CAPP-9

Format for Application for Agri-CRP Projects

1. Title of Platform: **Consortium Research Platform on Conservation Agriculture**

2. Title of the Platform Project: **Conservation agriculture for enhancing the productivity of rice based cropping system in eastern India**

3. Location
   Instituteôs Name: Central Rice Research Institute
   Place: Bidyadharpur
   District: Cuttack
   State: Odisha

4. Principal Investigator (PI)
   Name: Dr. A.K.Nayak
   Designation: Head, Crop Production Division
   Date of Birth: 18/04/1969
   Experience: (Years): more than 15 Years
   Number of important research publications: 70 Nos.

   Co-Principal Investigator (Co-PI)
   Name: Dr. P.Bhattacharyya
   Designation: Principal Scientist
   Date of Birth: 16/06/1973
   Experience: (Years): 12 years
   Number of important research publications: 50 Nos.

   Co-Principal Investigator (Co-PI)
   Name: Dr. Rahul Tripathi
   Designation: Scientist
   Date of Birth: 15/07/1983
   Experience: (Years): 6 years
   Number of important research publications: 30 Nos.

   Co-Principal Investigator (PI)
   Name: B. Lal
   Designation: Scientist, Agronomy, crop production Division
   Date of Birth: 11/05/1983
   Experience: (Years): 4 years
   Number of important research publications: 18

Co-Principal Investigator (PI)
Name: Bipin Bihari Panda
Designation: Senior Scientist
Date of Birth: 04.05.1973
Experience: 11Years
Number of research publications: 33

Co-Principal Investigator (Co-PI)
Name: Dr. Mohammad Shahid
Designation: Scientist
Date of Birth: 13/08/1980
Experience: (Years): 5 years
Number of important research publications: 30 Nos.

Co-Principal Investigator (PI)
Name:Sushmita Munda
Designation:Scientist
Date of Birth:27.02.1983
Experience: (Years)Four years of serving ICAR
Number of Scheme handled:NA
Number of important research publications: 5

Co-Principal Investigator (PI)
Name: Dr. Sanjoy Saha
Designation: Principal Scientist
Date of Birth: February 02, 1966
Experience: 25 Years
Number of research publications: Research articles : 95; Popular articles : 15

Co-Principal Investigator (Co-PI)
Name: Dr. S.K. Mishra
Designation: Principal Scientist
Date of Birth: 06/06/1968
Experience: (Years): 15 years 10 months
Number of important research publications: 40 Nos.

Co-Principal Investigator (Co-PI)
Name: Dr. S.D,Mohapatra
Designation: Senior Scientist
Date of Birth: 10/08/1973
Experience: (Years): 14 years
Number of important research publications: 10

Co-Principal Investigator (Co-PI)
Name: Dr. Prabhat Guru
Designation: Scientist
Date of Birth: -
Experience: (Years): 4 months
Number of important research publications: -

5. *Collaborative Investigator (s) (separate set for each)
Name: _____ (30 Chrs)
Designation: _____ (30 Chrs)
Date of Birth: _____
Experience: _____Years
Number of research publications:
Number of other Research Schemes (being carried out by PI)
Title of Scheme (S) _____ (30 Chrs)
Name of the funding Agency: _____ (30 Chrs)
Period from_____ to _____Grant: _____Rs.

6. *Objectives (in brief):

i. Adapt and mainstream available best bet location specific CA practices for enhanced productivity and profitability in rainfed and irrigated eco-systems
ii. Development and validation of location specific CA technologies for sustainable intensification of cropping systems across agro-ecologies
iii. Quantify impact of CA on soil health, pest dynamics, input use efficiency, carbon sequestration and greenhouse gas emissions
iv. Capacity building, knowledge management, institutional arrangement and enabling policies for accelerated adoption of Conservation Agriculture

7. Practical/Scientific Utility: During the green revolution era, production increase resulted from expansion in area and productivity of rice and wheat. Now, with little addition in available land, future demand has to be met mainly though increases in yield per unit area. The productivity and sustainability of the rice production systems are threatened because of combination of factors such as inefficient use of inputs (fertilizer, water, labor); increasing scarcity of resources, especially water and labor; changes in climate; changes in land use driven by a shortage of water and labor; socioeconomic changes (urbanization, labor migration, changing attitude of people to shun away from farm work) and concern about farm-related pollution. These factors causing yield to stagnate over the past two decades. The challenges are to produce more food at less cost and to improve water productivity and increase nutrient use efficiency. Conservation agriculture (CA) helps to mitigate the effects of climate change with regard to the emission of greenhouse

gases. With the increasing soil organic matter, soils under conservation agriculture can retain carbon and store it safely for long periods of time. There is wide scope in conserving soil organic carbon and reducing green house gas emission to the atmosphere with implementation of proper CA system in rice and rice based cropping system. Efficient CA systems are needed to conserve energy and water resources, reduce green house gas emissions, and improve the quality of life for farm families.

8. *Research work conducted :

In the United States, Australia and Europe, rice is planted into either a dry-seeded or water-seeded system (Gianessi et al., 2002; Ntanos, 2001; Pratley et al., 2004). Direct seeding in saturated soil has been widely adopted in southern Brazil, Chile, Venezuela, Cuba, some Caribbean countries, and in certain areas of Colombia (Fischer and Antigua, 1996). In Asia, dry seeding is extensively practiced in rainfed lowlands, uplands, and flood-prone areas, while wet seeding remains a common practice in irrigated areas (Azmi et al., 2005; de Dios et al., 2005).

Experiments in Northwest India using DSR into non-puddled soils found 35ï 57% water savings (Sharma et al., 2002; Singh et al., 2002). Several challenges confront the wide-scale adoption of CA/RCT by farmers, such as high weed infestation is the major bottleneck in DSR especially in dry field conditions (Harada et al., 1996; Rao et al., 2007). The severity of rice blast increases under water limited conditions (Bonman, 1992; Mackill and Bonman, 1992). Root-knot nematodes have also been observed when switching from flooded to water conservation rice production systems (Prot et al., 1994). The number of sterile spikelets increased, as well as abortive, opaque and chalky kernels in DSR compared with TPR (Farooq et al., 2007, 2009).

9. Technical Programme:
Items of Investigation:

Objectives	Activities	Y-1	Y-2
Obj.1 Adapt and mainstream available best bet location specific CA practices for enhanced productivity and profitability in rainfed and irrigated eco-systems.	1. Synthesis and documentation of the CA based best management practices (BMPs)	ã	ã
	2. Participatory adaptation and up-scaling of CA based BMPs in two locations.	ã	ã
Obj.2 Development and validation of location specific CA technologies for	1.Refinement and development of site specific CA technologies	ã	ã

sustainable intensification of cropping systems across agro-ecologies	2. On station validation of developed CA technologies	ã	ã
Obj.3 Quantify impact of CA on soil health, pest dynamics, input use efficiency, carbon sequestration and greenhouse gas emissions. (On- station exp)	1.The nutrients flow and nutrient budgeting from the resources mobilized within and outside the system	ã	ã
	2.Estimation of carbon sequestration and greenhouse gases (GHG) emissions and Carbon budgeting	ã	ã
	3.Monitoring the changes of soil physical, chemical and biological properties under different treatments	ã	ã
	4. Quantification of yield, yield attributing characters and cost benefit ratio in rice based cropping systems.	ã	ã
Obj.4 Capacity building, knowledge management, institutional arrangement and enabling policies for accelerated adoption of Conservation Agriculture	1.Organizing farmers training programmes.	ã	ã

10. Facilities Available:
    Equipments/instruments/ apparatus: (1) Gas Chromatograph,
    (2) CHN analyser
    (3) AAS, ICP

    Area of experimental fields (hectares)
    Laboratory:
    Other facilities: (1) Experimental farm of CRRI (104 acre)
    (2)Soil physics, chemistry and biology laboratory. (50 Chrs)

11. Additional facilities required:

    Equipment & apparatus:
    (1)Zero till ferti seed drill
    (2) seed cum fertilizer drill
    (3) Zero till multicrop planter
    (4) Mechanical transplanter

12. Duration: July, 2015- March, 2017 (Two years)

*Detailed information with regard to Sr. No. 6, 7, 8 and 9 may be furnished separately as supplementary annexure.

13. Staff Requirements (Scientific, Technical etc.)

Designation of Post: _____ (50 Chrs)
Number of Post: _____ (50 Chrs)
Scale of Pay: _____
Qualification Prescribed: _____ (50 Chrs)

14. Estimation of Costs:

i) Sr. Research Fellows : 2Nos
ii) Other contractual services : As per requirement

Others

15. Recurring and Non-recurring contingencies: Rs. 20 lakhs (details given below)

Recurring and Non-recurring contingencies	**Year-I (2015-16)#**
Capital	
Equipment/ Machinery/ Apparatus/ Misc. items[@]	2.5
Revenue	
Contractual service (SRF 2 & other contractual services)	9.5
TA	1.0
Other recurring contingencies including institutional charges*	7.0
Total	**20.0**

***Institutional charges @10% of RC for lead institute and 5%of RC for cooperating institutes**
 # As per the new BE (2015-16). Original sanctioned total project budget is 63 crore.
[@]Computer/Air Conditioner/ Furniture as per absolute requirement of the budget.

16. Receipts anticipated : 25 Lakhs per year as informed

UNDERTAKING

17. Certified that:

i. The research work proposed in the Platform Project (Consortium Research Project on Coservation Agriculture) does not in any way duplicate the research work already done and being carried out elsewhere on the subject.

ii. The present scheme cannot be combined with any scheme financed by the Council, Central and State Governments, Universities or Private Institution of their own funds.

iii. Necessary financial provision for the platform project will be made in the Institution/ University/ State budget in anticipation of the sanction to the scheme by the council.

iv. We undertake to abide by the guidelines provided by the Council for the implementation of the Platform Project.

Principal Investigator **Signature** 9/6/15

Name

Certified that:

i. Project is in line with the approved mandate of the implanting institute.

ii. Platform Project Investigator/ Co-investigators are competent technically to undertake the project.

iii. Research work will not amount to duplication of efforts and In-house projects, handled by me will not suffer.

iv. Equipment and other infrastructure proposed under the project are either not available with the institute or the available facility cannot be extended to the project activities.

v. Basic facilities such as Telephone/ Fax/ photocopies/Generators etc. will be provided by the implementing agency. However, operational cost for these activities will be met from the institutional charges sanctioned under the scheme.

vi. The cost of equipment and other infrastructure requested for under the project is realistic and based on the prevailing market rates.

vii. Justifications and clear specifications for the equipment and other infrastructure asked for are reflected in the proposal.

viii. For collaborative projects with other institutions, the administrative/ financial/ technical issues related to implementation of the project shall be addressed between the two implementing agencies.

ix. The institutions has already furnished to the ICAR, full accounts and Utilization Certificates in respect of the grants received by it previously, as per the following details:

ICAR's amount	UC & Accounts furnished

Communication of Grant by the Institution and date of (Please indicate the Sanctioning Grant number and date of the communication with which ASAs, etc. are sent)

(1)_____(2)_____(3)

It is certified that the Institution has not received any grant from the ICAR previously.

Date: **Executive Authority of the Institution**