

## 1. General Information

### 1.1. Name of Applicant Organisation

TIMBAKTU COLLECTIVE (TC)  
Chennakothapalli Village & Post 515 101  
Anantapur District, A.P.,  
India.

### 1.2. Title of the Project

**2<sup>nd</sup> FCN-LCF Coalition Programme – Pilot Phase**

### 1.3. New or Extended Project

New project

### 1.4. Project Period

1 year Pilot Phase of a 5 year Coalition Programme

### 1.5. Project Funding Period

1 July 2011 to 30 June 2012

### 1.6. Total Project Cost

₹ 14,642,200 / € 232,416

### 1.7. EED Funding Request

₹ 14,642,200 / € 232,416

### 1.8. Other Funding Bodies

None

The Fair Climate Network will source € 27,540 for the next 6 month phase to complete this Pilot Project

## 2. Background of the Project

### 2.1. 2<sup>nd</sup> FCN Low Carbon Farming Coalition

The 2<sup>nd</sup> FCN-LCF Coalition comprises of 4 grassroots NGOs who share the goal of utilising carbon revenues to expand sustainable agriculture (SA) practices for small and marginal farmers. Like the first one, this FCN-LCF Coalition has also been formed under the Fair Climate Network, which will support Coalition members to access VER revenues.

They have a solid base in Sustainable Agriculture, having propagated various practices for several years. One amongst them also provides technical knowledge and skills to a Network of about 42 NGOs.

- Together, these 4 NGOs will develop skills and capabilities to interpret Sustainable Agriculture practices as emission reduction in this EED supported 1 year long Pilot Phase
- In the next 6 months, 6,000 farmer families in 121 villages will undertake Low Carbon Farming on 13,400 acres of rain fed dry land and earn carbon revenue
- With the capabilities built up, the 4 NGOs will expand operations every year, to finally take up LCF on 48,500 acres belonging to 23,000 families in 277 villages by the end of 5 years

		TC	GRAM	IIMF	WASSAN	Cumulative Total
Year 1	Farmers	1,300	2,000	2,000	650	6,000
	Acres	4,000	4,000	4,000	1,400	13,400
	Villages	35	35	35	16	121
Year 2	Farmers	1,300	4,000	4,000	1,600	10,900
	Acres	4,000	8,000	8,000	2,700	22,700
	Villages	35	55	55	20	165
Year 3	Farmers	2,500	6,000	6,000	2,100	16,600
	Acres	7,500	12,000	12,000	3,500	35,000
	Villages	65	75	75	23	238
Year 4	Farmers	2,500	6,000	6,000	2,500	17,000
	Acres	7,500	12,000	12,000	4,800	36,300
	Villages	65	75	75	25	240
Year 5	Farmers	3,500	8,000	8,000	3,500	23,000
	Acres	10,000	16,000	16,000	6,500	48,500
	Villages	85	80	80	32	277

## 2.2. 2<sup>nd</sup> FCN-LCF Coalition Members

Timbaktu Collective, GRAM, IIMF and WASSAN are 3 grassroots NGOs and 1 CBO who have got together, under the leadership of the Fair Climate Network, to form this 2<sup>nd</sup> FCN-LCF Coalition. They are long standing organisations who do credible work with small and marginal farmers in the Telengana and Rayalaseema regions of Andhra Pradesh, India.

Environmental Defense Fund (EDF), New York, is the 5<sup>th</sup> 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 the 4 districts covered by the Participant NGOs, please see the Strategic Plan.

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

### *Timbaktu Collective (TC)*

Timbaktu Collective is a registered Voluntary Organization initiated in 1990 to work for sustainable development of drought prone and ecologically challenged Anantapur District, Andhra Pradesh. The Collective works in 134 villages serving about 13,000 marginalized families with particular focus on women, children, youth and disabled from among the landless labour and small/marginal farmer families. The current programmes of the Collective include empowerment of women, natural resource management, organic farming and marketing, alternative education and child rights, youth and development of persons with disabilities. The collective has a well-trained team of 107 full timers as well as essential assets to carry out the projects currently implemented. The most important strength of the Collective is that it is deeply rooted at the grass roots while keeping its awareness in the global, thus having a good balance of social mobilization and technological innovations suited to the rural poor.

### *Gram Abhyudaya Mandali (GRAM)*

The goal and mandate of GRAM is empowerment of disadvantaged men and women including disabled persons in rural areas, through CBOs, to maximize their income resource base including land, livestock and other natural resources. GRAM's roots in Nizamabad and Adilabad districts can be traced to the forming of a cycle rickshaw puller cooperative society in 1980; organising 3800 SHGs that were networked into 20 MACS and further federated into "Indur Intideepam MACS Federation Ltd" (IIMF) with a combined membership of 50,000 women and 800 persons with

disabilities (PWDs). These CBMFIs are self managed, regulated and governed professional organizations drawing financial support from Banks for on lending to support members livelihoods.

#### *Indur Intideepam MACS Federation Ltd. (IIMF)*

IIMF is an apex federation of 20 community based organizations registered under AP Mutually Aided Cooperative Society (MACS) Act, 1995. These MACS have their membership from rural women from socially and economically backward classes. The members are engaged in primary production activities including agriculture, dairy, rearing of meat animals etc. and running micro enterprises like trading. This is done in 550 villages of Nizamabad and Adilabad Districts of Andhra Pradesh with a membership close to 50,000. IIMF has raised rupees six hundred million from different banks and financial institutions and has been repaying to all its lenders on time.

#### *Watershed Support Services and Activities Network (WASSAN)*

WASSAN is network-based organization specializing in natural resources management and livelihoods development programs based on watershed approach. WASSAN is 11 years old focussing on the objective of improving quality of mainstream NRM programs with respect to participatory processes, equity, gender, poverty eradication, community control leading to sustainable livelihoods enhancement in rain fed areas. WASSAN is implementing Integrated Watershed Management Project since 2010 as Project Implementing Agency (PIA) in Mehabubnagar and Rangareddy districts covering about 14,000 hectares funded by Government of Andhra Pradesh/Government of India.

### **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 627,000 tCO<sub>2-e</sub>

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<sub>2-e</sub> per annum over the next 14 years (total 163 million tCO<sub>2-e</sub>)

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 2<sup>nd</sup> 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 reject mainstream cultivation practices.

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, 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.

For a detailed description of SA practices followed by each Participant NGO, please see the Strategic Plan.

## 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 1<sup>st</sup> 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 1<sup>st</sup> 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 latter, 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. N<sub>2</sub>O 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. CH<sub>4</sub> emission reduction:  
Water management and organic matter management
  3. CO<sub>2</sub> 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 reductions <sup>1</sup>

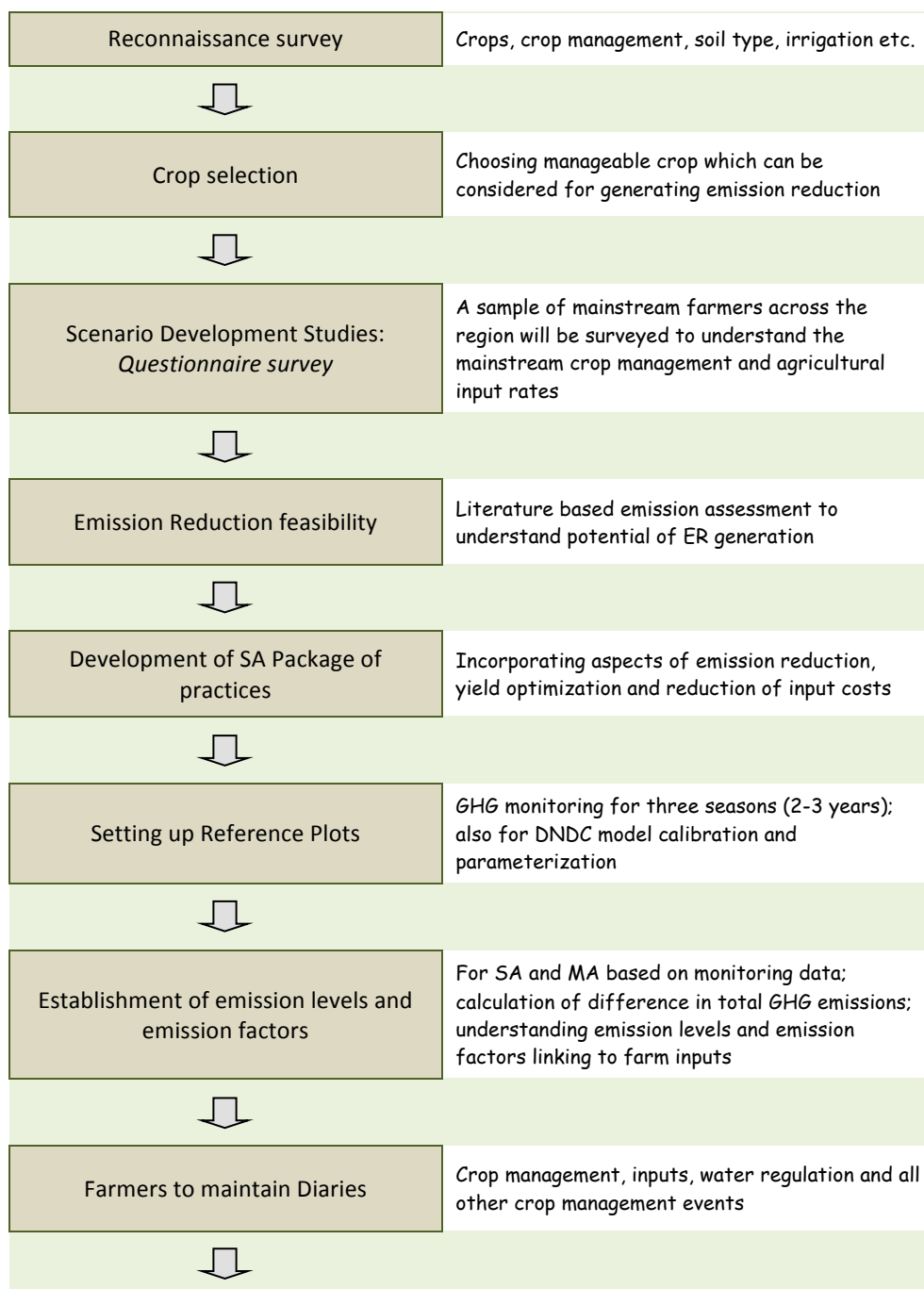
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<sup>1</sup> The De-nitrification Decomposition (DNDC) Model needs to be fed in with more than 100 factors or parameters for each cropping pattern, in each sub Agro Ecological Zone (AEZ), in order to calculate GHG Emissions from agriculture. About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

- 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.

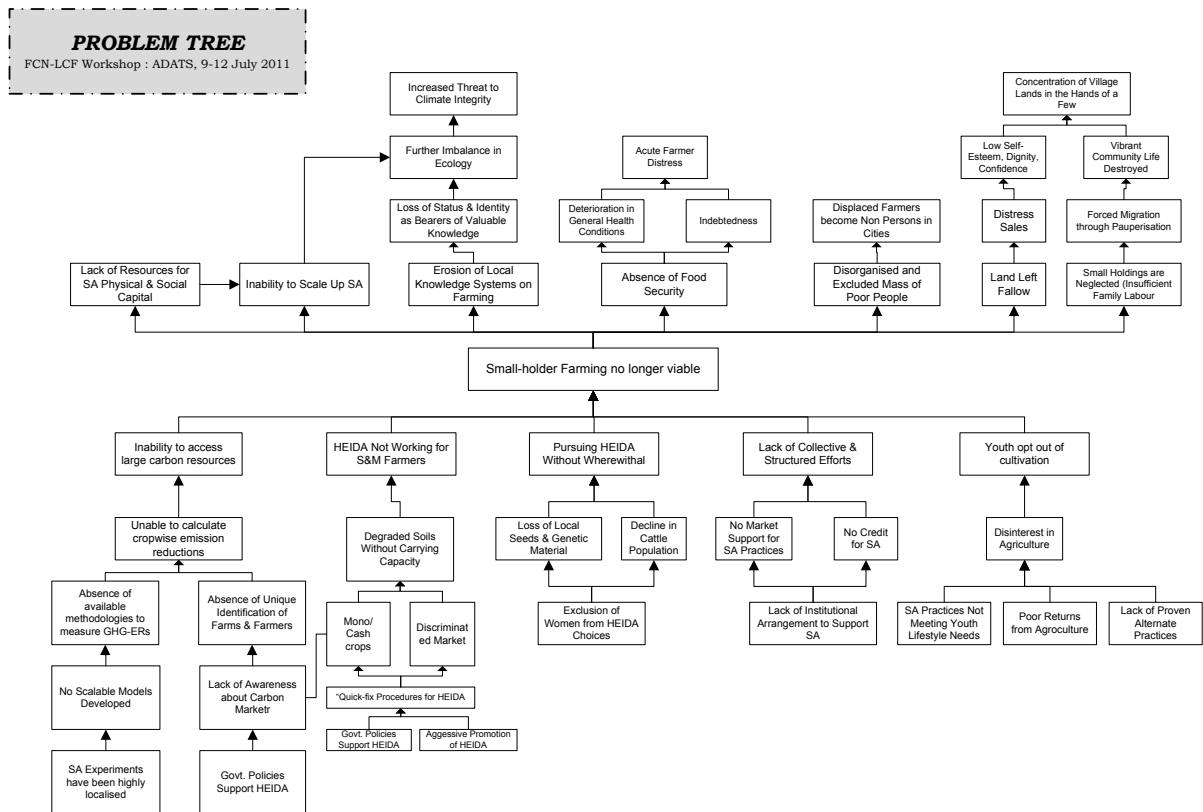
#### *Application of the Methodology*



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:

*“Small Holder Farming is no longer Viable”*

Small and marginal farmers are unable to meet rising input costs that do not have a proportionate rise in output. The ratio on increased investments is never in their favour. Moreover, they are not able to face the risk of crop failure during bad years when timely rains fail. Farm incomes drastically drop when cost of cultivation steeply increases.

Heavy indebtedness, distress sale of lands and forced migration quickly follow. A pauperisation of the peasantry, with the polarisation of their lands in the hands of a few who usurp them at distress prices, begins to occur, forcing the sellers to give up agriculture and become landless labourers. Small and marginal farmers are in the grip of acute distress due to the propagation of mainstream cultivation.

The vast majority of the rural population are an integral part of their ecosystems, with fates deeply intertwined in their immediate environment. When some among them get lured by mainstream



paradigms, it is not due to conscious choice, but rather as victims of a wider market design. Some would call them greedy. We prefer to term them economic players.

The only *lasting* successes we witness in the villages do not stem from cultivation at all. They are stories of small peasant families who have got out of dire straits due to a son or daughter getting a city job and remitting home every month to enable parents maintain a peasant-like lifestyle, more out of habit, custom and a fond remembrance of quaint memories, than because it makes economic sense. Even these stories are few and far between. The vast majority cannot complete the schooling of their children, and youth from their families are unable to get much coveted jobs as security guards, parking attendants, salespersons and garment factory workers. Their families are caught in a pathetic quandary and cannot maintain even a pretence of being contented farmers.

Pauperisation, polarisation and the abandonment of cultivation by small and marginal farmers is a study in itself. It is not an aberration with quick fix solutions. It is the consequence of a non-inclusive and eliminative growth path that High External Input Destructive Agriculture (HEIDA) pursues. Abandonment occurs not just in a series of preventable steps that families tumble down. But as the result of a damning realisation that agriculture is no longer for them. It is a defeatist state of mind.

This is the reason why many NGO “agriculture extension programmes” of yore no longer work. Training on techniques, supply of certified seeds, timely credit, demonstration plots, marketing support, *et al* last only as long as the effort of the secondary stakeholder prevails.<sup>2</sup>

Short-sighted government schemes and measures also have dangerous environmental consequences. 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. This last acts as a catalyst to aggravate the problem even further, since it is a critical shortage of biomass and cattle that leads to a drop in soil productivity in the first place. It’s a chicken and egg issue that spirals the problem.

There isn’t any concerted effort, backed with good science, to support small 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. When such concerted efforts, at scale, are conspicuously absent, there is no informed intelligentsia who can use experiential learning to garner public support for green products, efforts and movements.

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.

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:

1. When people do not grow their own food, they starve
2. Mainstream agriculture makes a sardonic reversal of the population’s diet intake:
  - The healthy and wholesome “poor man’s food” of yesteryears, millets, pulses, grams and “marginalized” grains, are produced wholesale by large corporate farms and “value added” to make up the healthy diet of today’s rich man.

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<sup>2</sup> Sustainable Agriculture is not a repackaging of old wine in new bottles. It is conceived in the boundaries of a totally different paradigm. It’s starting point is an outright rejection of HEIDA. It attempts the introduction of Integrated Farming Systems with Self Sufficient Farmers & Sustainable Livelihoods – an integration of trees, crops and animals at the household level.



- The “rich man’s food” of yesteryears, rice and wheat, which are nothing but sugar and body mass, is dumped through the public distribution system on a hapless population at heavily subsidized prices.

Little wonder at the 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 doesn't.

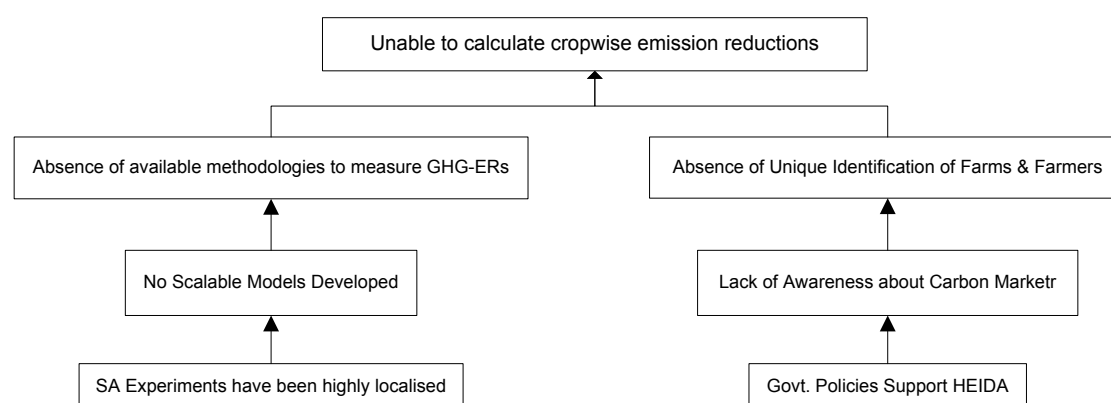
In either case, dependence on any market mechanism by a people who have zero risk taking capacity leads to indebtedness. Cumulatively, they lead to acute farmer distress, the most tolerable of them all a quick death due to hanging without even the basic human luxury of pondering on the plight in which this would leave the widow and children...

### 3.3. Main Problems

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

1. Inability to Access large Carbon Resources
2. High External Input Destructive Agriculture not working for Small & Marginal Farmers
3. Pursuing HEIDA without Wherewithal
4. Lack of Collective & Structured Efforts
5. Youth Opt Out of Cultivation

#### 3.3.1. Inability to Access large Carbon Resources



##### *SA Experiments have been Highly Localised*

Many grassroots NGOs, including the 4 Participants of this 2<sup>nd</sup> FCN-LCF Coalition, have been involved in promoting Sustainable Agriculture practices for several years. For many, this has been a natural continuum of mini and micro watershed work they have done for years on fields belonging to their clientele – small and marginal farmers in drought prone regions.

##### *No Scalable Models Developed*

However, these SA practices of grassroots NGOs could never be scaled up to be offered as an effective alternative to mainstream cultivation. They stayed as pilot demonstrations on a few fields. As a result, their work could not be presented as a quantum alternative to mainstream practices. They did not become Models.

##### *Absence of Available Methodologies to Measure GHG Emission Reductions*

Sustainable Agriculture did not capture the imagination of climate activists and climate change scientists. No methodologies were developed to calculate the GHG emission reduction potential inherent in their work.

In part, this was because a *Shudra* science, to simplify what is essentially an application of common sense, never developed. Climate activists and scientists were too busy debating hair-splitters amongst themselves. The need to involve populations negatively effected by climate change never entered their consciousness. Adaptation was not in their vocabulary and Mitigation translated into cerebral policy choices, subtly steered by the industrial powers that be.

#### *Government Policies Support HEIDA*

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.*<sup>3</sup> While this commoditised agricultural production and facilitated entry into the market economy, cultivation ceased to be a sustainable livelihood pattern for the peasantry. A compartmentalised approach to agriculture, by definition, promotes mono-cropping. Even on rain fed fields, multiple cropping is discouraged.

There are 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 an inter-dependency on the other. Strategies adopted for so-called increase in productivity are all based on a narrow, technical and sectoral detailing of each piece, with not just a non-understanding of the whole, but even a pretended expertise that showed blatant disdain to holistic appreciation. All this in the name of science, making a mockery of that body and discipline of knowledge, so vital for a sensible human intervention with nature. Willy-nilly, they promoted a High External Input Destructive Agriculture (HEIDA) paradigm.

#### *Lack of Awareness about Carbon Market*

Government policies unashamedly support HEIDA, as much due to mistaken economic policies as an inherent tendency to support the agro-industrial class. This led to a general lack of awareness of the carbon market in general, and land based mitigation activities/calculations in particular.

#### *Absence of Unique Identification of Farms & Farmers*

Grassroots NGOs haven't developed a results oriented management culture, along with the rigour to measure and monitor. In this donor-recipient world a few success stories, presented as shining examples, passed off as achievements. Tall claims and aggregated figures were not supported with cumulated totals. As a result, basic organisational efficiencies stayed undeveloped. Staff skills were poor, computer usage primitive, and email discipline absent. As a result of this, farmers were treated as groups of beneficiaries and data was most often approximated to rounded values. NGOs did not even have unique and irrefutable Identification of villages, farms and farmers they worked with.

Low Carbon Farming, is not putting old wine into new bottles. It requires a rigour and discipline to verifiably prove that SA activities are actually reducing emissions when compared to the baseline derived from mainstream cultivation. This requires a heavy initial investment at the Participant NGO level (which will be defrayed, over time, when more and more lands are brought under LCF) and also in terms of expertise and scientific backup. The former, in itself, is difficult for many grassroots NGOs to bear. The latter is well nigh impossible to meet individually, in term of cost as well as resource availability. This is a sound argument for forming Coalitions.

#### *Unable to Calculate Crop-wise Emission Reductions*

The generalist manner in which NGOs tend to work was also a serious contributor. Grassroots NGOs applied a scientific temper to alternate technologies derived from native wisdom that withstood the test of time of thousands of years and developed SA practices. Yet they were unable to grasp the

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<sup>3</sup> The 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.

science and math needed to come to grip with concepts of climate change, adaptation, mitigation, emission reduction and carbon trading. Though they used SA practices in small scales, there were no attempts made towards scalability of such efforts.

It is a real fact that calculating emissions is meticulous work that needs to be backed with faultless science. Each SA practice has a different emission reduction potential. The impact of these practices differ greatly from place to place due to several factors. Variations need to be precisely documented and mathematically factored. Every discrete plot has to be mapped using GPS and GIS. All of this involves heavy math and science that perplexes the average development worker. Though there have been attempts to create models of SA practices, the complexity of crop-wise calculation of emission reduction and absence of available methodologies to measure GHG and Emission Reduction has kept the development organisations from accessing the carbon market.

#### *Inability to Access Large Carbon Resources*

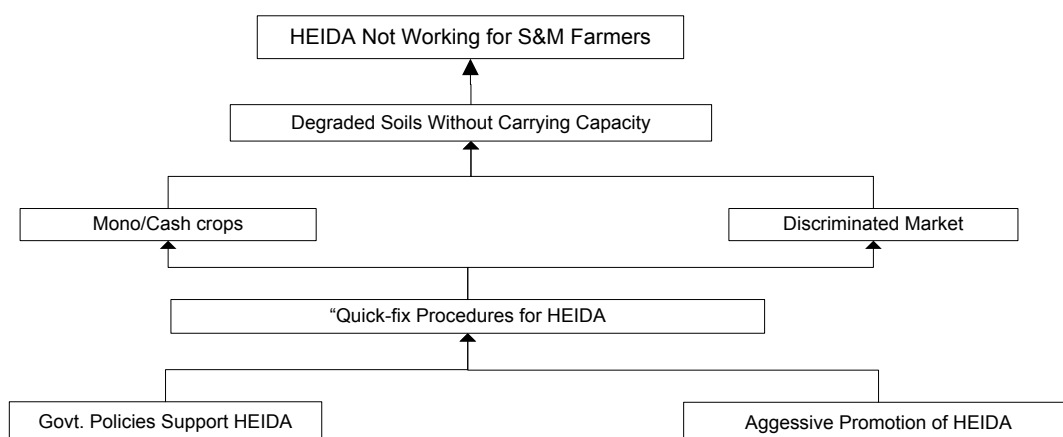
Lack of capacity to access carbon resources is taken as a given. But is this true? Or are NGOs and CBOs, like sundials in the shade, sitting on latent and unexplored potential? CBOs they have built possess the organisational structure, but not the institutional arrangement to pool the emission reductions they individually generate at the farm level, and aggregate them into a single unit of sum and substance for the market. This requires some education and external support. But when communities have grasped the complexities of village level socio-political dynamics to alter power relations in their favour, how is this a challenge?

Since the emission reduction factor is so low in agriculture, hovering around 2 tCO<sub>2-e</sub> per acre per crop, and also due to a low price of less than € 6 per VER, even such aggregation doesn't add up to the volume needed for trade in the voluntary carbon market. A super aggregation of sorts, across several grassroots NGOs, is needed if we have to play from a position of strength. This is another compelling argument for getting together in Coalitions.

Reorienting long established NGOs with presence and proven staying capacity to develop business acumen and deal with the market is not easy. It needs a total reengineering, shedding all established comfort zones and venturing into the unknown. Mutual support, learning, handholding and morale boosting to deal with self doubts and organisational panic are essential. Only a focused coalition, business like and professional, can buoy up this novel adventure.

The tragedy is that even today, there is a lack of real awareness about Carbon Markets; it is a real and perceived paucity of funds that is driving northern and southern NGOs to look at market resources and commercial moneys. Not a self realisation of deficiencies they cannot live with in this day and age.

### 3.3.2. HEIDA not working for Small & Marginal Farmers



### *Aggressive Promotion of HEIDA*

When the government aggressively pushes HEIDA, mainstream prescriptions come to dominate in every sphere. Be this in access to information, technologies, facilities, credit, markets, as also a general acceptance of standard practice. Direct and indirect support and subsidies are provided to follow these prescriptions. They range from the provision of extension services for particular crops, fertilizer subsidies, fixing procurement prices for chosen cereals, insurance cover for certain cash crops, to selective R&D, media propaganda and compelling advertisements that pass off as knowledge dissemination.

When SA practices are successfully demonstrated to a handful of farmers on small portions of their holdings, it rings a bell. But... The mainstream paradigm portrays them as aberrations that were somehow pulled off; one time exceptions that happened to work...

An open acknowledgment that Sustainable Agriculture practices are labour intensive and demand attention to detail, contrasts unfavourably with the deliberately falsified claims of mainstream agriculture where outcomes are projected as being predictable, uniform, and almost automatic. All this translates into insufficient incentives to shift to Sustainable Agriculture and face inherent and natural, cyclical and weather uncertainties that any cultivation entails.

### *"Quick-fix" Procedures for HEIDA*

When a capitalisation of agriculture started occurring, traditional wisdom in farming systems is gradually given a go by. Rejuvenating it will required a concerted effort on the part of an enlightened intelligentsia who accompany small and marginal farmers. This did not happen. It is vital to note that the loss was of an entire paradigm of knowledge and reasoning; an explanation of cause and effect; the *raison d'être* that supported a holistic system of farming. A wisdom that we now suspect has the tenacity to withstand the onslaught of climate vagaries and other externalities. When such a major lapse was allowed to happen, almost silently, it is no big surprise that alternate technology based on science was not developed.

Economic activities are driven by returns on investments, and herein lies the paradox. On the one hand are claims of profitability and high returns, backed by success stories of big landholders. On the other, constant losses, year after year, always attributed to supposed externalities like laziness, disinterest, failure of rains, *et al*. The law of diminishing returns is not mentioned, and the fact that the carrying capacity of the land has peaked due to over exploitation is glossed over.

Small and marginal farmers are not a monolithic lot, all moulded in the same caste-class characteristics. Among them are the lazy and the enterprising, the hapless and the lucky few. Some manage to get good results when they adopt SA practices. Others don't. More often than not, the latter become the beacon bearers of the effort. The very same externalities that are used to explain away pauperisation and acute farmer distress, are ignored when it comes to failed SA experiments. Such is the prerogative of the mainstream. The net result is that farmers are confused into believing that they have no real alternatives to choose from. They are caught between a rock and very hard place, damned if they do and damned if they don't.

### *Mono crops & Cash Crops*

Time tested practices like *Navadanya* (the planting of nine varieties, alternating rows on every field) had evolved, over centuries, had a judicious mix of deep rooted and shallow rooted, tallers, dwarfs, creepers and bushes, to suit to different soils, like shallow, deep or sandy; to meet varied family needs in the pre-market epoch. Each crop had a different stand and was harvested at a different time, though sown around the same time. They were native strains that could be reused through the practice of domestic seed banks. These practices acted as an insurance against total failure of a single crop. They were symbiotic and a deterrent against certain pests and diseases. Crop residues enriched the soils with organic matter. Just as with the destruction of local crafts to create a proletariat class, practices that offered even a semblance of independence to the peasantry were deliberately targeted by HEIDA.

Mono crops are vulnerable to pests and diseases and demand an increased use of agro chemicals. Soil productivity visibly drops. Protagonists of HEIDA were quick to cover up a catastrophe in the making. They confused soil fertility with soil productivity and began to use the terms interchangeably.

#### *Degraded Soils without Carrying Capacity*

Soil fertility refers to the chief nutrients that crops (plants with an extremely short stand) need for their growth. These are 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.

Soil productivity, on the other hand, 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. It is this holistic quality of soil productivity that supports sustained plant growth and survivability.

The nomenclature “soil” can quite conveniently be removed from “fertility” and even an inert media can be made to temporarily support short stand crops that have a limited lifespan of only a few months. But for a sustained (here meaning 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.

Mainstream cultivation produces hardly any biomass since the land is regarded as a medium to exploit, rather than preserve and nurture; an input that factors in a narrow arithmetic that passes as economics. Such is the outcome when a people who are distant and removed from the ecosystem plan and implement models of development; a colonisation of alien terrains that they don't appreciate as being part of a whole.

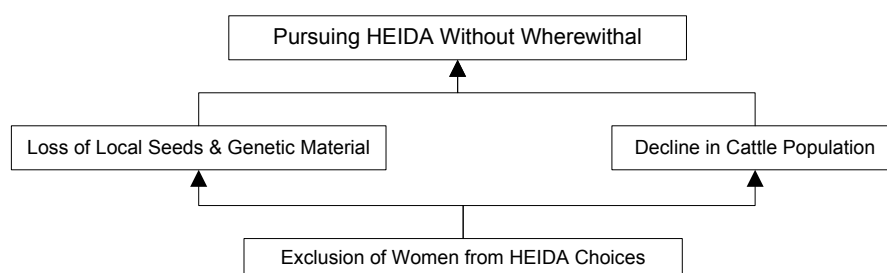
The productivity of the soil, this supposed alien terrain, falls to critical levels with an absence of humus, manures and moisture. In an integrated farming system, factors causing and sustaining soil productivity go beyond farm boundaries into common lands, pastures, forests, cattle, birds and scores of other living and non-living organisms. There would be an effective interplay between all these elements with the natural principles of recycling, symbiosis, antibiosis and diversity. The range of Sustainable Agriculture practices that grassroots NGOs could propagate decreased to just a handful that could still be advocated in close to sterile landscapes.

#### *HEIDA not working for Small & Marginal Farmers*

Many small and marginal farmers continued to imitate mainstream cultivators and burnt their fingers.

Grassroots NGOs knew, from first hand contact with acute farmer distress, that small and marginal farmers had neither the financial wherewithal nor risk taking capacity to enter mainstream agriculture practices that bank on high external inputs like agro chemicals and costly irrigation. More importantly, they intuitively questioned the environmental sanity of such practices.

### 3.3.3. Pursuing HEIDA without Wherewithal



### *Exclusion of Women from Cropping Choices*

Women in mainstream cultivation are treated as free and unpaid helping hands available for family cultivation. They are rewarded with far less than what a farm labourer gets. Not being exposed to the agriculture market economy, not having school/college education, helps maintain the myth that they are incapable of decision making. Even outside their families, women are not considered farmers and never given a say in crop choice and cropping practices.

But where organised into CBOs through gender sensitive efforts of grassroots NGOs, Women have broken every single one of these stereotype myths. They make sound and sensible crop choices, keeping family sustenance in mind. They do not abandon food crops for cash crops. A judicious mix of crops and *Navadanya* is their preferred choice. They keep native cattle alive. They refuse to invest beyond their means, even when temptation lures their men folk into credit they cannot clear. Mutual cooperation, with an exchange of family labour, is the natural practice.

### *Loss of Local Seeds & Genetic Material*

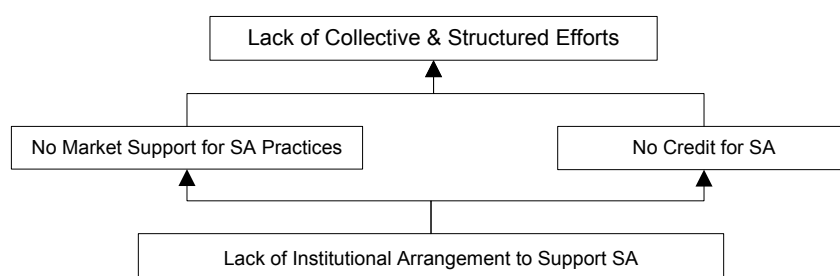
HEIDA has successfully brought about the destruction of traditional seeds and wild gene pool through the introduction of hybrid and genetically modified variety of seeds. Farmers wanted best return on their inputs and were lured into using these seeds that brought along with it the accompanied need of chemical fertilizers and pesticides. The use of traditional manure/pest management like cow dung and urine, bio compost, neem cakes diminished from the scene as more and more chemicals options emerged in the market; not only that these chemicals were subsidised and made creditable through government policies.

Finding high initial return on investments (due to subsidies and original soil fertility) farmers adopted HEIDA practice not realising the destruction it caused to humans and nature alike. Millets, local pulses, gram seeds disappeared and rice and other mono/cash crops like sunflower, groundnuts started appearing in the scene. The practice of mixed cropping disappeared as these were never subsidised or provided credit for.

### *Decline in Cattle Population*

These crops also brought about diminishing fodder as traditional crops were discontinued and animals were not used to bio waste produced by some of the new mono crops. On the other hand if the crop failed on small holdings, farmers had nothing to survive on since, unlike with mixed cropping when one crop fails there are others to fall back upon. Both factors contributed to the loss of cattle, either by death or distress sales for families to tide a moment with the paltry sums these sales fetched.

### 3.3.4. Lack of Collective & Structured Efforts



### *Lack of Institutional Arrangements to support SA*

The single institution that Sustainable Agriculture banks upon for its success is a strong and functioning CBO with structure and discipline, genuine bottom-up planning, openness, transparency and answerability. For such a Farmer Organisation to instil a sense of Purpose, it needs to encompass every single facet of family life. It cannot be a watershed committee or beneficiary organisation or functional group designed to foster participation in predetermined plans and budgets.

This is the single biggest challenge that grassroots NGOs face. The will and ability to bring about a radical shift in NGO-CBO relationship. Most NGOs have shaped “their” CBOs along lines that meet their programme requirements – women’s groups, health groups, farmer groups, *et al.* These have distinctive functions and are tailor-made for roles they play. At one level, it may appear that a similar village grouping can take on a role suited to LCF. When the role is broken into managerial subsets of activity processes, tasks and jobs, it gives the impression that yet another functional grouping is all that is needed.

This won't do when it comes to Sustainable Agriculture. Because SA is not just about farming. It is not just the cultivation of crops. It is not only about making profits from land as capital. It is a holistic way of living. It is a healthy balance between crops, animals, trees and human beings. The Farmer Organisation that crucibles the promotion of SA has to be involved in every facet of the farmer families’ lives.

Unlike the charity model, even run-of-the-mill business carried out with commercial moneys requires a far higher standard of verified deliverables. New age business, which is what the aggregation of carbon credits and selling them in an emerging market is all about, demands far more. Low Carbon Farming, like any other CDM Project, needs a passionate sense of ownership and genuine control by primary stakeholders to steer thousands of individual actions to fruition. Dependence on farm level interventions is absolute, and has to stay uncompromised. The business will succeed or fail depending on farmer families’ effort and contribution. Participant NGOs who accompany them can steer these processes thus far and no farther.

### *No Credit Available for SA*

SA needs a judicious mix of social, physical and monetary capital that only a people who are deeply immersed in holistic farming can recognise; inputs that are not even interpreted as agricultural by the experts.

Many NGOs have become free or underpaid social contractors who implement government programmes in a selfless and efficient manner. The vast majority of them have no say in the formulation of policy and very little, if any, in actual implementation detail.

This is particularly true in large land based interventions and also in the delivery of rural credit. Quite apart from these being narrowly sectarian, *they promote the mainstream paradigm of development.*

### *No Market Support for SA Practices*

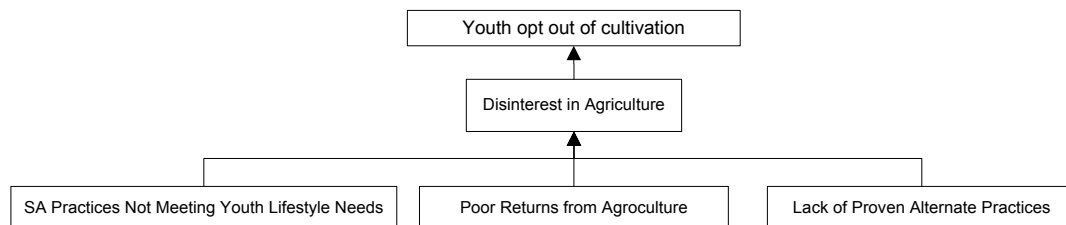
A weak social consciousness in a burgeoning middle class that is being created for the past decade and a half is only to be expected. The *nouveau rich* in any emerging economy behaves the same – with a greedy self interest to stay where they have clambered onto by a fortuitous combination of education, contacts, business acumen and, above all, good fortune. Therefore, the application of the same principles of environmental philanthropy that works in the West may not work.

A new generation of urban elite is developing in the managerial classes in India. One that is exposed to the rationale of international business acumen; they are quick to realise that it makes sound *business sense* to go green. Be it to create a politically acceptable facade, or driven by an environmental consciousness, or merely to satisfy global marketing requirements, it doesn't matter a fig to our strategic planning. They have vague notions of footprints and offsets, but all knowledge stops there. They don't have a clue as to how to proceed further. They are intelligent enough to



recognise that slogans at the level of switching off lights in unoccupied rooms and switching off the engine at traffic lights go so far and no further. They are hungry for emission reductions that are certified and, at the same time, have a good mitigation story behind them.

### 3.3.5. Youth Opt Out of Cultivation



An issue with subsistence cultivation carried out more as a custom or tradition, is that it offers very little excitement to the participants. On the other hand, when small and marginal farmers attempt to imitate mainstream capital intensive practices of the *Ryots*, they land themselves in a soup due to insufficient knowledge, inadequate capital, and an extremely low risk taking capacity.

The younger generation of farmers' sons and daughters get increasingly alienated and look to other, often non-existent, economic opportunities which are also way beyond their reach. Unmet expectations and unsated dreams lead to a general frustration and discontent in the countryside.

The possibility of being agriculturist, as a career option does not excite the youth as they see it has no dignity attached to this entire livelihood option. Large corporate farming might look lucrative but is not accessible to the younger generation of farmers' children. Acquiring higher education means moving away from agriculture amongst the youth today, this is because subsistence agriculture does not provide enough for a comfortable life as perceived by the youth. The issue of dignity further dampens the spirit of young women and men as farmer is considered to be in the lower rungs of the class ladder.

Through Low Carbon Farming, we can try to bring an excitement into agriculture, using environmentally sound, state of the art technologies that are not mainstream. This will absorb schooled and educated peasant youth in productive activities in an expanded rural economy. Skilled and motivated labour force will be engaged in profitable cultivation, with regular and reliable income. Field crops will be grown mainly for food security. Non-Farm jobs and economic activities will be created through an increase in biomass.

## 4. Expected Outcome and Impact

### 4.1. Development Goal

INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<b>DEVELOPMENT GOAL</b>			
<ul style="list-style-type: none"> <li>□ Small Holder Farming Establishes Viable Climate Mitigation Strategies through LCF</li> </ul>	<ul style="list-style-type: none"> <li>• Methodology Accepted by International Community</li> </ul>	<ul style="list-style-type: none"> <li>⇒ DNDC Model Calibrated for all main Crop(s) grown by Small &amp; Marginal Farmers in different AEZ's</li> <li>⇒ Voluntary Carbon Market recognises VERs Generated by LCF as Pro-Poor Fungible Instruments</li> </ul>	<ul style="list-style-type: none"> <li>• LCF can be Applied to Marginalised Crops grown by Poor Farmers</li> </ul>

### 4.2. Project Purpose

INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<b>PROJECT PURPOSE</b>			
<ul style="list-style-type: none"> <li>○ NGO Capabilities Enhanced and LCF Model Established for Viable Small Holder Farming</li> </ul>	<ul style="list-style-type: none"> <li>• Increased Returns to Small, Marginal &amp; Rain fed Farmers</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Monitoring Against Baselines by Village Communities</li> </ul>	<ul style="list-style-type: none"> <li>• Participating Farmers do not Succumb to State Supported Corporate Invasion by:               <ul style="list-style-type: none"> <li>⇒ Adopting Mainstream Practices</li> <li>⇒ Selling off their Lands</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• Annual Increase in Number of Participating Farmers in each NGO Area of Coverage</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Online Reports generated by Monitoring Software</li> </ul>	
	<ul style="list-style-type: none"> <li>• Annual Increase in Proportionate Area under Sustainable Agriculture vis-à-vis Total Landholding</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Online Reports generated by Monitoring Software</li> </ul>	
	<ul style="list-style-type: none"> <li>• No. of 3rd Party Verifications Cleared</li> </ul>	<ul style="list-style-type: none"> <li>⇒ tCO<sub>2</sub>-e of Verified Emission Reductions issued</li> </ul>	

### 4.3. Project Objective

<b>INTERVENTION LOGIC</b>	<b>OBJECTIVELY VERIFIABLE INDICATORS</b>	<b>MEANS OF VERIFICATION</b>	<b>ASSUMPTIONS</b>
<b>PROJECT OUTPUTS</b>			
A. 4 PARTICIPANT NGOs LEARN TO ACCESS LARGE CARBON RESOURCE	A.1. LCF Teams Up and Functioning at each NGO	⇒ 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	⇒ Quarterly Coalition Meetings	
	A.3. 13,400 acres Identified & Plotted by 4 Participant NGOs by June 2012	⇒ Area of Discrete Plots Delineated ⇒ No. of Title Deeds Recorded ⇒ No. of Carbon Contracts Executed	
B. 4 FARMER ORGANISATIONS FORMED AS INSTRUMENTALITY TO AGGREGATE CARBON CREDITS & TAKE LCF FORWARD	B.1. Legal Incorporation	⇒ Registration Documents ⇒ Audited Finance Statements ⇒ Internal Assessment Report against FCN Standards	
	B.2. Caste & Sex Parity in the Membership & Elected Leadership	⇒ Gender Analysis of Membership ⇒ Quality of Participation in Decision Making	
	B.3. 6,000 Participating Farmers Aggregate Carbon Credits with their respective Farmer Organisations by December 2012	⇒ 6,000 Signed Carbon Contracts	
C. PARTICIPATING FARMERS ADOPT SUSTAINABLE AGRICULTURE PRACTICES	C.1. 6,000 Participating Farmers adopt listed SA Practices by the 2012 crop season... ...23,000 Farmers by the 2017 crop season	⇒ Online Reports generated by Monitoring Software	<ul style="list-style-type: none"> <li>• Empowered Women fully involved in Family Cultivation</li> <li>• Youth find Meaning and Excitement in SA Farming</li> <li>• Participant NGOs have Resources &amp; Wherewithal to undertake SA Extension Services</li> </ul>
	C.2. 13,400 Acres of Land Holdings Irrefutably Identified & Delineated by 2012... ...48,500 Acres by 2017	⇒ 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. 2 FIELD LABORATORIES SET UP TO MEASURE GHG EMISSIONS	D.1. Field Laboratories Functional at 2 NGOs by June 2012	⇒ Procurement of Lab Equipment ⇒ Inspection by FCN Tech Team	
E. EMISSION REDUCTIONS CALCULATED	E.1. DNDC Model Calibrated by end of 2014 crop season	⇒ Crop(s) & Practices Listing by DNDC Authority for each AEZ	

#### 4.4. Added Value

All 4 Participant NGOs are grassroots bodies situated in the midst of the people they work with. They have developed an intimacy with communities and assisted the poor attain a good degree of organisation. Now, with the taking up of this 2<sup>nd</sup> FCN-LCF Coalition Programme, these bonds with communities will not only get strengthened, but new structures and institutions will be formed for the aggregation of carbon credits and collective dealings with the larger economy.

Communities of the poor will cease to be “beneficiaries” and “target groups” of the NGOs. They will instead become formal, institutionalised and actual partners of the NGOs. This will usher a change in the organisational structure and culture of the NGOs themselves, transcending the mode that had developed a generation ago, and define the parameters of a new-age service delivery civil society.

#### 4.5. National Poverty Reduction Strategy

The 2<sup>nd</sup> LCF Pilot Phase, just as the first one, is aligned with India’s national poverty reduction strategy in a number of ways.

##### *Improved profitability*

The end goal of the 2<sup>nd</sup> 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 2<sup>nd</sup> 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 2<sup>nd</sup> 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 2<sup>nd</sup> 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 2<sup>nd</sup> 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 4 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 Bablu Ganguly, TC, and Ram Esteves, FCN.
- Timbaktu Collective will appoint a Coalition Accountant to manage financial matters, purchase and management of assets, etc.
- Each of the 4 Participating NGOs will appoint an LCF Coordinator with technical/computer skills to implement the LCF Pilot Project at each NGO.  
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 Low Carbon Farming Teams, consisting of the LCF Coordinator, other NGO Staff, and village Volunteers.
  - 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 Project Participants

- 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 5 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 6,000 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
  - Participant NGOs 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.
- 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 LCF Teams to correctly code data gathered in the survey formats.
  - LCF Teams, Volunteers and Village Committees will conduct the data collection across all of 6,000 selected project participants.
  - 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
  - LCF Expert 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
  - LCF Expert 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 40 E-Trek instruments (handheld GPS recording devices), one for each Village Volunteer.
  - Each LCF Team and Village Volunteers 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 6,000 polygons that comprise their landholdings.
  - Farmer Organisations will resolve silly/serious boundary disputes between neighbours.
  - Village Volunteers 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 6,000 landholdings that comprise 13,400 acres.
- 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 6,000 Participating Farmers.

## 5.8. Setting up 2 GHG Laboratories

- Developing the Scenarios at Nizamabad & Rangareddy districts
  - The LCF Expert will administer Questionnaires in order to identify, major Soil Types in NGO area 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 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 4 project area.
  - 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 2 GHG Laboratories at the 3 sub Agro Ecological Zones that the 4 Participant NGOs cover:
  - AEZ 6.2 – GRAM, Nizamabad district
  - AEZ 7.2 – WASSAN, Rangareddy district

IIMP at Adilabad falls in the same AEZ 6.2 as GRAM, and Timbaktu Collective operates in the same AEZ 3 as two Participant NGOs of the 1<sup>st</sup> FCN-LCF Coalition
- 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 GRAM and WASSAN.
- Mild steel metal base frames, Autoclavable rubbers, Syringers, Vacutainers and Minor Tools will be procured for taking GHG Samples from mainstream and SA Reference Plots.

## 6. Project Budget

<b>1. TRAINING</b>				
1.1.	Food and accommodation to hold 6 FCN-LCF Coalition Meetings at ADATS, Bagepalli @ ₹ 20,000 per meeting	120,000		
1.2.	Cost of preparing LCF awareness building material and modules; translating into colloquial languages @ ₹ 10,000 per NGO	40,000		
1.3.	Food costs & logistics to conduct Gram Panchayat level meetings to explain Pilot Project details to 6,000 Participating Farmers @ ₹ 30	180,000		
1.4.	Travel & incidental cost for 40 Field Staff & Village Volunteers to attend GPS training at Bagepalli in 4 NGO-batches @ ₹ 500	20,000		
1.5.	Food and accommodation for 40 Field Staff & Village Volunteers @ ₹ 500 p.d. x 8 days	160,000		
1.6.	Local Transport to visit Bagepalli villages and take training readings for 3 days per batch @ ₹ 2,000	24,000		
1.7.	Trainer Fee for 4 batches @ ₹ 40,000	160,000	704,000	5%
<b>2. DELINEATING DISCRETE PLOTS</b>				
2.1.	Cost of printing 6,000 formats and stationery @ ₹ 2.50 per format	15,000		
2.2.	Cost of planting an average of 7 bond stones on the corners of 6,000 land holding @ ₹ 20 per stone	840,000		
2.3.	Stipend for 40 Village Volunteers to conduct demographic surveys and take GPS readings in their respective Project Areas @ ₹ 1,500 p.m. x 4 months	240,000		
2.4.	Legal costs to execute 6,000 individual Carbon Contracts with Participating Farmers @ ₹ 30	180,000	1,275,000	9%
<b>3. STAFF COSTS</b>				
3.1.	Salary of 1 LCF Facilitator @ ₹ 40,000 x 12 months	480,000		
3.2.	Salary of 1 Coalition Accountant @ ₹ 25,000 x 12 months	300,000		
3.3.	Salary of 4 LCF Coordinators with technical/computer skills to implement the LCF Pilot Project at each Participant NGO @ ₹ 20,000 p.m. x 12 months	960,000		
3.6.	Staff Fund to cover Mediclaim Insurance, other health benefits for staff and their immediate families, reasonable schooling expenses of staff children, house rent, provident fund, gratuity, etc.	174,000	1,914,000	13%
<b>4. ADMINISTRATION COSTS</b>				
4.1.	Travel, telephone and other overheads per NGO x 4 @ ₹ 10,000 p.m. x 12 months	480,000	480,000	3%
<b>5. HARDWARE &amp; MONITORING SOLUTION</b>				
5.1.	License fee for 4 LCF Monitoring solutions, with 5 modules, customised by Tristle @ ₹ 937,550	3,750,200		
5.2.	4 Computer Server to load the intranet monitoring	460,000		

	solution @ ₹ 115,000			
5.3.	5 VXL TC 3241 Thin Client (Windows XE) Terminals with monitor and keyboard/mouse per NGO @ ₹ 22,000	440,000		
5.3.	Switch & Network and cabling @ ₹ 10,000 per NGO	40,000		
5.4.	4 Two KV UPS @ ₹ 40,000	160,000		
5.5.	2 1.5 tonne Air Conditioners @ ₹ 28,000	56,000		
5.6.	40 Digital Cameras @ ₹ 7,500	300,000		
5.7.	40 Handheld E-Trek Instruments to take GPS readings @ ₹ 7500	300,000	5,506,200	38%
<b>6.</b>	<b>LABORATORY - INVESTMENTS</b>			
6.1.	2 Gas Analysers @ ₹ 990,000	1,980,000		
6.2.	2 Gas Panels & Purifiers @ ₹ 80,000	160,000		
6.3.	2 Six KVA Online UPS with 16 batteries @ ₹ 165,000	330,000		
6.4.	2 sets of Soil Augers @ ₹ 30,000	60,000		
6.5.	54 Perspex Boxes per NGO x 2 @ Rs 2,500	270,000		
6.6.	Lab furnishing (tables, dividers, doors, etc.) for 2 NGOs @ ₹ 50,000	100,000		
6.7.	Thermometers, Rain gauge and others	6,000		
6.8.	Thermometer probe for Perspex box inner temperature	2,000		
6.9.	Gas cylinders (Carrier gas + Calibration) for 2 NGOs @ ₹ 60,000	120,000	3,028,000	21%
<b>7.</b>	<b>GHG SAMPLING</b>			
7.1.	54 Mild steel metal base frames per NGO x 2 @ Rs 1,500	162,000		
7.2.	250 Autoclavable rubbers (sampling port or septum) per NGO x 2 @ Rs 50	25,000		
7.3.	150 Syringes with three-way stoppers and Vacutainers per NGO x 2 @ Rs 200	60,000		
7.4.	Minor tools (mini fan, fixtures, wires, corks, adhesive etc.) per NGO x 2 @ Rs 10,000	20,000	267,000	2%
<b>8.</b>	<b>PROJECT CERTIFICATION</b>			
6.1.	Professional Fee to the FCN to meet salary of LCF Expert, travel, overheads, sourcing satellite imageries, studies and secondary data, methodology certification costs, etc.	1,500,000	1,500,000	10%
<b>Total</b>			<b>14,674,200</b>	<b>100%</b>
			<b>€ 232,924</b>	

## 7. Assessment of Risks

### 7.1. Risks

There are no risks in this 1 year Pilot Phase. It comprises of merely a set of systematic activities to educate farmers, build up a good database on their landholdings, and set up GHG Laboratories to

measure GHG emissions for 3 cropping seasons *after the completion of this 1 year Pilot Phase*. All 4 Participant NGOs have a proven track record in implementation efficiency.

Neither will there be any risks in the 3 year Implementation Phase from 2012 to 2014 when 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
- Measuring GHG Emissions on Reference Plots, following a Methodology that has already been established by the 1<sup>st</sup> FCN-LCF Coalition

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.

The real risk falls under 2 categories:

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?

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.

## 7.2. SWOT – Strategic Priorities

		Internal Environment	
		STRENGTHS	WEAKNESSES
External Environment	OPPORTUNITIES	<p><b>INVEST</b></p> <ol style="list-style-type: none"> <li>1. Pooling of expertise (technical and organisational) and resources</li> <li>2. Methodologies to calculate Emission Reduction values for every Crop</li> <li>3. Investing on science for referencing</li> <li>4. Strengthen women to participate in agriculture</li> <li>5. Excite youth to participate in SA</li> <li>6. Develop systems to cope with staff turn over</li> <li>7. Access carbon resources by interpreting SA on ERs</li> <li>8. Significantly scale up SA coverage in NGO skills</li> <li>9. Cost of HEIDA shooting up that attracts farmers to SA</li> <li>10. Developing and maintaining database</li> <li>11. Using Proven SA practices and dissemination procedures Joining the trail blazers (taking advantage of the 1st coalition)</li> <li>12. Taking advantage of 2 years experience of 1st coalition</li> </ol>	<p><b>DECIDE</b></p> <ol style="list-style-type: none"> <li>1. Encouraging active participation in FCN</li> <li>2. Absorbing business practices and business sense</li> <li>3. Disseminating carbon market knowledge</li> <li>4. Developing unity, organisation, discipline, knowledge and business sense in the participating farmers.</li> <li>5. Empower CBOs to oversee all LCF operations</li> <li>6. NGO commitment to the rigour of data management</li> </ol>
	THREATS	<p><b>DEFEND</b></p> <ol style="list-style-type: none"> <li>1. Multiple cropping and drought proofing</li> <li>2. Value addition, certification and marketing</li> <li>3. Leverage sufficient crop loan for the poor</li> <li>4. Institutional resistance to aggressive marketing of HEIDA supplies and corporate farming</li> </ol>	<p><b>DAMAGE CONTROL/DIVEST</b></p>

## 8. Sustainability of the Project

### 8.1. Self-propelling Design of this Pilot Phase

This 1 year 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 6,900 small and marginal farmers.

- 67% of the expenditure is on permanent investments that will enrich Participant NGOs and remain with them. These include 4% on training and capacity building, 35% on hardware and monitoring solution, and 28% to set up GHG Laboratories.
- 33% are costs that need to be repeatedly met, for the next 4 years, till 30,000 farmers are brought into the regime. These recurring costs are 7% on surveys and delineating discrete plots, 14% on staff and administration, 3% on sampling and 9% on technical support.

## 8.2. Implementation Phase (2012 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 pillages 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.

## List of Annexures

1. 4 NGO/CBO Profiles
2. 4 Due Diligence Reports on field exercises undertaken by the NGO Dynamics team of the Fair Climate Network to assess seriousness and capabilities
3. 4 Organisation Profiles (with attachments) in the standard EED format
4. Strategic Plan with LogFrame
5. Presentation on the Methodology developed to prove GHG Emission Reductions under LCF
6. Roles & Responsibilities
7. Write-up on the Tristle LCF Monitoring Solution