



**RFD**

**Results-Framework Document**

**For**

**Sardar Swaran Singh National Institute of Renewable Energy,  
Kapurthala-144601 (Punjab)**

**(An Autonomous Institution of Ministry of New & Renewable Energy, Govt. of India, New Delhi)**

**(2014-2015)**

## **SECTION 1:**

### **Vision, Mission, Objectives and Functions**

#### **VISION:**

- To become an apex Institution for carrying out **state-of-the-art** research and developmental activities in the area of bio-energy.

#### **MISSION:**

- To be a knowledge based R&D Institution of high quality and dedication.
- To impart the training to professionals of bio-energy sector
- To provide the services and optimum solutions for the major stakeholders across the entire spectrum of the bio-energy sector.
- To support bio-energy sector in developing the knowledge for promoting new technologies.
- To develop Human Resources for the bio-energy sector at all levels.

#### **OBJECTIVES:**

- To carry out and facilitate research, design, development, testing, standardization and technology demonstration eventually leading to commercialization of RD&D output with a focus on:
  - a. Bioenergy, biofuels and synthetic fuels in solid, liquid and gaseous forms for transportation, portable and stationary applications; and
  - b. Development of new technologies for effective utilization of different type of wastes and production of value added products
- To undertake and facilitate human resource development and training including doctoral and post-doctoral research in the area of bio-energy.
- To create facilities for operationalization of the Institute.

## **FUNCTIONS:**

- Conduct resource surveys and Assessment of potential across the country in the bioenergy sector.
- In-house R&D programmes in all emerging fields of bioenergy.
- Joint technical programmes with other national institutions and testing centres.
- Testing and certification of devices and systems.
- Techno-economic evaluation of bioenergy equipments and systems.
- Creating data base for bioenergy including information on patents.
- Compilation and dissemination of information on resources, technologies, products and applications.
- Providing technical support to industry on new product design and development and upgradation of products and manufacturing processes.
- Providing technical support to the biomass energy project in achieving and sustaining quality such that systems of highest quality and reliability are installed.
- Organization of training programmes, seminars and workshops.
- Cooperation with scientific and technical Institutions abroad under bilateral and multilateral agreements and MoU.
- Assistance in curriculum development in renewable energy and undertaking concrete programmes for human resource development.
- Consultancy and advisory services in the bioenergy sector.
- Providing technical support to MNRE in policy planning and implementation.
- Cookstove dissemination projects through Carbon Financing (CDM).
- Information, Communication and Education (ICE).

**SECTION 2: Inter se Priorities among Key Objectives, Success indicators and Targets**

| S. No. | Objective  | Weight | Actions  | Success indicator | Unit            | Weight     | Target/Criteria Value |           |      |      |      |
|--------|--|--------|--|-------------------|-----------------|------------|-----------------------|-----------|------|------|------|
|        |  |        |  |                   |                 |            | Excellent             | Very Good | Good | Fair | Poor |
|        |  |        |  |                   |                 |            | 100%                  | 90%       | 80%  | 70%  | 60%  |
| 1      | To carry out and facilitate research, design, development, testing, standardization and technology demonstration eventually leading to commercialization of RD&D output with a focus on:<br>a. Bioenergy, biofuels and synthetic fuels in solid, liquid and gaseous forms for transportation, portable and stationary applications; and<br>b. Development of new technologies for effective utilization of different type of wastes and production of value added products | 31     | Implementation of R&D projects for carrying out research in solid, liquid & gaseous biofuels                       | 4                 | No. of projects | 10         | 4                     | 3         | 2    | 1    | -    |
|        |  |        | Implementation of R&D projects for development of technology for effective utilization of different type of wastes | 1                 | No. of projects | 3          | 1                     | -         | -    | -    | -    |
|        |  |        | Setting-up of testing centre   | 1                 | No. of centres  | 3          | 1                     | -         | -    | -    | -    |
|        |  |        | Setting up R&D-cum-Technology Demonstration plants   | 2                 | Nos.            | 6          | 2                     | 1         | -    | -    | -    |
|        |  |        | Research paper/ Book chapter/ Book Publications  | 10                | Nos.            | 6          | 10                    | 9         | 8    | 7    | 6    |
|        |  |        | Plantation of Bio-energy trees/plants/crops  | 500               | No. of plants   | 3          | 500                   | 450       | 400  | 350  | 300  |
|        |  |        |  |                   |                 | <b>31%</b> |                       |           |      |      |      |

| S. No. | Objective  | Weight | Actions  | Success indicator | Unit                    | Weight     | Target/Criteria Value |           |      |      |      |
|--------|--|--------|--|-------------------|-------------------------|------------|-----------------------|-----------|------|------|------|
|        |  |        |  |                   |                         |            | Excellent             | Very Good | Good | Fair | Poor |
|        |  |        |  |                   |                         |            | 100%                  | 90%       | 80%  | 70%  | 60%  |
| 2      | To undertake and facilitate human resource development and training including doctoral and post-doctoral research in the area of bio-energy. | 28     | JRF/SRF/PDF/PA under Institutional Fellowship and R&D Projects                     | 10                | Nos.                    | 8          | 10                    | 9         | 8    | 7    | 6    |
|        |  |        | Project Training to Masters & Ph.D. students from other Institutions/ Universities | 8                 | Nos.                    | 6          | 8                     | 7         | 6    | 5    | 4    |
|        |  |        | Outsourced manpower for carrying out R&D and Administrative activities             | 10                | Nos.                    | 6          | 10                    | 9         | 8    | 7    | 6    |
|        |  |        | Organization of Conference/ Workshop/ Training programmes                          | 4                 | Nos.                    | 8          | 4                     | 3         | 2    | 1    | -    |
|        |  |        |  |                   |                         | <b>28%</b> |                       |           |      |      |      |
| 3      | To create facilities for operationalization of the Institute.  | 28     | Furnishing of building blocks  | 2                 | No. of blocks           | 3          | 2                     | 1         | -    | -    | -    |
|        |  |        | Setting-up of Laboratories facility  | 10                | No. of equipment        | 7          | 10                    | 9         | 8    | 7    | 6    |
|        |  |        | Setting-up of Library facility   | 100               | No. of books & journals | 6          | 100                   | 90        | 80   | 70   | 60   |
|        |  |        | Setting-up of computer and internet facility                                       | 10                | No. of computers        | 6          | 10                    | 9         | 8    | 7    | 6    |
|        |  |        | MoU with other Institutions/Universities   | 4                 | No. of MoUs             | 6          | 4                     | 3         | 2    | 1    | -    |
|        |  |        |  |                   |                         | <b>28%</b> |                       |           |      |      |      |

### Mandatory Success Indicators

Each RFD must contain the following indicators to promote enhanced and sustainable organisational performance levels.

| S. No.              | Objective   | Actions  | Success indicator                              | Unit | Weight     | Target/Criteria Value |              |              |              |              |
|---------------------|---|--|--|------|------------|-----------------------|--------------|--------------|--------------|--------------|
|                     |   |  |  |      |            | Excellent             | Very Good    | Good         | Fair         | Poor         |
|                     |   |  |  |      |            | 100%                  | 90%          | 80%          | 70%          | 60%          |
| 4                   | Efficient functioning of the RFD System                                   | Timely submission of Draft RFD (2014-15) for approval  | On-time submission                             | Date | 2          | May 15, 2014          | May 16, 2014 | May 19, 2014 | May 20, 2014 | May 21, 2014 |
|                     |   | Timely submission of Results for RFD (2013-14)   | On-time submission                             | Date | 1          | May 1, 2014           | May 2, 2014  | May 5, 2014  | May 6, 2014  | May 7, 2014  |
| 5                   | Enhanced Transparency / Improved Service delivery of Ministry/ Department | Rating from Independent Audit of implementation of Citizens' / Clients' Charter (CCC)                                      | Degree of implementation of commitments in CCC | %    | 2          | 100                   | 95           | 90           | 85           | 80           |
|                     |   | Independent Audit of implementation of Grievance Redress Management (GRM) system   | Degree of success in implementing GRM          | %    | 1          | 100                   | 95           | 90           | 85           | 80           |
| 6                   | Administrative Reforms  | Update organizational strategy to align with revised priorities  | Date   | Date | 2          | Nov 1, 2014           | Nov. 2, 2014 | Nov 3, 2014  | Nov 4, 2014  | Nov 5, 2014  |
|                     |   | Implementation of agreed milestones of approved Mitigating Strategies for Reduction of potential risk of corruption (MSC). | % of Implementation                            | %    | 1          | 100                   | 90           | 80           | 70           | 60           |
|                     |   | Implementation of agreed milestones for ISO 9001   | % of implementation                            | %    | 2          | 100                   | 95           | 90           | 85           | 80           |
|                     |   | Implementation of milestones of approved Innovation Action Plans (IAPs).   | % of implementation                            | %    | 2          | 100                   | 90           | 80           | 70           | 60           |
| <b>TOTAL WEIGHT</b> |   |  |  |      | <b>13%</b> |                       |              |              |              |              |

**SECTION 3:  
Trend Values of the Success Indicators**

| S. No. | Objective  | Actions  | Success Indicator | Unit            | Actual Value for FY 12/13 | Actual Value for FY 13/14 | Target Value for FY 14/15 | Projected Value for FY 15/16 | Projected Value for FY 16/17 |
|--------|--|--|-------------------|-----------------|---------------------------|---------------------------|---------------------------|------------------------------|------------------------------|
| 1      | To carry out and facilitate research, design, development, testing, standardization and technology demonstration eventually leading to commercialization of RD&D output with a focus on:<br><br>a. Bioenergy, biofuels and synthetic fuels in solid, liquid and gaseous forms for transportation, portable and stationary applications; and<br><br>b. Development of new technologies for effective utilization of different type of wastes and production of value added products | Implementation of R&D projects for carrying out research in solid, liquid & gaseous biofuels                       | 4                 | No. of projects | 3                         | 3                         | 3                         | 4                            | 5                            |
|        |  | Implementation of R&D projects for development of technology for effective utilization of different type of wastes | 1                 | No. of projects | -                         | 1                         | 1                         | 2                            | 2                            |
|        |  | Setting-up of testing centre   | 1                 | No. of centres  | -                         | -                         | 1                         | 2                            | 2                            |
|        |  | Setting up R&D-cum-Technology Demonstration plants   | 2                 | Nos.            | 1                         | 0                         | 1                         | 2                            | 2                            |
|        |  | Research paper/ Book chapter/ Book Publications  | 10                | Nos.            | 5                         | 8                         | 9                         | 10                           | 12                           |
|        |  | Plantation of Bio-energy trees/plants/crops  | 500               | No. of plants   | 1,000                     | 600                       | 450                       | 500                          | 500                          |

| S. No. | Objective  | Actions  | Success Indicator | Unit                    | Actual Value for FY 12/13 | Actual Value for FY 13/14 | Target Value for FY 14/15 | Projected Value for FY 15/16 | Projected Value for FY 16/17 |
|--------|--|--|-------------------|-------------------------|---------------------------|---------------------------|---------------------------|------------------------------|------------------------------|
| 2      | To undertake and facilitate human resource development and training including doctoral and post-doctoral research in the area of bio-energy. | JRF/SRF/PDF/PA under Institutional Fellowship and R&D Projects                     | 10                | Nos.                    | 7                         | 8                         | 9                         | 15                           | 20                           |
|        |  | Project Training to Masters & Ph.D. students from other Institutions/ Universities | 8                 | Nos.                    | 6                         | 6                         | 7                         | 10                           | 12                           |
|        |  | Outsourced manpower for carrying out R&D and Administrative activities             | 10                | Nos.                    | 20                        | 13                        | 9                         | 15                           | 20                           |
|        |  | Organization of Conference/ Workshop/ Training programmes                          | 4                 | Nos.                    | 5                         | 4                         | 3                         | 6                            | 8                            |
| 3      | To create facilities for operationalization of the Institute.  | Furnishing of building blocks  | 2                 | No. of blocks           | 3                         | 4                         | 1                         | 2                            | -                            |
|        |  | Setting-up of Laboratories facility  | 10                | No. of equipment        | 20                        | 21                        | 9                         | 10                           | 10                           |
|        |  | Setting-up of Library facility   | 100               | No. of books & journals | 100                       | 100                       | 90                        | 100                          | 100                          |
|        |  | Setting-up of computer and internet facility                                       | 10                | No. of computers        | 20                        | 16                        | 9                         | 10                           | 10                           |
|        |  | MoU with other Institutions/Universities   | 4                 | No. of MoUs             | 3                         | 0                         | 3                         | 2                            | 2                            |



## SECTION 4:

### Description and Definition of Success Indicators and Proposed Measurement Methodology

| S.No. | Success Indicator  | Definition  | Proposed Measurement Methodology   |
|-------|--|---|--|
| 1     | Implementation of R&D projects for carrying out research in solid, liquid & gaseous biofuels                       | Formulation and submission of projects for funding and its execution after funding to the funding agencies such as MNRE, DST, DBT, CSIR, etc. for carrying out research activities for development of process for biofuels in solid, liquid and gaseous forms for transportation, portable and stationary applications                            | Literature survey & identification of problem and preparation of R&D projects  |
| 2     | Implementation of R&D projects for development of technology for effective utilization of different type of wastes | Formulation and submission of projects for funding to the funding agencies such as MNRE, DST, DBT, CSIR, etc. and its execution after funding for carrying out research activities for development of technology for processing of different type of wastes including kitchen, industrial, agricultural, municipal, etc. to convert into biofuels | Literature survey & identification of problem and preparation of R&D projects  |
| 3     | Setting-up of testing centre   | Setting-up of testing centres for cook stoves, biomass gasifier, biogas, biodiesel, etc.  | Setting-up and maintenance of testing centre   |
| 4     | Setting up R&D-cum-Technology Demonstration plants   | Installation of R&D based demonstration plant such as biogas production from kitchen waste, manure, crop residue, etc.; Biomass based gasifiers, briquetting, cookstoves, etc.  | Installation/Design/Fabrication of Plants and its demonstration to end users   |
| 5     | Research paper/ Book chapter/ Book Publications  | Publication of research articles in Journals with impact factor 2.0 or above, book chapters and books published with reputed publishers   | Publication of research work carried out at the Institute  |
| 6     | Plantation of Bio-energy trees/plants/crops  | Plantation of various energy plants inside the campus   | Plantation of energy plants to get raw materials for energy production and R&D purpose   |
| 7     | JRF/SRF/PDF/PA under Institutional Fellowship and R&D Projects   | Appointment of Junior Research Fellow (JRF), Senior Research Fellow (SRF), Postdoctoral Fellow (PDF) and Project Assistant (PA) for carrying out research activities  | Registration of Research Fellows under project and SSS-NIRE Bioenergy Promotion Fellowship leading to Ph.D. in Academic Institutions/Universities and Postdoctoral studies |

|    |  |   |  |
|----|--|---|--|
|    |  |   | under R&D project and SSS-NIRE Bioenergy Promotion Fellowship  |
| 8  | Project Training to Masters & Ph.D. students from other Institutions/ Universities | Research projects to Masters Dissertation and Doctoral Thesis   | M.Tech./M.Sc. Dissertation and Ph.D. thesis projects for students from other Institutions/Universities |
| 9  | Outsourced manpower for carrying out R&D and Administrative activities             | Supporting technical and administrative staff such as Lab, Library and Computer Facilitators, Office attendant, Assistant to Admin, Purchase, Hindi section, Horticulture, RTI, Legal matters & Accounts          | Numbers of supporting staff according to requirement   |
| 10 | Organization of Conference/ Workshop/ Training programmes                          | National/International Conference, Training/Workshop to officers, NGOs and Scientific persons, students in Bioenergy Technologies   | Sharing of knowledge through nos. of conferences/workshops/training                                    |
| 11 | Furnishing of building blocks  | Furnishing of R&Ds, Library, Computer Centre, Conference Room, Workshop, Guest House, Hostel  | Procurement and installation of furniture and fixtures   |
| 12 | Setting-up of Laboratories facility  | Procurement of laboratory equipments  | Preparation of specifications, market survey and procurement of equipments as per GFR                  |
| 13 | Setting-up of Library facility   | Procurement of scientific/technical/ administrative/informative Books and subscription of Journals  | Procurement of books and subscription of journals  |
| 14 | Setting-up of computer and internet facility                                       | Procurement of computers and other accessories  | Procurement of computers and installation of networking  |
| 15 | MoU with other Institutions/Universities   | Memorandum of understanding with other Institutions and/or Universities for carrying out collaborative research, sharing of knowledge, manpower, research facilities etc., facilitation for registration in Ph.D. | Signing of document for MoU  |

**SECTION 5:**  
**Specific Performance Requirements from other Departments**

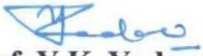
The performance under various programmes is critically dependent on other Departments/ Organisations as mentioned below:

- Funding of R&D projects from various funding agencies such as MNRE, DST, DBT, CSIR, etc.
- MNRE, Ministry of Finance, CPWD
- Academic Institutions/University such as NIT, Jalandhar, PTU, Jalandhar and Punjab University, Chandigarh for Ph.D. registration of Research Fellows
- Masters and Research Scholars from Academic Institutions/University for carrying out research work for fulfilment of dissertation/thesis
- Testing and validation to stakeholders/end users from various fields such as biomass gasifiers, cookstoves, biogas, etc.

**SECTION 6:**  
**Outcome/ Impact of activities of Organization**

| S. No. | Outcome/ Impact of Organization/ RCs                        | Jointly responsible for influencing this outcome/ impact with the following Organization(s)/ Departments/ Ministry(ies) | Success Indicator(s)           | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|--------|---|---|--------------------------------|---------|---------|---------|---------|---------|
| 1      | R&D projects  | MNRE  | 4 nos. of projects             | 0       | 2       | 2       | 4       | 6       |
| 2      | Setting-up of testing centre                                | MNRE  | 1 no. of testing centre        | 0       | 0       | 1       | 2       | 2       |
| 3      | Setting up R&D-cum-Technology Demonstration plants          | SSS-NIRE  | 2 nos. of demonstration plants | 0       | 2       | 2       | 2       | 2       |
| 4      | Research paper/ Book chapter/ Book Publications             | SSS-NIRE  | 10 nos. of Publications        | 5       | 6       | 8       | 10      | 12      |
| 5      | M.Tech./Ph.D/JRF/ SRF/PDF                                   | NIT, Jalandhar; LPU, Thapar Univesity, Patiala; BCET; MNRE  | 8                              | 10      | 10      | 10      | 10      | 12      |
| 6      | Organization of seminar & workshops and training programmes | SSS-NIRE  | 4                              | 5       | 4       | 4       | 6       | 8       |
| 7      | Setting-up of Laboratories facility                         | SSS-NIRE  | 3 nos. of R&D laboratories     | 2       | 1       | -       | -       | -       |
| 8      | Setting-up of Library facility                              | SSS-NIRE  | 100 nos. of books/journals     | 100     | 100     | 100     | 100     | 100     |
| 9      | MoU with other Institutions/Universities                    | Other Institutions and Universities   | 4 nos.                         | 3       | 0       | 4       | 2       | 2       |

**Place: Kapurthala**  
**Date: May 2, 2014**

  
**Prof. Y.K. Yadav** 2/05/2014  
**Director, SSS-NIRE**