and Mr Marc Birkett (Fraunhofer) and team

| S. No. | Milestone                                             | Timeline    | Present status                                         |
|--------|-------------------------------------------------------|-------------|--------------------------------------------------------|
| 1      | Baseline mapping, system design, concept development  | First Year  | Initial work is taken up through inhouse seed funding. |
| 2      | Implementation of Treatment Option, AIoT Architecture | Second Year | Funding needed                                         |
| 3      | Testing, Commissioning and Performance Evaluation     | Third Year  | Funding needed                                         |

### Project 6 – Outcomes and Dependencies 'Smart Graded -Water Supply Grid'

| S. No. | Measurable Outcomes / Success Metrics                  | Progress made against imperative                    |
|--------|--------------------------------------------------------|-----------------------------------------------------|
| 1      | Baseline mapping, system design, concept development   | Work initiated with inhouse seed funding from IITJ. |
| 2      | Implementation of Treatment Options, AIoT Architecture | Funding needed                                      |
| 3      | Testing, Commissioning and Performance Evaluation      | Funding needed                                      |

| S. No. | Dependencies / Success Imperatives    | Any Support needed                   |
|--------|---------------------------------------|--------------------------------------|
| 1      | Total funding required (INR 198 Lakh) | Funding needed. O/o PSA may support. |
| 2      | Key partners                          | Fraunhofer (Germany) on board        |

### Details of Project 7: 'Advanced Wastewater Treatment at Sangaria CETP, Jodhpur (Project Cost: INR 225 Lakh)'

- Envisioned Project Impact : Design and demonstration of a pilot plant test unit with recycle and reuse keeping sustainability aspects
- Project end beneficiary(s) – Industries and society
- Project partners – Dr Abhilasha Maheshwari (PI), Dr Vikky Anand, Prof Pradip K Tewari JCKIC IITJ and Mr Marc Birkett (Fraunhofer) and Team

| S. No. | Milestone                                                                                                                                                                            | Timeline    | Present status |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|
| 1      | Study and review the conventional treatment technique adopted by the CETP for the textile effluent and steel rolling mill effluent; characterization of different type of wastewater | First Year  | Funding needed |
| 2      | Designing the advanced wastewater treatment pilot plant of 50 Kilo-Litres per Day (KLD) capacity with the objective of recycling and reusing the treated wastewater                  | Second Year | Funding needed |
| 3      | installation of the pilot plant, testing and commissioning. Rigorous experiments and performance analysis                                                                            | Third Year  | Funding needed |

### Project 7 – Outcomes and Dependencies 'Advanced Wastewater Treatment at Sangaria CETP, Jodhpur'

| S. No. | Measurable Outcomes / Success Metrics                                                                                                                                                | Progress made against imperative                                                                                                                                                    |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Study and review the conventional treatment technique adopted by the CETP for the textile effluent and steel rolling mill effluent; characterization of different type of wastewater | Workshop organised by JCKIC IITJ and Fraunhofer on Advanced Wastewater Treatment for CETP Sangaria was conducted on 28/10/2021 to discuss the issue involving all the stakeholders. |
| 2      | Designing the advanced wastewater treatment pilot plant of 50 Kilo-Litres per Day (KLD) capacity with the objective of recycling and reusing the treated wastewater                  | Funding needed                                                                                                                                                                      |
| 3      | installation of the pilot plant, testing and commissioning. Rigorous experiments and performance analysis                                                                            | Funding needed                                                                                                                                                                      |
| S. No. | Dependencies / Success Imperatives                                                                                                                                                   | Any Support needed                                                                                                                                                                  |
| 1      | Total funding required (INR 225 Lakh)                                                                                                                                                | Funding needed. O/o PSA may support.                                                                                                                                                |
| 2      | Key partners                                                                                                                                                                         | Fraunhofer (Germany) on board                                                                                                                                                       |

## Details of Project 8: Live identification of non-conformance of traffic rules from Surveillance Videos using Computer Vision Techniques

- Envisioned Project Impact : Awareness for traffic rules leading to safer roads.
- Project end beneficiary(s) – Police, Citizens, City Administration
- Project partners – IIT Jodhpur, Jodhpur Traffic Police, Kritikal Solutions

| S. No. | Milestone                                    | Timeline    | Present status                                                                                                                                                |
|--------|----------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Detecting different traffic rule violations. | First year  | We have already worked on the number plate detection and recognition module, and Crosswalk detection. Other violations are targeted in the proposed timeline. |
| 2      | System integration and optimization          | Second year | Planned                                                                                                                                                       |
| 3      | Pilot and handover to the Police             | Third year  | Planned                                                                                                                                                       |

## Project 8: Outcomes and Dependencies

### Live identification of non-conformance of traffic rules from Surveillance Videos using Computer Vision Techniques

| S. No. | Measurable Outcomes / Success Metrics   | Progress made against imperative |
|--------|-----------------------------------------|----------------------------------|
| 1      | License plate detection and recognition | Done                             |
| 2      | Crosswalk detection and violation       | In progress                      |
| 3      | Helmetless detection                    | In progress                      |

| S. No. | Dependencies / Success Imperatives                 | Any Support needed                          |
|--------|----------------------------------------------------|---------------------------------------------|
| 1      | Total funding required                             | Funding yet to be raised                    |
| 2      | Key partners needed (Govt./industry/international) | Key partners on-boarded                     |
| 3      | Data acquisition                                   | MoU signed and first round of data obtained |

## Details of Project 9: Traffic and travel management

- Envisioned Project Impact : To empower the city administration to take enhance policy decisions and ensure smooth traffic management as well as planning
- Project end beneficiary(s) – Jodhpur Development Authority, Citizens
- Project partners – DOIT, JNN, JDA, and Jodhpur Traffic Police

| S. No. | Milestone                                                   | Timeline    | Present status                                                                                                                                                                                                                                                                                           |
|--------|-------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Understanding the study area and data collection            | First Year  | Based on the available data, traffic simulation of the busiest road of Jodhpur was performed. Parameters like Network geometry, turning volumes, relative flow ,vehicle types and classes, desired speed, reduced speed for each vehicle class, driving behaviors, pedestrian types under consideration. |
| 2      | Traffic flow model for the network                          | Second Year | Ongoing                                                                                                                                                                                                                                                                                                  |
| 3      | Scenario analysis of traffic and travel management measures | Third Year  | Planned                                                                                                                                                                                                                                                                                                  |

## Project 9 – Outcomes and Dependencies Traffic and travel management

| S. No. | Measurable Outcomes / Success Metrics                                                                                  | Progress made against imperative |
|--------|------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| 1      | Traffic simulation of one of the busiest junctions in Jodhpur                                                          | Done                             |
| 2      | Development of novel algorithm for understanding traffic flow from surveillance data                                   | Ongoing                          |
| 3      | To develop and implement algorithms for real-time signal control in the selected corridor/network.                     | Planned                          |
| 4      | To develop and implement models for analysis of specific transportation strategies on traffic patterns in the network. | Planned                          |

| S. No. | Dependencies / Success Imperatives                 | Any Support needed                                 |
|--------|----------------------------------------------------|----------------------------------------------------|
| 1      | Total funding required                             | Funding yet to be raised (seed funding from JCKIC) |
| 2      | Key partners needed (Govt./industry/international) | Key partners on-boarded                            |
| 3      | Data acquisition                                   | MoU signed and first round of data obtained        |

## Details of Project 10 : Camera Tampering Detection

- Envisioned Project Impact : Better Surveillance.
- Project end beneficiary(s) – Police, Citizens, City Administration
- Project partners – IIT Jodhpur, Jodhpur Traffic Police, Kritikal Solutions

| S. No. | Milestone                                                                               | Timeline    | Present status                                                               |
|--------|-----------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------|
| 1      | Design and development of algorithms for Benchmark datasets                             | First year  | In house algorithms are developed and tested on publicly available datasets. |
| 2      | Deploy pilot project at small scale for feedback and identification of potential issues | Second Year | Co-development with industry                                                 |
| 3      | System integration and Handover                                                         | Third Year  | Planned                                                                      |

## Project 10 – Outcomes and Dependencies Camera Tampering Detection

| S. No. | Measurable Outcomes / Success Metrics                         | Progress made against imperative |
|--------|---------------------------------------------------------------|----------------------------------|
| 1      | Prototype algorithm development on publicly available dataset | Done                             |
| 2      | Improvement of the algorithm performance                      | In progress                      |
| 3      | Real-world dataset creation and algorithm tuning              | To be done                       |

| S. No. | Dependencies / Success Imperatives                 | Any Support needed                                                                                                            |
|--------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 1      | Project funding                                    | Project proposal prepared to be submitted for funding to Ministry of Housing and Urban affairs (under Urban transport Scheme) |
| 2      | Key partners needed (Govt./industry/international) | Key partner(s) identified, MoU to be signed                                                                                   |
| 3      | Data acquisition                                   | MoU signed and first round of data obtained                                                                                   |

## Project 11: Development of Potential Therapeutic Leads for Duchenne Muscular Dystrophy for Clinical Trial

- **Envisioned Project Impact:**
  - To promote India centric affordable drug for this rare genetic disease
  - To promote social awareness about the disease
  - To develop general therapeutic solutions for multiple version of DMD patients
- **Project end beneficiary(s)** – Patients suffering from DMD Disease
- **Project partners:**
  - **Partnering Organization: DST-SERB, India**
  - **PI:** Dr. Surajit Ghosh, Professor, Department of Bioscience and Bioengineering & Dean R&D IIT Jodhpur
  - **Team:** Professor Kuldip Singh (AIIMS Jodhpur), Dr. Varuna Vyas (AIIMS Jodhpur), Dr. Arun Shastri (DART Bangalore), Dr. Sudipta Bhattacharyya (IITJ), Dr. Nirmal Kumar Rana (IIT Jodhpur), Dr. Dibyendu K Sasmal (IITJ)

## Project 11: Development of Potential Therapeutic Leads for Duchenne Muscular Dystrophy for Clinical Trial

| S. No | Milestone                             | Timeline               | Present status                                                                                                                                    |
|-------|---------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Setting up of Physical Infrastructure | Month Year (July 2021) | <ul style="list-style-type: none"> <li>• Lab furniture procurement started</li> <li>• Refurbishment of physical infrastructure started</li> </ul> |
| 2     | Appointment of Project Staffs         | Month Year (June 2020) | <ul style="list-style-type: none"> <li>• RA, Project Assistant Appointed</li> </ul>                                                               |
| 3     | Social Awareness Programmes           | Continuous             | Awareness Programme conducted in September 2021 with 15 Family and Patients                                                                       |

## Project 11: Development of Potential Therapeutic Leads for Duchenne Muscular Dystrophy for Clinical Trial

### Outcomes and Dependencies

| S. No. | Measurable Outcomes / Success Metrics                                                                                                                              | Progress made against imperative             |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| 1      | Objective 1: To develop molecular agonists for biogenesis of utrophin for Phase II/III clinical trial                                                              | Therapeutic leads Development is in progress |
| 2      | Objective 2: To restore dystrophin function through exon skipping by cell-penetrating antisense oligonucleotides and its clinical validation                       | Development is in progress                   |
| 3      | Objective 3: To develop engineered peptide antagonists for Vb2-CD8+ cytotoxic T-cell receptors to stop T-cell mediated cytotoxicity against diseased muscle cells. | Will be initiated soon                       |

| S. No. | Dependencies / Success Imperatives                 | Any Support needed                                                                                                                          |
|--------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Total funding required                             | Funding of Rs 4.6 Cr received from SERB India, <b>Additional 2 Crores Fund Required to Build-up a state of the art Physiotherapy Centre</b> |
| 2      | Key partners needed (Govt./industry/international) | <ul style="list-style-type: none"> <li>• AIIMS Jodhpur</li> <li>• Local Hospitals</li> </ul>                                                |

## Project 12: Outcomes and Dependencies

### AIOT based Bed Occupancy Detection in a Hospital Setup

| S. No. | Measurable Outcomes / Success Metrics | Progress made against imperative     |
|--------|---------------------------------------|--------------------------------------|
| 1      | Development of sensing unit           | Successfully developed               |
| 2      | Web dashboard development             | Successfully developed, running Live |
| 3      | Scaling Up                            | In Progress                          |

| S. No. | Dependencies / Success Imperatives | Any Support needed      |
|--------|------------------------------------|-------------------------|
| 1      | Total funding INR 10 Lakhs         | Funding through JCKIC   |
| 2      | Key partners MDM Hospital, Jodhpur | Key partners on-boarded |

### Details of Project 13:

#### Development of Low Cost Oxygen Concentrator for Domestic Use

- Envisioned Project Impact : Cost reduction of the portable O<sub>2</sub> concentrator
- Project end beneficiary(s) – Patients with breathing problems
- Project partners – IIT Jodhpur
- PI and team – Prof. P K Tiwari, Head, Chemical Engineering, IIT Jodhpur, Dr. Anil K Tiwari, and five other faculty members from Chemical Engineering, Mechanical Engineering

| S. No. | Milestone                                                                        | Timeline                    | Present status                                                                                                                                                                                                                 |
|--------|----------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Study of cost and features of various types of available portable O <sub>2</sub> | Month Year (August 2021)    | Typical cost of such concentrator is Rs. 60,000 and can provide O <sub>2</sub> concentration up to 93% and flow rate is about 6 liters/min                                                                                     |
| 2      | Multiples cylinders based O <sub>2</sub> concentrator                            | Month Year (July 2022)      | Round robin order of switching development                                                                                                                                                                                     |
| 3      | Adsorption material development                                                  | Month Year (e.g. July 2023) | Different quality of Zeolite material gives different O <sub>2</sub> concentration for given flow rate and switching mechanism. A right combination of material and switching strategies will provide a cost effective system. |

Project proposal is submitted in SERB - funding required 30 Lakhs

Industry partner needed - Outcome of initial discussion with the local industry is encouraging

### Details of Project 14

#### 14.1 Camel and bat phenomics guided bioengineering: Design prospecting & bioinspired solutions

- Envisioned Project Impact : < Phenomics guided novel design and components; its application in bioengineering for holistic and sustainable human and ecosystem development using camels and bats as models. >
- Project end beneficiary(s) – < Agriculture, dairy industries, Pharmaceutical and healthcare industry, automation and robot industry, Local inhabitants, Policy makers.>
- Project partners – Indian Institute of Technology, Jodhpur; ICAR-National Research Centre on Camel, Bikaner, Zoological Survey of India, Dau Lal Bohra, Seth G B Podar College, Nawalgadh , Mitali Mukerji (IITJ), Shankar Manoharan (IITJ) Indraneel Banerji (IITJ) Ajay Agrawal (IITJ), Jayant Mohanty (IITJ)

| S. No. | Milestone                                                                                       | Timeline          | Present status                                                                            |
|--------|-------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------------|
| 1      | To establish a phenotypic catalogue of bat diversity, with details of geographical distribution | Aug- Nov 2021     | Collaborations established with potential partners, stakeholders and respective expertise |
| 2      | Understand mobility and adaptation in camel breeds in varied ecoregions of Thar.                | Nov 2021-Jan 2022 | Literature review, workplan and methodology in progress                                   |

## Project 14.1 – Outcomes and Dependencies

| S. No. | Measurable Outcomes / Success Metrics                                                            | Progress made against imperative                |
|--------|--------------------------------------------------------------------------------------------------|-------------------------------------------------|
| 1      | <Database of bat species diversity from Thar region and identifying the endemicity and adaptaion | <collaborated with experts and other resources> |
| 2      | Approach ICAR-NRCC for phenotypic and genotypic data on different camel breeds of Thar           | Funding needed                                  |

| S. No. | Dependencies / Success Imperatives                            | Any Support needed                          |
|--------|---------------------------------------------------------------|---------------------------------------------|
| 1      | Total funding required: Rs. 20 Lakhs                          | Funding needed                              |
| 2      | Key partners needed (Govt./industry/international) JCKIC IITJ | ICAR-NRCC, IITJ, ZSI, GB Podar college, ZSI |
| 3      | Others as applicable                                          | as applicable                               |

Please continue similar format for subsequent projects and follow the order of the summaries

## Details of Project 14.2: Inspirations From Principles and Practices from Ayurveda for Desert Medicine: Implications for Precision Health

- **Envisioned Project Impact** : Uncovering therapeutic and diagnostic potential of desert medicinal plants used in Ayurveda for network based precision medicine.
- **Project end beneficiary(s)** – Health Industries, Policy Makers, Conservation ecologists, Natural flora of Thar desert
- **Project partners** – Prof. Mitali Mukerji, IITJ; Dr. Sudipta Bhattacharyya, IITJ, Dr. Raviraj Vankayala, IITJ; Dr. Indranil Banerjee, IITJ; Dr. Rohan Erande, IITJ; Dr. Prasenjeet Tribhuban, IITJ; Prof. Chandan Singh, SRRAU, Prof. Premprakash Vyas, SRRAU; Dr. Manoj Arora, SRRAU.

| S. No. | Milestones                                                                                                                                                                                                                                                     | Timeline | Present status         |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|
| 1      | <ul style="list-style-type: none"> <li>• Identification of Thar desert specific medicinal plants/herbs practiced as Ayurvedic medicine and their secondary metabolites</li> <li>• Drug target identification of the screened secondary metabolites.</li> </ul> | Year 1   | Funding Support Needed |
| 2      | <ul style="list-style-type: none"> <li>• Synthesis of targeted secondary metabolites</li> <li>• In vitro biochemical/biophysical validation of drug target/secondary metabolites interaction</li> </ul>                                                        | Year 2   | Funding Support Needed |
| 3      | <ul style="list-style-type: none"> <li>• Disease specific cell line based validation of drug efficiency/toxicity analysis of the identified secondary metabolites</li> </ul>                                                                                   | Year 3   | Funding Support Needed |

## Project 14.2 – Outcomes and Dependencies

| S. No. | Measurable Outcomes / Success Metrics                                                                                                                     | Progress made against imperative                                                                            |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| 1      | Identification of Thar desert medicinal plants/herbs used in Ayurvedic medicines and identification of their potential therapeutic targets                | Brainstorming activities and key research partner finding exercises are underway.<br>Funding Support Needed |
| 2      | Synthesis of identified plant secondary metabolites and in vitro validation of their target binding efficiency                                            | Not initiated (Funding Needed)                                                                              |
| 3      | Druggability, Toxicity and emergence of drug resistance analysis of the synthesized secondary metabolites in solo or combination cocktail administrations | Not initiated (Funding Needed)                                                                              |

| S. No. | Dependencies / Success Imperatives                           | Any Support needed      |
|--------|--------------------------------------------------------------|-------------------------|
| 1      | Total funding required: INR 25 Lakhs                         | Funding support needed  |
| 2      | Key partners needed: Key partners from IITJ, JCKIC and SRRAU | Key partners on-boarded |

### Details of Project 14.3: Biological soil crusts of the Thar desert: Metagenomic insights for bioprospecting, design principles, conservation and restoration

- Envisioned Project Impact : Conservation, restoration of and bioprospecting from biological soil crusts of the Thar ecosystem
- Project end beneficiary(s) – Thar desert environment and associated flora & fauna
- Project partners – Dr. Shankar Manoharan, IITJ; Dr. Anand Krishnan Plapally, IITJ; Dr Debanjan Roy (IITJ) Dr. Narsingh Chauhan, MD University, Rohtak, Pranay Lal, Pradip Krishen

| S. No. | Milestone                                                                                                                                  | Timeline   | Present status         |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------|
| 1      | Remote sensing imagery & drone imagery based identification & classification of biological soil crusts in selected sites                   | Year 1     | Funding support needed |
| 2      | Monitor biological soil crusts in selected locations in a seasonal / temporal manner for human interferences                               | Year 2     | Funding support needed |
| 3      | Metagenomic analysis of the structure and function of the biological soil crust community for bioprospecting, conservation and restoration | Year 2 & 3 | Funding support needed |

## Project 14.3 – Outcomes and Dependencies

| S. No. | Measurable Outcomes / Success Metrics                                                                                                     | Progress made against imperative                                  |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1      | Develop framework for detection and monitoring of biological soil crusts using remote sensing and drone imagery-based data                | Funding support needed                                            |
| 2      | Assess impact of human interferences (tourism, mining etc.) on biological soil crusts of the Thar ecoregion                               | Funding support needed                                            |
| 3      | Bioprospect processes, microbes, metabolites and materials with unique properties from the biological soil crust for diverse applications | Funding support needed                                            |
| S. No. | Dependencies / Success Imperatives                                                                                                        | Any Support needed                                                |
| 1      | Total funding required (INR 25 Lakhs)                                                                                                     | Funding support needed                                            |
| 2      | Key partners from JCKIC, IITJ                                                                                                             | Key partners on-boarded from different Departments and Institutes |

## Details of Project 14.4 Citizen science for the Thar ecosystem: A pilot study at IIT Jodhpur

- Envisioned Project Impact : < Animal re-identification, grazing habit determination, population count, community detection and behavior analysis, 3D Modeling for health monitoring and real time monitoring of essentials, like drinking water, soil availability of food and suitability (like quality, temperature etc.) of ecological parameters>
- Project end beneficiary(s) – < Sustainable campus of IITJ and Guidelines and Policy makers.>
- Project partners – Indian Institute of Technology, Jodhpur, Zoological Survey of India. Suchetana Chakraborty (IITJ), ZSI

| S. No. | Milestone                                                                                  | Timeline | Present status |
|--------|--------------------------------------------------------------------------------------------|----------|----------------|
| 1      | Establishing an AIOT based architecture for wildlife conservation and restoration          | -        | In progress    |
| 2      | Designing a sustainable strategy for mutual co-existence of wildlife and local communities | -        | In progress    |

## Project 14.4 – Outcomes and Dependencies

| S. No. | Measurable Outcomes / Success Metrics                                             | Progress made against imperative                                           |
|--------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 1      | A case study for wildlife conservation and restoration at IITJ campus             | <work-plan formulated>                                                     |
| 2      | A digital archive to generate the knowledge base on local wildlife at IITJ campus | Mobile application developed for citizen science initiative at IIT Jodhpur |

| S. No. | Dependencies / Success Imperatives                            | Any Support needed |
|--------|---------------------------------------------------------------|--------------------|
| 1      | Total funding required: Rs. 20 Lakhs                          | Funding needed     |
| 2      | Key partners needed (Govt./industry/international) JCKIC IITJ | IITJ, ZSI          |
| 3      | Others as applicable                                          | as applicable      |

**Thank You**