ADAPTATION FUND

PROGRAMME ON INNOVATION:
SMALL GRANTS PROJECTS THROUGH DIRECT ACCESS MODALITY

REQUEST FOR PROJECT FUNDING FROM THE ADAPTATION FUND

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project must be fully prepared when the request is submitted.

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat
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ADAPTATION FUND

PROGRAMME ON INNOVATION: SMALL GRANT PROJECT PROPOSAL

PART I: PROJECT INFORMATION

Country	: India.
Title of the Project	: Promotion of Climate Resilient Agriculture through regenerative and low cost sustainable natural farming techniques and processes.
National Implementing Entity	: National Bank for Agriculture and Rural Development.
Executing Entity/ies	: being identified.
Amount of Financing Requested	: 249,993 US Dollars

Project Background and Context:

Provide brief information on the problem the proposed project is aiming to solve. Outline the economic, social, development and environmental context in which the project would operate.

Indian Agriculture, before introduction of green revolution technologies, was largely based on traditional practices, use of farm grown inputs and locally available resources. Whereas Green Revolution in India was propelled by high cost external inputs such as Hybrid & High Yielding Varieties (HYVs), chemical fertilizers/pesticides and irrigation water. Although the technologies have contributed to quantum jump in productivity, production and food grain self-sufficiency, the saga of success was not without any ill effects. The positive impact was confined to areas and regions which are endowed with irrigation water facility whereas vast tracts of rain fed areas were left uninfluenced, yield boost was limited to few crops viz., rice & wheat only, those farmers who could afford high investments for inputs & technologies only were benefitted. Vast majority of small and marginal farmers could not taste the success of Green Revolution in India. Greater reliance on chemical fertilizers and pesticides for crop production & crop protection has led to degradation of soil quality and affected quality of produce. Impact of bio-magnification of chemical residues affecting human and animal health has been well established. This has necessitated looking for low cost sustainable technologies which can help in ensuring food security without compromising the health of soil, human and animals.

Paramparagat Kheti (Traditional Agriculture) in India – the agricultural heritage

Since the Vedic age (c.1500 – c.500 B.C.E.), farmers in India have been practicing 'paramparagat kheti', a form of agricultural practice which is organic, non-exploitative and totally in harmony with the nature. Environmental sustainability, which involves both intra-generational and inter-generational equity, has been the approach of Indian agriculture for a very long period of time. Traditionally, man, animals, trees (including grass lands) and agricultural fields were inseparable and harmonious components of a single eco-system.

Green Revolution technologies and associated ill effects

With the increase in population, Green Revolution, a resource intensive cultivation technology was introduced in early 1960's which resulted in exponential increase in production and productivity in wheat & rice in India. However, this 'seed-water-fertilizer' technology has been criticized as a technocratic solution with major sustainability concerns especially for small-holder farmers and more particularly in rainfed areas, as indicated in the paragraphs below.

The major sustainability issues (economic, social & environmental) in agriculture relating to Green Revolution are:

i) Excessive & distortive use of Chemical Fertilizers

In the post- Green Revolution period, chemical fertilizer use has seen rapid expansion and intensification in India. The average consumption of fertilizers in India rose from 105.5 kg per ha in 2005-06 to 128.34 kg per ha in 2012-13.A common belief is that the ideal balance among N, P and K in India is 4: 2: 1. In 2012-13, the proportions stood at 8.2:3.2:1.

In this context, it is noteworthy that a recent National Institute of Agricultural Economics and Policy Research (NIAP) study reports that one third of the major States apply excess Nitrogenous fertilizers. The study finds similar regional imbalances in the use of Phosphorous and Potassic fertilizers.

(ii)Excessive Use of Pesticides

Although in per hectare terms pesticide use in India is much lower than in other agriculturally advanced countries, pesticide residues in produce in India have been found to be high. There are at least five reasons for this phenomenon. First, while pesticides are overwhelmingly used to control weeds in the developed countries, they are used to control insects that attack grains, fruits and vegetables in India. Second, chemicals used in India are more dangerous than those used in developed countries. In India, organochloride formulations, which are more dangerous, continue to be used whereas the developed countries have shifted to safer organophosphates and pyrethroids. Third, after being applied, pesticides remain in soil, water or plant for some time before they break down. Farmers often lack knowledge of waiting period of various pesticides. Fourth, The Central Insecticide Board and Registration Committee (CIBRC) regulates pesticide use in India. Farmers often remain unaware of pesticide recommendations of the CIBRC. Farmers are also unaware of the bio-pesticides that currently constitute 4.2% of the total pesticide market in India. Finally, high pesticide residues in Indian food products also result from inadequate access to latest technologies**.**

(iii)Land quality deterioration

Quality of soil has also deteriorated over time due to a combination of factors, such as injudicious use of chemical fertilizers, accumulation of heavy metals and metalloids through various forms of emissions.

(iv)Wasteful use of ground water

Groundwater sources of water accounts for about 60% of the irrigated area. Heavy subsidies in electricity consumed for agriculture have tended to encourage wasteful use of both energy and water leading to alarming depletion of the water table and deterioration of water quality in several regions.

Perils of high yield gaps in rainfed farming

Indian economy is primarily dependent on agriculture, which contributes about 15 percent of the country's GDP and sustain around 50 per cent of the employment. In the existing agriculture ecosystem, rainfed agriculture occupies around 65 percent net sown area, contribute around 40 percent of food grains and supporting 40 percent of the population. India ranks first in rain fed agriculture globally in both area (86 Mha) and the value of produce. Rainfed regions in India contribute substantially toward food grain production including 44% of rice, 87% of coarse cereals such as sorghum (Sorghum bicolor), pearl millet, maize and 85% of food legumes, 72% of oilseeds, 65% of cotton, and 90% of minor millets. Overall, the rain fed areas produce 40% of

the food grains, support two-thirds of the livestock population, and are critical to food security, equity, and sustainability. India is home to 18% of world's population, 15% of the world livestock, whereas its natural resources proportion is only 2.3% of the total worlds geographical area, 4.2% of fresh water resources, 1% of forests, and 0.5% of pasture land. India is home to 25% of the world's hungry population of 1 billion along with an estimated 43% of children malnourished under the age of five. The net sown area in India has remained constant for several years at 141 Mha, but the human and livestock populations have been steadily increasing. Though the Indian population increased from 361 million in 1951 to 1140 million in 2011, tripling over 60 years, the food-grain production has more than quadrupled, but the yield gains are largely from the irrigated agroecosystems. Notwithstanding the increase in average productivity from 0.6 MT ha^{-1} in the 1980s to 1.1 MT ha^{-1} at the present time, large yield gaps exist for rain fed crops in the semiarid regions. Even after realizing the full irrigation potential, nearly 40% of the net sown area of 141 Mha will remain totally rain fed. The per capita availability of land has fallen drastically from 2.4 ha in 1951 to about 0.32 ha in 2001; and it is projected to decline further to 0.09 ha by 2050. Increasing productivity of rain fed cropping systems is therefore of critical importance to meet the food demands of an ever-increasing population in India. The potential productivity of maize (Z. mays) in high rainfall regions under rain fed condition is 8.0 MT ha^{-1} vis-a-vis the national average yield of 2.1 MT ha^{-1}, indicating an unbridged yield gap of 6 MT ha^{-1}. Large yield gaps exist in other crops as well which are primarily grown under rain fed conditions. Besides, rainfed firming is always a gamble with mansoon exposing the farmers to yield risk due to adverse weather and the consequential natural calamities like drought and floods, etc.

Concept of Zero Budget Natural Farming (ZBNF), the proposed adaptation measure in Rainfed regions of the country.

Alternative low-input farming practices have emerged in pockets across the world promising reduced input costs and optimum yields for farmers, chemical-free food for consumers and improved soil fertility. Zero Budget Natural Farming (ZBNF) is one such low-input, climate-resilient, regenerative and sustainable farming that encourages farmers to use low-cost locally-sourced inputs, eliminating the use of artificial fertilizers, industrial pesticides and reducing dependence on hired labour, farm machinery, etc. hereby making it less risky for farmers.

The ZBNF strategy involve various techniques such as 1) Seed treatment (2) Microbial culture preparation (3) Mulching & other techniques. (4) Soil & micro climate.

Seed treatment (Bheejaamritha): There are many preparations that can be made based on farm grown inputs. One ideal formulation for seed treatment is explained below.
Cow dung balls are made and soaked in water overnight. The next morning, the essence of the soaked cow dung is squeezed & extracted in a cloth filter. Then soil, lime juice, cow urine are to be added in definite proportion. This mixture is ready for seed treatment. Seeds are soaked in this mixture for about an hour and then sun dried. The seeds that sink in the bheejaamruth mixture are of best quality and those float on the top are discarded.

Microbial culture preparation (Jeevamritha):
The technique is "to reset nature by using the natural products itself". The microbial culturing or inoculation is meant for re-building the native microbial population for their role in mobilisation of nutrients from soil pool for easy assimilation by plants. Jeevamritha is made of Cow dung and Cow urine. Ghana (solid) jeevamritha is made of cow dung alone whereas Drava jeevamritha is prepared by mixing cow dung and cow urine in definite proportion. Jeevamritha contains all the beneficial microorganisms for plant growth, nitrogen fixation bacteria,

nitrification bacteria, phosphorous solubilising bacteria and other beneficial microorganisms. This preparation also activates earthworms to a great extent. They bring nutrients to the upper soil, make the soil porous and thereby improves the soil structure.

Mulching & Other techniques:

- Soil mulching: Jeevamritha activates the local earthworms which in turn cultivates the soil by moving up and down i.e., the process of inversion.
- Straw mulching: Straw and other crop residues can be added to the soil to increase the quantity of micronutrients and humus formation. Humus is very helpful in holding and storing water absorbed when rain occurs and irrigation water applied.
- Live mulching: The atmosphere contains 76% of Nitrogen. Intercrops like cowpea, pigeon pea, etc., can be planted as they are excellent nitrogen fixing crops. Glyricidia is also known for its high nitrogen fixation capacity. These plants fix nitrogen in the soil free of cost. But, farmers are interested in costly fertilizers which are harmful to the plants, soil and also the humans.

Soil and microclimate:
This is taken care by earthworms, which move from the bottom to upper soil, as a result of application of Jeevamritha. When the above techniques are followed season after season and year after year organic carbon and humus content increases in the soil and soil structure improves so that soil particles (solid), soil moisture(liquid) and soil air(gas) will be in a desired proportion which is highly conducive for plant growth.

Apart from the above mentioned processes, vegetation barriers as wind breaks can also be raised by planting trees like neem, mango, teak, etc., all around the farm, which help in controlling pollution by absorbing the pollutants, thus purifying the air.

Zero Budget Natural Farming is being practiced in only a small pockets in India, primarily through voluntary efforts. ZBNF is being supported as a programme only in one state by the Government of Andhra Pradesh. The formal agricultural Research system in India, comprising of Indian Council of Agricultural Research(ICAR) Agriculture Universities(AUs) hav not so fare validated the system of ZBNF , which is preventing its dissemination and adoption by large number of small holder rainfed farmers, who are experiencing financial distress in commercial farming practices being followed by them. ZBNF is believed to be a potential adaptation for them.

The benefits accruing to the farmers as per the proponents and practitioners are:

i. Low Cost agriculture
ii. Better quality/shelf life of produce
iii. In case of dry spell or moisture stress, farmers are exposed to lesser risks due to better adaptability of practices followed in ZBNF as compared to commercial agriculture.
iv. There is scope of getting better price due to improvement in the quality of the produce due to use of organic inputs.
v. Improvement in Soil Health, soil moisture etc.

As per popular beliefs among farmers, shifting from resource intensive agricultural practices to ZBNF or organic farming would reduce the productivity of farmland in the short run and this has resulted in farmers not being inclined to adopt ZBNF in their small landholdings. However, continuing farming in the business as usual manner will be deteriorating the soil and water quality, increase the farm distress in the changed climate scenario. The negative impact of use of chemical based technologies in agriculture such as deterioration of soil health; air, water & soil pollution; negative impact on health of humans and animals and overall negative impact on environment has been established. There is an emergent need for validation of ZBNF as an adaptive technique and make the farmers aware of the benefits, co-benefits and sustainability aspects of the ZBNF particularly in rainfed farming situations.
Proponents of ZBNF(individuals and CSOs) also claim that ZBNF leads to high carbon sequestrartion in soil due to high organic content, enhances soil moisture, reduces water stress, reduces yield loss, brings resilience in crop against lodging, enhances keeping quality of produce and yields of crops. This, however, needs to be established through independent mechanism before the practice of ZBNF could be advocated to farmers on a large scale.
NITI Ayog, the top most think tank of Govt. of India has also advised various state govts. To make efforts to popularise ZBNF, especially in view of farm distress being experienced by small farmers of rainfed areas. It also called upon agencies to simultaneously validate the ZBNF methodology scientifically.

Project Objectives: *(List the main objectives of the project).*

i. *To enhance adaptive capacity of the vulnerable community to climate change / in rainfed areas*
ii. *To validate Zero Budget Natural Farming (ZBNF) as an innovative adaptation measure.*
iii. *Awareness generation, capacity building of farmers on techniques and process involved in ZBNF*
iv. *Policy advocacy on ZBNF*

Project Components and Financing:

Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets.

Project Components	Project Activities	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
Project Initiation	1. Baseline survey of project area	*Baseline data of productivity, economy of farmland*	*basic information of area and farmland in the area*	*2000*
	2. Inception workshop			*1500*
	3. Stakeholders' consultation			*2000*

Training & Capacity Building of farmers	4. Exposure visit of farmers	*Awareness generation about ZBNF*	*Implementation of ZBNF on field*	*2000*
	5. Training and capacity building of farmers	*Training of 120 farmers on ZBNF*		*6000*
Engagement of farmers in piloting of LBNF/ZBNF	6. Incentive ZBNF experiment on farmers' demo plots- up to one hectare each	*Implementation of ZBNF on field*	*enable farmers to accept the ZBNF*	*27700*
	7. provision for purchase of indigenous cows	*Replacement of fertilizers and pesticides*	*dependency on chemical fertilisers and pesticides will decrease*	*27700*
	8. Shed including flooring			*27700*
	9. Inputs for one cycle i.e. Raw materials such as Panchgavya, leaves and other materials			*5600*
	10. Provision of equipment viz. tubs, buckets and drums, etc.			*9300*
Promotion of Farmers collective & marketing	11. Formation of Producers Organization	*Two FPOs will be formed*	*collectiveness of farmers will help in collective procurement and collective marketing and increase their bargaining power*	*9300*
	12. Market Linkage-both for sale of NPM inputs and farm produce			*9300*
Knowledge Management	13. Documentation	*documentation of field work for validation*		*4500*
	14. Policy Advocacy seminar			*5000*
	15 subtotal			***139600***
Project Facilitation & Validation	16 Engagement of Agri university for validation of ZBNF for 3 years(institutional fee)-10%+5% travel and others		*Validation of ZBNF*	*20940*
	17 Engagement 2 Implementing partners for implementation and hand holding support (manpower cost and travel cost)-10%+5% travel and	*Engagement with farmers at ground level Implementation & validation of ZBNF*		*41880*

	others			
	18 Contingencies and provision for cost inflation	*Baseline data of productivity, economy of farmland*	*basic information of area and farmland in the area*	*7000*
19. PROJECT INTERVENTION COST				209420
20. Project Execution cost(10% of PIC)(To be shared between Executing Entity and Implementing partners)				20942
21. Total Project Cost				230362
22. Project Cycle Management Fee charged by the Implementing Entity @ 8.5% of Total Project Cost				19581
23 Amount of Financing Requested				249943

Projected Calendar:
(Indicate the dates of the following milestones for the proposed project/programme)

Milestones	Expected Dates
Start of Project Implementation	01 April 2019
Project Closing	31 march 2022
Terminal Evaluation	30 May 2022

PART II: PROJECT JUSTIFICATION [1]

A. Describe the project components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience.

As claimed by its proponents, ZBNF enables farmers to adapt to adverse effects of climate change in the following ways:

- **Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters:** Zero budget natural farming techniques have shown initial evidence of improving resilience of farmlands and crops against extreme weather events. During a bout of cyclonic winds in Vishakhapatnam in 2017, anecdotal records of farmers show, that ZBNF paddy withstood the winds and water logging much better than adjacent non-ZBNF paddy fields. This is likely due to the roots going deeper, stems being thicker and other positive transformations in soil structure & texture, under ZBNF practitioners' farms. Educating farmers about the impacts of conventional agriculture done using agricultural chemicals on soil degradation, contamination of soil nutrient pool and burning of crop residues on environment quality contributing to climate change can help facilitate farmers acceptance of regenerative natural farming techniques and

[1] Parts II and III should jointly not exceed 10 pages. Source: report of CEEW on ZBNF and SDGs

processes as an adaptation measure with the co-benefits of mitigation, while building their capacity to tackle climate change related issues.

❷ **End poverty and increase income of farmers**: Crop cutting experiments from 2016 and 2017 indicate that ZBNF farmers in AP have witnessed a sharp decline in input costs, and an improvement in yields. As a result, they earn better net incomes and can raise their disposable incomes. Farmers vulnerable to economic shocks have an important safety net against short-term shocks.

❸ **Achieve food security and improved nutrition:** As a result of increased crop yields, ZBNF farmers may be able to improve food and nutritional security for their families.

❹ **Ensure healthy lives and promote well-being of farmers:** Fertilisers and pesticides have been shown to have adverse impacts on farmers as well as consumers. Farmers are exposed to contaminants when applying chemical inputs to their crops. By replacing such external inputs with locally made natural concoctions, inoculums, and decoctions, the project could help in reducing the incidence of non-communicable diseases such as acute and chronic neurotoxicity, respiratory diseases and even cancer, which are associated with the use and application of inorganic chemicals in agriculture.

❺ **Achieve gender equality and empower women and girls:**
Historically, yield from female-led agricultural plots has been lower than that from male-led plots. But it is not well documented that this gap is primarily the result of unequal access to appropriate, and necessary agricultural inputs. The lower yield of female-headed plots is not a function of their efficiency or agricultural acumen. ZBNF uses only local, non –capital intensive inputs and will promote gender equality in agriculture.

The above results(positive impacts, however needs to eb validated through empirical evidence.

Stage - a). Validation of ZBNF Farming (1st year, 2nd year & 3rd year) – Different rainfall patterns in same area.

Identification of two Unirrigated Blocks or Mandals in Rainfed areas - one each in two districts

I

Identification of Villages (3 Villages per Block) - total 6 Villages

I

Identification of 20 Farmers per Village (60 Farmers per Block or Mandal) – total 120 Farmers

I

Criteria of selection:

– Practicing farmers who have adapted natural farming techniques & processes and who are willing to document the outcome and results shall be selected

–Villages having no irrigation facilities will be preferred for selection

Broad Indicators of Validation: The validating agency will monitor and document the results/ outcomes under various farm situations indicated below.

- Rainfall Patterns during project period.
- Seasons, sowing time of crops, various Crops and Crop Varieties
- Cropping pattern (Mono-cropping, Mixed Cropping, etc.)
- Land preparation or soil Management (use of FYM, Zero tillage, Weed Management, etc.)
- Moisture Management under rainfed conditions (no artificial irrigation during crop season).

- Input use during cropping period
- Soil Testing – Soil Carbon, Nutrient Status, etc. (Soil sample will be examined by two different soil laboratories)
- Build-up of soil microbial population for enriching soil nutrient pool
- Crop residue Management
- Livestock Management
- Differences in yield of different crops
- Observable changes quality of produce/product (taste, texture, shelf life, etc.)
- Climate resilience in crops growth through ZBNF
- Pest and disease management in ZBNF plots vis a vis control plot.

Modalities of Implementation

A. Selection of Blocks/Mandals/Villages; Baseline survey of villages for identification of farmers; Selection of Farmers; Soil sample of Farmers Fields; Exposure visit to the identified farmers; Training and Capacity building for various stakeholders; Arrangement of logistics and raw materials for preparation of natural farming inputs; Organising demo plots; Crop wise collection of data – from Land preparation to Harvesting for validation. Concurrent documentation of processes, outcome & results, best practices, success stories; Organising forum for sharing the learnings & experience; Exposure Visit to Policy makers, Administrators, Bankers and Opinion makers as part of Policy advocacy.

B. Describe how the project provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project will avoid or mitigate negative impacts, in line with the Environmental and Social Policy of the Adaptation Fund.

Economic Benefits

- This project will help in reducing the economic burden to farmers as ZBNF offers a low cost alternative against the use of high cost/ polluting inputs in case of conventional agriculture.
- Aiming towards enhancing agricultural productivity and income of small and marginal farmers through measures that reduces cost of cultivation, improve the productivity per unit area and unit time, better market demand & price discovery for the produce grown under natural farming and also opportunities for value addition through processing.
- Increase in agricultural output facilitates food security in the country
- The quality of life of farmers will improve due to enhanced income.
- The resilience of crops grown using ZBNF in case of the occurrence of any climatic calamity provides the farmers security of income in the event of adversity.

Social benefits

- As the proposed production system is of Low External Input Sustainable Agriculture (LEISA) it is with in the farmers control and also aimed at ending hunger and attaining food security and accessibility by all people, in particular the poor and vulnerable to safe, nutritious and sufficient food.
- Reduce farm distress in rainfed farming areas across the country.
- Reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

- The project will ensure gender equality by creating awareness generation, training & capacity building among women farmers.

Environmental Benefits

- Reduces emission of GHG by reducing uses of fertilisers
- Increase soil organic carbon
- Minimize use of high energy vehicles and reduces the GHG gases
- Improve water quality by reducing pollution, minimizing release of hazardous chemicals, reducing untreated wastewater and increasing recycling and safe reuse
- Improve resource efficiency in consumption and production and decouple growth from environmental degradation
- Total control of toxic gases emitted due to total avoidance of usage of chemical fertilizers & pesticides.
- Quality of farm produce grown under natural farming conditions would be very high when compared to that of modern chemical fertilizer/ pesticide based farming.
- The quality and fertility of agricultural land will improve substantially.

C. Describe how the project encourages or accelerates development of innovative adaptation practices, tools or technologies and/or describe how the project helps generate evidence base of effective, efficient adaptation practices, products or technologies, as a basis for potential scaling up.

The only major investment in ZBNF is an indigenous cow. A desi breed cow costs around Rs.15-20,000 (250 USD). The other inputs to the land are obtained from the products of cow and other farm grown inputs. The input cost in ZBNF is almost negligible when compared to the output. ZBNF is low-input, climate-resilient type of farming that encourages farmers to use low-cost locally-sourced inputs, eliminating the use of chemical fertilisers and pesticides. The cow dung and urine used in the preparation of natural inputs are only from indigenous cows. These practices have been shown to have a positive effect on the quality of the soil, improving its fertility and water retention capacity. This is likely to reduce reliance on resources such as water and electricity for irrigation. Substituting chemical fertilisers and pesticides with natural inputs will reduce input costs and farmers' exposure to credit risks; the increase in net income will improve the cash flow of poor and vulnerable farmers, and will enhance their ability to deal with economic shocks; and the reduced dependence on external inputs and resources and improved soil quality might then help farmers adapt better to extreme climate events. In nut shell the proposed natural farming would help in adding sustainability to farming in general and rain fed agriculture in particular. Apart from adaptation, it will also reduce the GHG emission emitted from chemical fertilisers, increase soil organic carbon storage in the farmland, reduces uses of high end machinery which minimize energy consumption and hence GHG emission.

D. Please confirm whether the project meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and is in line with the Environmental and Social Policy of the Adaptation Fund.

The proposed project is not having any negative impact on social and environmental aspects. On the other hand it would improve soil condition, improve water quality, improve the conditions of small and marginal farmers who are vulnerable to climate change by reducing consumption of fertilizers and pesticides and input cost, etc.

Women beneficiaries from each of the households are proposed to be organized into Self Help Groups (SHGs), and these SHGS will be motivated to learn the techniques involved in preparation of various farm inputs i.e., concoctions/ botanical pesticides so that they can sell the same for the farmers interested in natural farming. SHG women can also take up aggregation and collective marketing of farm produce grown under natural farming.

E. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

The proposed exposure visits of farmers will enhance farmers' knowledge and understanding of ZBNF. This component would act as knowledge transfer tool for farmers.

The demonstration plots will also acts as a medium of transferring knowledge of practising farmers to the entire farming community in the neighbourhood.

Case studies will be prepared and data & information of comparative analysis and validation/ confirmation of positive outcomes/ results of ZBNF will be used for knowledge dissemination.

F. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project. Describe how the project will engage, empower and/or benefit the most vulnerable communities and social groups, including gender considerations, in line with the Environmental and Social Policy of the Adaptation Fund.

Checklist of environmental and social principles	**No further assessment required for compliance**	**Potential impacts and risks – further assessment and management required for compliance**
Compliance with the Law	All activities proposed in the project taken up are compliant with applicable Laws in India.	
Access and Equity	The project will provide fair and equitable access to the project beneficiaries and will facilitate access to robust institutions, sustainable livelihoods, knowledge, as well as their involvement in decision making processes.	
Marginalized and Vulnerable Groups	Project will have positive impact on small and marginal farmers and women and people living in rainfed areas.	
Human Rights	The project does not foresee any violation of human rights.	
Gender Equity and Women's Empowerment	Women's rights are protected and they are included in all stages of project development and implementation. Capacity building and skill development trainings for sustainable livelihoods will be provided to the women of communities.	
Core Labour Rights	Core labour rights will be followed during the project implementation	
Indigenous Peoples	The beneficiaries under the project are	

	small and marginal local farmers of the project area.	
Involuntary Resettlement	There is no resettlement involved in the project	
Protection of Natural Habitats	The project will be implemented on individual farm land only.	
Conservation of Biological Diversity	The project will have positive impact on biodiversity conservation.	
Climate Change	The interventions are in the nature of adaptive measures to the changing climatic conditions.	
Pollution Prevention and Resource Efficiency	The project will increase resource efficiency on the farm and reduce soil and water pollution from chemicals fertilisers and pesticides	
Public Health	The project will have positive impact on public health.	
Physical and Cultural Heritage	This project will not have any negative impact on heritage.	
Lands and Soil Conservation	The project will have positive impact on land and soil conservation.	

G. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

(i)The project proposes implementation of various adaptation measures in terms of soil and water conservation, use of farm grown and locally available materials for crop production and crop protection, reducing impact of climate change on agri-based livelihoods, etc.

(ii)The project will discourage use of chemical fertilisers and pesticides in farming and will save farmers from financial burden due to purchase of costly inputs. It will also contribute towards reducing the cost to the environment caused by agricultural chemicals while facilitating carbon sequestration.

(iii)There is general perception about organic farming methods and approaches such as ZBNF that there will be initial reduction in crop yields on shifting to ZBNF/Natural farming. It is hard to convince farmers to shift from business as usual to ZBNF/ Natural Farming. Therefore, there is a need to incentivize farmers by providing materials required to take up ZBNF.

(iv)Institutional finance for such innovative practices are not available especially in the absence of validation of results. Financial requirement would be more in case of post-harvest, processing and marketing operations. Validation is likely of encourage large farmers to take up ZBNF which may call for requirement of financial support for short term operations such as labour cost, validation would enable listing of the ZBNF method as a cultivation technique in the general list of eligible technologies of cultivation for financing by banks such as developing a scale of finance.

(v)Successful implementation of this project would help in large scale awareness generation about ZBNF and the results would enhance its acceptability in field. Accordingly various other institutes will evince interest to replicate and upscale for implementation on a large scale.

(vi)The project would help in development of appropriate policy and also in policy advocacy.

(vii)The project is fully aligned with national priorities and commitments made under Paris Agreement such as reduction in the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level, to create an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030 and better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources management.

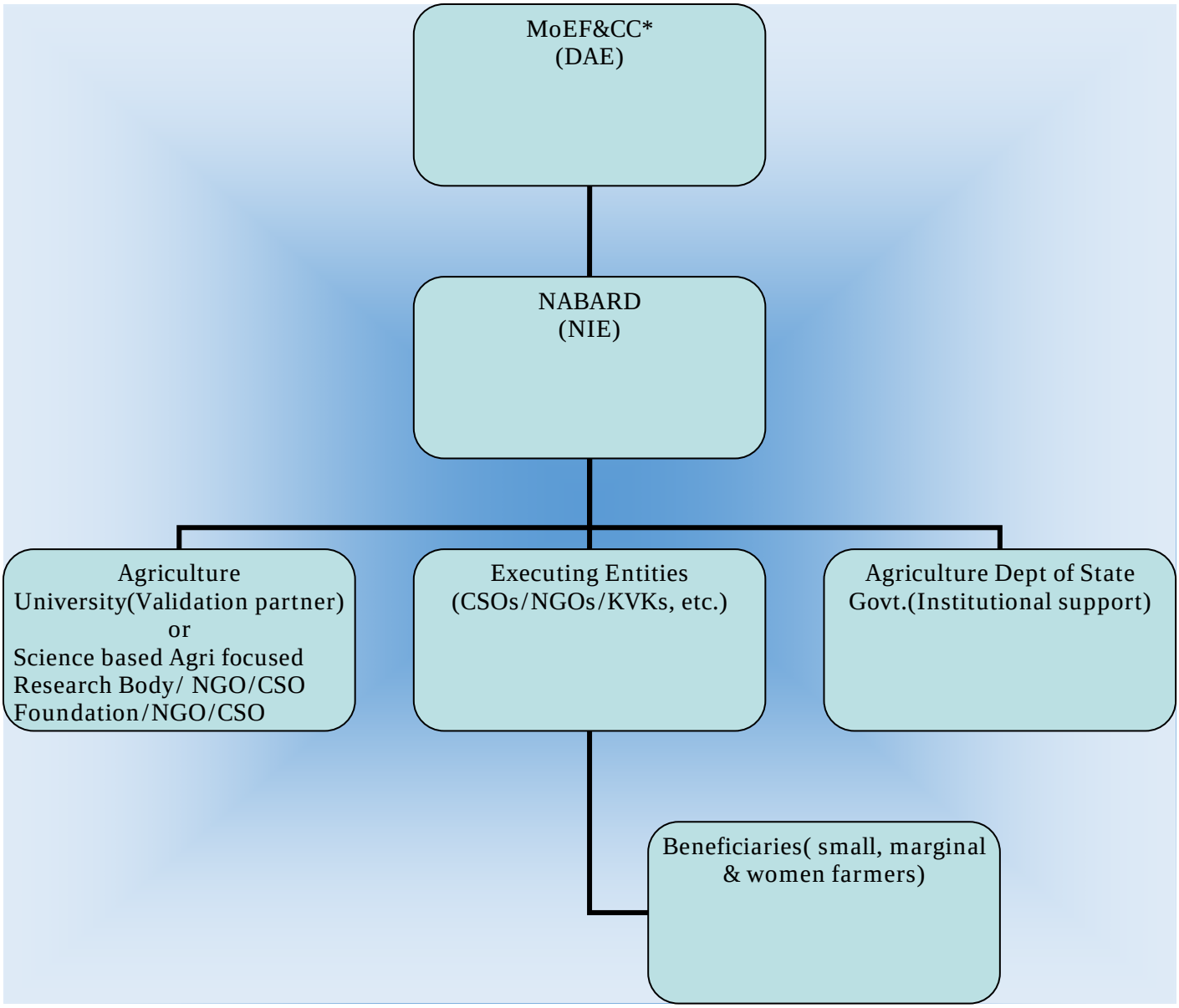
(viii)Currently there are no official policies to promote ZBNF. However, there are some efforts by the proponent Mr. Subhash Palekar, some NGOs and other agencies to promote such practices. Marketing poses a challenge. Some farmers have to sell the products produced using ZBNF along with the chemically grown produce, to private traders or at government wholesale yards, with no advantage of price differential. Other farmers rely on their own local marketing networks, such as to some organic shops and individual customers, but policy support in this area is crucial.
The result of implementation of this project facilitate in market development through demand creation due to awareness generation, facilitating involvement of different agencies in promotion of ZBNF etc.

No major barriers for proposed project are envisaged as the proposal facilitate better soil and crop management, sustainable agriculture practices, stability in farmers income, technologically feasible.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project / programme implementation.

National Implementing Entity viz. NABARD is having a wide experience of implementing sustainable development projects, since its inception in the Year 1982. The implementation arrangement in the project would be as follows:



*MoEF&CC: Ministry of Environment, Forest and Climate Change, Govt. of India.

Identification of Executing Entity and technical partners (based on experience and expertise)
I
Setting up of Project Management Unit at Project level
I
Implementation of Cluster Promotion by IE

Role of NABARD

NABARD would be the Implementing Entity (being the NIE) of the project and overall coordination and management of the project at national level shall lie with NABARD. Identification of suitable districts/ blocks/ villages from Rainfed Vulnerable Areas shall be done

by the AE in consultation with the concerned State Department through stakeholders' consultation process. Implementation partners shall also be finalized by AE based on their expertise in Natural farming, experience and presence in the identified area.

Role of Executing Entity (EE)
The EEs will submit proposal on ZBNF for climate stressed rainfed areas of the country. Once finalized, the proposal would be implemented at ground level by the EEs. The EEs will be identified after stakeholder consultation with the grassroots developmental agencies working on ZBNF and other nature based farming in rainfed areas at present.

Role of validation partners:
Validation partner under the project will be Agriculture Universities/ Research Institutes/ Science based Agri focused Research Body/ NGO/CSO, which have expertise in research & knowledge dissemination, field experience and human resources to provide guidance for implementation and validate the ZBNF results. The Validation partner shall be identified after stakeholders' consultation.

B. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.

The project will be monitored by NABARD through its District Development Managers (DDMs) (on monthly basis), Regional Offices (on quarterly basis) and Head Office (on half yearly basis). The project will also be monitored by an external agency as per NABARD policy.

C. Include a simple results framework for the project proposal, including milestones, targets and indicators.

Outcome/ Output	Indicator	Baseline	Target	Source of Verification	Risks and Assumptions
Soil and water regime improved and crop productivity enhanced.	Livelihood vulnerability of farmers will be reduced.	Farmers are vulnerable due to poor soil water regime and crop productivity.	120 farmer families will come out of vulnerability.	Progress Report and baseline study.	Assumption: Farmers would take active interest in project execution Risks: Availability of the skilled labour for inputs preparation.
Increased livelihood security of farmers in rainfed area.	Number of farmers adopted ZBNF.	Number of Farmers practising ZBNF/ Number of farmers following Business As Usual (BAU) farming.	120 farmers	Progress Report and baseline study.	Risk: Lack of capacity and resources for adoption.

Awareness generation about ZBNF	Exposure visits	Farmers practising ZBNF or BAU farming	120 farmers	Feedback reports on Expo visit.	Risk: Poor sharing of learnings
Training and capacity building of 500 farmers on ZBNF	No of participants and no of training programmes	no of farmers trained	At least 120 farmers adopt ZBNF	Progress Report and baseline study Survey of area	Risk: poor participation and lack of interest & enthusiasm among participants
Formation of Producers Organization	No of FPOs newly formed	No. of FPOs existing	02 one each in the two districts	Progress Report and baseline study.	Risk: Lack of enthusiasm for collective procurement & collective marketing.
Market Linkage-both for sale of NPM inputs and farm produce	Sale of NPM inputs & farm produce grown under NF.	No market linkages	At least one linkage for inputs and one linkage for farm produce	Progress Report and baseline study.	Non-availability of marketable surpluses.
Documentation	(i)Validation n report by Agri University. (ii)Documentation of best practices & success stories by IEs. (ii)Project completion report by IEs.	Nil	1 1 1	Physical document	Nil
Policy Advocacy seminar	GoI & State Govt Policies	No policy; Existing schemes in few states.	Advocacy for Policy formulation on.	Seminar	Nil

D. Demonstrate how the project / programme aligns with the Results Framework of the Adaptation Fund

Project Objective(s)	**Project Objective Indicator(s)**	**Fund Outcome**	**Fund Outcome Indicator**	**Grant Amount (USD)**
Adaptive capacity of the community to climate change / variability improved in rainfed areas.	Livelihoods of vulnerable community strengthened through improved natural resource base (physical, natural and social asset base).	Reduction in vulnerability of small and marginal farmers.	Number of persons with reduced risk of Climate change.	98000

To validate the Zero Budget Natural Farming (ZBNF) as adaptation technique	Production and productivity from ZBNF in comparison to business as usual approach	Identification of innovative adaptation technique.	Comparison of farm outputs in changing climatic conditions.	62820
Awareness generation and capacity building of farmers on ZBNF	Training and exposure visits to farmers	Capacity building of vulnerable group on the proposed adaptation techniques.	No. of farmers trained. Number of exposure visits.	13500
Policy advocacy on ZBNF	Consultation and result presentation to different stakeholders	Advocacy for promotion of adaptive techniques	Seminar involving Government & other stakeholders.	9500
Reduced climate change vulnerability	Number of farmers adopting ZBNF	Vulnerable group covered under ZBNF	No. of families adopting ZBNF	25600
Project Execution Cost and NIE fee				40523
Grand Total				249943

E. Include a budget, including a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.
The detailed budget is given in financial section on page no. 6.

F. Include a disbursement schedule with time-bound milestones.

Sr No	Particulars	After signing agreement	after 1st year	after 2nd year	Total
1	Project Fund	76787	76787	76788	230362
2	NIE fee	6527	6527	6527	19581
3	Total	83314	83314	83315	249943

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[2] *Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

6. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

(Enter Name, Position, Ministry) *Ravi S Prasad, IAS* *Joint Secretary* *Climate Change Division, MoEF&CC* *Government of India.*	Date*: (Month, day, year)*

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (.....list here.....) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Name & Signature Implementing Entity Coordinator: Shankar A. Pande Chief General Manager, FSPD National Bank for Agriculture and Rural Development(NABARD)	
Date: *(January, 07, 2019)*	Tel. and email: 022-26539070 7506706025 shankar.pandey@nabard.org
Project Contact Person: Kuldeep Singh	
Tel. And Email:022-26539632; 9819307318 kuldeep.singh@nabard.org	

नाबार्ड

Ref. No. NB.FSPD/1075/ 12/AF Proposal/2018-19 07 January 2019

Shri Ravi Shankar Prasad, IAS
Joint Secretary, MoEF&CC
Indira Paryavaran Bhawan, Zor Bagh Road
New Delhi

Dear Sir

Innovation Grant Funding of Adaptation Fund Board (AFB)- Request for issue of Endorsement letter

The Adaptation Fund Medium-Term Strategy (MTS) was approved by the Adaptation Fund Board in October 2017 with three main pillars: Action; Innovation; and Learning and Sharing. In this connection, AF has invited proposals from NIEs for Small Grants Projects through Direct Access Modality, under the Innovation Facility of the Adaptation Fund. This funding opportunity makes available grants of up to US $250,000 to NIEs, starting with the first request for proposals under a set-aside of US $2 million, launched in December 2018. For the small grants facility, two expected results identified are ;a) n*ew innovations encouraged and accelerated. Development of innovative adaptation practices, tools and technologies encouraged and accelerated; b). Evidence base generated.*

2. The innovation facility will provide at least 28 small grants of up to US $250,000 to NIEs, starting with the first request for proposals under a set-aside of US $2 million launched in December 2018. The deadline for submission of proposal is 7 January 2019.

3. In this connection, NABARD, being an NIE has prepared a proposal for innovative grant on, "Promotion of Climate Resilient Agriculture through Regenerative and Low Cost Sustainable Natural Farming techniques and Process," for a financial support of US $ 2,49,889 under innovation grant funding of AF. All the necessary internal approvals from NABARD have been obtained and a copy of application grant has been submitted to AF as the deadline of the proposal submission was 7th January 2019.

We request you to kindly consider our proposal for submission under above call and kindly issue an endorsement letter in support of the above proposal. A format of endorsement letter to be issued to AF is also enclosed for your kind perusal.

With Regards

Yours Sincerely

(Shankar A Pande)

Chief General Manager

Encls ; As above

राष्ट्रीय कृषि और ग्रामीण विकास बैंक
National Bank for Agriculture and Rural Development
कृषि क्षेत्र नीति विभाग
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Farm Sector Policy Department
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