Contents

1. General Information

1.1. Name of the Organisation

Agricultural Development & Training Society (ADATS)

ADATS Campus,
Bagepalli 561207,
Chickballapur district, Karnataka,
India.

1.2. Project Title

ECOLOGICAL & SOCIOECONOMIC SUSTAINABILITY THROUGH FARM FORESTRY

1.3. Project Period

5 years – July 2021 to June 2026

1.4. Project Budget

	Carbon Investor	MG-NREGA	Total	
1st Year	1,00,48,350	18,10,000	1,18,58,350	*19%*
2nd Year	1,14,96,200	18,10,000	1,33,06,200	*22%*
3rd Year	1,42,52,330	18,10,000	1,60,62,330	*26%*
4th Year	1,00,16,327	-	1,00,16,327	*16%*
5th Year	1,05,97,143	-	1,05,97,143	*17%*
TOTAL	₹ 5,64,10,349	₹ 54,30,000	₹ 6,18,40,349	*100%*
	€ 6,41,027	€ 61,705	€ 7,02,731	
	91%	*9%*	*100%*	

1.5. Project Abstract

- Scale-up proven and demonstrated climate resilient alternatives to subsistence cultivation using farm forestry that sequesters GHG and provides livelihood opportunities to local communities, as an altered land-use practice, and integrating small and poor peasant families into the climate friendly new-age economy of tomorrow.
- Support rural women to continue meeting critical energy needs with renewables, through CDM Projects self-financed with carbon revenue.
- Empower communities to access leakage-free welfare and entitlements.
- FCN Members (grassroots NGOs) adapt/replicate model in semi-arid drought-prone regions.

1.6. Project Location

Chickballapur district, Karnataka, India

1.7. Primary Stakeholders

- 750 small peasant families owning 3-4 acres of scattered rain-fed dry lands switch to farm forestry.
- 20,000 rural women continue to meet critical energy needs through carbon-financed CDM Projects.
- 500 schooled youth from small and middle peasant families get productively employed.
- 41,030 active and inactive Coolie Sangha member families access leakage-free welfare and entitlements.
- 29 FCN Member grassroots NGOs adapt and replicate.

2. Project Background

2.1. NGO & People's Organisation

2.1.1. ADATS & the Coolie Sangha

ADATS is a 43 year old rural development NGO that works in 5 Taluks of Chickballapur district, Karnataka, in the fields of community organisation, children's education, community & referral health, support to issues and struggles, dry land development, agriculture, alternate credit, women's empowerment, and climate change. We also work on issues of gender justice, secularism and democratisation.

All these are efforts to empower the Coolie caste-class in village society, and build an authentic people's organisation, the Coolie Sangha. 9,295 small and poor peasant families are active Members in 440 functioning village Coolie Sangha Units (CSUs). A total of 20,000 rural women participate in 4 self-financed climate change projects that the Coolie Sangha implements with carbon revenue. Member Coolie families have been effective in tackling their problems by altering the village power balance in their favour. Please see https://www.adats.com/

2.1.2. Organisational Culture

ADATS is a trim, flat organisation with zero bureaucracy and minimal hierarchy. From the very inception, we practice a data and results driven development approach. This, along with total and exception-free transparency, especially in financial matters, has kept us in good stead.

We believe that development efforts need to be rooted in community comprehension and aspirations. Bottom-up planning is a compulsory practice, never abandoned for expediency or convenience. Thorough discussions at the village and Gram Panchayat levels allows every single family to contribute to defining the focal problem and purpose.

Rigorous primary stakeholder contribution ensures that every programme, project or activity we undertake, together with the Coolie Sangha, is within a holistic and engendered socioeconomic framework. Recognising our role as a critical intelligentsia, ADATS assists in making brutally honest and in-depth problem analysis, and pushes hard to set ambitious goals/impact.

2.1.3. Fair Climate Network

ADATS has taken the lead to form the Fair Climate Network since we have been involved in this field for 26 years. We believe it our duty to transfer experiential learning to grassroots NGOs across India in order to garner and project a local environmental take on climate change to the world at large. Please see https://fairclimate.com/

2.2. The Region

2.2.1. Geography

Though located in Chickballapur district of Karnataka state, and in spite of being so close to a fast-growing metropolis (Bangalore city), the region skirts the southern border of the Rayalaseema desert belt and shares the same language, culture and social structure, as also the stark poverty that afflicts southern Andhra Pradesh.

The region is a semi-arid drought prone one with low, erratic and spatial rainfall. The dust brown rocky terrain is severely undulating, with small hill ranges and outcrops that stud the topography. There is no mineral wealth, except for fairly high value granite, and only a thin and fragile soil cover.

An adverse land-person ratio creates a strong thirst for cultivable land since less than one-half of the total land is fit for cultivation, with the remaining taken over by the hills and rocky fields. Hardly 5% of the cropped lands are irrigated by an age-old network of rain-fed tanks (small lakes), each irrigating 2 to 10 hectares of wet land.

Chickballapur district has as many as 1,243 ancient tanks. These tanks are rainfed and were constructed as a cascading system, where one tank empties into another, and are in the path of a large connected system of streams and their feeders. However, high rainfall variability, insufficient /delayed onset of monsoon coupled with mismanagement of tanks and their catchment areas has lowered inflows into tanks and tank water holding capacities. Tanks that should have contributed to about 20% of cultivated area being irrigated in the district today irrigate less than 5%. This leads to a drastic increase in borewell density and over exploitation of ground water resources in the past few decades.

The low water table is tapped through bore-wells drilled to more than 100 meters depth. Even these dry up in the summer months, from April to September every year, when temperatures rise to a dry heat of 38° Celsius.

The average rainfall is 560 mm a year and this is, moreover, *untimely*. As a result, there is only one rain-fed crop a year, whose stand is from late June till December. Groundnuts are grown on these dry lands, inter-cropped with red gram, cowpea, field beans, green gram, jowar, maize and castor on the field bunds. Irrigated groundnut, mulberry, onions and sunflower are the common bore-well irrigated crops. Ragi (golden millet) and a coarse variety of paddy are cultivated under irrigation tanks.

Every 3rd or 4th year used to be a drought, followed by near famine conditions. Climate change is rapidly exacerbating this situation is getting the past 10 years with more frequent and continuous droughts.

2.2.2. Political Economy

Till about 40 years back, the failing peasant economy was kept afloat through stark economic exploitation, along with a senseless socio-cultural and political subjugation. This kept the *Ryots* (middle and big peasants) afloat. With an end to semi-feudal relations, this has changed in the past 20 years.

Now it is the State that subsidises the failing economy by allowing anti-poverty resources to be siphoned off by middle peasants through a political oligarchy. Access to these resources is made possible through political power. Electoral battles in the region are contests between warring *Ryot* factions to determine who will dip into the exchequer with care abandon.

This was vehemently resisted by the Coolie Sangha. Relentless struggle and much sacrifice by Coolie Sangha Members ushered in a far more benign democracy in most villages. It ended the experience

of upper caste-class manipulation. A person status, respectability and human dignity were obtained by small and poor peasant families.

Once the Coolie caste-class became a block to contend with, as opposed to exploit and oppress, the system was quick to co-opt their leadership and corrupt the rest. There was a severe drop in annual paid-up membership from over 20,000 to the current 9,980 families. Unity weakened, discipline slacked, and Coolie Sangha presence and effectiveness started waning. For a while, ADATS was caught unaware and failed to provide leadership through critical analysis.

Through a rather painful and self-critical exercise, we realised that new forms of getting together were needed in the post semi-feudal political economy. We had to distinguish legitimate ambition from greed and promote a positive individualism. To continue as an advanced section of society, we needed to look beyond the current neoliberal economy and prepare the rural poor for the climate friendly new-age one of tomorrow. We realised that we were not alone. We could collaborate with many a forward thinking business leaders who were also reimagining and reinvesting in a different future.

Please see https://www.adats.com/documents/book5/0515/

2.3. Coolie Women

2.3.1. Positive Discrimination

Various special instruments, along with an integration of gender into every facet of Coolie Sangha working, radically altered the position of Coolie women. Women enjoyed a strong and visible presence in village society and even more within the structures of the Coolie Sangha. Their assertiveness and self-confidence increased by leaps and bounds. They entered into non-traditional occupations normally reserved for men. Reproductive health got an unprecedented attention. Practical gender needs started being met, and newfound strength used to address strategic gender needs.

2.3.2. Climate Projects

When ADATS got involved in climate change debates, 26 years back, we kept the Coolie Sangha abreast of discussions. Immediately after the Marrakesh Accord was signed in 2005, we registered the world's first CDM Project to build 5,500 Biogas units and solve the firewood and smoke-in-the-eyes problem of Coolie women. We sold *yet-to-be-generated* Carbon Offsets at the *actual-cost-of-generation* and obtained forward funding to build and maintain these units for 7-8 years.

After the construction phase that lasted for 2-3 years got over, End User women were capacitated to repair, maintain and monitor usage. 4 years later, another CDM Project was registered to build 12,000 more Biogas units. Then a fuel-efficient Woodstoves project for 2,000 families without cattle and space to build Biogas near their kitchens.

Critical energy needs of 20,000 rural women started being met with renewables through these three CDM Projects, self-financed with carbon revenue. End User women were no longer beneficiaries; they were business women, providing a vital environmental service to society at large, while at the same time meeting practical gender needs – i.e. overcoming hardships in performing their daily chores.

2.3.3. Engendering Climate Projects

Coolie women suffered a serious reversal in May 2013 due to an opportunistic let-up in 2 taluks. A weird smugness came with short-lived temporary gains. Soon thereafter, disempowerment permitted macho traits to surface in their menfolk. Meeting practical gender needs took a backseat. Coupled with failure of rains, many families sold cattle and abandoned their Biogas units. Functionality dropped to a dangerous low of 24%.

ADATS critically analysed the data and explored remedial measures. Technical patch-work failed to improve the situation that, in the first instance, had arisen due to socio-political reasons. No one could do anything about failed rains. But Coolie women could buck up and regain lost status, self-respect and recognition. Over time, coolie women understood what had happened. Their effort in the past five years has been to regain lost ground. Sheer determination, propitiously helped with good rains in late 2017, has brought functionality back to 60%.

Our harrowing experience of the past 5 years, when the two Biogas CDM projects came to the brink of collapse, reinforced a fundamental truism that got temporarily lapsed; that meeting practical gender needs, combatting climate change, and safeguarding the strategic position of rural women are all inexorably linked. Coolie women, on their part, should bear in mind that gender achievements are reversible and at all times need to be safeguarded.

We have unreservedly shared this realisation which, though a self-evident truth, is often forgotten. Please see https://fairclimate.com/library/docs/6/Engendering%20Climate%20Projects.pdf

2.4. Cultivation

2.4.1. Dry Land Development Project (DLDP)

40 years back, Coolie families subsisted by working as agricultural labourers on *Ryot* lands for less than minimum wages and migrating during summer months. Before the building of the Coolie Sangha, seasonal migration by agricultural labourers was an annual occurrence. They would come back every June/July to scratch a subsistence cultivation from small patches of scattered holdings, far away from the village and hugging the hillside, averaging 3.6 acres per family.

The Coolie Sangha ran an impressive Dry Land Development Programme (DLDP) for 5 summer months every year, continuously for 23 years. Work gangs were formed, comprising one adult from each Coolie Sangha member family. They descended on each other's holdings and worked for 100 days every summer, on survival wages that ADATS was able to scramble. Even those paltry reimbursements added up to Rs 77.5 million.

Coolie lands improved through soil and water conservation works undertaken on 71,544 acres of scattered holdings. Today, 52% of their lands are on par with that of neighbouring *Ryots*. Crop loans were taken from their village level decentralised credit system. For some years, these virgin lands were quite productive and provided self-employment and food security. Child labour, bonded labour, and horrendous forms of usury with heavy feudal overtones of Patron-Client dependencies completely disappeared. Choice migration to improve living standards replaced forced migration. Please see https://www.adats.com/home/dldp.php

2.4.2. Low Carbon Farming (LCF)

This happy situation did not last. The carrying capacity of these newly cultivated holdings started to get exhausted. The drought cycle shortened from 7 to 3-4 years, also contributed to diminishing returns. Even with physical possession of improved lands, small peasants were unable to make conventional cultivation viable. Socio-political impact was not matched with economic returns.

In an attempt to move away from subsistence cultivation to sustainable agriculture (SA), and also to demonstrate GHG reductions from peasant farming, ADATS and the Fair Climate Network pioneered a Low Carbon Farming experiment. Baseline and SA emissions were measured on control plots, with cutting edge science provided by Environmental Defense Fund (EDF), New York. When better off farmers with irrigation moved away from high external input destructive agriculture (HEIDA), there were decent Emission Reductions which could be monetised and add to farmer income.

But Low Carbon Farming failed for those who did not have any irrigation since it didn't much reduce already low baseline emissions from subsistence cultivation practiced by small peasants. Even

rainfed millets and pulses grown by better off *Ryots* did not result in measurable reductions. Untimely rains thwarted both, conventional cultivation as well as LCF.

2.4.3. Farm Forestry

26 years back, when yields from field crops started dropping, ADATS and the Coolie Sangha realised that farming of any sorts – HEIDA or LEISA; subsistence or sustainable – was not a viable option for the rural poor in these semi-arid drought prone regions.

In April 1998, seven years *before* CDM came into force, we registered the "Bagepalli Tamarind Project" as an Activities Implemented Jointly (AIJ) Project certified by the DoE, US government. Science to calculate carbon sequestration was provided by colleagues from the Indian Institute of Science, Bangalore. In 2011, we transitioned this to one of the world's first large-scale Afforestation/Reforestation CDM Project to plant trees on 22,074 acres of rain fed dry lands belonging to 8,107 small peasants.

With limited funding, ADATS was unable to finance the pilot in our normal course. Except for technical assistance to procure good saplings, ADATS did not have the money to help with anything material. Yet we mobilised the community to switch from risky field crops to hardy tree cropping with their own resources.

- For 13 years, from 1996 to 2008, 1,296 participating farmer families from 155 villages put aside small patches of their land to plant tamarind and mango saplings. With their own resources, they planted a total of 73,853 saplings, but the survival rate was modest at 44%.

Alf Bjørseth, a private philanthropist from Norway, contributed ₹ 72 lakh to supplement their effort. From 2007-2010 they installed 280 pre-fabricated tanks on their fields and hired bullock carts to haul water from ponds. Each sapling was hand watered with two buckets of water, twice a week, for 5-7 summer months every year. TNO, a research institute from the Netherlands, assisted with an experiment to place Rockwool slabs under the saplings, at the time of planting, to retain the hand poured water for a few extra days.

But whatever they did, almost three-quarter the planted saplings died every year due to the scorching heat and uncontrolled grazing. Many families gave up; new persons came forward.

- In the five-year period from 2009 to 2013, a total of 68,093 saplings were planted. Only 18,903 (28%) survived. The cumulative Survival Rate of the then 18 year long effort dropped to 36%

After that, from 2014 to 2018 came the time of serious reflection. We compiled the year-wise data of only those who had succeeded in raising at least a few saplings into full grown trees to include in this latest avatar of the Afforestation Project which we re-christened "Farm Forestry".

We could do so because, from the very first planting in 1996, we had strictly monitored survival and growth of each cohort on each discrete plot. A Cohort is defined as saplings/trees of the same species, planted on the exact same date, on a particular discrete plot. As a result, we were able to corelate survival rates to planting years, species, soil type, irrigation and gender category.

In spite of not being able to succeed in any appreciable number, 1,296 slightly better off farmers with some irrigation, succeeded in raising trees with their own resources. Of them, 509 families (39%) got income from tree produce, and also sequestered 32,938 $tCO_{2\text{-}e}$ This was sold in the voluntary market and ₹ 1.78 core was distributed, as carbon revenue, in proportion to the number of survived trees. Please see https://fairclimate.com/projects/forestry/

This path breaking effort pointed the way forward.

We understood that their 24 year long pilot effort to switch from timely rain dependent Field Crops to Tree Cropping needed to be critically analysed, adequately resourced, and scaled-up. Learning

from the nitty-gritty details of this project, especially the challenges we face and attempts to overcome, will be of immeasurable value to the entire climate change sector.

Very many FCN Members helped us in this gruelling six-month long exercise when we prepared a detailed strategy for implementing Farm Forestry. They saw this as one of the viable solutions in semi-arid drought prone regions like ours, where even Low Carbon Farming and Sustainable Agriculture have not succeeded. Combined with clean energy solutions, altered land-use practices demonstrate a low-carbon pathway, in harmony with the local environment, to be adapted and replicated in drought-prone regions across India.

- In 2019 and 2020, just before and during the COVID-19 pandemic, more than 500 farmer families planted yet another 91,386 saplings. Survival Rate of these 1½ year old saplings is 87%

3. Problem Description

3.1. Focal Problem

Livelihoods and living conditions have become untenable for small and poor peasant families due to failure of conventional subsistence cultivation in semi-arid drought prone regions. The focal problem facing Coolie families today is that, *in spite of knowing the solution, they are unable to implement it for want of resources, let-up in cohesive unity, slip in functional discipline, and a dysfunctional environment.* Rephrased in an antiseptic management jargon:

> "Unable to scale-up and replicate proven/demonstrated sustainable alternatives to conventional peasant cultivation in semi-arid drought-prone regions."

Though unaddressed, acute farmer distress has caught everyone's attention. Solutions explored within the boundaries of current political economy ignore the plight of small and poor peasants. It is assumed that they will tag along with everyone else, and an overall improvement will better their predicament. Trickle-down expectations, in semi-feudal landscapes, are fundamentally flawed.

Climate Change poses multifarious threats to everyday living of the rural poor. Ramifications extend far beyond livelihoods. Women get dis-empowered within families; socio-political presence is weakened and the rural poor are unable to access life-enabling State welfare and entitlements. Xenophobic and misogynistic traits manifest in frustrated schooled youth; unsavoury behaviour threatens everyday living. Fields are left barren, holdings sold, and permanent migration transports large chunks of the rural poor to an identity-less existence in urban sprawls.

Village life becomes untenable when out-of-sync with the natural environment.

3.2. Main Problems

3.2.1. Unable to combat negative impact of climate change

Erratic, spatial and *untimely* rainfall, caused by Climate Change is one of the root cause of this problem. It leads to rural women not being able to meet critical fuel and energy needs, and ever-increasing hardships in everyday lives. Daily chores like cooking, cleaning and childcare become haunting challenges that consume their every waking hour.

Attempts at different types of farming – subsistence to sustainable, etc. – have also failed for lack of irrigation.

At the same time, schooling has become universal even in remote villages, largely due to the Coolie Sangha. As of today, 74% of school-age children in the 5-16 year age group are in school. Over the past 24 years, 72% of 66,249 supported children have completed schooling. We have been able to impart life skill training and place hardly 3-5,000 of them in city jobs. Tainted by neoliberal values

and betrayed by unfulfilled dreams, frustrated youth fall prey to xenophobic and misogynistic trends that heighten tensions in the villages.

3.2.2. Unable to switch to drought resistant and hardy tree cropping

Lured by the prospect of improvement, enthusiastic families participate without assessing their capacities.

Small and poor peasant families are totally dependent on State welfare and entitlements for food, shelter and employment – PDS, school midday meals, *Anganwadis*, free houses, MG-NREGA, *et al*. They cannot afford the cost of pitting, planting, watering and annual replacement of saplings. Yet, when the village Coolie Sangha Unit discusses a workable strategy to get out poverty, they are, quite naturally, tempted. No one wants to be perpetually dependent on welfare and charity, even if it is an entitlement from the State; no one wants to be left out of a community effort being undertaken by the whole village; no one wants to be left out of the prevailing economy, especially when it is about to take an exciting turn into an unknown future. This allurement is quite natural and justified, even if unwise and financially suicidal.

In spite of not having financial capacity, entire families descend on their fields and dig pits, obtain un-enforceable and grudging assurances from neighbours who have some irrigation, borrow from relatives, buy saplings of unsure quality, and plant. Fervour and enthusiasm maintains the effort for a while. But passion alone cannot sustain ventures that take years to incubate before showing any prospect of returns.

Pressure to repay hand loans taken from equally poor, but less adventurous, relatives grows. Tension mounts, tempers fly, social harmony collapses, and unity in the Coolie Sangha is disrupted. Survival rates drop to alarming lows.

A parallel issue is that scattered holdings of families, inherited through generations, are not properly divided among even second and third-cousins. Often times, official land records show titles in the names of great-grandfathers. UNFCCC demands clear title from people who are unable to prove tenure as a precondition to participate in a registered A/R Project. Moreover, jealous relatives lay claims to patches that, for years, were cultivated by someone else…

With limited funding, ADATS was unable to finance the pilot in our normal course.

All these factors make tree cropping non-viable. Only 39% of 1,296 families, the slightly better off with some irrigation, succeeded in raising trees with their own resources.

3.2.3. Atomised survival strategies by isolated individuals fail in the neoliberal economy

For the previous generation, the Coolie Sangha rapidly rose to be the primary provider of identity. This was because, besides caste and community, the rural poor only had a hyphenated identity attached to their village *Ryots* and landlords. Identity defines collective ambition, instils self-assurance, provides moral support to an enlarged caste-class across parochial divides, and sets the parameters for realisable achievements.

Democratisation has thrown up multiple choices insofar as support groups are concerned; some genuine, the vast majority with dubious intents. Each one either embraces or eschews a prevailing world view. They do not attempt to critically analyse society from their point of view and create an ideology of their own.

As a result, isolated individuals fail to make sense of the continuous flux they find themselves in. They go here for this, and there for that. Their job sometimes gets done when aligned with this group, and sometimes not when aligned with another. It's a gamble. It does not create a sense of belonging. It does not provide Identity, which sustains achievements far more than accomplishment.

The neoliberal economy promises rags to riches to one and to all. It instils aspirations and ambitions in the entire population. This is good to kill apathy and fatalism. But, at the same time, it conceals Spread. It does not forewarn that only a handful will succeed in realising their dreams. Village youth are at a relative disadvantage from the word go. Facilitation and handholding alone will not achieve unrealisable dreams.

It is this confusion and loss of identity, more than loss of physical brawn, that leads to a loss of status, respect and bargaining power in village society. And that spells rampant leakage in the delivery of State welfare and entitlements.

4. Argumentation for Need of the Project

4.1. Abandon conventional agriculture and alter land-use patterns

Livelihoods and living conditions have become untenable for small and poor peasant families due to failure of conventional subsistence cultivation in semi-arid drought prone regions, and also due to unpredictable weather patterns. Encroachment and over-exploitation of natural resources like groundwater, scrub lands and grazing grounds exacerbate the problem.

Senselessly continuing with the same land-use patterns, year on year, wishing for different results, will not work. Weather patterns have irrevocably changed and will produce the same null results as before unless they radically depart from the way their forefathers lived. Recognising climate change and fundamentally altering land-use patterns from field-cropping to tree-crops is one among many sensible adaptation strategies. But even this will work only when other critical factors negatively impacting the lives of the rural poor are simultaneously addressed.

4.2. Holistic approach

There are no patchwork solutions to the multifarious and interlocking effects of climate change on the lives of rural communities. Climate change sweeps through lives and livelihoods in a deterministic and all-embracing manner; first the vulnerable and then the rest.

Technological interventions do work, but they cannot be applied linearly, one after the other, to combat effect after effect. Projects have to be conceived and implemented within a holistic framework that takes into account all negative impacts, however seemingly caused, direct as well as indirect.

Emboldening rural women to meet practical gender needs, empowering them to change their strategic position within families, is as important as youth being productively employed, and communities accessing life-enabling welfare and entitlements.

4.3. Corporate partnership

ADATS provides leadership and direction to the Fair Climate Network. We lead by example to demonstrate apt and applicable solutions to meet energy needs of rural women through grassroots NGOs/CBOs.

Worldwide, ours is one of the only projects that has successfully registered/implemented farm forestry, obtained tree-produce income, sequestered forestry credits, verified, sold and distributed carbon revenue to participating families. This needs to be locally scaled-up within a holistic and gendered socioeconomic framework, to be shown as replicable in similar ecologies where subsistence cultivation is failing.

Corporate endorsement goes a long way to give visibility, credibility and acceptance for greenfield policy options.

5. Criteria for Selection of the Participating Farmers

250 more farmer families will be selected each year to take the total to 750 in 3 years:

- Longstanding Coolie Sangha Members whose seriousness and capability are vouchsafed by their respective village CSUs.
- Have assured water sources (borewell or other)
- Have all personal and land documents in order to:
  - ⇒ If not already, get included in the UNFCCC/GS registered A/R project
  - ⇒ Avail government subsidies and benefits under MG-NREGA and the Forest Department
- Young and able family members to undertake project activities, as well as older persons for round the year watch and ward.
- Willing to give up field cropping on the selected plots, even if this means a temporary loss in income for a few years till the trees establish and start fruiting – i.e. these plots cannot therefore be their *only* landholding since they would naturally want to grow millets for food security.

6. Project Objectives

6.1. Goal

Small & Poor Peasant families integrated into the climate friendly new-age economy of tomorrow, wherein they provide a vital environmental service to society at large, enabling life with dignity and assured income

6.2. Purpose

Social capital and corporate investment garnered to scale-up proven/demonstrated sustainable alternatives to conventional peasant cultivation in semi-arid drought-prone regions.

6.3. Objectives

A. 750 more families grow 90,000 farmer friendly fruit, fodder, manure and fuel-wood trees on 1,500 acres of rain-fed holdings, sequester GHG, get sustained income from tree-produce, and earn carbon revenue.
B. Critical energy needs of rural women met through community owned and managed CDM Projects, self-financed with carbon revenue.
C. Year-round productive employment for small and poor peasant youth in farm, off-farm and servicing ventures.
D. Socio-political Presence established through pragmatic balance between Individual Aspirations, Collective Action and Natural Environment, to access leakage-free welfare/entitlements.

7. Logical Framework Analysis (LFA)

7.1. Goal, Purpose & Outcomes

DESCRIPTION	INDICATORS	MoV	ASSUMPTION
GOAL			
○ Small and poor peasant families integrated into the climate friendly new-age economy of tomorrow, wherein they provide a vital environmental service to society at large, enabling life with dignity and assured income.	▪ Sustained incomes from a non-extractive economy.	▪ Annual Income/Source Declaration & Time series study.	
	▪ 22,800 tCO2-e sequestered at end of 5th year, and 5,700 tCO2-e per annum thereafter.	▪ Issuance in GS Registry once every 5 years.	Verification & Issuance only once every 5 years, in spite of annual sequestration.
	▪ Strategic gender needs met; rural women earn income, respect, recognition and status; Empowered within families.	▪ Critical analysis of data from and observations made in annual Effects Monitoring exercise at Gram Panchayats.	
	▪ Socio-political presence of Coolie Sangha ensures leakage-free delivery of State welfare and entitlements.	▪ Obtaining timely PDS rations, MG-NREGA works, pensions, free houses, books, clothes and midday meals.	
PURPOSE			
○ Social Capital garnered to adapt, scale-up, and replicate proven and demonstrated sustainable alternatives to conventional peasant cultivation in semi-arid drought prone regions.	▪ Biomass & biodiversity gradually restored.	▪ Scientific studies undertaken by universities and technical institutes.	
	▪ Practical Gender Needs met; physical hardships in domestic chores overcome; rural women Emboldened with self-confidence.	▪ Critical analysis of data from and observations made in annual Effects Monitoring exercise at Gram Panchayat level.	
	▪ Assured annual income from fruit and tree produce.	▪ Project records.	
	▪ Carbon revenue from sale of Forestry Credits; Rs 11.4 million by end of 5th year and another Rs14.3 million at end of 10th year.	▪ Audited Financial Reports.	Verification & Issuance only once every 5 years, in spite of annual sequestration.
	▪ Instances of adapted replication by other grassroots NGOs.	▪ Fair Climate Network records.	

OUTCOMES			
A. 750 more Families switch from Field Crops to growing 90,000 farmer friendly fruit, fodder, manure and fuel-wood trees on 1,500 acres of rain-fed holdings.	A.1. Extent of Tree Cover with a Survival Rate of more than 75% over 5 years.	A.1. & A.2. Tristle Trees monitoring solution.	Project is genuinely owned by <u>all</u> primary stakeholders, including those who will <u>not</u> participate.
	A.2. Percent of Participating Family holdings with Tree Crops.		
	A.3. Increased family income attributable to Tree Cropping (Income).	A.3. Before & After survey with control groups.	
	A.4. Increasing trend in average value of small peasant lands with tree cover (Wealth).	A.4. Stratified random sampling of land valuations with control plots.	
B. Critical energy needs of rural women met through community owned and managed CDM Projects, self-financed with carbon revenue.	B.1. 18,000 End User women reduce >50,000 tCO2-e annually, using Biogas units with 75% Functionality.	B.1. Breakdown Log, Functionality & Super Reports of Tristle Biogas monitoring solution & UNFCCC/GS websites.	Market mechanism of the Fair Climate Network is able to sell Certified Emissions Reductions at a fair price.
	B.2. 2,000 End User women, reduce > 4,500 tCO2-e annually, using fuel-efficient Woodstoves.	B.2. Functionality Report of Tristle Woodstoves monitoring solution & UNFCCC/GS websites.	
	B.3. Increase in number of houses with Solar panels for lighting.	B.3. Annual Effects Monitoring exercise at Gram Panchayat level.	
C. Year-round Productive Employment for small & poor peasant Youth in farm, off-farm and servicing ventures.	C.1. Schooled youth choose to stay in their villages.	C.1. Number & Type of new Off-Farm & Non-Farm Jobs created.	
	C.2. Schooled youth pick and choose respectable city jobs.	C.2. Average salaries earned in city jobs (gender dis-aggregated).	
D. Socio-political Presence established through a pragmatic balance between Individual Aspirations, Collective Action and the Natural Environment, for sustainable development in today's neoliberal economy	D.1. Optimal usage of scarce groundwater negotiated.	D.1. Water sharing agreements with neighbouring bore well owners.	Critical Outcomes of past 40 years, like Unity across narrow and parochial caste and gender divides, structure and discipline of the Coolie Sangha, are not diluted in the face of economic targets and entrepreneurial expediency.
	D.2. Collective marketing of tree-produce.	D.2. Quality of & Results from village level Plans.	
	D.3. Collective marketing of Forestry Credits.	D.3. Financial records on distribution of Carbon Revenues earned.	

7.2. Activities

A. Preparing for Community Participation & Ownership.	A.1. Translating, printing of Project Application & Budget A.2. Obtaining clear agreement/acceptance on selection criteria & mutual responsibilities in Village/Area/Taluk Meetings. A.3. Stipends for 20 Volunteers in 1st year, 40 in 2nd year and 60 in 3rd year.
B. Selection of Participating Families.	B.1. CSU Members propose Participating Families. B.2. Project staff make final selection. B.3. GPS Delineation of Discrete Plots.
C. Field Preparation & Planting Plans for each Discrete Plot.	C.1. Pitting, Burning, Red Earth, Sand, Staking & Rockwool. C.2. Excavating/Lining farm ponds. C.3. Live fencing on plot boundaries. C.4. Forestry Specialist advice on species for each plot.
D. Planting Saplings & Annual Replacement.	D.1. Planting fruit, fodder, manure and fuel saplings. D.2. Replacing saplings in the 2nd & 3rd years. D.3. Watering Subsidy & Labour Compensation.
E. Monitoring Tree Growth, Verification & Issuance of Forestry Credits.	E.1. Quarterly, monitoring of Survival Rates & Tree Growth. E.2. Annual independent authentication. E.3. Field sample survey, biomass estimation. E.4. Preparing Monitoring Report F.5. Verification by UNFCCC accredited Auditor. E.6. Issuance of Forestry Credits into GS Registry.
F. 18,000 Biogas units & 2,000 Woodstoves repaired, maintained and monitored with Carbon Revenue.	F.1. Timely repairs by Village Volunteers; Breakdown Logs. F.2. Verification/Issuance of CERs into UNFCCC/GS Registries.
G. Skill up-gradation and Entrepreneurial Guidance to Peasant Youth.	G.1. Training on tree management by Forest department. G.2. Organic pest/disease control equipment G.3. Monthly Meetings for Volunteers & Farmers. G.4. Showcasing efforts to project visitors.
H. Ensuring Leakage-free Delivery of State Welfare and Entitlements.	H.1. Supporting Issues & Struggles

8. Project Implementation Plan

A. Prepare for Community Participation & Ownership	A.1. As with all ADATS projects translate and print sanctioned Project Application & Budget in order to ensure total and exception-free transparency with primary, secondary and external stakeholders, as well as the general public.
	A.2. Obtain clear agreement/acceptance on selection criteria & mutual responsibilities in Village/Area/Taluk Meetings.
	A.3. Select 20 Volunteers in 1st year, 40 in 2nd year and 60 in 3rd year.
B. Select of Participating Families	B.1. CSU Members propose Participant Families; Project staff take final decision based on agreed upon criterion.
	B.2. Select 250 farmer families in the 1st year, 250 more in the 2nd and 3rd years.

	B.3. Take GPS reading, enter into Polygon Recorder and delineate 250 Discrete Plots in the 1st year, 250 more in the 2nd and 3rd years. Assign Land IDs to each discrete plot (apart from the government assigned Survey Numbers) Overlay on Google Earth and cross check actual boundaries before committing the plots. If not already, get included in the UNFCCC/GS registered A/R project in the 3rd year of the project.
C. Field Preparation & Planting Plans for each Discrete Plot	C.1. Pitting, Burning, Red Earth, Sand, Staking & Rockwool (to the extent available).
	C.2. Wherever possible/needed, excavate and line farm ponds on discrete plots; obtain financial support from MG-NREGA.
	C.3. Plant live fencing on plot boundaries.
	C.4. Forestry Specialist advises on species for each discrete plot.
D. Plant Saplings & Annual Replacement	D.1. Plant 30,000 fruit, fodder, manure and fuel tree saplings in the 1st year, 30,000 more in the 2nd and 3rd years. Record the same in the *InfoNeeds Trees* solution against each discrete plot.
	D.2. In the 2nd year, replace 6,000 saplings (20%) of saplings planted in the 1st year; In the 3rd year, replace 12,000 saplings planted in the 1st and 2nd years. Record the same in the *InfoNeeds Trees* solution against each discrete plot.
	D.3. Obtain watering subsidy & labour compensation for watch & ward from MG-NREGA.
E. Monitoring Tree Growth, Verification & Issuance of Forestry Credits	E.1. Monitor of Survival Rates & Tree Growth (BLG and height) of each cohort every quarter and record in the *InfoNeeds Trees* solution. *(a* Cohort *is defined as saplings/trees of the same species and same age on a particular discrete plot)*
	E.2. Contract external consultants to conduct annual independent authentication.
	E.3. 5 years after planting, depending on estimated carbon stock since final planting is carried out only in the 3rd year, conduct field sample survey and prepare Monitoring Report. *(outside the timeline and financial support of this IndiGo supported project)*
	E.4. Appoint UNFCCC accredited Carbon Auditor to conduct Verification of GHG sequestration. *(outside the timeline and financial support of this IndiGo supported project)*
	E.5. Sell issued Forestry Credits in the voluntary market and distribute carbon revenue to participating farmers in proportion to their number of trees/GHG sequestration. *(outside the timeline of this IndiGo supported project)*

F. Skill upgradation and Entrepreneurial Guidance to Peasant Youth	F.1. Train participant farmer families, Village Monitors and Case Workers on tree management by Forest department; organic pest/disease control equipment
	F.2. Train Case Workers and Village Monitors on monitoring protocol – identifying cohorts, taking breast level girth (BLG) measurements and estimating tree height.
	F.3. Monthly Meetings for Volunteers & Farmers

9. Project Budget

BUDGET	1st YEAR	2nd YEAR	3rd YEAR	4th YEAR	5th YEAR	TOTAL
A. Preparing for Community Participation & Ownership						
A.1. Translating and printing 2,500 copies of Project Application & Budget @ Rs 25	62,500					62,500
A.2. Obtaining clear agreement/acceptance on selection criteria & mutual responsibilities in Village/Area/Taluk Meetings.						-
A.3. Stipends for 20 Monitors in 1st year, 40 in 2nd year and 60 in 3rd year @ Rs 1,000 p.m.	2,40,000	4,80,000	7,20,000	7,20,000	7,20,000	28,80,000
B. Selection of Participating Families						
B.1. CSU Members propose Participating Families.						-
B.2. Final selection by Project staff.						-
B.3. Delineating 750 Farmers Discrete Plots. @ Rs 100	25,000	25,000	25,000			75,000
C. Field Preparation & Planting Plans for each Discrete Plot						
C.1. Pitting, Burning, Red Earth, Sand, Staking & Rockwool for 1,500 acres @ Rs 2,000	10,00,000	10,00,000	10,00,000			30,00,000
C.2. Excavating and Lining of 750 Farm Ponds @ Rs 1,000	2,50,000	2,50,000	2,50,000			7,50,000
C.3. Live fencing on 750 discrete plot boundaries @ Rs 500	1,25,000	1,25,000	1,25,000			3,75,000
C.4. Forestry Specialist advice	1,25,000	1,25,000	1,25,000			3,75,000

for 750 discrete plots @ Rs 500.						
D. Planting Saplings & Annual Replacement						
D.1. Planting 30,000 year-old Saplings each year @ Rs 135	40,50,000	40,50,000	40,50,000			1,21,50,000
D.2. Replacing 6,000 saplings in the 2nd year @ Rs 135		8,10,000	8,10,000	8,10,000		24,30,000
D.2. Replacing 6,000 saplings in the 3rd year @ Rs 135			8,10,000	8,10,000	8,10,000	24,30,000
D.3. Watering Subsidy & Labour Compensation for 750 participating families @ Rs 500 p.m. for 3 years	15,00,000	30,00,000	45,00,000	45,00,000	45,00,000	1,80,00,000
E. Monitoring Tree Growth, Verification & Issuance of Forestry Credits						
E.1. Quarterly Monitoring of Survival Rate & Tree Growth.						
E.2. Annual Independent Authentication	75,000	75,000	75,000			2,25,000
E.3. Field Sample Survey & Biomass Estimation.					75,000	75,000
E.4. Preparing Monitoring Report.					3,50,000	3,50,000
F.5. Verification by UNFCCC accredited Auditor.					3,50,000	3,50,000
E.6. Issuance of Forestry Credits into GS Registry.					4,60,000	4,60,000
F. Skill Up-gradation and Entrepreneurial Guidance to Peasant Youth						
F.1. Training 250 Participant Farmers every year on Tree Management by Forest department @ Rs 1,000	2,50,000	2,50,000	2,50,000			7,50,000
F.2. Supplying Organic Pest and Disease Control Equipment to 60 Monitors @ Rs 5,000	1,00,000	1,00,000	1,00,000			3,00,000
F.3. Monthly Meetings for Monitors & Farmers.	64,800	1,29,600	1,94,400			3,88,800
F.4. Showcasing local efforts to an average of 30	60,000	60,000	60,000	60,000	60,000	3,00,000

project visitors p.a. @ Rs 2,000						
G. Salaries						
G.1. 1 Project Coordinator @ Rs 40,000 p.m.	4,80,000	5,04,000	5,29,200	5,55,660	5,83,443	26,52,303
G.2. 6 Case Workers @ Rs 15,000 p.m.	10,80,000	11,34,000	11,90,700	12,50,235	13,12,747	59,67,682
G.3. 1 Desk Worker - IT & Finance @ Rs 30,000 p.m.	3,60,000	3,78,000	3,96,900	4,16,745	4,37,582	19,89,227
G.4. 1 Driver @ Rs 10,000 p.m.	1,20,000	1,26,000	1,32,300	1,38,915	1,45,861	6,63,076
H, Running Costs						
H.1. 7 Motorcycles @ Rs 73,500	5,14,500					5,14,500
H.2.1 Truck @ Rs 7,24,550	7,24,550					7,24,550
H.3.7 Motorcycle maintenance @ Rs 3,000 p.m.	2,52,000	2,64,600	2,77,830	2,91,722	3,06,308	13,92,459
H.4.1 Truck maintenance @ Rs 15,000 p.m.	1,80,000	1,89,000	1,98,450	2,08,373	2,18,791	9,94,614
H.5.Out-of-project-area Travel @ Rs 10,000 p.m.	1,20,000	1,26,000	1,32,300	1,38,915	1,45,861	6,63,076
H.6.Maintenance & Hosting of digital monitoring solution	1,00,000	1,05,000	1,10,250	1,15,763	1,21,551	5,52,563
YEAR-WISE TOTAL	**1,18,58,350**	**1,33,06,200**	**1,60,62,330**	**1,00,16,327**	**1,05,97,143**	**6,18,40,349**

Carbon Investor	**1,00,48,350**	**1,14,96,200**	**1,42,52,330**	**1,00,16,327**	**1,05,97,143**	**5,64,10,349**
MG-NREGA	**18,10,000**	**18,10,000**	**18,10,000**	**-**	**-**	**54,30,000**

10. Sustainability and Exit Strategy

Land-use patterns determine peasant lifestyles/livelihoods. Saplings take 3-5 years to establish and fruit in semi-arid regions. Thereafter, families engaged in tree-cropping as everyday activities will have regular income; youth productively employed.

22,800 and 28,500 GS VERs will be verified/issued and delivered at end of 5th and 10th years valued at ₹ 2.5 and ₹ 3.13 crore respectively, clearing the ERPA commitment to the Carbon Investor.

A conservative projection of expected returns shows that returns will equal investments in the 4th year. By the 10th year, when the second verification/issuance is conducted, returns will more than double investments.

RETURNS		
Fruit & tree produce from 500 acres in 4th year	50,00,000	3%
Fruit & tree produce from 1,000 acres in 5th year	1,00,00,000	7%
Carbon Revenue from 22,800 tCO_{2-e} in 5th year @ ₹ 1,100 (€ 12.50) per VER	2,50,80,000	17%
Fruit & tree produce from 1,500 acres in 6th year	1,50,00,000	10%
Fruit & tree produce from 1,500 acres in 7th year	1,50,00,000	10%
Fruit & tree produce from 1,500 acres in 8th year	1,50,00,000	10%
Fruit & tree produce from 1,500 acres in 9th year	1,50,00,000	10%
Fruit & tree produce from 1,500 acres in 10th year	1,50,00,000	10%
Carbon Revenue from 28,500 tCO_{2-e} in 10th year @ ₹ 1,100 (€ 12.50) per VER	3,13,50,000	21%
TOTAL	₹ 14,64,30,000	100%

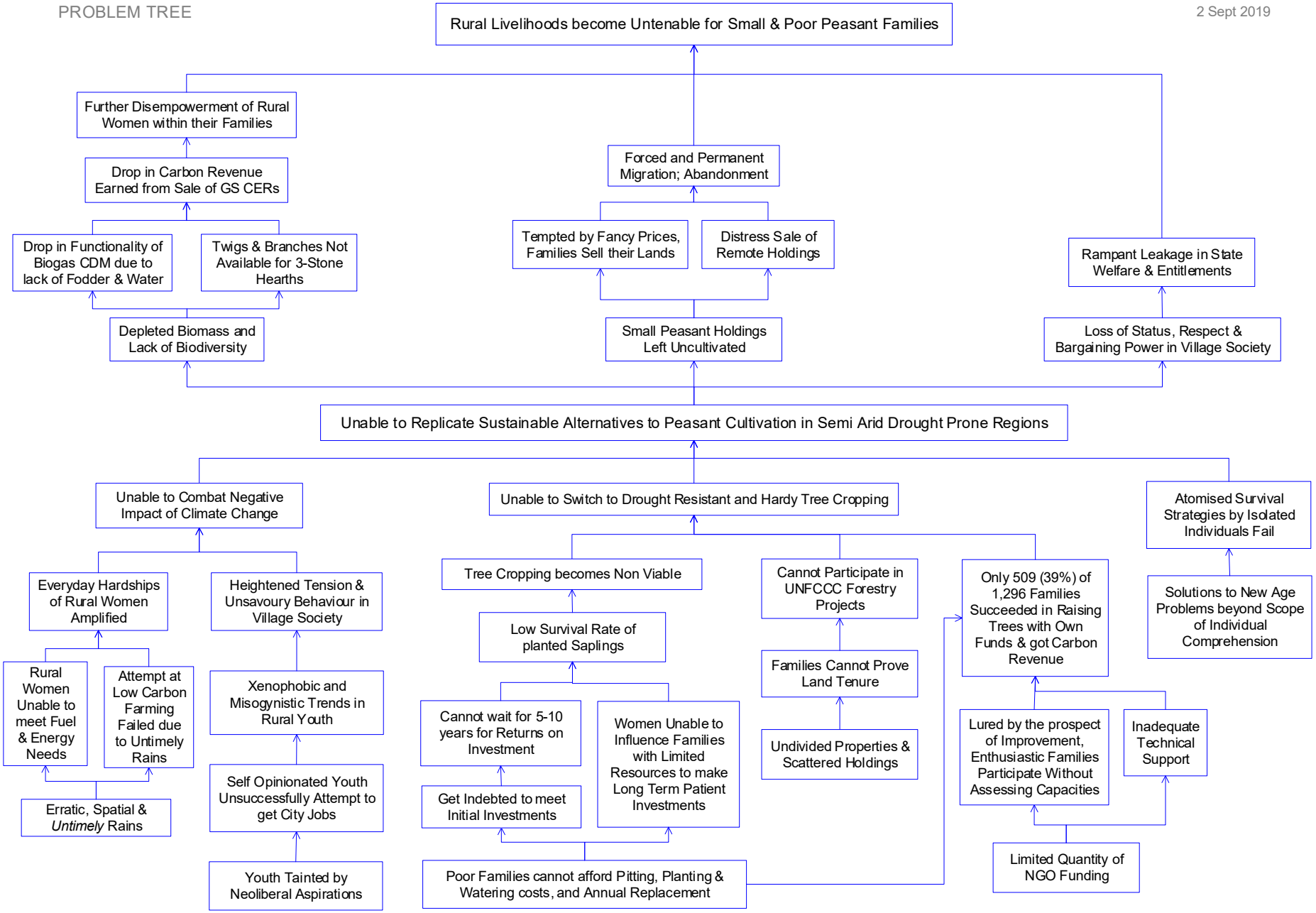
36% of these returns will go to increase the income of participating families. 10% will go to their respective Sangha Funds, as is the long-established practice in the Coolie Sangha. Another 1% will go towards post-project monitoring, verification and issuance of Forestry Credits from the 6th to 10th years, and 14% to meet salaries and administration.

DISTRIBUTION OF INCOME		
Projected Income	₹ 14,64,30,000	100%
Return to Carbon Investor (in GS VERs)	5,64,30,000	39%
Sangha Funds	1,46,43,000	10%
Monitoring for next 5 years	18,68,800	1%
Salaries & Admin for next 5 years	2,06,25,983	14%
Participating Families	5,28,62,217	36%

Like all climate projects undertaken by ADATS and the Coolie Sangha, this too will be self-financed with carbon revenue for the next 50 years, after the initial capex is repaid – i.e. committed GS VERs are delivered to the carbon investor.

PROBLEM TREE

2 Sept 2019



OBJECTIVES TREE

2 Sept 2019