

Ministry of New and Renewable Energy seeks information on Research and Development accomplishments in renewable energy in India

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Since its inception, the Ministry of New and Renewable Energy (MNRE) has been undertaking research and development activities through budgetary support. In addition, extramural projects in renewable energy are also being supported by agencies other than MNRE, such as Department of Secondary and Higher Education, Indian Council for Agricultural Research, Department of Science and Technology (DST), Defence Research & Development Organization (DRDO) and Department of Bio-Technology (DBT). R&D support in renewables has resulted in achievements in many areas. Putting biomass on technology ladder for various applications, technologies for bio CNG, development of a number of solar technologies, industry driven hydrogen energy research are some of the shining examples. However, India's research and development accomplishment is not cited in a manner, as it deserves and has not been presented in a consolidated manner.

2. MNRE has initiated an exercise for developing a compendium of India's research accomplishments in renewable energy area. Five areas viz, solar PV, solar thermal, wind energy, biomass energy and new technologies are proposed to be covered. The Ministry has written directly to institutions and organizations directly involved in renewable energy research to provide inputs regarding their achievements. In order to ensure that the information is exhaustive and representative of the research accomplishments of the country, it is proposed to seek inputs from all individuals, institutions and organizations who have contributed in renewable energy research.

3. In view of the above, we request all those who have contributed in renewable energy research and have not been approached individually by the Ministry, to provide inputs in the enclosed format. In addition to information as sought in the enclosed format, other inputs as you consider important would be welcome. This will not only help us in correctly reflecting contributions, but will also help in shaping research and development roadmap for renewables in India.

4. In order to coordinate the study, a core group has been constituted in the Ministry. The information may be sent to any one of the core group member on the following coordinate:-

- i. Shri Anubhav Uppal, email: anubhav.mnre@gov.in, ph: 9868262681
- ii. Shri Dipesh Pherwani, email: dipesh.mnre@gov.in, ph: 9560999291
- iii. Shri Manish Singh Bisht, email: manish.mnre@gov.in, ph: 9891415280
- iv. Dr. Rahul Rawat, email: rahul.mnre@gov.in, ph: 9910210424

In case of any difficulty/clarification any one of the core group member, as above, may be contacted.

5. Considering that the study report is scheduled to be finalized by 2nd week August 2017, we seek inputs by 3rd week July 2017.

Date: _____

R&D REVIEW QUESTIONNAIRE

Name:	Designation:	Institution/Organization:
Email:	Mobile:	
Type of Organization:	<input type="checkbox"/> Academic institution <input type="checkbox"/> Research laboratory <input type="checkbox"/> Industry (Project Developer/ EPC /Manufacturer)	
	<input type="checkbox"/> Any other (please specify) _____	

Research in Renewables			
<i>I. Based on your work in last 5 years or more, the work you had been carrying please identify yourself with one of the following broad groups in the renewable energy sector</i>			
<input type="checkbox"/> Solar PV	<input type="checkbox"/> Biomass Energy	<input type="checkbox"/> Small Hydro power	<input type="checkbox"/> Ocean Energy
<input type="checkbox"/> Solar Thermal	<input type="checkbox"/> Biogas	<input type="checkbox"/> Geo Thermal Energy	<input type="checkbox"/> Energy Storage
<input type="checkbox"/> Wind Energy	<input type="checkbox"/> Hydrogen Energy	<input type="checkbox"/> Biofuels	<input type="checkbox"/> Any Other (please specify) _____
<i>II. The information about R&D projects sponsored or co-sponsored for which you are /were the Principal Investigator or Co-Investigator is to be provided as per the pro-forma at Annexure 1. (Fill separate pro-forma for each project)</i>			
<i>III. The additional information about R&D activities being performed may be provided as per pro-forma at Annexure 2 (optional)</i>			

Note:-

- a) Please complete the questionnaire yourself
- b) In case you feel other person's inputs from your organisation would be useful, please ask them to fill up the questionnaire.

Pro forma for achievements of R&D Projects

(Please use separate sheets for each project)

A) Information regarding R&D project(s) sponsored or co-sponsored for which you are /were the Principal Investigator or Co-Investigator as per the format below (Please use additional sheets if required)		
Title of Project		
Funding Agency		
Financial Outlay (optional)		
Duration		
Type of R&D Undertaken	<input type="checkbox"/> Applied research	<input type="checkbox"/> Basic research
	<input type="checkbox"/> Development/Demonstration	<input type="checkbox"/> Resource and market assessment
	<input type="checkbox"/> Any Other (Please specify) _____	
<i>Please refer to Definition of Types of Research and Development Activity provided at Annexure 3</i>		
Project Outcome(s)	<input type="checkbox"/> Product Development	<input type="checkbox"/> Process Development
	<input type="checkbox"/> Software Development	<input type="checkbox"/> Indigenization
		<input type="checkbox"/> Patent filed/granted
		<input type="checkbox"/> Cost reduction
B) Please give a brief description of the abovementioned project outcomes (not more than 100 words)		
C) Please highlight the quantifiable achievements of the above project(s)		
	Value	Description
Efficiency Improvement		
Reduced Cost of Installation		
Reduced Cost of Generation		
New		
New Process/innovation/patent		
Automation		
Research Publications	National	
	International	
Others (please specify)		

Pro forma for additional information on R&D Projects

(Please use separate sheets for each project)

<i>I. What is the profile of people working in R&D in your group</i>						
Category	Faculty	Post Doc Fellows	PhD Students	JRF/SRF	PG Students	Any Other
No. of People working in R&D						
<i>II. Number of R&D projects sponsored or co-sponsored for which you are /were the Principal Investigator or Co-Investigator.</i>						
<i>III. Whether you have undertaken collaborative R&D with International Institutions</i>						
<input type="checkbox"/> Yes <input type="checkbox"/> No						
<i>IV. If yes, please indicate how research output was shared between your and international institution</i>						
<i>V. How do your major R&D achievements compare with the international achievement in the field</i>						
<i>VI. Based on your experience, please rate the following factors as per their importance as challenges or enabling factors for goal oriented research in renewables in India</i>						
	Needs Significant Development	Needs Some Development	Neutral	Capable and Effective	Clear Strength	
<i>Skilled human resource</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>Innovation risk</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>Maturity time</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>Market size and structure</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>Access to credit</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>Policies to foster Technology and Innovation</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>System of intellectual property rights</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>VII. Please provide views on overall structure and direction of the research in renewables</i>						

Definition for Types of R&D Activities undertaken

1. Basic Research

Basic research is experimental/theoretical research work undertaken with goal of acquiring new knowledge related to phenomenon/observation without any particular application/use in view. It can be particular oriented or directed towards a general area with the expectation that a broad knowledge would be produced that will form the basis of variety of end products/solutions.

2. Applied Research

Applied Research is research undertaken with goal of developing new technologies with specific aim/particular objective.

3. Development/Demonstration

Development is a systematic work undertaken on the basis of knowledge/experience gained from basic/applied research, directed towards demonstration or production of new products/devices/innovative processes/system/materials/etc. or substantially improving those already in existence.

4. Resource & Market Assessment

This includes activities related to resource assessment & market survey, etc. undertaken in field of renewable energy.

5. Others

This includes all other relevant scientific/technical/commercial activities that are necessary for implementation of new or significantly improved products as well as for maintenance or commercial use of new processes, etc.