

1. General Information

1.1. Name of Applicant Organisation

LAYA,
501 Kurupam Castle,
East Point Colony,
Visakhapatnam 530017,
INDIA

1.2. Title of the Project

3rdFCN-LCF Coalition Pilot Project

1.3. Project Period

15 months Pilot Phase

1.4. Project Funding Period

1 October 2011 to 31December 2012

1.5. Total Project Cost

₹26,830,888 / € 419,233

2. Background of the Project

2.1.1 3rdFCN Low Carbon Farming Coalition

The 3rdFCN-LCF Coalition comprises of 6grassroots NGOs who share the goal of utilising carbon revenues to expand sustainable agriculture (SA) practices for small and marginal farmers. Like the first two, this FCN-LCF Coalition has also been formed under the Fair Climate Network, which will support Coalition members to access VER revenues.

They have rich experience in Sustainable Agriculture, having propagated various practices for several years.

- Together, these 6 NGOs will develop skills and capabilities to interpret Sustainable Agriculture practices as emission reduction in this ICCO supported 15 month long Pilot Phase.
- In the first 7 months, from November 2011 to May 2012, 7,500 Tribal families and marginal farmers from 332 villages in Project Areas will be irrefutably identified and 9,850 acres of land will be delineated
- In the next 7 months, from June to December 2012, they will undertake Low Carbon Farming to earn carbon credits.
- With capabilities built up, the 6 NGOs will expand operations every year, to finally take up LCF on 25,300 acres belonging to 15,400 families in 720 villages by the end of 3 years.

		LAYA	IRDWSI	CPSW	CeFHA	ACTION	RCDRC	TOTAL
Year 1	Farmers	800	2,400	2,500	500	700	600	7,500
	Acres	1,100	2,200	3,500	800	1,050	1,200	9,850
	Villages	76	40	70	21	90	35	332
Year 2	Farmers	1,500	3,400	4,000	900	1,000	1,200	12,000
	Acres	2,500	3,600	5,000	1,400	3,000	2,500	18,000
	Villages	120	75	110	35	130	60	530
Year 3	Farmers	2,000	3,600	5,000	1,300	1,500	2,000	15,400
	Acres	3,500	3,800	6,500	2,000	5,000	4,500	25,300
	Villages	180	80	150	50	160	100	720

2.1.2 Context of the 3rd FCN Low Carbon Farming Coalition

Formation of the 3rd FCN-LCF Coalition

The idea of the 3rd FCN-LCF Coalition was promoted by Nafisa Goga D'Souza, Executive Director, LAYA to involve NGOs that were working with Tribals on Sustainable Agriculture in the Scheduled Areas. Later, also NGOs working with Tribals in non-Scheduled Areas joined in, as the broad goals were similar. So far the Coalition has had the following meetings: August 7-8, 2011, Bagepalli – Orientation meeting on Low Carbon Farming, which essentially translates as reduced emissions from agriculture practice as a new concept in the discourse of climate change carbon trading mechanisms; followed by visits of the FCN NGO Dynamics team for the technical and organization capacity assessment of the Coalition NGOs from August 22-30, 2011; September 13-16, Bagepalli, for the preparation of the Strategic Plan; September 17-October 11, 2011: email exchanges on sending and analysing relevant data related to the preparation of the project application; and on October 12, 2011, Bagepalli, meeting of the representatives to finalize the project application.

Agriculture in the work areas of the Coalition NGOs

The 6 NGOs in the Coalition work in the Tribal areas of the Eastern Ghats in Northern Andhra Pradesh, South West Odisha and Eastern Chhattisgarh, which is a reservoir of agriculture diversity. LAYA, IRDWSI and CPSW work in the Scheduled Areas and CeFHA and RCDRC in the non-Scheduled Areas, which have a mix of Tribal and other marginalized communities.

In these areas the prevalent agricultural system, which has evolved gradually over ages from 'hunting and gathering', can be categorized mainly into 'shifting cultivation' and 'settled cultivation'. These practices are seen on hill slopes and in small valleys. The Tribals have been practicing agriculture since time immemorial when they first began to dibble seeds in forestlands. Gradually they moved to shifting cultivation, occasionally with trees existing on those lands. Later, due to pressure on land in some parts, farmers resorted to settled cultivation. However, these were and continue to be small holdings of mostly dry land and rain fed farming for food crops and scattered due to the undulating terrain. The Tribals continued to also depend on the forests to supplement their livelihood needs.

The pattern of cultivation was in tune with nature – seasonal based on type and volume of rain. The sowing and reaping practices related to each crop were marked by festivals and celebration. Since ancient times the Tribals have been following their own rituals. These differ from the non-Tribals festivals in the way they are celebrated, time/period of celebration and the method of ceremonies performed by Tribal communities. It has been observed that all the rituals are related to their agriculture and environment. Ritual ceremonies usually start by consuming new food grains, pulses, tubers, fruits or other forms of food from fields and forests. Most of the Tribal rituals are community-based worship, but some of the rituals are celebrated at household level. During the ceremonies they pray to all the hill deities and village deities in order to get good crop, suitable climatic conditions and prevention of pest infestation in crops, avoid damages to crops by wild animals and against other misfortunes. The new yield is first offered to the gods and then consumed by the community.

The Tribal communities have perceived agriculture as an occupation that has more than just economic value. Caring of land not just as an instrument but personified as 'mother earth', favouring community collective practices from sowing to harvesting are some factors, among others, that transcend economic consideration in the region. However, in the changing situation and intrusion of external agricultural inputs, the Tribal mindset is often forced to reduce agriculture to economics: monetized input-output analysis and assessed accordingly in terms of being progressive-backward.

Safeguarding Human Rights: especially Land Rights

The major issue, which affects the Tribals in this region, is displacement, not merely displacement by large projects but also resource displacement: denial of access to land, forests and water, thus violating the basic survival rights of Tribal communities. This region has a high degree of land alienation by non-Tribals, who, for example in the Scheduled Areas of Andhra Pradesh comprise 48% of the population, but own in fact 55.6% of the land in Scheduled Areas. Deforestation, mainly due to exploitation of forests for industrial purposes, is another manifestation of resource displacement. This has resulted in decreasing access to forest resources by Tribal communities. Compounding the resource displacement is project displacement where development projects have threatened the livelihood needs of Adivasi communities. For instance, there are 18 major dams in AP and six of the large ones alone have been responsible in displacing about half a million people. The proposed Polavaram Dam on Godavari River is supposed to be a dream project for the farmers of the Krishna delta but may turn out to be a nightmare for more than 2 lakh of Tribals, who are threatened to be adversely affected by the planned submergence. This is a stark reality in South Odisha, especially in the Koraput district, where this process began more than 30 years ago.

Violation of human rights in the Tribal belts of the Eastern Ghats is all pervasive. Human rights refer here more specifically to the basic rights related to human existence and as outlined in the Constitution of India and broadly to the United Nations Charter of Human Rights. Primarily the focus is on socio-economic and cultural rights. For the Tribal communities a threat to their land, water and forests is a threat to their livelihood. Their life style is symbiotically connected with their identity as ethnic groups. Moreover, their civil and political rights are also under threat as the law and order situation is fragile with the prevailing confrontation between the militant groups at the one end and the state machinery on the other. The Adivasis are sandwiched in this oppressive environment.

Although there are protective laws, as a large part of this region is under Scheduled Areas, the rights of the Adivasis are in fact violated. With increasing globalization and privatization, the land rights of Adivasi areas is under threat for several reasons. This is a region, which has a high natural resource base and has tremendous potential to meet multiple market demands. Moreover, the respective state governments have identified agri-business including contract farming, mining development and industrial engagement as the key strategies to be adopted for the development of the Tribal areas in all the three states. These strategies, while they may ensure economic growth for the state but for the marginalized Tribal and other communities there is increasing evidence that they further threaten the resource base and hence the survival rights of these communities.

If we examine the reality more closely we see a point of convergence afforded by the 73rd amendment to the Indian Constitution and its application to the Tribal context by a separate Act. The local Panchayat institutions if strengthened can in fact play a proactive role in interacting with programmes and policies as they impinge on microenvironments and present a counter perspective from their realities to influence policy directions. However, despite difficulties of political vested interests and the divide and rule policies of the State government this is a political space that must be utilised meaningfully in the immediate future. The 73rd amendment creates an opportunity to address the main concern of self-governance in the broad context of safeguarding human rights of Tribal communities.

It is in this context that the struggle of the NGOs in the Coalition must be perceived: to get back the alienated lands, obtain assignment land titles for freed bonded labourers and the landless. Also where the settlement process took place, as in the Scheduled Areas of Andhra Pradesh in the early 1970s, the

Tribals found it more difficult to prove their cultivation even for one year. However, the non-Tribals could prove continuous cultivation for 8 years. In all the NGOs' areas of work, land ownership in one form or the other is being restored to the Tribal and other marginalised communities. For example, RCDRC has managed over the last 25 years to facilitate allocation of 20,000 acres of land with 50% of clear titles, so far; over a similar period, LAYA has restored 21,000 acres of land to the Tribals with entitlements through the legal and alternative dispute resolution (ADR) process. Added to this process are the efforts of all the NGOs in the Coalition to facilitate the process of obtaining entitlements for the Tribals on forest lands in accordance with the Forest Rights Act 2006 - Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act.

Induced Agriculture and the NGOs' Response

The problem is that the respective state governments of Andhra Pradesh, Odisha and Chhattisgarh have had a low priority on understanding on Tribal agriculture systems in the high altitude Tribal areas. Hence, they have been promoting crops and methods of cultivation, which are not suitable to these areas. For example, in the Tribal areas of Andhra Pradesh, induced agriculture focusing on cash crops by corporates backed by the government have made inroads with devastating effect over time: 20 years ago it was tobacco, then cotton, followed by tapioca, and now sugarcane (in pockets of assured irrigation). The corporate agents make 'godfather' offers that the Tribals can hardly refuse.

The experience of degradation of lands, realisation of indebtedness comes later. Overall, the effects of these induced agriculture practices have led to erosion of Tribal wisdom in cultivation practices and have also led to indiscriminate commercialization of agriculture. This has resulted in creating an imbalance in Tribal livelihood and increasing food insecurity. It is important to note that the induced cash crops do not share the festive connections, mentioned above, and are culturally out of tune with the seasonal calendar of festivities.

All the NGOs in the coalition have understood early on the unsustainable route of induced agriculture in the Tribal areas of the Eastern Ghats and have ventured to advocate the value and wisdom of betting on tilting the balance in favour of traditional crops over hybrid/genetically modified crops, food crops over cash crops, use of organic farmyard manure over chemical fertilizers, experimenting with system of rice intensification (SRI), sloping agricultural land technology (SALT) and other such methods with varying results, especially facing difficulties in upscaling the successful efforts. There have been efforts to encourage growing of ginger and turmeric in the highland areas. There have been efforts to learn from indigenous practices of some Tribal communities, e.g., terrace cultivation of paddy. The key role of Tribal women as farmers in agriculture has been recognised in terms of their active participation in decision making in choice of crops and direct involvement in cultivation practices.

2.2. 3rdFCN-LCF Coalition Members

LAYA, IRDWSI, CPSW, CeFHA, ACTION and RCDRC are 6 grassroots NGOs, who have got together, under the leadership of the Fair Climate Network, to form this 3rdFCN-LCF Coalition. They are long standing organisations, which do credible work with small and marginal farmers in the Tribal belts of Andhra Pradesh, Odisha and Chhattisgarh States of Eastern India.

Environmental Defense Fund (EDF), New York, is the 7th member of this Coalition and will provide cutting edge Science needed to interpret Sustainable Agriculture as carbon emission reduction.

For more details on the contact person, organisational profile, mainstream & SA practices, terrain, rainfall, crops, market and uncertainties faced by small and marginal farmers in regions covered by the Participant NGOs, please see the Strategic Plan.

We are also attaching documents that give a comprehensive background on Participant NGOs/CBO.

LAYA

LAYA, a registered Society is a Resource Centre for Adivasis in the Tribal belts of North East of Andhra Pradesh, working with Adivasis communities over the last 22 years. LAYA is registered under the FCRA

and operates intensively in two districts: 7 Mandals of Addateegala Division in East Godavari district (average elevation 183 metres) and 3 Mandals of Paderu Division (average elevation 904 metres) in Visakhapatnam district. Addateegala is located 80 km from Kakinada, its district headquarters. Paderu is located 110 km distance from Visakhapatnam, its district headquarters. LAYA has gone through several stages of successes and has also experienced many obstacles in addressing the core concerns of Adivasis. LAYA's key areas of intervention relates to Land Alienation and Human Rights, Natural Resource Management, Herbal Based Community Health Care, Micro Credit and Micro Enterprise, Youth and Women Empowerment and Climate Change –Decentralized Energy Options. LAYA has staff strength of 41, with women in key decision making positions.

Integrated Rural Development of Weaker section in India (IRDWSI)

The Integrated Rural Development of Weaker Sections in India (IRDWSI) started operations in Koraput district in 1981 on the request of the Jeypore Evangelical Lutheran Church (JELC) in the year 1976. It is a registered Society as well as registered under the FCRA. The ideology has been 'to help people help themselves' and the strategy has been 'empowerment of the individual and the whole community'. The aim is to accompany the poor and facilitate programmes of capacity building, community organization, empowerment and sustainable development through human potential development, community health, eco-development and non-agricultural activities. IRDWSI works in 140 villages of 5 blocks in Koraput district in Odisha. The organisation reaches to a population of 26,112 from the Tribal, Dalit and other communities. IRDWSI also works in disaster areas both within Odisha and also in Andhra Pradesh and Tamil Nadu. 36 persons work full time in the NGO.

Council of Professional Social Workers (CPSW)

CPSW was established in 1987 as a registered Society and is registered under the FCRA. CPSW works in two districts of Kandhamal (formerly known as Phulbani) and Naupada. Kandhamal is more of a hilly region with slope terrain Naupada is located in the northern part of the state, which is basically arid. Also it has presence in the disaster prone districts of Nayagarh, Jagatsingpur and Kendrapada. The vision of CPSW is 'of a society where social, economic and political relations are based on principles of justice, gender equity, peace, ecological balance and participatory democracy.' The strategies followed for reaching its vision are rights based approach (RBA), training and capacity building, and promotion of community based institutions. The programmes taken up by CPSW are NRM & Sustainable Agriculture, Micro-finance and income generation, Market Access Programme, Education Programme, Health programme, disaster preparedness and response, research and policy advocacy, and eco-tourism. CPSW has staff strength of 151 staff of which 32 are professional staff while the rest are from the communities.

Centre for Humanitarian Assistance Trust (CeFHA)

CeFHA is a registered Trust, 2002 and is also registered under the FCRA. Its work area is Vishakhapatnam, Andhra Pradesh. The main objective of CEFHA is to work for moral, educational, medical and development of the people and focus on development of the indigenous communities like Adivasis, Fisher folk and Dalits, especially children and women. CeFHA has been working in 3 slums of urban Visakhapatnam and currently it has shifted its concrete base to 33 villages of Kotauratla Mandal, Visakhapatnam. The main programme activities include the Formation of Women groups, Training, Savings and Micro credit programmes, Slum Children Education programmes through Motivational Centres, Skills training & Development for the slums and Communities at Kotauratla. The sustainable agricultural programmes taken up by CeFHA are: promotion of Traditional variety of millets; encouraging chemical free agro zones; establishing bio resource centres; engaging the farmers in newer techniques which are eco friendly like SRI; and initiation of agroforestry models.

ACTION

ACTION was registered as a Society in 1988 and also registered under the FCRA. It works for agriculture development and disaster mitigation in the coastal district of West Godavari in Andhra Pradesh. ACTION

is head quartered at Rajahmundry on the eastern bank of river Godavari. ACTION has staff strength of 26 and works in 162 villages of West Godavari district (122 fishermen villages along the Godavari River and in 40 Tribal villages in the hills). The Tribal settlements where ACTION works are located in the Integrated Tribal Development Agency (ITDA) areas of West Godavari district. It is a member of CADME, a network of 14 organisations network promoted by Plan International, which works towards disaster preparedness in nine coastal districts of Andhra Pradesh. Apart from the above, ACTION's mission is on uplifting Tribal and fishermen by encouraging them to form SHGs, better health care, housing and agricultural facilities. ACTION presently collaborates with NABARD to implement horticulture cum agriculture farms.

RCDRC

RCDRC, a registered Society and also registered under the FCRA, mainly focuses on women's empowerment, child labour, former bonded labourers (agricultural workers), marginal farmers, Church youth, theology students, unorganized workers (women domestic workers and head load workers), Forest Rights Act, Seed Satyagrah, Zameen Satyagrah. RCDRC works in 865 villages of 5 Taluks in Mahasamund district of Chhattisgarh. The organisation reaches to 1190 families from the scheduled castes, scheduled tribes and other minority communities. Through Mukti-Niketan, RCDRC intervened in enabling these new landholders to learn and practice sustainable agricultural techniques, including organic farming, appropriate technology etc. The Women Farmer's Cooperatives/ Collectives are other unique experiments that have led to new identity of women as farmers and subsequently resulting in women's empowerment and sustenance. In the process RCDRC invented new techniques for appropriate irrigation facilities, dry land farming and identifying, preserving and promoting indigenous seeds (paddy seeds). After the Forest Right Act 2005 came into full force, RCDRC had been campaigning for the forest rights of the Tribals and forest dwellers with a new vigour. RCDRC has been involved in preserving and promoting indigenous agricultural practices including organic farming. In this regard, it has carried out concerted campaign on issues and concerns confronting farmers on the issue of climate change.

2.3. The Fair Climate Network (FCN)

About 86 persons, including development workers from grassroots NGOs, scientists, environmentalists and feminists have got together to form the Fair Climate Network. The purpose is to facilitate and capacitate grassroots bodies develop pro-poor CDM Projects and tap carbon resources for the sustainable development of the poor.

The Fair Climate Network believes that grassroots bodies (NGOs, people's organizations, Gram Panchayats, etc.) are best situated to identify climate mitigation activities that can be undertaken for the sustainable development of the poor. The FCN also believes, as a basic tenet, that totally open and transparent carbon revenue sharing arrangements have to be in place.

In the Fair Climate Network Strategy, pro-poor emission reduction projects are a layer on top of sound community organisation and CBO building efforts of grassroots NGOs. They are not stand alone business enterprises undertaken by resourceful development workers capitalising on their presence in the midst of the rural poor. CDM and VCS Projects that start with a dependency on NGO resources, should quickly develop institutional mechanisms that ensure a transfer of ownership, financially sustain themselves, and also contribute to the holistic development of End User families.

The Fair Climate Network has set up a Tech Team at Bengaluru with CDM & LCF Specialists as well as NGO Dynamics personnel to handhold and assist in the preparation of pro-poor emission reduction Projects. Supported technologies include domestic biogas, photovoltaic lamps, fuel efficient woodstoves, drinking water purification, and low carbon farming. DoE and Carbon Investor approved digitized Monitoring Systems that meet EB Standards have been developed for all the above technologies.

In a span of just 4 years, 52 CDM, GS and LCF Projects are in the pipeline, some at an advanced stage. Through these Projects, 502,500 rural families will access US\$ 127 million and contribute to an annual GHG reduction of 627,000tCO_{2-e}

Active preparations are underway to scale up technical and NGO dynamics capacities of the FCN Tech Team in the next 2-3 years, to meet fresh targets:

- 1,000 pro-poor Projects that will place 10 million rural families on a low carbon lifestyle trajectory
- GHG reduction averaging 12.5 million tCO_{2-e} per annum over the next 14 years
(total 163 million tCO_{2-e})

Parallel efforts are on to leverage international financial transfers and set up a “parking fund” to trade in US\$ 3.3 billion worth of pro-poor CERs/VERs.

2.4. Sustainable Agriculture

A large number of FCN Members promote Sustainable Agriculture practices in their areas of operation. These grassroots NGOs have developed technologies suited to their local environments, resulting in positive shifts in cropping and cultivation practices, and have also demonstrated increased drought resistance.

It is difficult to expand existing sustainable development practices for a number of reasons, including limited NGO capability and finances. The 3rd FCN-LCF Coalition aims to build capabilities to expand existing SA practices. Carbon revenues will allow SA to be taken up on a larger scale than current demonstrations, by providing a financial incentive to small and marginal farmers who wish to move away from mainstream cultivation.

Therefore, quantifying the amount of GHG avoided by adopting SA practices, introducing new practices to further reduce emissions, and claiming VERs to earn carbon revenue provides a solution to existing barriers.

SA technologies include reduced or no-tillage farming, land management, altering crop mixes and rotations, multiple cropping, changing the mix of irrigated versus dry land, changing approaches to manage water and straw in rice production, fertiliser and pesticide management, amongst others.

2.5. FCN Partnership with Environmental Defense Fund (EDF)

FCN has partnered with EDF, New York, to provide the science needed for this Coalition Programme. In the 1st FCN-LCF Coalition, the FCN-EDF partnership explored the viability of procuring Verified Emission Reductions (VERs) from the cultivation of small, marginal and drought affected farmers, and found it feasible. We decided to plough ahead with a dogged determination and almost blind faith in ourselves. We declared ourselves to be trailblazers.

During the course of implementing that 1st Pilot Project, succeeded in developing a Methodology to measure GHG reductions from various crop(s) and practices followed by small and marginal farmers. EDF Scientists participated in the arduous journey, and also contributed to the accrediting of it by the international scientific community.

We are currently involved in actually measuring these crop(s) emissions and reductions – i.e. implementing the methodology.

2.6. The Development of an LCF Methodology

The FCN Tech Team started looking at *existing* methodologies where LCF could fit in. The key concerns were the diverse nature of small holding farming with many variants of SA practices. To our dismay, we found that all existing methodologies focused on large farms. We quickly realised that we needed to develop a separate methodology which incorporated diverse small holder agriculture and allowed for flexibility.

Review of existing methodologies

Emission factors are of 2 types:

1. Area based emission factors – emissions per unit area of land
2. Mass based – emissions per unit quantity of fertilizer or manure applied

CDM methodologies adopt a mass based approach – emissions calculated per unit mass of manure or fertilizer. VCS methodologies, on the other hand, consider area based approaches where the emission factor for a given area of land under certain crop-management is derived. Assessing emissions in SA practices requires a combination of both.

Existing VCS and CDM methodologies were not directly suited to include Low Carbon Farming as a project activity. The closest methodology we found was VCS' Sustainable Agriculture Land Management (SALM). However, each farmer family would have a unique set and extent of practices which they would want to adopt. This would include not just land management, but activities that may range from manure management, altered crop rotations, fertilizer application rates, methods and timing.

GHG emission levels of individual practices through each of these practices would be different. This required a method to calculate emissions from various processes, rather than from just the ones for which CDM Methodologies exist (E.g. manure management). A recent Methodology approved under CDM for SRI in Paddy provides a strong boost in this direction. The big challenge was to include dry land cropping.

It should be noted that although there exist different Methodologies for particular aspects like manure management, the source for basic calculations is the "IPCC Good Practice Guidance for Greenhouse Gas Inventory". But to date, there are no emission factors in the IPCC emission factor database that can be used to estimate emissions based on VCS or CDM tools. Further, there is a lack of emission factors for different sets of practices.

It was clear from the review of existing Methodologies and tools that there were none directly applicable to Low Carbon Farming. Aspects pointing to the need for a new Methodology were:

- Different Methodologies adopt different rigour for emissions assessments, and this is further limited by (non)availability of emission factor data
- There is more scope and importance given to agricultural land management in VCS than in CDM. In the later case, no direct agriculture land management are considered under mitigation. Only isolated and atomised aspects of farming, like manure management, are referred.

Our Evolving Methodology

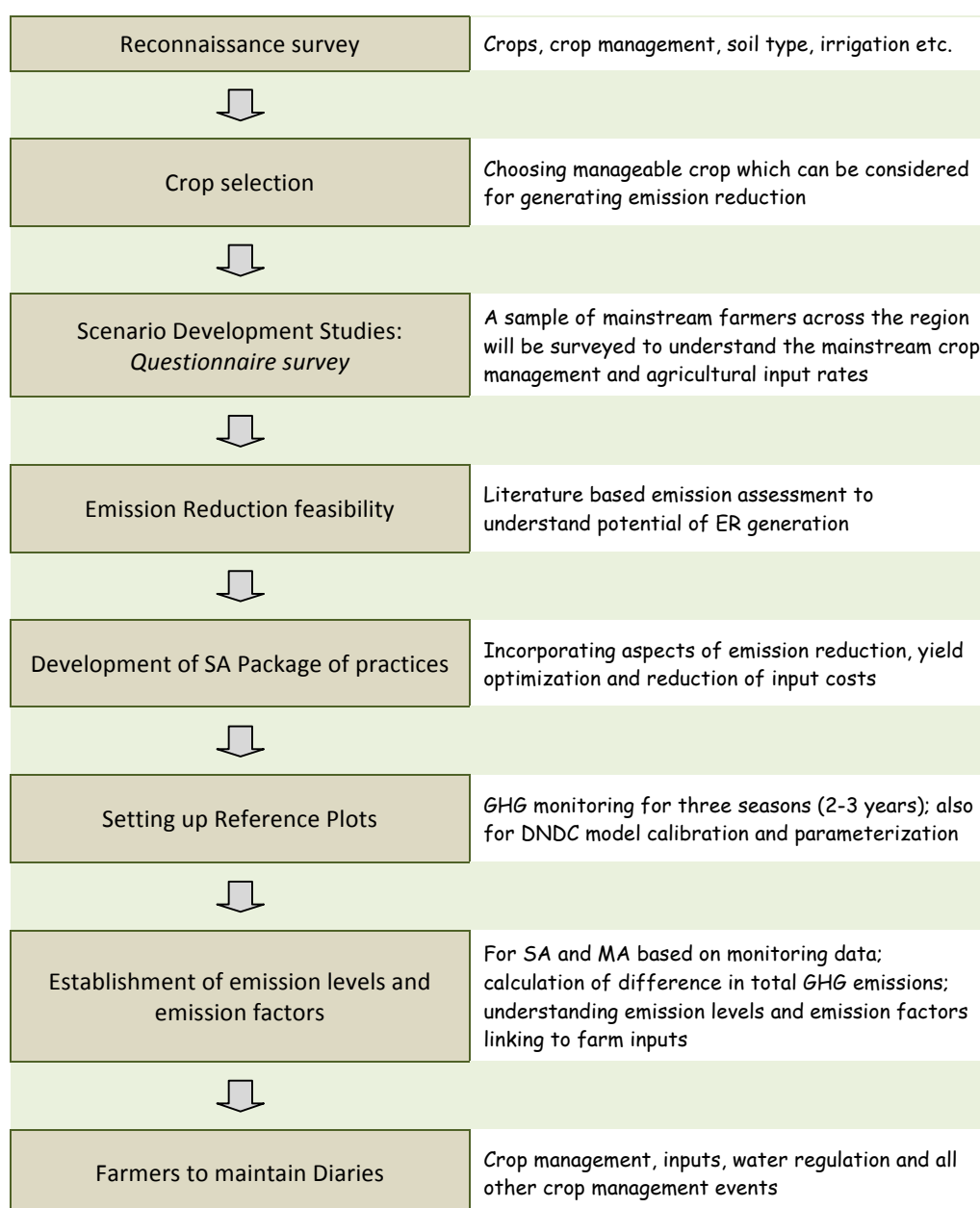
We realised that Low Carbon Farming needed an area based approach whose key features had to be:

- Open and flexible to include different crops and systems and small holder farmers
- Package of practices developed with the Partner NGOs specific to the region/communities, - the components of the package was interpreted under 3 GHGs:
 1. N₂O emission reduction:
 - Practices reducing direct and indirect emissions from different cropland soils. Mainstream agriculture is characterized by above excess application rates and low nitrogen use efficiency farming practices (such as single dose)
 2. CH₄ emission reduction:
 - Water management and organic matter management
 3. CO₂ Sequestration:
 - Organic matter management, tree planting, mulching etc.
- Field based actual measurements built in as the heart of the Methodology meeting the maximum requirements of rigour
- Farmer Diaries as tools to assess plot level mitigation efforts

- DNDC simulations to estimate process based emission reductions¹
- Emissions calculations at the plot level based on process simulation (DNDC), driven by farmer-plot specific applications and management
- Reference Plots accurately measure differences in Mainstream and SA practices, and calibrate and incorporate crop-management-ecology details of farming into DNDC and arrive at relationships linking farm inputs to GHG emissions
- Carbon sequestration measured over longer time periods (>5 years)

When monitored for 3 continuous years, Reference Plots elucidate emission factors for specific crop-region-management.

Application of the Methodology



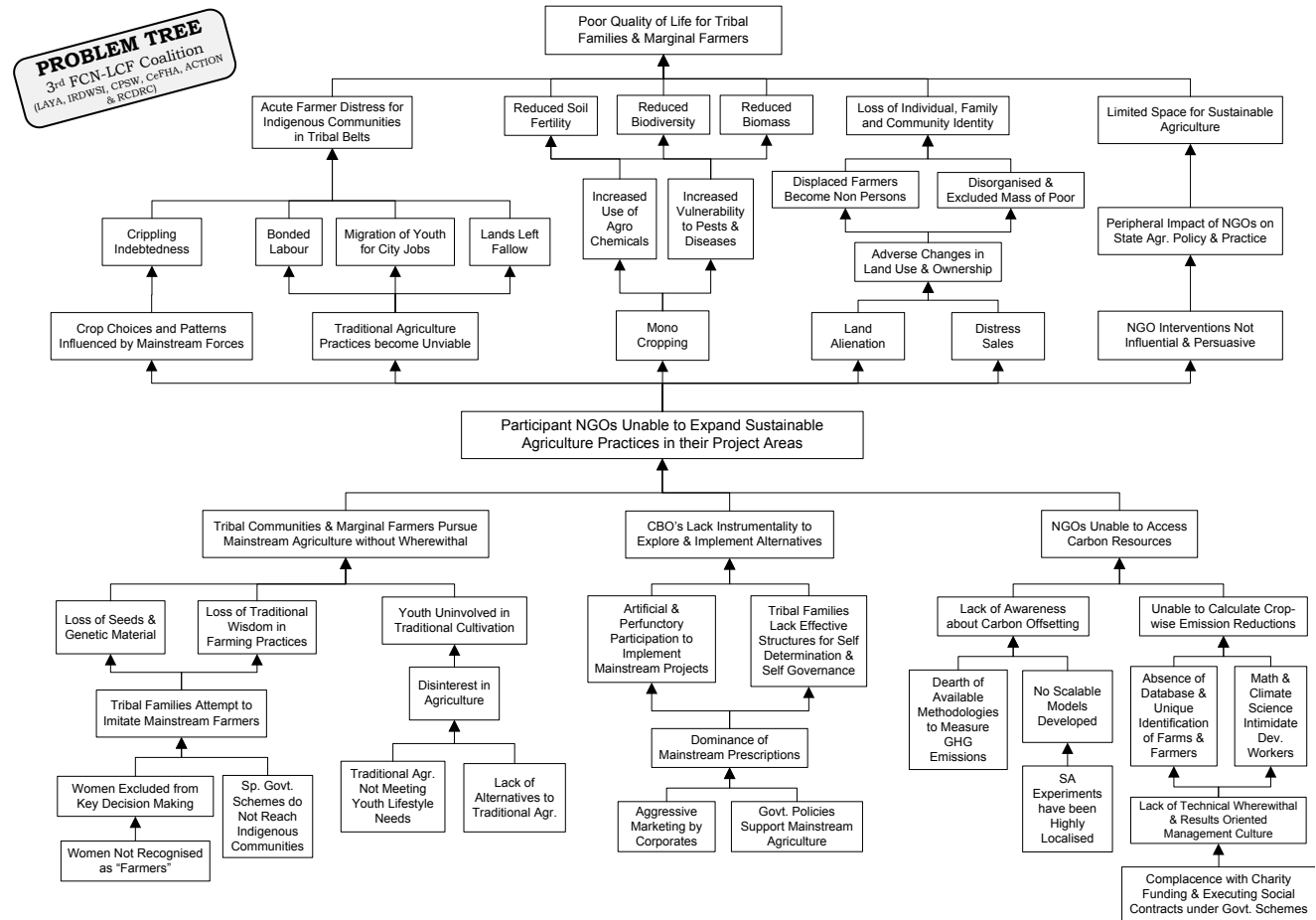
¹ The De-nitrification Decomposition (DNDC) Model needs to be fed in with more than 100 factors or parameters for each cropping pattern, in each sub Agro Ecological Zone (AEZ), in order to calculate GHG Emissions from agriculture. About 20-25 of these parameters can be got only through continuous monitoring during the plant/crop growth cycle.

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Emission Reduction calculation: based on Reference Pots + Farmer Diary compilation, individual plot-farmer level emission reduction will be calculated

3. Problem Description

3.1. Problem Tree



3.2. Focal Problem

The focal problem that this Coalition Pilot Project aims to address is:

“Participant NGOs Unable to Expand Sustainable Agriculture Practices in their Project Areas”

This Focal Problem leads to a chain of negative Effects and Impact:

Traditional Agriculture Practices Become Unviable

Tribal families and marginal farmers are unable to meet rising input costs that do not have a proportionate rise in output. Farm incomes drastically drop when cost of cultivation steeply increases.

Bonded Labour, Migration of Youth to City Jobs, & Lands Left Fallow

Heavy indebtedness, distress sale of lands and forced migration of indigenous peoples quickly follow. Tribal families and marginal farmers are in the grip of acute distress due to the propagation of mainstream cultivation.

Crippling Indebtedness

In either case, dependence on any market mechanism by a people who have zero risk taking capacity leads to indebtedness.

Mono Crops

Mono crops are vulnerable to pests and diseases and demand an increased use of agro chemicals. Soil productivity visibly drops.

Increased Use of Agro Chemicals

Soil fertility refers to the chief nutrients: chiefly Nitrogen, Phosphorus and Potassium, along with micro nutrients. Narrow and sectoral scientists claimed that these could be infused through the use of chemical fertilizers.

Reduced Soil Fertility

Soil fertility is a function of moisture retention, healthy microbial activity, various micro nutrients and organic matter that comprise of and, *inter alia*, contribute to the creation of productive soil. But for a sustained (repeated) use of soil for cropping, year after year, it is soil productivity that is needed. More so in low rainfall, high evapotranspiration, shallow soil regions with a fragile ecosystem.

Reduced Biomass

Mainstream cultivation produces hardly any biomass. The productivity of the soil falls to critical levels with an absence of humus, manures and moisture. In an integrated farming system, factors causing and sustaining soil productivity go beyond farm boundaries into common lands, pastures, forests, cattle, birds and scores of other living and non-living organisms.

Reduced Biodiversity

The heavy use of agro-chemicals pollute the soil, surface water, ground water, crops, food, fodder, drinking water and, consequently, humans, animals, and the entire flora and fauna in the immediate environment. They result in an excessive and inefficient use of irrigation that leads to an irreparable depletion of the groundwater table. They deepen failed policies that contribute to the (*non*) preservation of biodiversity and biomass.

Displaced Families Become Non Persons; Disorganised & Excluded Mass of Poor

Indigenous communities are an integral part of their ecosystems, with fates deeply intertwined in their immediate environment. There isn't any concerted effort, backed with good science, to support Tribal families and marginal farmers re-establish integrated farming systems and sustainable livelihoods – efforts to show that an alternate paradigm can indeed increase productivity in a sustainable manner and, at the same time, enrich the environment.²

Acute Farmer Distress for Indigenous Communities in Tribal Belts

The human cost of this transformation from an environmentally sensible and sustainable treatment of natural resources to a destructive venture is very high. An absence of food security occurs due to two well established reasons: when people do not grow their own food and when mainstream agriculture makes a sardonic reversal of the population's diet intake. Little wonder then that there is deterioration in general health conditions even in those pockets where the public distribution system, miraculously, functions; and death due to starvation in large tracts where it does not.

²That is why this Coalition has consistently used the term "contented farmers" and consciously avoided "self-sufficient farmers". We operate within the paradigm of modernity, without at the same time accepting everything that the market economy has to offer as givens. While we entertain no unrealistic dreams of utopia, we also know that a conscientised peasantry, accompanied by a sympathetic intelligentsia, can mould the shape and substance of capitalisation of agriculture.

We are more than convinced that Contented Farmers will not just be capable of meeting the ever rising demand for good and healthy food, but will do so with joy, pride and profit!

NGO Interventions Not Influential & Persuasive... Peripheral Impact of NGOs on State Agricultural Policies & Practice

There is no effective challenge to the artificial disintegration, at a policy level, of a farming system into unnatural compartments like horticulture, floriculture, sericulture, dairy, livestock, *et al.* A compartmentalized approach to agriculture, by definition, promotes mono-cropping. Even on Rainfed fields, multiple cropping is discouraged.³

There is a flurry of short-sighted government schemes and measures that promoted each of these compartments as if they were stand alone enterprises that could survive without inter-dependency on the other. Willy-nilly, they promoted a High External Input Destructive Agriculture (HEIDA) paradigm. SA needs a judicious mix of social, physical and monetary capital that only a people who are deeply immersed in holistic farming can recognize; inputs that are not even interpreted as agricultural by the experts.

The just described focal problem leads to several negative effects that culminate in an increased threat to climate integrity. Ecological imbalance that leads to increased GHG emissions and threatens an already fragile global climate system.

3.3. Main Problems

There are three causative factors that result in this situation. These Main Problems are:

1. Tribal Communities & Marginal Farmers Pursue Mainstream Agriculture without Wherewithal
2. CBOs Lack Instrumentality to Explore & Implement Alternatives
3. NGOs Unable to Access Carbon Resources

For a detailed elaboration on the Causes for these Main Problems, please see our Strategic Plan at <http://www.fairclimate.com/library/topic/3>

4. Expected Outcome and Impact

4.1. Development Goal

INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
DEVELOPMENT GOAL			
<ul style="list-style-type: none"> □ Small Holder Farming of Indigenous Communities & Marginal Farmers in Tribal Belts Establishes Viable Climate Mitigation Strategies through LCF 	<ul style="list-style-type: none"> • Methodology Accepted by International Community 	<ul style="list-style-type: none"> ⇒ DNDC Model Calibrated for all main Crop(s) grown by Tribal Families & Marginal Farmers in AEZ 12.1, 12.2 , 7.3., 18.4 & 11 ⇒ Voluntary Carbon Markets recognise Offsets Generated by LCF as Pro-Poor Fungible Instruments 	<ul style="list-style-type: none"> • LCF will prove GHG Reductions in Marginalised Crops grown by Tribal Families

³The Fair Climate Network has already clarified that we are not opposed to hair-splitting specialisation and miniscule examinations that pure science demands. We do not advocate a talibanisation of knowledge. Our critique is of the disintegration at the policy level. An inability to put all the sciences together when making a composite and holistic policy choice; of a corruption of ecological sciences that were supposed to perform this synthesising role.

4.2. Project Purpose

INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
PROJECT PURPOSE			
<ul style="list-style-type: none"> ○ 3rd FCN-LCF Coalition Significantly Expands Sustainable Agriculture Practices in the Project Areas 	<ul style="list-style-type: none"> • Increased Returns to Tribal Families and Marginal Farmers 	<ul style="list-style-type: none"> ⇒ Monitoring Against Baselines by Village Communities 	<ul style="list-style-type: none"> • Participating Farmers do not Succumb to State Supported Corporate Invasion by: <ul style="list-style-type: none"> ⇒ Adopting Mainstream Practices ⇒ Selling off their Lands
	<ol style="list-style-type: none"> 1. Annual Increase in Number of Participating Farmer Families in each NGO Area of Coverage 	<ul style="list-style-type: none"> ⇒ Online Reports generated by Monitoring Software 	
	<ol style="list-style-type: none"> 2. Annual Increase in Proportionate Area under Sustainable Agriculture vis-à-vis Total Landholding 	<ul style="list-style-type: none"> ⇒ Online Reports generated by Monitoring Software 	
	<ol style="list-style-type: none"> 3. No. of 3rd Party Verifications Cleared 	<ul style="list-style-type: none"> ⇒ Volume of CO₂-e of Verified Emission Reductions issued 	

4.3. Project Objective

INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
PROJECT OUTPUTS			
A. 6 PARTICIPANT NGOs GAIN CAPACITY TO ACCESS CARBON RESOURCES	A.1. LCF Teams Up and Functioning at each NGO	<ul style="list-style-type: none"> ⇒ Progress in Preparatory Work as indicated by Online Reports generated by Monitoring Software ⇒ Quarterly Coalition Meetings 	
	A.2. Package of Sustainable Agriculture Practices and Fact Sheets for Scaling Up	<ul style="list-style-type: none"> ⇒ Quarterly Coalition Meetings ⇒ Info Sheets & Pamphlets used in Farmer Orientation 	
	A.3. 9,850 acres Identified, Plotted & Delineated by 6 Participant NGOs in 8 months, by June 2012	<ul style="list-style-type: none"> ⇒ Area of Discrete Plots Delineated ⇒ No. of Title Deeds Recorded ⇒ No. of Carbon Contracts Executed 	
B. 6 FARMER ORGANISATIONS FORMED AS INSTRUMENTALITY TO TAKE LCF FORWARD	B.1. Legal Incorporation	<ul style="list-style-type: none"> ⇒ Registration Documents ⇒ Audited Finance Statements ⇒ Internal Assessment Report against FCN Standards 	

	B.2. Sex & Ethnic Parity in the Membership & Elected Leadership	⇒ Gender Analysis of Membership ⇒ Quality of Participation in Decision Making	
	B.3. 7,500 Participating Farmers Aggregate Carbon Credits with their respective Farmer Organisations by December 2012	⇒ No. of Signed Carbon Contracts	
C. TRIBAL FAMILIES & MARGINAL FARMERS ADOPT SUSTAINABLE AGRICULTURE PRACTICES	C.1. 7,500 Participating Farmers adopt listed SA Practices by the 2012 crop season... ...15,400 Farmers by the 2014 crop season	⇒ Online Reports generated by Monitoring Software	<ul style="list-style-type: none"> • Empowered Women fully involved in Family Cultivation • Youth find Meaning and Excitement in SA Farming • Participant NGOs have Own Resources & Wherewithal to undertake Extension Services and propagate SA Practices
	C.2. 9,850 Acres of Land Holdings Irrefutably Identified & Delineated by 2012... ...25,300 Acres by 2014	⇒ Online Reports generated by Monitoring Software	
	C.3. Level of Knowledge on Climate Change, Carbon Offsetting and LCF among Participating Farmers	⇒ Test Score and Assessment against Fact Sheet	
	C.4. Additional SA Practices Brought into the Basket of Interventions	⇒ Record of Identified SA (package of) Practices	
	C.5. Annual Increase in Volume of Carbon Resources Accessed by Participant NGOs	⇒ Audited Accounts; Cumulative Bank Receipts	
D. CROP-WISE EMISSION REDUCTIONS MEASURED IN 5 SUB AGRO ECOLOGICAL ZONES	D.1. Field Laboratories Functional at 4 NGOs by June 2012	⇒ Procurement of Lab Equipment ⇒ Trained Lab Operators in Place ⇒ Inspection Report by FCN Tech Team	
	D.2. 3 Mainstream & 3 SA Reference Plots Readied for each Main Crop in 4 NGOs by June 2012	⇒ Inspection Report by FCN Tech Team	
	D.3. DNDC Model Calibrated after end of the 2014 crop season	⇒ Crop(s) & Practices Listing by DNDC Authority for each AEZ	

4.4. Added Value

Besides Package of Practices for specific crops in Sustainable Agriculture and Climate Mitigation, the 6 NGOs will derive a new identity as part of the coalition; new learning with mutual support; skills in systematic documentation and monitoring rigour; and farmer CBOs as new organisations in business partnership.

4.5. National Poverty Reduction Strategy

The 3rd FCN-LCF Pilot Phase, just as the first two, is aligned with India's national poverty reduction strategy in a number of ways.

Improved profitability

The end goal of the 3rd FCN-LCF Coalition Programme is to alleviate poverty in rural communities. This will be achieved through reducing agricultural input costs by moving to a Sustainable Agriculture model. As farmers' operating expenses reduce for an equivalent yield, profitability improves.

Risk Management

Farmers within the project area are at the mercy of erratic monsoons, as they work on rain fed land, with little or no irrigation. This equates to significant risk exposure to early or delayed rainfall, resulting in low crop yields. The front end risk (sowing, preparation of land, etc.) can be managed by reducing operating costs – resulting in a lower financial risk if the monsoon is not timely. In addition, multi-cropping (planting a variety of crops with differing levels of resilience to monsoon on the same plot of land) can reduce the effects of exposure to erratic monsoon conditions.

Carbon Revenue

Another major outcome of the move to Sustainable Agriculture under LCF is carbon emission reductions and sequestration. This Carbon is a valuable asset and, when linked to the carbon market, generates additional revenue for the farmer.

National Climate Change Action Plan (NCCAP)

The 3rd FCN-LCF Pilot Phase supports the goals of India's National NCCAP through the generation of carbon emission reductions as a result of Sustainable Agriculture. Under this Action Plan, Low Carbon Farming will support the:

- National Mission for Sustainable Agriculture – to devise strategies to make Indian agriculture more resilient to climate change
- National Water Mission – to conserve water and minimise wastage
- National Mission for a Green India – to enhance ecosystems, including carbon sinks

Agriculture Policy : Vision 2020

The 3rd FCN-LCF Pilot Phase also supports the goals of India's Agriculture Policy: Vision 2020, by promoting sustainability and natural resource management, providing incentives for the uptake of SA, and addressing issues such as integrated soil nutrient management and water management.

National Standards of Organic Farming

The 3rd FCN-LCF Pilot Phase will contribute towards goals under the National Standards of Organic Farming, such as the promotion of organic farming, which will contribute beneficially to the ecosystem.

National Rural Employment Guarantee Act (NREGA)

There is the potential to utilise NREGA to promote Sustainable Agriculture in India. The Act guarantees the rural poor 100 days of paid employment per year – the community can select which works it would like to undertake for those 100 days.

Participant NGOs of this 3rd FCN-LCF Coalition Programme are in the process of making a serious recommendation that NREGA should result in asset creation on the lands of small, marginal and drought affected farmers, in addition to guaranteeing employment.

5. Project Activities

5.1. Appointing Staff

- The Fair Climate Network will appoint an LCF Facilitator to the Coalition Programme to assist and learn from the LCF Expert. She will regularly visit all 6 Participant NGOs and handhold them to ease bottlenecks and assist in implementation.

The LCF Facilitator will monitor progress and assist Participant NGOs realise the Pilot Phase Budget in a responsible and diligent manner. In this capacity, she will work in close coordination with the Coalition Accountant.

In the technical execution of her duties, she will report to the LCF Expert, but in the administrative matters she will report to Nafisa Goga D'Souza, LAYA, and Ram Esteves, FCN Convenor.

- The 6 Participating NGOs will appoint 8 LCF Coordinators with technical/computer skills to implement the LCF Pilot Project at each Project Area.
LCF Coordinators will be adept in field work, understands basic science, and proficient in using computer application software.

5.2. NGO Orientation

- Assessing Low Carbon Farming Potential
 - Participant NGOs will assess the Low Carbon Farming potential in their respective project areas by documenting current reach of mainstream practices across villages and families.
- Setting up LCF Teams at each Participant NGO
 - Participant NGOs will set up 8 Low Carbon Farming Teams, consisting of the LCF Coordinator, other NGO Staff, and village Workers.
 - LCF Teams will determine skill gaps in their respective NGOs and take measures to fill these.
- Training and Orienting the LCF Teams
 - LCF Teams will be trained by the LCF Expert and FCN Facilitator on the overall concept of Low Carbon Farming as VER projects.
 - Theoretical orientation will also be given on specific topics like developing a business sense, community awareness, participation and ownership, need to take GPS readings and generate GIS maps, validation, monitoring, etc.
 - LCF Teams, assisted by the FCN Facilitator, will prepare a curriculum for village meetings, along with hand-outs and pamphlets.

5.3. Selecting Participating Farmers

- Creating a general awareness in their respective project areas
 - LCF Coordinators will prepare a non-technical and transparent summary on the Pilot Phase, and also on the long haul – i.e. the full 3 year LCF programme, execution of carbon contracts, carbon aggregation, finances/carbon revenue to incentivise, etc.
 - LCF Teams will select the villages in which they will implement this Pilot Project in the first year. They will explain the programme to these communities, and make institutional arrangements for awareness raising.
 - LCF Teams will conduct village meetings across their entire area of operation.
- Choosing villages and Participating Farmers for the Pilot Phase
 - LCF Teams will set up Farmer Organisations to take responsibility of the Programme.
 - Together with functionaries of these Farmer Organisations, they will determine criterion for Participating Farmer selection.

- LCF Teams will list a total of 7,500 Participating Farmers who fit the agreed criterion and want to participate in the programme.

5.4. Collecting Demographic Data

- Procuring digitized monitoring solutions to meet stringent VER requirements
 - The Coalition will contract Tristle Technologies Pvt. Ltd. to provide LCF monitoring solutions.
 - LCF Teams and Tristle will together finalise customisation required for their respective monitoring solutions.
 - The Coalition will procure 8 Computer Servers and other IT infrastructure, 111 E-trek Instruments and 55 digital cameras
- Conducting family demographic and landholding surveys
 - LCF Teams will use the common data collection format developed by the Fair Climate Network.
 - LCF Coordinators will train their respective LCF Teams to correctly code data gathered in the survey formats.
 - LCF Teams, Workers and Village Committees will conduct the data collection across all of 7,500 Participating Farmers.
 - Data will be cross checked for accuracy and, if necessary, taken back for corrections.

5.5. Taking Stock and Project Potential

- Collating lists of possible Sustainable Agriculture practices across the project area
 - The LCF Facilitator will spend quality time at each Participant NGO project area to make an inventory of all Sustainable Agriculture practices currently undertaken, including coverage, extent of adaptation, etc.
 - The LCF Teams will explore new/improved SA practices that could easily fit into these baskets of practices and increase GHG emission reduction.
- Setting tentative targets based on above data
 - The LCF Facilitator will, along with the LCF Teams and NGO leadership, assess the realistic potential to expand accept SA practices and implement them at each Participant NGO's area of operation.
- Setting tentative targets for the long haul
 - Tentative targets will also be jointly adopted for the long haul – i.e. the 10 year LCF Programme at each Participant NGO's area of operation.

5.6. Delineating Discrete Plots

- Training LCF Teams in GIS concepts and GPS skills
 - Participant NGOs will procure 111 E-Trek instruments (handheld GPS recording devices), one for each Village Worker.
 - Each LCF Team and Village Worker will attend field training at ADATS, Bagepalli, for 8-10 days.
- Taking GPS readings of landholdings
 - LCF Teams will explain the entire process to Participating Farmers, familiarise them with the concept of fixing latitudes/longitudes and satellite mapping, and elicit a true sense of ownership for gathering accurate readings.
 - Participating Farmers will place bond stone markers at each corner of the 7,500 polygons that comprise their landholdings.
 - Farmer Organisations will resolve silly/serious boundary disputes between neighbours.

- Village Workers will enlist local youth and arrange logistics so that they can smoothly undertake the GPS readings of all the landholdings found in a contiguous tract of land, in a single go.
- Youth Teams will take the GPS readings of all 9,850 acres belonging to 7,500 Participating Farmers
(Please note: The total landholdings of all Participating Farmers will be surveyed and delineated, and not just the plots or portions thereof where they will undertake LCF)
- Downloading GPS readings into a polygon recorder
 - LCF Coordinators will download GPS data from each village and generate polygon shape maps.
- Checking and correcting shape maps
 - LCF Coordinators will correct each polygon after checking against streamed Google Map images.
 - Individual shape maps of each landholding will be printed, taken to the villages and shown to each Participating Farmer for confirmation.
 - LCF Coordinators will finalise the shape maps, based on feedback corrections, and commit the discrete plots.
- Obtaining Title Deeds for all Discrete Plots
 - LCF Teams will assist Participating Farmers obtain Land Title Deeds from government offices.
 - Where Title are not directly in the names of Participating Farmers, Genealogy Trees will be obtained from village authorities to link title holders to Participating Farmers.
 - LCF Coordinators will scan and feed these Titles & G-Trees into the monitoring solution.

5.7. Executing Carbon Contracts

- Generating End User Agreements (Carbon Contracts)
 - Participating Farmers at each project area will choose their respective carbon aggregators – either their respective Participant NGOs or Farmer Organisations set up by them – to trade in carbon credits and also sell organic/no-pesticide produce.
 - LCF Teams will execute these Carbon Contracts with 7,500 Participating Farmers.

5.8. Setting up 4 GHG Laboratories

- Scenario Development
 - The LCF Expert, along with the LCF Facilitator, will administer specially designed Questionnaires in order to identify, major Soil Types in the NGOs' areas of operation; major Mono Crops and Multiple Crops; organic Manure application – Farm Yard Manure, Composting, etc.; inorganic Fertilizer application; cultivation practices
 - The LCF Expert will conduct Soil & Manure sampling
 - He will study current SA Practices
- Calibrating the DNDC Model (specialised software programme to calculate GHG Emissions in agriculture) with AEZ information
- Developing & Printing Farmer Diaries
- Selecting 3 Reference Plots for each Mainstream agriculture practice and 3 more for each SA Practice at each distinct AEZ
- Making a preliminary assessment of baseline calculation of agricultural emissions
 - The LCF Expert will spend quality time at each project area and use information gleaned above to make a preliminary assessment of baseline calculation of agricultural emissions in each of the 6 project areas.

- He will share this assessment with the FCN and the Chief Scientist, EDF. They will together work out the modalities of applying the LCF Methodology to calculate baseline emissions of mainstream cultivation and SA practices.
- Setting up 4 GHG Laboratories at the 4 of the 5 sub Agro Ecological Zones that the 6 Participant NGOs cover:
 1. AEZ 12.1. – IRDWSI, Semiliguda Block of Koraput district, Odisha
Addateegala Mandalam of East Godavari (LAYA), Polavaram Madalam of West Godavari (ACTION), Daringbadi Block of Kondhmal (CPSW), and Komana Block of Naupara (CPSW) fall under the same sub AEZ. As a result, 5 project areas will benefit from GHG readings from this Laboratory.
 2. AEZ 12.2. – LAYA, Paderu Mandalam of Visakhapatnam district, Andhra
 3. AEZ 18.4. – CeFHA, Kotauratla Mandalam of Visakhapatnam district, Andhra
 4. AEZ 11. – RCDRC, Mahasamund Block of Mahasamund district, Chhattisgarh
Bagbahara and Pithora Blocks of the same district fall under the same sub AEZ. As a result, 3 Project Areas will benefit from this Laboratory.

We will not be covering sub AEZ 7.3. for the moment in this Pilot Phase.

- Gas Analysers, Gas Panels & Purifiers, six KVA Online UPS, Perspex Boxes, Thermometers, Probes, Rain Gauges, Carrier & Calibration Gases, etc. will be procured and installed at LAYA, IRDWSI, CeFHA and RCDRC.
- Mild steel metal base frames, Autoclavable rubbers, Syringes, Vacutainers and Minor Tools will be procured for taking GHG Samples from mainstream and SA Reference Plots.

5.8. Project Coordination (Administrative, Financial & Reporting services)

The role of the coordination organisation, LAYA, will be specifically the following:

- Forwarding the Project Application;
- Legal holder for the project;
- Routing of monies;
- Following due diligent accounting standards;
- Compiling financial and narrative reports.

LAYA has established concrete systems for the management of its finances over the years. These systems have withstood the test of time but they are periodically being reviewed to meet the ever demanding needs and changing circumstances.

Pertinent to this project, LAYA has an established procurement policy based on the ground realities and to meet the governance aspects of obtaining the best for the given situation. LAYA would like to assure that these systems will be followed scrupulously as is always done with all procurements. However, it must be noted that this particular project is unique, innovative and new age involving higher investments with higher outcomes in a very short period of time. This we anticipate would also require innovative out of the box systems to be developed to meet shorter deadlines. As FCN has already much experience on this with the earlier two LCF coalitions, LAYA will draw support from FCN to adapt the systems accordingly.

6. Project Budget

6.1. Budget

1. TRAINING			
1.1.	Food and accommodation to hold 7 FCN-LCF Coalition Meetings at ADATS, Bagepalli @ ₹20,000 per meeting	140,000	
1.2.	Cost of preparing LCF awareness building material and modules; translating into colloquial languages @ ₹10,000 per NGO	60,000	
1.3.	Food costs & logistics to conduct Gram Panchayat level meetings to explain Pilot Project details to 7,500 Participating Farmers @ ₹30	225,000	
1.4.	Travel & incidental cost for 111 Village Workers to attend GPS training at Bagepalli in 6 NGO-batches @ ₹500	55,333	
1.5.	Food and accommodation for 111 Village Workers @ ₹500 p.d. x 8 days	442,667	
1.6.	Local Transport to visit Bagepalli villages and take training readings for 3 days per batch @ ₹2,000	36,000	
1.7.	Stipend for 111 Village Workers to conduct demographic survey and take GPS readings @ ₹1,500 pm x 4 months	664,000	1,623,000 6%
2. DELINEATING DISCRETE PLOTS			
2.1.	Cost of printing 7,500 formats and stationery @ ₹2.50 per format	18,750	
2.2.	Cost of planting an average of 7 bond stones on the corners of 7,500 land holding @ ₹20 per stone	1,050,000	
2.4.	Legal costs to execute 7,500 individual Carbon Contracts with Participating Farmers @ ₹30	225,000	1,293,750 5%
3. STAFF COSTS			
3.1.	Salary of 1 LCF Facilitator @ ₹40,000 x 15 months	600,000	
3.2.	Salary of 8 LCF Coordinators with technical/ computer skills to implement the LCF Pilot Project at each Participant NGO @ ₹20,000 p.m. x 15 months	2,400,000	
3.3.	Salary of GHG Lab in-charge to collect Gas Samples @ ₹15,000 x 6 months	360,000	
3.4.	Salary of Asst. GHG Lab in-charge to collect Gas Samples @ ₹10,000 x 6 months	240,000	
3.5.	10% Staff Fund	360,000	3,960,000 15%
4. ADMINISTRATION COSTS			
4.1.	Travel, telephone and other overheads per NGO x 6 @ ₹10,000 p.m. x 15 months	900,000	
4.2.	Administrative, Financial & Reporting Services paid to LAYA @ ₹30,000 x 15 months	450,000	1,350,000 5%
5. HARDWARE & MONITORING SOLUTION			
5.1.	License fee for 6 LCF Monitoring solutions, with 5 modules, customised by Tristle @ ₹850,000 + 10.3% Service Tax = ₹937,550 each	5,625,300	

5.2.	8 Computer Server to load the intranet monitoring solution @ ₹115,000	920,000		
5.3.	5 VXL TC 3241 Thin Client (Windows XE) Terminals with monitor and keyboard/mouse per Server @ ₹22,000	880,000		
5.4.	Switch & Network and cabling @ ₹10,000 per Server	80,000		
5.5.	8 Two KV UPS @ ₹40,000	320,000		
5.6.	8 1.5 tonne Air Conditioners @ ₹28,000	224,000		
5.7.	55 Digital Cameras @ ₹6,500	359,667		
5.8.	111 Handheld E-Trek Instruments to take GPS readings @ ₹7,500	830,000	9,238,967	34%
6.	LABORATORY - INVESTMENTS			
6.1.	4 Gas Analysers @ ₹990,000	3,960,000		
6.2.	4 Gas Panels & Purifiers @ ₹80,000	320,000		
6.3.	4 Six KVA Online UPS with 16 batteries @ ₹165,000	660,000		
6.4.	4 sets of Soil Augers @ ₹30,000	120,000		
6.5.	54 Perspex Boxes x 4 @ ₹2,500	540,000		
6.6.	Lab furnishing (tables, dividers, doors, etc.) x 4 @ ₹50,000	200,000		
6.7.	Thermometers, Rain gauge and others	12,000		
6.8.	Thermometer probe for Perspex box inner temperature	4,000		
6.9.	Gas cylinders (Carrier gas + Calibration) x 4 @ ₹60,000	240,000	6,056,000	23%
7.	REFERENCE PLOTS			
7.1.	Preparation of land (Levelling and fencing an acre land, splitting into plots, bunding and other maintenance @ 3 plots per SA Practice + 3 plots per Mainstream Practice x 2 Crop(s) at each NGO where Referencing will be carried out	144,000		
7.2.	Subsidy to partially cover Farmer's input cost - seeds and fertilizers @ 3 plots per SA Practice + 3 plots per Mainstream Practice x 2 Crop(s) at each NGO where Referencing will be carried out	96,000	240,000	1%
8.	GHG SAMPLING			
8.1.	54 Mild steel metal base frames x 4 @ ₹1,500	324,000		
8.2.	250 Autoclavable rubbers (sampling port or septum) x 4 @ ₹50	50,000		
8.3.	150 Syringes with three-way stoppers and Vacutainers x 4 @ ₹200	120,000		
8.4.	Minor tools (mini fan, fixtures, wires, corks, adhesive etc.) x 4 @ ₹10,000	40,000		
8.5.	Bus fares and transport to collect daily GHG Samples from the Reference Plots @ ₹4,000 x 4	96,000	630,000	2%

9. PROJECT CERTIFICATION

9.1.	10% Project Cost as Professional Fee to the FCN towards salary of LCF Expert, travel, overheads, sourcing satellite imageries, studies and secondary data, methodology certification costs, etc.	2,439,172	2,439,172	9%
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Total			26,830,888	100%
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€ 419,233

6.2. Cash Flow

	Oct-Dec 2011	Jan-Mar 2012	Apr-Jun 2012	Jul-Sep 2012	Oct-Dec 2012
1. Training	654,000	577,000	352,000	20,000	20,000
2. Delineating Discrete Plots		1,068,750		225,000	
3. Staff Costs	660,000	660,000	660,000	990,000	990,000
4. Administrative Costs	270,000	270,000	270,000	270,000	270,000
5. Hardware & Monitoring Solution	8,049,300	830,000	359,667		
6. Laboratory Investments			6,056,000		
7. Reference Plots				240,000	
8. GHG Sampling			534,000	48,000	48,000
9. Project Certification	487,834	487,834	487,834	487,834	487,834
Quarter Totals	10,121,134	3,893,584	8,719,501	2,280,834	1,815,834

7. Assessment of Risks

7.1. Risks

7.1.1. Developing a Methodology

Insofar as identifying Participating Families and delineating their landholdings is concerned, there are no risks. These activities comprise of merely setting up of systematic activities to educate farmers, build up a good database on their landholdings. All 6 Participant NGOs have a proven track record in implementation efficiency.

However, when it comes to developing a Methodology to prove Emission Reductions from LCF, this is not easy. The 1st FCN-LCF Coalition took a leap in the dark. They postulated an internationally accepted approach to develop a Methodology. EDF, New York, is providing the Science for this trial.

This approach may or may not work in the Tribal belt of India where marginal crops are prevalent and the difference between mainstream and SA practices are minimal. Thereby, alongside the GHG Lab approach, we will also explore other routes, including an examination of existing Methodologies under CDM and VCS.

7.1.2. Implementing Sustainable Agriculture

In the 3 year Implementation Phase from 2013 to 2015, two parallel activities will take place:

- Scaling up of practices that Participant NGOs have been implementing in their project areas for several years with demonstrated success
- Actual implementation of Sustainable Agriculture practices.

Herein lies the risk:

1. Will Participating Farmers adopt the several SA practices they say they will, without reverting back to “easy” mainstream cultivation, year after year, or will it all be a wasted effort?
2. Will the NGO’s wherewithal and staying capacity be strong enough to continue providing SA Extension Services, while they simultaneously develop the Farmer Organisations with mature institutional mechanisms that will eventually pay for these services?

Will we be able to recognise and meet all the “unrecognised” requirements of holistic farming systems?

These include a genuine Farmer Organisation that takes total ownership, the decision making power that women enjoy in family cultivation, the involved participation of an excited youth, the need for timely credit, preservation of cattle, and a horde of subtle nuances that we have tried to communicate in our Strategic Plan.

7.1.3. Marketing the Emission Reductions

Market related risks in Low Carbon Farming are minimal. Unlike Energy CDM Projects where the Carbon Investor buys CERs/VERs in advance, Low Carbon Farming involves the sale of VERs *after they are generated*. Therefore, there is no serious business risk that the Project Proponent – be it the Participant NGOs or Farmer Organisations – has to face.

7.2. SWOT – Strategic Priorities

		Internal Environment	
		STRENGTHS	WEAKNESSES
Internal Environment	OPPORTUNITIES	<p style="text-align: center;">INVEST</p> <ol style="list-style-type: none"> 1. Scaling up working SA models (a) existing (b) add new (c) scale up and (d) locate 2. Creating physical assets for SA through NREGA etc. (land development, farm ponds, composite pits etc.) 3. Documenting and disseminating SA practices and experiences (media programme) 4. Production of Standard Practices Manual for Sustainable Agriculture 	<p style="text-align: center;">DECIDE</p> <ol style="list-style-type: none"> 1. Strengthening Farmer Organisations 2. Acquire irrefutable data on farmers and their landholdings 3. Making farmers credit worthy 4. Accessing carbon market 5. Active involvement in international and domestic carbon markets 6. Significant production and marketing of organic farm inputs 7. Capacity building of participant NGOs 8. Setting up Empowered LCF teams at NGOs
	THREATS	<p style="text-align: center;">DEFEND</p> <ol style="list-style-type: none"> 1. Identify appropriate SA practices and tap on friendly practices of government 2. Linking with existing advocacy markets 3. Engaging youth in designing and implementing LCF at each NGO 4. Strengthen women to participate in family level agriculture, decision making, crop choice 	<p style="text-align: center;">DAMAGE CONTROL/DIVEST</p> <ol style="list-style-type: none"> 1. Avoid areas where tenure cannot be established

8. Sustainability of the Project

8.1. Self-propelling Design of this Pilot Phase

This 15 month Pilot Phase consists of making solid preparations to implement Sustainable Agriculture practices, as a permanent alternative to mainstream cultivation, on the lands and lives of 7,500 Tribal and Marginal Farmers.

- 63% of the expenditure is on permanent investments that will enrich Participant NGOs and remain with them. These include 6% on training and capacity building, 34% on hardware and monitoring solution, and 23% to set up GHG Laboratories.
- 37% are costs that need to be repeatedly met, for the next 3 years, till 15,400 farmers are brought into the regime. These recurring costs are 5% on surveys and delineating discrete plots, 20% on staff and administration, 3% on sampling and 9% on technical support.

8.2. Implementation Phase (2012 crop season onward)

Insofar as the actual adoption of Sustainable Agriculture, there is a serious issue. Farmers can adopt SA practices only if their fields contain some amount of soil and moisture. Often times, in these dust blown arid tracts, there just aren't the ingredients needed to undertake any kind of farming whatsoever, let alone sustainable agriculture. Degraded environments can be rectified through SA, but how does one start?

The only possible solution is to *gradually* build up soil from an inert to a healthy state wherein it comprises of minerals, humus, biomass and everything needed to sustain healthy plant growth, through *non-ambitious interventions*. Hauling silt, crop rotation, mulching, etc. will be the preferred SA interventions as opposed to more advanced interventions like farm ponds, blue green algae and rearing ducks. The latter is not possible in semi arid drought prone regions that receive less than 560 mm of rainfall.

Degraded lands are not just caused by mainstream cultivation alone. They are also the result of an onslaught of bad weather, year after year. The problem is merely accentuated by a senseless adoption of over exploitative HEIDA practices that pillage land that has an already low carrying capacity.

The question is whether carbon income through the advance sale of VERs to be generated through LCF will be sufficient to incentivise farmers to adopt Sustainable Agriculture practices. An asking price of € 6 per Agricultural VER translates to just Rs 1,800 per hectare or Rs 720 per acre.

Every extra € that can be obtained through selling these VERs in a more informed and committed voluntary market will make a huge difference. That is why the simultaneous creation of a sympathetic domestic and international market is vital.