

Memorandum of Understanding (MoU)

for

**Technical Collaboration for taking up
Joint Research & Development and Operational Activities**

between

Jai Narain Vyas (JNV) University, Jodhpur

and

**Regional Remote Sensing Centre-West (RRSC-W), Jodhpur
National Remote Sensing Centre (NRSC), ISRO, Dept. of Space**

Signed on this day _____ of May, 2018

<p>Registrar Jai Narain Vyas (JNV) University Residency Road Jodhpur-342011, Rajasthan</p>	<p>Chief General Manager National Remote Sensing Centre (NRSC) ISRO, Dept. of Space, GOI Hyderabad – 500 037</p>
---	---

Memorandum of Understanding

1. PREAMBLE

This Memorandum of Understanding (MoU) is between *Regional Remote Sensing Centre-West (RRSC-W), Jodhpur*, National Remote Sensing Centre (NRSC), ISRO and *Jai Narain Vyas (JNV) University, Jodhpur & its affiliated colleges* with an aim to have partnership for taking up R&D and operational activities in the field of remote sensing applications, mobile apps, Decision Support Systems using GIS modeling, satellite data processing, image classification, data analytics etc.

1.1 Regional Remote Sensing Centre-West (RRSC-W), Jodhpur

Regional Remote Sensing Centre under National Remote Sensing Centre, Hyderabad has prime responsibility of satellite data processing, dissemination and developing applications in the field of remote sensing and GIS. RRSC-W/NRSC caters the need of north western states of the country through applications of geospatial technologies for natural resources management. This regional centre has temporal coverage of various natural resources, the satellite data and wealth of services from these resources. It has acquired large volumes of remote sensing data that may throw new light on how Earth system works, and opens up new challenges in processing, information extraction and mining of this big data to uncover the hidden patterns on earth processes. There is a strong need to develop scalable and efficient algorithms for knowledge extraction from these data sets. Specifically due to these reasons, RRSC-W/NRSC look forward to collaborate in broader research & development and application areas in image processing, data mining, geospatial applications, software engineering and social media.

1.2 Jai Narain Vyas (JNV) University, Jodhpur

Jai Narain Vyas University, formerly known as University of Jodhpur, was established in 1962. It has the onus of transforming life of people of western Rajasthan in particular and western part of the country in general through quality education and programmes of socioeconomic and scientific development. Western Rajasthan has unique geography, geology, history, culture, heritage and environment, fauna and flora. Various aspects have been incorporated in the university curricula to study these assets, and to preserve as well as promote for sustainable development. The university strives to play an important role to study these natural resources, environment as well as biodiversity of this area through implementation of different types of academic and R & D programmes.

Partnership of JNV University, Jodhpur and RRSC-W/NRSC, Jodhpur would go a long way in supporting of geospatial governance through content creation, therefore in consideration of terms and conditions contained herein the parties hereto agree as follows:

2. PARTIES

2.1 Indenting party:

Jai Narain Vyas University, Jodhpur, hereinafter called **JNV University, Jodhpur**.

2.2 Executing party:

Regional Remote Sensing Centre-West, Jodhpur/National Remote Sensing Centre (NRSC), ISRO, Dept. of Space, Govt. of India, hereinafter called as **RRSC-W/NRSC**.

3. AUTHORIZED SIGNATORY

Jai Narain Vyas University, Jodhpur (**JNV University, Jodhpur**) & its affiliated colleges represented by Registrar, (Hereinafter referred to as the **First Party**), and

Regional Remote Sensing Centre-West, Jodhpur/National Remote Sensing Centre (NRSC), ISRO, Department of Space, Government of India, (**RRSC-W/NRSC**) represented by General Manager (Hereinafter referred to as the **Second Party**). The Chief General Manager, National Remote Sensing Centre (NRSC) ISRO, Dept. of Space, GOI, Hyderabad – 500 037 who manages the activities of RRSC-W, Jodhpur will be the authorized signatory.

4. FUNCTIONARIES AND CONTACT ADDRESSES, PHONE, EMAIL

4.1. JNV University , Jodhpur:

Sl. No	Name	Contact Address	Phone / Fax	Email
1	Prof. R. P. Singh	Vice Chancellor Jai Narain Vyas University Residency Road Jodhpur – 342 011	0291-2649465	vcjnvu@gmail.com
2	Prof. P. K. Sharma	Registrar, Jai Narain Vyas University Residency Road Jodhpur – 342 011	0291-2649733	jnvuregistrar1962@gmail.com
3	Prof. S. C. Mathur	Convener, Dept. of Geology Jai Narain Vyas University Residency Road Jodhpur – 342 011	0291-2721947	sureshsushma09@gmail.com

4.2. RRSC-W/NRSC, Jodhpur

Sl.No.	Name	Contact Address	Phone / Fax	Email
1	Dr. S. Srinivasa Rao	General Manager RRSC (West), NRSC/ISRO CAZRI Campus Jodhpur – 342 003	0291-2660801	sitiraju@gmail.com
2	Dr. A. K. Bera	Head Applications RRSC (West), NRSC/ISRO CAZRI Campus Jodhpur – 342 003	0291-2660804	abera70@gmail.com
3	Er. Suparn Pathak	Scientist/Engr. `SG` RRSC (West), NRSC/ISRO CAZRI Campus Jodhpur – 342 003	0291-2660824	s_pathak@hotmail.com
4	Dr. B. K. Bhadra	Scientist/Engr. `SG` RRSC (West), NRSC/ISRO CAZRI Campus Jodhpur – 342 003	0291-2660806	bkbhadra63@gmail.com

All correspondence on day to day matters during the course of the project shall be between respective focal points identified in the above table.

5. EFFECTIVE DATE

5.1. Commencement:

This effective date for the commencement of this MoU will be the date of signing of the MoU by RRSC-W/NRSC and JNV University, Jodhpur.

5.2. Duration:

This MoU is valid for a period of 5 years from the date of signing of MoU; and will be extended by mutual consent of the parties in writing.

6. SCOPE OF THE WORK

In light of National Space Meet on “Promoting Space Technology based Tools and Applications in Governance & Development” in New Delhi on 07 September 2015, there is tremendous boost for geospatial technology applications in all ministries at Central and State level. NRSC, ISRO has taken up large number of projects in addition to its own programmes. Hence, collaboration with academic institutions is envisaged to sustain R&D activities and fulfill operational commitments. The activities proposed to be taken-up under this agreement shall have a separate project proposal, wherever financial aspects are involved. Amount, payment conditions, etc. would be spelt out clearly before starting the project activity.

Possible areas of R&D activities may include development, management and conservation of natural resources, environment, ecology, agriculture and allied fields using geospatial technologies, data analytics, mobile application development, geo-tagging, image processing and GIS analysis.

RRSC-W/NRSC and JNV University, Jodhpur recognize their strengths in research and education in disciplines of science and engineering, and their mutual interest in engaging themselves in academic cooperation. Therefore, both parties agree to establish a programme for academic cooperation in areas of mutual interest, and in accordance with terms and conditions set forth in this memorandum of understanding (MoU).

RRSC-W/NRSC and JNV University, Jodhpur agreed on:

- *Joint Research Projects* - Both the parties will permit research activities and joint research projects that can be undertaken in the fields of common interest.
- *Knowledge Sharing* - To exchange information on research and educational programmes.
- *Dissemination of Knowledge* - To jointly organize seminars, conferences, or workshops on topics of mutual interest, and to disseminate of knowledge in the fields of common interest.
- *Utilization of Academic Infrastructure* – Both RRSC-W/NRSC and JNV University will encourage the use of image processing and laboratory facilities whenever necessary. However, this will be subjected to the availability of the facility and approval from the concerned Head of the Department and/or the competent authority.

- *Ph.D. Programme –*
 - JNV University will allow Scientist/Engineer, Junior/Senior Research Fellows, Research Associates, Project Scientists working at RRSC-W/NRSC, Jodhpur to register for doctoral programme in the pertinent Faculty of Science/Arts/Engineering/ Management/Commerce/Law, etc. Research work will be jointly supervised by the scientists of RRSC-W/NRSC and faculty of JNV University. Registered Ph.D. candidate will comply with the rules and guidelines of the JNV University for Ph.D. programme.
 - RRSC-W/NRSC will allow registered Ph.D. students of JNV University at RRSC-W/NRSC for pursuing mandatory course work as well as thesis work as per Ph.D. regulations of JNV University. Research work will be jointly supervised by the scientist of RRSC-W/NRSC and faculty of JNVU.

7. METHODOLOGY

The technical specifications and methodology of the projects to be taken up will be addressed separately.

8. DELIVERABLES AND GUIDELINES ON DATA / MAP SECURITY

8.1. Deliverables

As per project specifications

8.2. Data Security

Data security as per prevailing Remote Sensing Data Policy would be adhered to. Necessary steps would be taken from both the parties to ensure the data security. In addition, Bhuvan platform would provide necessary infrastructure for ensuring the security of data.

8.3. Guidelines on Data / Map Security

As per prevailing Remote sensing data policy and any other prevailing policies of Government of India relating to the data and maps.

8.4 Working Place

As per the satellite data licensing and security guidelines, the project work will be executed at the campus of RRSC-W/NRSC, Jodhpur.

9. TECHNICAL SPECIFICATIONS:

The required specifications will be given in Standard Operating Procedure of the Project proposal separately.

10. APPLICABLE DOCUMENTS

- A. Remote Sensing Data Policy
- B. Project specific Standard Operating Procedure

11. RESPONSIBILITIES OF EACH PARTY

11.1. RRSC-W/NRSC, Jodhpur:

- RRSC-W/NRSC will collaborate with JNV University, Jodhpur for project specific requirements on case by case basis.
- Execution of modules/components of the ongoing projects of RRSC-W/NRSC through Graduate/Post Graduate students.
- Organizing workshops and conferences together with the expertise of RRSC-W/NRSC scientists related to geospatial technology domains to train, educate and improve understanding of students and staff.
- RRSC-W/NRSC will allow the technical visits of students per its existing policies to provide them with an exposure to various equipment, instrument, processes etc.
- Joint guidance of student projects/thesis in Remote Sensing, GIS & IT based activities
- Collaboration in Research areas of interest to ISRO at JNV University, Jodhpur and RRSC-W/NRSC on mutually agreeable terms.
- RRSC-W/NRSC will allow registered Ph.D. students of JNV University at RRSC-W/NRSC for pursuing mandatory course work as well as thesis work as per the Ph.D. regulations of JNV University. Research work will be jointly supervised by the scientists of RRSC-W/NRSC and faculty of JNV University. Joint guidance of student projects/thesis in GIS & IT based activities.

11.2. JNVU, Jodhpur:

- JNV University will allow Scientist/Engineer, Junior/Senior Research Fellows, Research Associates, Project Scientists working at RRSC-W/NRSC, Jodhpur to register for doctoral programme in the pertinent Faculty of Science/Arts/Engineering/Management/Commerce/Law, subject to availability of seat and the merit of status of the candidate as per Ph.D. regulation of JNV University.
- Research work will be jointly supervised by the scientists of RRSC-W and faculty of JNVUniversity.
- JNV University, Jodhpur takes the responsibility to fulfill the project needs and goals defined as per the specific projects taken up in collaboration with the RRSC-W/NRSC.
- Within its capabilities, the institute will try their utmost best to combine the expertise of different disciplines available in the institute in order to come up with outcomes in the research and development areas of interest withRRSC-W/NRSC. Hereby, they ensure the integral and interdisciplinary approach which is required to cope with its complexity.

12. PROJECT SCHEDULE

As per specific project proposal

13. SCHEDULE OF INSTALLATION, SUPPLY AND ACCEPTANCE TEST

As per specific project proposal

14. CONSIDERATION / SCHEDULE OF PRICES

As per specific project proposal

15. FUNDING & TERMS AND CONDITIONS OF PAYMENT

Financial arrangements for each specific collaboration will be decided on a case-to-case basis and brought on record in each case after due approval from heads of both the Institutions.

16. TRAINING

Project specific training programme will be organized, if required.

17. WARRANTY

As agreed in the project by JNVU, Jodhpur and RRSC-W/NRSC.

18. PROJECT MONITORING

The collaborative program between RRSC-W/NRSC and JNV University, Jodhpur shall be coordinated by a coordination committee appointed by Directors / Authorized signatory of both the parties.

19. CONFIDENTIALITY

The confidentiality of the data / documents or any other materials shall be maintained by both the parties as per the sensitivity defined to it by any prevailing policies.

20. INTELLECTUAL PROPERTY RIGHTS

- The originals of any reports and documents or materials prepared or inventions or information produced as a result of the services and all intellectual property rights therein, unless otherwise specifically stated in the MoU, shall remain with both the parties and either party can commercially exploit the specific IP with permission from the other.
- RRSC-W/NRSC and JNV University, Jodhpur reciprocally guarantee that all technical information and data generated under this MoU shall be treated as confidential and shall not be divulged by either party without prior written consent of the other even after the expiry of this MoU.
- If the outcome of a project related to product development, process technology and design etc. which involves matter of secrecy and concern with security of the State and the Country, the same will not be allowed for publication / printing in any form such as Electronically / verbal, etc. If the outcome of a project results into an intellectual property, for which rights can be secured, it will be decided on case to case basis. Similarly, sharing of expenditure in securing such rights and income accrued through royalty etc. by the parties under the law will be decided on case to case basis after mutual consultation.
- Research supervisors from both the Institutes will be the corresponding authors in any publication resulting from the collaborative work. All the efforts put by the student(s) as a part of this MoU will be accounted for by way of reporting the work in thesis and / or paper publication except the part for which IPR needs be claimed.
- Neither of the supervisors shall publish the work carried out under this MoU without knowledge of the other.

21. CHANGE IN SCOPE OF WORK

Any change in scope of work would be with mutual consent of both the parties.

22. MODIFICATIONS

Any further modifications to this MoU, if required, would be through amendments with mutual consent in writing.

23. FORCE MAJEURE

Neither party shall be held responsible for non-fulfillment of their respective obligation under the agreement due to exigency of one or more of the unforeseen events such as but not limited to Acts of God, war, flood, earthquake, cyclones, strikes, lockouts, epidemics, riots, civil commotion etc. provided on the occurrence and cessation of such events, they effected thereby shall give notice in writing to other party within one month of such occurrence or cessation. If the force-majeure conditions continue beyond six months, the parties shall then mutually decide about the future course of action.

24. INDEMNITY

JNV University and RRSC-W/NRSC shall exercise reasonable skill, care and diligence in the performance of the agreement and indemnify and keep indemnified each other in respect of any loss, damage or claim howsoever arising out of or related to breach of contract, statutory duty or negligence by any of their employees, agents or sub-contractors in relation to the performance or otherwise of the services to be provided under this agreement.

JNV University and RRSC-W/NRSC will indemnify and keep indemnified each other in respect of any loss, damage or claim whatsoever arising out of the use of data hosted by them through the Bhuvan Node server.

25. ARBITRATION

- (i) In the event of any dispute or difference between the parties hereto, such disputes or differences shall be resolved amicably by mutual consultation. If such resolution is not possible, then unresolved dispute or differences shall be referred to arbitration of one of the arbitrators to be appointed by the Director at NRSC, Hyderabad. The venue of such arbitration shall be at Hyderabad. The language of arbitration proceedings shall be English. The arbitrator shall make a reasoned award (the "Award") which shall be final and binding on the parties. The cost of the arbitration shall be shared equally by the parties to the MoU. However, expenses incurred by each party in connection with preparation, presentation should be borne by the parties itself.
- (ii) Pending the submission of and/or decision on a dispute, difference or claim or until the arbitral award is published; the Parties shall continue to perform all of their obligations under this Contract without prejudice to a final adjustment in accordance with such award.

26. JURISDICTION

Place where any dispute arising out by MoU or its terms shall be subject to Hyderabad only.

27. TERMINATION

During the tenure of the agreement, either Party may terminate and nullify this Agreement/MoU by providing prior written notice of 30 days to the other party for any of the reasons - Cause/Convenience/Force Majeure

27.1 Termination for Convenience: For convenience without assigning any reason

27.2 Termination for Cause: For the breach of obligations/responsibilities/conditions of this agreement by the other party, with an opportunity to cure/rectify such a situation within thirty (30) days to the defaulting party and no remedial action is taken to the satisfaction of the aggrieved party.


27.3 Termination for Force Majeure: in the event of "Force Majeure" as defined in this MoU.

27.4 Obligations upon Termination

Following termination or expiration of this Agreement, in addition to any other obligations existing hereunder or otherwise at law or in equity,

- (a) The rights and obligations of the parties thereto shall be settled by mutual discussion; the financial settlement if any shall take into consideration not only the expenditure incurred but also the expenditure committed by the parties hereto.
- (b) The agreement arrived at between the parties hereto for the utilization of the intellectual property (defined in clause #20) shall survive the termination of the agreement.
- (c) Termination shall not affect the projects/ assignments agreed to be undertaken by both the parties before such termination and both the parties should complete such projects/ assignments as if this MoU is in operation.
- (d) On termination, the Partner Institute shall handover the data and disk which were used for processing to the NRSC.

IN WITNESS WHEREOF, the Parties hereto have caused this MoU to be signed in their respective names on this ___ day of May, 2018

<p style="text-align: center;">Registrar Jai Narain Vyas (JNV) University Residency Road Jodhpur – 342 011</p> <p>(Seal)</p>	<p style="text-align: center;"> Chief General Manager National Remote Sensing Centre (NRSC) ISRO, Dept. of Space, GOI Hyderabad – 500 037</p> <p style="text-align: center;">(उदय राज/Uday Raj) मु. महाप्रबंधक-क्षे.के., एनआरएससी CGM (RCs), NRSC</p> <p>(Seal)</p>
<p>Witness:</p> <p>1. Name: Address:.....</p> <p>2. Name: Address:.....</p>	<p>Witness:</p> <p>1. Name: Address:.....</p> <p>2. Name:..... Address:.....</p>