

**Agricultural Development & Training Society (ADATS) Bagepalli 561 207
Bagepalli CDM Reforestation Programme**

Documentation for CCBA Certification

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Project withdrawn before CCB Standards Validation, May 21st, 2010

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G1. ORIGINAL CONDITIONS AT PROJECT SITE

CONCEPT

The original conditions at the project site before the project commences must be described. This description, along with projections (G2), will help determine the likely impacts of the project.

INDICATORS

The project proponents must provide a description of the project site, containing all the following information:

1. The location of the project and basic physical parameters (e.g., soil, geology, climate)
2. The types and condition of vegetation at the project site
3. Current carbon stocks at the project site(s), using methodologies from the Intergovernmental Panel on Climate Change's Good Practice Guidance (IPCC GPG) or other internationally approved methodologies (e.g., from the CDM Executive Board)
4. A description of communities located in and around the project area, including basic socioeconomic information (using appropriate methodologies such as the livelihoods framework)
5. A description of current land use and land tenure at the project site. (See also G5)
6. A description of current biodiversity in the project area and threats to that biodiversity, using appropriate methodologies (e.g., key species habitat analysis, connectivity analysis), substantiated where possible with appropriate reference material.
7. A list of all IUCN Red List threatened species (which encompasses endangered and vulnerable species) and species on nationally recognized list (where applicable) found within the project boundary. (See also B1)

GENERAL INFORMATION

G1.1. THE LOCATION OF THE PROJECT AND BASIC PHYSICAL PARAMETERS (E.G., SOIL, GEOLOGY, CLIMATE)

ADATS is a rural development NGO that works in 5 taluks of North Kolar district of Karnataka State, South India.

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 and only a very thin and fragile soil cover.

ADATS has a presence in 65% of the villages and a coverage of 18% of the total population of the 5 taluks that comprise North Kolar District.¹

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 irrigation tanks (small lakes), each irrigating 2 to 10 hectares of wet land. The low water table is tapped through bore-wells drilled to more than 300 meters depth. Even these dry up in the hot summer months, from March to September every year, when temperatures rise to a dry heat of 36° Celsius.

The average rainfall is 560 mm a year and this is, moreover, erratic and spatial. As a result there is only 1 rain-fed crop a year, whose stand is from June/July till November/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 fifth or sixth year is a drought, followed by near famine conditions. This pattern is changing for the worse, with the region just having witnessed 5-6 years of continuous drought.

The 5 summer months are so hot and dry that not a blade of grass grows on the fields. But the region is dotted with small clumps of desert vegetation.

Please read more at <http://www.adats.com/home/geography.php>

GENERAL INFORMATION

G1.2. THE TYPES AND CONDITION OF VEGETATION AT THE PROJECT SITE

LOW WATER AVAILABILITY:

The Project area consists of immense expanse of peninsular gneisses rocks. The schistose rocks in this region are poor aquifers and yield poor quality water in very less quantity. In the absence of major sources of water like rivers, the district depends heavily on groundwater. But the groundwater table has receded beyond 600 feet depth. This has resulted in failure of most bore wells and has led to high fluoride content in drinking water, causing bone, dental and other physical deformities (Raju et al., 2004).

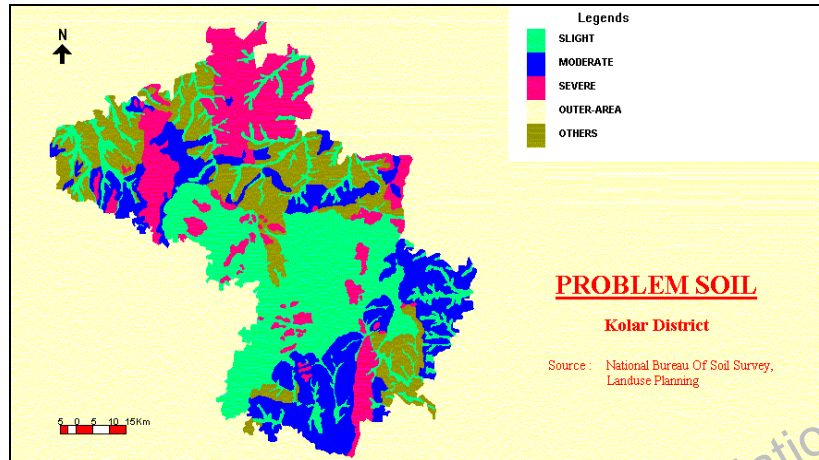
SOIL DEPLETION:

The soils of Kolar district are divided into three types, viz., red, clay loam and laterite. Some black soil patches are also seen here and there. The red loam region extends from south to north of the district comprising of Chickballapur, major parts of Siddalaghatta taluk. The water table in this type of soils is between 400 to 500 feet deep. The gravely soil region is found in parts of Gudibanda and Chintamani taluks. The water table in these types of soils is between 500 to 600 feet deep. The clay loam soil is found in Chickballapur and parts of Siddalaghatta and Bagepalli. Around Siddalaghatta, lateritic masses occur irregularly distributed in disconnected patches in the form of flat topped hills. The soils in Kolar district have a normal soil reaction and here and there they tend towards alkalinity.

Land degradation:

¹ Population coverage is much higher, at 40%, in villages with functioning Coolie Sangha Units

Due to land degradation many lands are uncultivable and may only improve after intensive soil treatment. Project activities will improve the soil by providing additional mulching material to the soil and providing shading, water retention capacity and prevention of soil erosion and surface soil runoff. As can be seen from the figure below, most of the areas in the Project area situated in the Northern part of Kolar are classified as area with severe problem soils.



ECOSYSTEMS – COMPOSITION OF FORESTS IN THE PROJECT AREA:

Forests only cover 9% of the land. They are typical of the plain tracts of Karnataka. The stocking of the forests is poor. The trees are stunted and branchy, with diffused crown. The soil is poor and shallow and rains are scanty. Such conditions support only stunted growth. There are large extents of thorn forests. The forests have been heavily exploited in the past for extracting firewood and for manufacturing charcoal. Large extents of thorny, scrubby and deciduous forests were also cleared to plant mostly Eucalyptus hybrid under various schemes. The forests on inaccessible steep slopes, however, remain un-worked. Even in the unexploited areas the vegetation is mostly stunted (Working plans, Kolar District, 2002).

The species commonly met with in the local language are known as Chigare, Pachali, Bikke, Kakke, Kagli, Dindiga, Naviladi, Sandal, Devadari, Kukarathi, Honne, Hunal, Bevu, Honge, Jagalaganti, Alale, Jalari, Mathi etc. Small bamboo (Medri) is found growing in some of the areas in valleys. Big bamboo (Dowga) is seen along the banks of rivers and streams at some places. The undergrowth mostly consists of Lantana, Badabakka, Devavare, Uelachi, Bandarike, and various Grasses. The forest types recognized in Kolar division as per the classification of Champion and Seth (1968) are as under:

ECOSYSTEMS – SOUTHERN TROPICAL DRY MIXED DECIDUOUS FORESTS

In this type of forests, dry deciduous species occur and tend to become thorny with increased heavy grazing. Poor quality bamboos are present in some pockets. Grass is conspicuous but grazed, herbs are scattered and climbers are few. **The approximate extent of such forest is around 20 % of total forest area of Kolar Forest Division.** Crown cover is between 10% and 20%. The most common and characteristic trees found are *Anogeissus latifolia* (Dindiga), *Terminalia tomentosa* (Mathi), *Chloroxylon swietenia* (Hurugalu), *Santalum album* (Sri-gandha), *Melia composita* (Hebbevu), *Acacia catechu* (Katha), *Hardwickia binata* (Kamara), *Cassia fistula* (Kakke), *Diospyros montana* (Jagalaganthi), *Diospyros melanoxylon* (Thupra).

ECOSYSTEMS – SOUTHERN TROPICAL DRY DECIDUOUS FORESTS

In this type low broken cover of shrubby growth of 1 to 3 metres in height, is found. The trees usually develop branches from the base. The grass occurs through out the tract. **The approximate extent of such forest is around 45% of total forest area of Kolar Forest Division.** The floristic composition are *Acacia leucophloea* (Bilijali), *Albizia amara* (Chigara, Thugali), *Dalbergia paniculata* (Nayibeete, Pachali), *Azadiracta indica* (Bevu), *Euphorbia antiquorum* (Pirukalli, Mundukalli), *Pterolobium indicum* (Badubukalu), *Cassia fistula* (Kakke), *Lantana camara* (Lantana), *Opuntia dillenii* (Papaskalli)

ECOSYSTEMS – SOUTHERN TROPICAL THORN FORESTS

These are low open forests with thorny, xerophytic species. *Acacia* species are characteristic of this type. The trees usually have short boles with low branching crowns. The lower canopy is made up of shrubs, mostly spiny and xerophytic. Climbers are few. The herbs and grass make up the lowest level. *Acacias* are met in combination with *Zizyphus* species and stunted *Anogeisus latifolia*. Patches of fleshy *Euphorbias* are not infrequent. **The approximate extent of such forest is around 15% of total forest area of Kolar Forest Division.** The floristic composition is *Acacia catechu* (Kaggali), *Acacia leucophloea* (Bilijali), *Acacia nilotica* (Jali), *Flacourtia indica* (Devadari), *Euphorbia nivulia*, *Chloroxylon swietenia* (Hurugalu), *Ixora arborea*, *Strychnos potatorum* (Chiligida, Chittadamara), *Cassia auriculata* (Fhangadi), *Dodonea viscosa* (Kanagalu), etc.

ECOSYSTEMS – SOUTHERN THORN SCRUB

In this type there is further degradation due to biotic and edaphic factors, resulting in the formation of almost thorny bush, with surviving trees seen here and there. Spiny, xerophytic climbers are met with. In further degraded areas grasses are more abundant. **The approximate extent of such forest is around 20% of total forest area of Kolar Forest Division.** The floristic composition is *Albizia amara* (Chujjulu, Thugali), *Chloroxylon swietenia* (Hurugalu), *Wrightia tinctoria* (Hale), *Randia dumetorum* (Kare, Maggare), etc.

ECOSYSTEMS – GENERAL CONDITION OF THE FORESTS

The rainfall being scanty and the rivers and streams remaining dry for a large part of the year, the area is for the most part, devoid of vegetation, and scarcity conditions are very common. Extensive plantations have been raised in the division since many years. However, because of relatively hostile conditions and inadequate post-planting cultural operations, indigenous species have generally not done well. Some of the exotic species introduced in these plantations such as Karpuradagida or Nilgirigida (*Eucalyptus* species), Ballari jali (*Prosopis juliflora*), Sime thangadi (*Cassia siamia*), Sisso (*Dalbergia sisso*) and Sarvemara (*Casuarina equisetifolia*) have fared better in relatively favourable sites.

Repeated illicit felling of plants and even of coppice shoots have rendered the forests of the district almost barren. The soil is exposed to sheet and gully erosion, except in the areas where coppice and bushy growth still survives. *Lantana* has spread gregariously over the area. The weed has now become the major source of fuel in the absence of better species. Xerophytic condition prevails with its characteristic species. Several pure patches of *Shorea talura* (Jalari) occur in some state forests, like that of Sambar kaval. *Buchanania angustifolia* (Maradi) predominates yielding an important minor forest produce (Working Plan, Kolar district, 2002).

91% of the land is degraded crop land or wasteland. Tree cover is very low, at an average of 1 tree or bushes every 4 hectares. Chintamani has the higher density, and Siddalaghatta the lowest density of trees, with no trees observed in Siddalaghatta on the sample lands.

CLIMATE INFORMATION

G1.3. CURRENT CARBON STOCKS AT THE PROJECT SITE(S), USING METHODOLOGIES FROM THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE'S GOOD PRACTICE GUIDANCE (IPCC GPG) OR OTHER INTERNATIONALLY APPROVED METHODOLOGIES (E.G., FROM THE CDM EXECUTIVE BOARD)

The present Project is being validated as a CDM Project applying approved forestry methodology CDMWF_AM_AR_AM0001 version 2. The current carbon stocks at the Project site were determined as follows:

The baseline net greenhouse gas removals by sinks were calculated by:

$$\Delta C_{BSL,t} = \sum_i \sum_j \Delta C_{ij,t}$$

Where

i = strata, taluk level

j = tree species,

$\Delta C_{BSL,t}$ = the sum of the changes in carbon stocks in the living biomass of trees for year t

$\Delta C_{ij,baseline,t}$ = average annual carbon stock changes in living biomass of trees for stratum i species j in the absence of the Project activity, tonnes CO₂yr⁻¹ for year t.

t = 1 to length of crediting period

The results are given below:

Baseline carbon stock as determined by conduct of field studies in the proposed Project area

Taluk	Total Project Area (Ha)	Baseline survey (Ha)	Aboveground biomass (t B/ha)*	No. of trees in Project area*	Average Age	MAI (t/ha/yr)**
Siddalaghatta	3811.18	38.6	0	0	0	0.0000
Chintamani	5062.41	48.4	0.2920	3870	9	0.0325
Bagepalli	6394.68	63.2	0.0014	101	9	0.0002
Gudibanda	1471.36	16.8	0.0100	88	10	0.0010
Chickballapur	1441.00	16.8	0.0009	257	6	0.0001
Total	18180.64	183.8	0.0609	4316		

* Total trees in Project area based on sample survey conducted in 183 ha.

** Based on equations developed for Indian tropical forests (0.079+0.4149D²H). Source: Rai, S.N., 1980

*** The mean annual increment was determined based on the study conducted in the study area by stock change method.

In the baseline survey, 6 species were recorded, of which *Pongamia pinnata* was the dominant species accounting for 72% of the trees, followed by Tamarind with 17% of the trees. About 98% of the trees were found on the bunds, which will not be harvested. The average age of the trees is 10 years with a mean DBH of 22 cms and a mean height of 8 mts. The species recorded were *Pongamia pinnata* (71%), Tamarind (17%), *Azadirachta India* (4%) and

Artocarpus indica, Eucalyptus and Tumble (2% each). Biomass equation for Indian tropical forest was used for to estimate the standing biomass.

The allometric equation used for estimating the aboveground biomass is

$$V = (0.079 + 0.4149D^2H)^2$$

Wood density $D = 0.7$ was used to convert volume (cum) to biomass (t)

(Ravindranath *et al.*, 2006)³

Below ground biomass was determined by using the IPCC equation for tropical forests given by:

$$Y = \exp[-1.0587 + 0.8836 \cdot \ln(ABD)]; \text{ Where ABD is aboveground biomass}^4$$

There are approximately 4,125 trees in the Project area based on the sample study conducted. Siddalaghatta taluk was without trees and the baseline carbon pool was set to zero. The carbon stock change of growing trees in each of the taluk was estimated separately. The annual change in carbon stocks were calculated based on stock change method given by the approved methodology. The average carbon increment of trees was taken as the increment in the next 30 years.

COMMUNITY INFORMATION

G1.4. A DESCRIPTION OF COMMUNITIES LOCATED IN AND AROUND THE PROJECT AREA, INCLUDING BASIC SOCIOECONOMIC INFORMATION (USING APPROPRIATE METHODOLOGIES SUCH AS THE LIVELIHOODS FRAMEWORK)

DEMOGRAPHY

The failing peasant economy can best be described as semi-feudal. Stark economic exploitation, along with a senseless socio-cultural and political subjugation to support it, keeps the big and middle peasants (the *Ryots*) afloat. The harsh and unsparing terrain makes social relations between *Ryots* and small and poor peasants (the *Coolies*) cruel and malicious.

- Big and Middle Peasants (the *Ryots*) comprise 35-40% of the population and control 80% of the cultivable lands through holdings of more than 25-50 acres of dry land and 2-3 acres irrigated.
- Small and Poor Peasants (the *Coolies*) comprise about 55% of the population and own an average of 4 acres of dry land. More than one-quarter of them are land poor or totally landless.
- 5-10% of the village population are non farmers – they are artisans, craftspeople, self employed tradespersons, etc. They too may cultivate their odd patches of inherited lands, but often lease it out to the others.

COOLIES

Small and Poor Peasants are agricultural labourers, semi-skilled workers, artisans, petty traders and self employed marginal farmers. None of them employ others as wage labourers. Their caste-class grouping is referred to as Coolies. They are pitted against their middle peas-

² Source: Rai, S.N. Regional volume tables for some tropical rain forest tree species of Karnataka, India, Karnataka Forest Department and Government of Karnataka, 1980

³ Ravindranath N H., Murthy I. K., Sudha, P., Ramprasad V., Nagendra, M.D.V., Sahana, C.A., Srivathsa, K.G. and Khan, H. Methodological Issues In Forestry Mitigation Projects A Case Study Of Kolar District. Submitted for publication in Mitigation And Adaptation Strategies For Global Change.

⁴ Table 4.A.4, GPG LULUCF, IPCC, 2004

ant adversaries, the *Ryots*, in the socio-economic and political arenas of a cruel semi-feudal political economy.

Coolies subsist by toiling as agricultural labourers on *Ryot* lands for less than minimum wages, and by migrating during summer months.

During the 7 cropping months from June to December, daily wages fluctuate between Rs 15 and Rs 35. But this is not 7 months of continuous work. During the off-season these drop to as low as Rs 7 per day. Seasonal migration by agricultural labourers is an annual occurrence during the summer months. They come back every June/July to scratch a subsistence cultivation from small patches of scattered holdings, far away from the villages and hugging the hillsides, averaging less than 4 acres per Coolie family.

ROLE OF ADATS

Over the past 3 decades, ADATS has assisted the Coolies in their struggle to alter the prevailing power balance in the villages and build their grassroots mass organisation, the Coolie Sangha. We follow a proven 9 year intervention strategy which is embedded in a particular implementation technology.

Please read more at <http://www.adats.com/home/istrategy.php>

VILLAGE LEVEL COOLIE SANGHA UNITS (CSUs)

30-35 small and poor peasant families from each village (with a total population of 70 to 100 households) organise themselves into village Coolie Sangha Units (CSUs). These village associations are the primary units of the grassroots organisation, the Coolie Sangha.

The Coolie Sangha is a highly structured, disciplined and self-financed membership driven organisation which, though created by our NGO, now enters into a formal working relationship with ADATS to undertake various development activities.

38,344 small and poor peasant families from 913 villages have formed Coolie Sangha Units. 19,118 Coolies families from 529 village CSUs are presently active in the current year. 40% of the population of villages with CSUs are in the Coolie Sangha.

A range of comprehensive rural development projects, programmes and activities are together taken up. These include Community Organisation, Adult Literacy, Children's Education, Youth Development, Community & Referral Health, support to issues and struggles with Legal Aid & Aid Distress, Dry Land Development, Agriculture, alternate Credit, Women's Programmes, etc. Together, 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, at the Village, Cluster and Taluk levels.

Except when responding to rare emergencies, ADATS does not work with the individual poor, within the conventional social work or charitable mode, in any patronising manner.

Please see more at <http://www.adats.com/cs/>

MEMBER COOLIE FAMILIES

19,118 families are currently active in 529 village Coolie Sangha Units. 52% of them are Harijans and Tribals, 18% belong to intermediary castes like barbers, washer folk, weavers, shepherds, Muslims and the like. 30% are from very poor families belonging to upper castes. This approximately coincides with the demographic composition of the total village population, with a slightly heavier preference to Harijans, Tribals and Middle Castes.

While 44% of the total SC/ST population are attracted to join the village Coolie Sangha Units, only 36% of Middle and Upper Caste families do the same.

Members	Percent in CSUs	Caste Group	Total Families	Ethnic Cover
9,931	52%	Scheduled Castes/Tribes	22,429 47%	44%
3,427	18%	Middle Castes	9,460 20%	36%
5,760	30%	Upper Castes	15,845 33%	36%
19,118			47,734 100%	40%

These 19,118 Coolie families own a total of 56,895 acres of land (average less than 3 acres). This comprises of 52,846 acres (93%) Dry Land; 353 acres (1%) Open well; 2,582 acres (5%) Tank Irrigated; 1,114 acres (2%) Bore well.

26% of these families are landless and, at the other end, 15% own more than 5 acres of rain fed dry land. But the bulk of small and poor peasants own 1.1 to 4 acres of dry land.

Landholding	Families
Landless	5,063 26%
0.1 to 1 acre	800 4%
1.1 to 2 acres	2,860 15%
2.1 to 3 acres	3,070 16%
3.1 to 4 acres	2,662 14%
4.1 to 5 acres	1,784 9%
Over 5 acres	2,879 15%

Last year, an equal proportion of their income was obtained from agricultural wages as from their own cultivation. But this varies from year to year, depending on the severity of drought. Off farm ventures, in the main, account for the rest.

Sources of Declared Income	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Coolie Wages	35%	37%	45%	39%	37%	50%	39%	38%	33%	37%
Farming	51%	52%	45%	55%	48%	34%	40%	43%	46%	38%
Off Farm Ventures	3%	4%	4%	3%	9%	6%	10%	9%	12%	14%
Petty Business	1%	1%	0%	1%	1%	2%	3%	2%	2%	3%
Salaries & Stipends	5%	3%	3%	2%	2%	4%	3%	3%	3%	3%
Other	6%	2%	2%	1%	3%	3%	1%	2%	1%	2%

The bulk of them have a family income of between Rs 3,000 and Rs 10,000 per annum. But 17% of them are desperately poor with incomes of less than Rs 3,000. Only 1% of the CSU Members have an income of more than Rs 10,000 per annum.

Pattern of Declared Income	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Below 2K per annum	31%	31%	39%	26%	1%	3%	3%	5%	3%	6%
Between 2K & 3K	27%	35%	39%	42%	3%	15%	13%	16%	10%	11%
Between 3K & 4K	16%	18%	14%	20%	11%	42%	33%	33%	28%	26%
Between 4K & 5K	10%	9%	5%	7%	19%	25%	30%	26%	29%	28%
Between 5K & 10K	13%	6%	3%	5%	60%	16%	21%	19%	30%	29%
Over 10K	3%	1%	0%	1%	6%	0%	1%	0%	1%	1%

RESULTS

The most impressive Result of our work is that the power balance in the villages has irreversibly altered in favour of small and middle peasants. The all pervasive and unquestioning subservience of Coolies to *Ryots* no longer exists. The experience of upper caste manipulation has ended.

Coolies are now able to access State welfare resources for their development. Coolie women are no longer exploited on the basis of their caste, class and sex. Family and social development are delivered by Coolie women. Coolie children are able to break out of their caste ascribed status. Social change is actively introduced by Coolie Youth.

Diversified income flows have been established in a situation where survival capacity was threatened. To a limited extent, unsustainable resource use practices have ended with Coolie lands systematically conserved and cultivated.

These achievements have been made because a larger unification of the poor has been achieved across narrow and parochial caste divides. Functionaries have been empowered to deliver Results.

These Results need to be viewed in the backdrop of 5-6 years of continuous drought and crop failure. This, in spite of the mainstay of their income being agriculture – their own subsistence farming (crop yields from dry lands) and *Ryot* cultivation (wages for agricultural labour).

Where in most other semi-arid drought prone regions the rural poor would have folded up and resorted to large-scale and permanent forced migration, here they have displayed a gumption to face odds and not just survive, but actually improve their living standards. This is largely due to the effectiveness of their people's organisation. They stick to community decisions and gather the nerve to live in dignity and self respect.

In order to get a flavour of what has been happening in these villages, please read our last two Effects Monitoring Reports at <http://www.adats.com/documents/book3/0324/> and <http://www.adats.com/documents/book3/0325/>.

COMMUNITY INFORMATION

G1.5. DESCRIPTION OF CURRENT LAND USE AND LAND TENURE AT THE PROJECT SITE. (SEE ALSO G5)

19,118 families who are currently active in 529 functioning village CSUs own a total of 56,895 acres of land.

26% of these families are landless and, at the other end, 15% own more than 5 acres of rain fed dry land. But the bulk of small and poor peasants own 1.1 to 4 acres of dry land.

Landholding	Families	
Landless	5,063	26%
0.1 to 1 acre	800	4%
1.1 to 2 acres	2,860	15%
2.1 to 3 acres	3,070	16%
3.1 to 4 acres	2,662	14%
4.1 to 5 acres	1,784	9%
Over 5 acres	2,879	15%
	19,118	100%

As already mentioned, land owning Coolie families eke a subsistence farming from dry lands under rain fed cultivation in order to supplement their wage income.

BIODIVERSITY INFORMATION

G1.6. A DESCRIPTION OF CURRENT BIODIVERSITY IN THE PROJECT AREA AND THREATS TO THAT BIODIVERSITY, USING APPROPRIATE METHODOLOGIES (E.G., KEY SPECIES HABITAT ANALYSIS, CONNECTIVITY ANALYSIS), SUBSTANTIATED WHERE POSSIBLE WITH APPROPRIATE REFERENCE MATERIAL

KEYSTONE SPECIES:

Banyan (Aala) or Peepal (Arali) almost always constitute the biggest trees in any village, town or city of Karnataka, and Kolar District is no exception. Botanically they belong to genus *Ficus* which ecologists now recognize as a keystone resource, responsible for supporting a whole spectrum of biodiversity by producing fleshy fruit at times when such fruit is scarce. Atthi, Basari and several other *Ficus* species are also protected as sacred trees all over Karnataka. Villagers plant the local keystone species like *Ficus* sp., Mango, *Madhuca*, *Neem* and other native trees, and collect the usufructs and also conduct village festivals using some of the produce (e.g. *Neem* flower). These community forests were mainly established in and around the village tanks for watershed development. These groves also provided shelter for native faunal biodiversity.⁵

Threats:

This unique tradition of management of local bio-resource is under threat and many *Thoppus* have been encroached for habitation and cultivation (Yathiraju, pers. comm.). The traditional conservation practices with respect to individual plants the traditional concepts like *Sthala Vriksha* the concept of each place having its own unique keystone species protected and *Kula Vriksha*, the concept of each race protecting a tree species is the earliest attempt to conserve the biodiversity involving communities. These concepts have evolved and now there are large number of sacred trees and animals, which have been protected in the village landscapes. The traditional concepts like Panchavatis, Rasi vanas and Nakshthra vanas are examples of such traditional conservation concepts. *Acacia ferrugenia* (Banni) is a keystone species and is protected as *Kula Vriksha* in some areas (Reddy, Y. pers. comm.).

CROP SPECIES DIVERSITY :

There is no strict divide between 'wild' and 'domesticated' species important for food and livelihoods. Whilst not necessarily the subject of conscious management by herders or farmers, many wild plant and animal species thrive in, or are dependent on, agro-ecosystems, especially structurally and biologically complex agro-ecosystems. The cultivation practices have managed to conserve the diversity over several years in some systems like Ragi ecosystem, Sorghum ecosystem etc. and need to be conserved.

Threats:

Cash-cropping is the major threat to biodiversity in food crops as intensive farming with pesticides and fertilizer destroy diversity.

⁵ Karnataka State Biodiversity Strategy and Action Plan (KBSAP), (As a part of National Biodiversity Strategy and Action Plan - NBSAP), by Madhav Gadgil, 2004

FISH DIVERSITY:

The fish fauna of the reservoirs and tanks are greatly influenced by the river drainages and also due to the introduction of fast-growing Indian major carp and the exotic carp. The majority of the tanks are seasonal, long-seasonal and a few are perennial in nature. The tank fishery is comprised of Murrels – *Channa marulius*, *C. striatus*, *C. orientalis*, *C. punctatus*, Catfish - *Mystus vittatus*, *Clarius batrachus*, *Heteropneustes fossilis*, minnow carp and weed fishes like *Puntius dorsalis*, *P. sophore*, *P. ticto*, *P. chola*, *Esomus danricus*, *Parluciosoma daniconius*, *Amblypharyngodon mola*, *Chela cachius*, *Danio aequipinnatus*, etc. and Spiny Eels - *Mastacembelus armatus*.

Threats:

Majority of the tank fishery is diminishing fast on account of ecological degradation of their habitats. Poor agricultural practices and wasteful irrigation increases erosion, siltation, reduces stream flow, cause loss of nutrients or increase in salinity and some related problems. The result may be choking of river beds, reduction and elimination of bottom and drift organisms, smothering of breeding grounds of fish, reduction of fish stock in streams and its ever-all poor quality. Use of pesticides and other chemicals used in agricultural practices which finds entry into the Erosion and siltation has resulted in the disappearance of large number of wetlands as also rivers and reservoirs. Encroachment of the tank-beds by agriculturists and builders resulted in the reduction of water-spread area. Tilapia (*Oreochromis mossambica*) was accidentally introduced and has created a sort of total destructive scene in all the tanks, rivers and reservoirs. The important point to be taken note of in this species is its prolific breeding habit resulting in over-crowding affecting the growth and population of fish indigenous to the biotope. It is an example of 'population explosion', the result being almost the total destruction of fish species indigenous to the water bodies.

MEDICINAL PLANTS DIVERSITY:

The Forest department of Karnataka is spearheading a pioneering medicinal plants programme in India for *in situ* conservation, conservation of threatened plants, *in situ* plantation, sustainable harvest of medicinal plants from the wild.

A significant feature of this Southern Indian conservation initiative is the involvement of rural communities in conservation, cultivation and value addition. The exact distribution of the selected 261 species in Karnataka is not available in a clearly documented form. As per an estimate by Foundation for Revitalization of Local Health Traditions (FRLHT) there are approximately 2000 medicinal plant species occurring in Karnataka. A total of 933 species out of this have been recorded across the network of 13 Medicinal Plants Conservation Areas established in Karnataka since 1993.

A lot of medicinal plants can be found along roadsides, barren waste lands and amongst commercial crops. 33 species of medicinal plants like *Bacopa monnieri*, *Centella asiatica*, *Cynodon dactylon*, *Eclipta alba*, *Phyllanthus amarus*, *P. maderaspatensis*, *P. reticulatus* which are by-products of cultivated water fed fields. Some other plants like *Aloe barbedensis*, *Cassia senna*, *Tylophora indica*, *Coleus forskohlii* and *Vetiveria zizanioides* are cultivated for pharmaceutical industries, in small quantities, in certain pockets of the District. Several medicinal plants like *Elletaria cardamomum*, *Piper nigrum*, *Syzygium aromaticum*, etc., are being cultivated regularly and many of them are considered as conventional spice crops. Many more are collected by women on their way to or from fields, or on their trips to the rocky outcrops around their fields.

MEDICINAL TREES DIVERSITY:

We are cultivating medicinal trees in the project: *Mangifera indica*, *Tamarindus indica*, and *Tectona grandis* are plantation crops which are also cultivated for their commercial value. *Alternanthera sessilis*, *Basella alba* and *Murraya* plants are often cultivated for their food values. Flower yielding trees and plants like *Artemisia indica*, *Barleria cristata*, *Clitoria ternatea*, *Michelia champaka*, *Nerium indicum*, *Ocimum sanctum*, *Wedelia species* are cultivated in kitchen gardens. Tree species such as *Acacia concinna*, *Acacia nilotica*, *Anogeissus latifolia*, *Bambusa arundinacea*, *Delonix elata*, *Feronia elephantum*, *Ficus racemosa*, *F. religiosa*, *F. bengalensis*, *Gmelina arborea* and *Pongamia pinnata*, are cultivated by Forest department under social forestry and avenue tree planting schemes.

Threats:

With increased depletion in forest cover and destruction of specific habitats it is not difficult to conclude that there would have been reduction in the population of medicinal plants also. In the selected list of 261 medicinal plants for the region, it is believed that most of them do not require any specific habitat and can thrive in a wide variety of ecosystems. Some Caterpillars and grass hoppers eat away the leaves of *Ailanthus excelsa* and *Azadirachta indica*. Similar fate is also noticed in *Abutilon* sp. at Kaivara, Kolar district. *Anogeissus latifolia* is considered as fuel wood tree as per the forest department records and the tree felling is common for fuel wood. Whole liana is uprooted to get stout tubers. Roots of *Hemidesmus indicus*, *Aristolochia* species, *Ichnocarpus frutescens*, *Cyclea peltata* and *Cissampelos pareira* make these plants susceptible.

The main threat to diversity in plant species is the loss of verges, common land, open spaces, and the respect for the livelihood systems of women who collect cultivated and uncultivated plants for themselves, their families and animals.

BIO-DIVERSITY NEAR OR AROUND WATER BODIES:

A typical tank may have trees on the bund, such as "Rain tree" (*Samanea saman*); "Copper pod tree" (*Peltophorum pterocarpum*); "Gul mohar" (*Delonix regia*); "Jaali mara" (*Prosopis juliflora*) etc, growing on the bund. Shrubs that grow are mainly *Datura matel*, *Zizyphus jujuba*, *Solanum xanthocarpum*, *Solanum indicum*, *Cassia auriculata*, *Lantana camara*, *Parthenium hysterophorus*, occasionally *Parkinsonia aculeata*. Herb layer includes more hard species like *Sida acuta*, *Sida rhombifolia*, *Abutilon indicum*, *Croton bonplandianum*, *Cassia tora* and some climbers like *Cardiospermum helicacabum*, *Ipomoea muricata*, *Ipomoea hederifolia*. Grasses like *Eragrostis unioides*, *Eragrostis bifaria*, *Cynodon dactylon*, *Aristida setacea* grows profusely. Marshy/Aquatic plants like *Polygonum chinense*, *Typha angustifolia*, *Cyperus haspan*, and *Ipomoea carnea* grow very well.

Threats:

The literature states that the most troublesome aquatic weed is water hyacinth (*Eichorina crassepis*). It occupies the peripheral region of tanks where there are more effluents, especially where sewage water flows in and gets collected. But casual observation reveals that it is the parched drying up of these tanks with the failure of the second North-East Monsoons that is a far bigger issue than hyacinth.

BIODIVERSITY INFORMATION

G1.7. A LIST OF ALL IUCN RED LIST THREATENED SPECIES (WHICH ENCOMPASSES ENDANGERED AND VULNERABLE SPECIES) AND SPECIES ON NATIONALLY RECOGNIZED LIST (WHERE APPLICABLE) FOUND WITHIN THE PROJECT BOUNDARY. (SEE ALSO B1)

The updated list for India contains 483 species of animals listed as endangered or vulnerable.⁶ Our Project is in the southern dry deciduous forest eco-region. There are seventy-five species of mammal fauna in this eco-region, of which 7 are on the red List:

- *Hipposideros hypophyllus*, or Kolar leaf-nosed bat.
It was previously listed as Vulnerable. Improved information since then has resulted in the species being upgraded to endangered. This recently described endemic species requires urgent follow-up studies to determine its distribution, population status and threats to its survival. The species is known from only two localities in the Kolar district, Karnataka, India. Extent of occurrence and area of occupancy are estimated as < 5,000 km² and < 500 km², respectively. Available habitat has decreased in quality and area (by at least 20%) over the last six years due to deforestation and mining activity.
- The critically endangered Salim Ali fruit bat *Latidens salimalii* is a near-endemic species in the region.
- *Cuon alpinus* – the wild dog
- *Melursus ursinus* – the sloth bear
- *Tetracerus quadricornis* – Chousingha
- *Bos gaurus* – Gaur
- *Ratufa macruora* – grizzled giant squirrel

Loris lydekkerianus – Slender Loris, though not endangered, is rare. It was spotted in Malur, Kolar District in 1981.

The Indian Star Tortoise *Geochelone elegans*, is listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Schedule IV of the Indian Wildlife (Protection) Act 1972, making the trade of the species illegal.

The eco-region's bird fauna consists of about 260 species, of which two are near-endemic species. *Turdoides subrufus* Rufous babbler, and *Pycnonotus xantholaemus* Yellow-throated bulbul. The Yellow throated bulbul is on the vulnerable list.

Two species in this eco-region, the Indian Bustard (*Ardeotis nigriceps*) and Lesser Florican (*Eupodotis indica*), are globally threatened and warrant conservation attention.

Aquila clanga, or Greater Spotted Eagle, is endangered. It has been spotted in the area.

There is an endemic endangered plant species in the region listed on the Red List. It is:

- *Cycas Beddomei*, a medicinal plant, known from Cuddapah Hills in Andhra Pradesh State, north-west of Madras in eastern Peninsular India, and into Kolar District. Characteristically a species of dry, open hill slopes, in open grassy woodland or grassland.

⁶ Export IUCN Red List August 1st 2007



Project withdrawn before CCB Standards Validation, May 21st, 2010

G2. BASELINE PROJECTIONS

CONCEPT

An analysis of projected land-use trends is necessary to predict likely on-site changes without implementation of a project. This “without-project” future land-use scenario enables comparison of the project’s likely impacts with what would otherwise have occurred.

INDICATORS

The project proponents must develop a defensible and well-documented “without-project” future land-use scenario and baseline projections, including the following information:

- 1) Description of the most likely land-use scenario in the absence of the project, identifying whether the scenario assumes that existing laws or regulations would have required that project activities be undertaken anyway.⁷
- 2) A projection of future carbon stock changes in the absence of the project, based on the land-use scenario described above. The timeframe for this analysis can be either the project lifetime (see G3) or the project accounting period, whichever is more appropriate.⁸ If there is evidence that non-CO₂ greenhouse gas (GHG) emissions such as CH₄ or N₂O are more than 15% of the baseline GHG fluxes at the project site (in terms of CO₂ equivalents), they must be estimated.
- 3) Description of how the “without-project” scenario would affect local communities in the project area.
- 4) Description of how the “without-project” land-use scenario would affect biodiversity in the project area.
- 5) Description of how the “without-project” land-use scenario would affect water and soil resources. (See also **B5**).

G2.1. DESCRIPTION OF THE MOST LIKELY LAND-USE SCENARIO IN THE ABSENCE OF THE PROJECT, IDENTIFYING WHETHER THE SCENARIO ASSUMES THAT EXISTING LAWS OR REGULATIONS WOULD HAVE REQUIRED THAT PROJECT ACTIVITIES BE UNDERTAKEN ANYWAY

BACKGROUND

Coolies are largely landless and land-poor. Their average holding is less than 4 acres of rain-fed dry land, that too through scattered holdings that are far off from the village, on steep slopes perilously hugging the hillside, covered with shrubs, bushes and boulders, and with a thin soil cover. They lack tools, implements, plough animals, stocks of seed, and cash to buy fertilizers.

The seasonal calendar for rain dependent dry land cultivation is stacked against a labouring population. The first ploughing to loosen the rock hard fields and prepare the soil for further operations has to be undertaken with the advent of the first showers in the month of May. If

⁷ This is important for justifying whether the benefits being claimed by the project are truly “additional”, i.e., the climate, community, and biodiversity impacts that would not be likely to occur without the project. For example, actions implemented by the project must not be required by law, or project proponents must make a compelling case demonstrating that the pertinent laws are not being enforced. The project proponents must provide credible and well-documented analyses (poverty assessments, farming knowledge assessments, remote sensing analysis, etc) showing that without the project, improved land-use practices would be unlikely to materialize.

⁸ In some cases, the project lifetime and the project accounting period may be different.

this is not done using a very short window of just a few days, late ploughing will have little effect.⁹

But May is the month when EVERYONE is frantic to plough their fields. *Ryots* are not likely to “lend” their bullocks and ploughs to the Coolies at that time. Moreover, if a Coolie family does not obsequiously “attach” itself to a *Ryot* and his fields at this time, manifestly demonstrating their allegiance as loyal Clients, they are unlikely to be guaranteed a continuing source of employment the whole season long. This is the economic basis for demeaning Patron-Client relations that are forged during the busy cropping months.

As a result, large tracts of Coolie lands are invariably left barren, year after year.

Marginal and unviable holdings leads to low productivity. What little land is cultivated is under risky field crops that are dependent on erratic rains. High external input and unviable cropping practices accentuate the problem.

Common property resources are degraded. All these in a background of negative values on gender and environment. These are ingredients that spell unsustainable resource-use practices and a total absence of food security.

Please read our Agriculture Policy & Strategy Paper at <http://www.adats.com/documents/book6/0608/>

RESPONSE TO DATE

Implementing massive Dry Land Development Programme (DLDP) works to undertake Soil & Water Conservation (S&WC) works to clear, level and consolidate patches of Coolie owned lands has had a huge impact.

Please read more at <http://www.adats.com/home/dldp.php>

To view these efforts as just the execution of physical works undertaken with externally provided resources, or even as “an artificial intervention in the labour market” would be to totally miss the point.

The DLDP has to be seen as a composite and homespun socio-political strategy to replace semi-feudal peasant production relationship between *Ryots* and Coolies with a different political economy of cultivation; one where the latter dare dictate terms as dignified carriers of labour power; where a fair share in the surplus is carved out even from a seemingly faltering peasant economy.

The very aspiring to cultivate one’s own land with the onset of monsoons implies a serious and dangerous burning of bridges with the *Ryots*. Implementing DLDP works for 22 long years has to be interpreted as nothing short of heroic under these circumstances.¹⁰

Member Coolie family income has definitely gone up. A combination of agricultural labour and farming has contributed to this improvement, *in spite of 5-6 years of continuous drought*. The percentage of desperately poor families who earned less than Rs 3,000 a year has drastically fallen these past 2 years, once again in defiance of the drought. Where there were 4-8 persons out of 10 who claimed to be in utter destitution, there are now just 2.

Disposable wealth has also increased. At least 50% of the 71,551 acres owned by 33,028 Coolie families have a value close to par with that of richer peasants.

⁹ This seasonal calendar is shifting by about 30-45 days in the past decade, perhaps due to climate change.

¹⁰ Please read a truly fascinating description of these changes in the Participatory Evaluation of the DLDP at <http://www.adats.com/studies/24/>

There has been a drastic shift away from cash crops to food crops, but not because of any Project effort. It remains to be seen if Coolie families will continue with a balanced crop choice even after the drought is over, or whether they will succumb to market temptation.

Over the past 22 years, ADATS has invested Rs 93,807,792 in the form of DLDP wages to undertake S&WC works on 71,551 acres of Coolie owned lands. We estimated that an additional Rs 46,467,950 worth of wage capital is needed on 35,052 acres in order to clear, level and bring ALL Coolie holdings on par with that of adjacent Ryots.

This additional wage investment of Rs 46.5 million will be made in the next few years under the National Rural Employment Guarantee Act (EGA) when Kolar district gets notified.

FIELD CROPS TO TREE CROPS

Improving Coolie lands is not enough. However flat and level the fields may be, cultivation will still be at the mercy of erratic, spatial and unpredictable rainfall. The financial risk involved in dry land farming is far too big for small and poor peasant families to bear. Hard earned savings made from wage earnings are lost, family labour is wasted, and assets get disinvested. The emotional insecurity and mental agony is hard to describe.

The most important requirement is for Coolie families to be able to shift away from overtly rainfall dependent Field Crops to hardy Tree Crops. Unlike crops in the stand, trees do not need *timely* rains.

RATIONAL USE OF SCARCE GROUNDWATER

Ground water levels do not justify even the growing of even Irrigated Dry (ID) Crops in this region. The scarce groundwater that a handful of *Ryots* presently use on water intensive crops can instead be rationally used by the entire village population, including Coolies, on hand pouring for hardy saplings planted on their dry lands.

For this to happen, a powerful body needs to negotiate with these few families who own bore wells and convince them on their senseless ways. The village Coolie Sangha Units possess sufficient social capital to be able to arrive at watering arrangements with them. In addition to “bargaining power” the Coolies also need to make a financial proposition that gives weight to their argument. They need to offer more money from the “sale” of water to everyone in the village, than these *Ryots* can ever hope to make through their own ID Crop cultivation.

PROHIBITIVE COST

In order to make this shift, an investment of more than € 1,000 per Hectare is needed. 69% of this expenditure is on watering arrangements – building a Field Tank and paying the water-owning *Ryots* and tractor drivers to haul water. This is far beyond the reach of any Coolie family. The total volume of investment required is well beyond the scope of NGO funding. However, the village Coolie Sangha Units possess enough social capital to set up the collective entity that can effectively implement a very good Dry Land Horticulture Project in the form of an A/R CDM activity.

SCAN OF PUBLIC AND PRIVATE FUNDING FOR FORESTRY

As described in detail above, despite the sustained and systematic efforts of Coolie families, we cannot expect any changes of land use in the absence of the Project. In the absence of the Project the land would remain in the present degraded state. We come to this conclusion after considering

- Plausible alternative land uses including alternative future public or private activities and crucially, investments, on the degraded lands such as any forestry activity, and
- Any other feasible land development activity.

In addition to field surveys, data and feedback from stakeholders, we looked at relevant national and or sectoral land-use policies that would impact the proposed Project area. This was done for different strata and it was found that there is no difference in baseline scenarios between the various strata. The full report can be read in the Project Design Document.

Basically this region is degraded due to lack of investment on land. Wasteland is cultivated without sufficient inputs, and lack of support for eco-restoration or landscape protection. There is no attempt to regenerate the land with government or private investments. Subsistence farmers are left to fend for themselves with no technology, finance, and ecologically safe and sound long term vision by policy makers. In this context a projection of future carbon stock changes in the absence of the Project, based on the land-use scenario described, is a simple linear projection of continued degradation, with less than 1 tree for every 4 hectares of land. The timeframe for this analysis is chosen as the Project accounting period, but a simple 100 year projection into the future would be just as appropriate. We adopt the projection from the PDD for convenience.

First we considered the plausible alternative land uses. This was not done for different strata as there is no difference in baseline scenarios between the various strata.

- The National Forest Policy of India (1988) envisages 33% of land area under forest/ tree cover. In the approach paper of the Tenth Five Year Plan a monitorable target has been fixed to increase forest/tree cover to the extent of 25% by 2007 and 33% by 2012.
- The Indian Constitution has been amended to include forestry under concurrent list. Article 48-A states “The State shall endeavour to protect and improve environment and safeguard the forests and wildlife of the country.” Article 51- A (G) enshrined as fundamental duty of each citizen “to protect and improve the natural environment including forest, lakes, rivers and wildlife, and to have compassion for living creatures”. Similarly 73rd and 74th amendments of the Constitution authorized Panchayats and Urban local bodies to promote social forestry and urban forestry and tree plantations on vacant lands.
- The National Forest Policy 1988 was adopted with the objectives to:
 - have a symbiotic relationship between the tribal and forest, and to associate the forest dwellers in protection, regeneration and development of forests as well as sharing of benefits,
 - promote/popularise non-wood forest products and development of medicinal plants and bamboos,
 - increase productivity through adoption of clonal forestry, application of bio-fertilizers, adoption of IPM system and efficient forest product development, processing, utilisation and marketing and iv. Carry out detailed investment studies, harmonisation of demand and supply of forest products, and environmental impact analysis to rationalize and improve utilisation.
- The National Agriculture Policy 2000 was adopted with the following objectives:
 - Areas of shifting cultivation will receive special attention for their sustainable management
 - Integrated and holistic development of rainfed areas will be promoted by conservation of rainwater through vegetative measures on watershed basis and augmentation of biomass production through agro and farm forestry with the involvement of the watershed committee.
 - Agro-forestry and social forestry that are prime requisites for maintenance of ecological balance and augmentation of biomass production in the agricultural systems will receive a major thrust for efficient nutrient cycling, nitrogen fixation, organic matter addition and for improving drainage. Farmers will be en-

couraged to take up farm/agro-forestry for higher income generation by evolving technology, extension and credit support and removing constraints to development of agro and farm forestry.

- Creation of National Wasteland Development Board to afforest 5 million hectares of wasteland every year. The National Afforestation and Eco-development Board set up by the Ministry of Environment and Forests will regenerate degraded forest land.
- Formulation of a number of externally aided social forestry projects and their implementation in States.
- Concrete efforts are to be made to cover 15 million hectare of degraded forests under JFM.
Joint Forest Management was started for regenerating, protecting and equity sharing of forest resource. So far, 44,943 JFM Committees have been formed covering an area of about 11.629 m hectare of degraded forest land).
- Private forestry development has to be encouraged by providing various inputs and legal & policy supports for increasing production and improving ecology and economy of the region.
- Around 300 m hectare is the available productive land out of 328.27 m hectare total geographical area of the country. Actual forest cover is 63.73 m hectare of which only 37.73 m hectare are good forests. About 20 m hectare is covered under tree plantations (agro-forestry, farm forestry, social forestry and other plantations). Thus, in order to achieve one-third area under forest/ tree cover, $(100-37.73-20=42.27, \text{ say } 43)$ 43 m hectare of area is proposed to be covered under Greening programme in 10-year period as under
 - 15 m hectare of degraded forest land to be covered under JFM.
 - 10 m hectare of irrigated area to be brought under commercial agro-forestry
 - 18 m hectare of rainfed area to be brought under subsistence agro-forestry.
 - Greening India Programme aims at achieving increased productivity, employment and income generation and food security to poverty stricken people.

As can be seen above, though there are a large number of policies, programmes and amendments to the Constitution for reforestation, implementation depends on the availability of funds. In India, the budgetary outlays under the forestry and wildlife sector in State Plans are around 1 per cent. This amount includes overseas development aid. The financial requirement for greening programme would be of the order of Rs 48,000 crores in 10 years. The annual requirement would be Rs 4,800 crores against the current availability of Rs 1,601 crores. There is thus a shortage of funds to undertake such programmes. We do not expect any new programmes in the Project area over the next years, especially also considering the woeful neglect of agriculture and forestry in the period 2002 to 2007.

Instead of additional funds coming from the plan budget of Central and State Governments and externally aided projects, domestic support was consequently reduced¹¹.

¹¹Source: http://planningcommission.nic.in/plans/planrel/fiveyr/10th/volume2/v2_ch9_1.pdf. Tenth five year plan 2002-07. Forests and Environment, Planning commission. Govt. of India.

Funds for afforestation and reforestation in Kolar region are allocated for planting on forest lands under the Joint Forest Management. On an average, annually, during 1991-2005, 500 hectares are supposed to be planted in taluks covered by our Project. These are not visible on the ground.

Overseas funding from JBIC for planting on forest lands under the JFM programme and the Forest Development Fund from the Central Government has also come to an end. There are no plans for further planting activities in Kolar district under any scheme in the coming years, either on forest lands or on private lands.

In spite of an announced *Kisan Credit* scheme and so on, farm loans are not available for long term crops from local banks. NABARD re-financing conditions are not availed by banks even though they have a mandate from the government to do so. Thus marginal farmers and agricultural labourers with some land cannot, even theoretically, get bank loans for reforestation activities as compared to other short term agricultural activities.

The declared strategy of the Forestry Sector is two pronged – producing market oriented products on farms, and protecting forests for environmental benefits and for sustaining the livelihood of forest dwellers¹². According to the mid term appraisal by the Planning Commission, the States have not been able to realize the full potential of this sector, particularly the poverty alleviation focus.

The promotion of forestry activities is the only plausible alternative land use on the degraded lands. But apart from the heroic efforts of the communities themselves, there is no other activity or any other feasible land development activities that would impact the proposed project area. These community efforts can only be expanded with financial inputs such as what we are now trying to tap through CDM.

All these demonstrate that without the proposed Bagepalli CDM Reforestation Project, the region will not be reforested.

REGION WILL REMAIN ABANDONED AND DEGRADING

The most plausible scenario is that the Project areas would remain abandoned and degrading in absence of the Project activity.

We chose the barrier approach from the A/R “Tool for the demonstration and assessment of additionality” under the CDM to demonstrate additionality. We showed that similar lands in the vicinity, will also not come under alternative land uses. There are apparent financial and/or other barriers which will prevent that from happening.

The attractiveness of such a plausible alternative in terms of the benefits to the Project participants is very low indeed. This is evidenced by the fact that the agricultural labourer families who are participating in the Bagepalli CDM Reforestation Project have to work on other people’s lands as their own lands are so degraded. Similar lands in the vicinity, which are not under Dry Land Development Programme, are simply left as degraded lands and not cultivated or reforested.

The incentive for doing this reforestation activity is funds which can be mobilised through registration as an A/R CDM Project activity. Based on stakeholder interviews, the only alternative to the Project activity for the lands would be marginal agricultural cultivation. Crop productivity is low as fields have low fertility and are dependent on rainfall. Uncertain rainfall and continuous droughts in the area causes financial losses to marginal farmers. The Pro-

¹²Report of the task force on greening India for livelihood security and sustainable development. Planning Commission, Government of India, July 2001. http://planningcommission.nic.in/aboutus/taskforce/tk_green.pdf

ject areas would thus remain either as barren and uncultivable lands, or fallow or marginal croplands in the absence of the Project activity.

DLDP has a low budget at its disposal which does not allow the land to be converted to alternative use. Stakeholder consultations for existing and future land use shows that the communities do not find cropping profitable. At the same time there is no financial wherewithal to implement a reforestation programme in the hope of creating a perennial crop which is more capable of withstanding the vagaries of the weather and climate.

The description of the DLDP works also amply demonstrates that barriers to alternative land use are too high. The DLDP cannot get families into reforestation activities. At most, some soil conservation work and levelling can be achieved.

PAST & CURRENT EFFORTS AT "AFFORESTATION"

World Bank aided social forestry programme in the '80s supplied seedlings to farmers through decentralized nurseries for planting on revenue lands. In Southern and Eastern Kolar District, Eucalyptus was extensively planted on the mounds/ bunds as well as in the agricultural wastelands. In the Northern Kolar district comprising the Project area, the area covered was negligible. Plantations accounted for only 0.18-5% of the taluk area. These programmes were aided by overseas developmental agencies, while domestic funds for such programmes were minimal. A study by Shiva et al., (1981)¹³, concluded that the primary objective of social forestry had not been achieved, i.e. the subsistence forest product requirements of the poorest rural communities were not being met.

Instead, social forestry had been successful in motivating medium and large farmers to plant trees on their lands. The establishment of Eucalyptus plantations on private land is argued to have adversely affected landless agricultural labourers and marginal farmers by reducing local employment opportunities as well as fuel and fodder availability. The authors assign the failure of social forestry primarily to:

- 1) promoting tree cultivation without sufficient attention to species and the capacity of different socio-economic groups to grow these, and
- 2) assuming that increasing production of a commodity in a particular locality will also ensure increased local availability.

Large-scale planting of Eucalyptus (in terms of proportion of total planting) has caused severe decrease in the water table of the region. A survey of the various stakeholders for choice of species in the Project area show that they do not prefer Eucalyptus, as they opine that it will further deteriorate the lands. They prefer horticulture species.

Currently afforestation and reforestation is being done under the externally aided JBIC programme. The activity is limited to forest lands. The benefit of planting is to the Joint Forest Committees (JFMCs) and the forest department. Planting on degraded private lands are not being done. As mentioned above, even in the agro-forestry model, only a few big farmers with large land holding were benefited while the marginal and poor farmers were left out.

PROPOSED BAGEPALLI CDM REFORESTATION PROJECT

On the other hand the species planned for this proposed Bagepalli CDM Reforestation Project are NTFP which are indigenous to the region and will yield long-term benefit to the farmers. The scale of the Project activity also means that some benefit may accrue to the local climate and ecological conditions, and precipitation in the local area may even increase.

¹³ Shiva, V., Sharatchandra, H.C. & Bandyopadhyay, J. 1981. Social, Economic and Ecological Impact of Social Forestry in Kolar. Indian Institute of Management, Bangalore, India. <http://www.odifpeg.org.uk/publications/greyliterature/socialforestry/shiva/Shiva.pdf>

These kinds of scales of planting on private marginal lands has not been done before. Thus the proposed Bagepalli CDM Reforestation Project is different from the very marginal and under-funded on-going forestry projects promoted by the forest department.

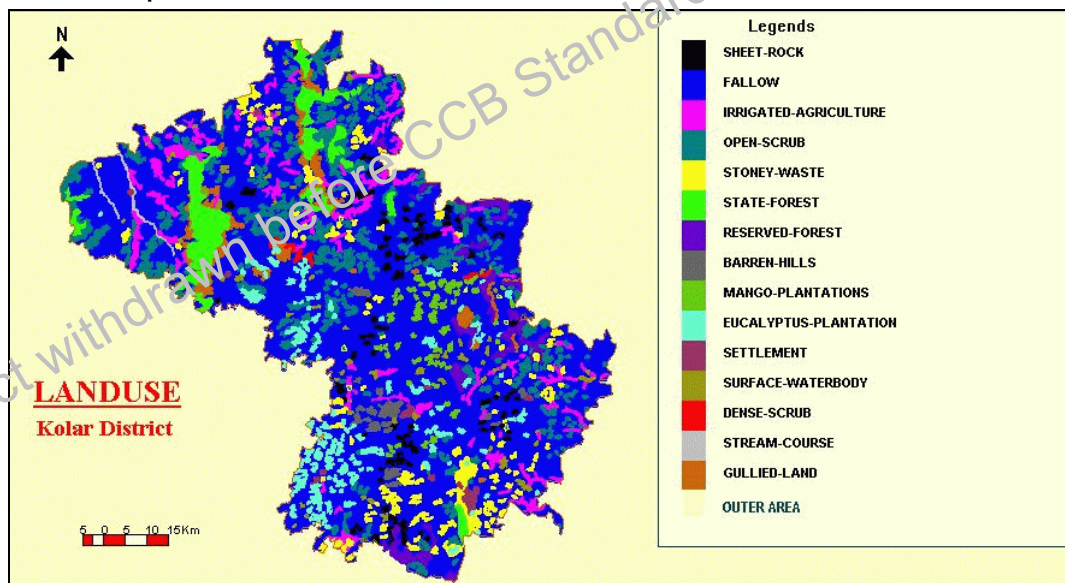
The full list of barriers are listed in the PDD Section C.6., Assessment and Demonstration of additionality:

The proposed A/R CDM activity is different from the earlier social forestry programmes in the following way:

- Reforestation under the Bagepalli CDM Reforestation Project activity is on degraded lands belonging to marginal farmers and agricultural labourers in the 5 northern taluks of Kolar District. These taluks have worse soil conditions than Southern and Eastern taluks, and do not lend themselves to the programmes described above.
- The species are selected by the participating families and the emphasis is on NTFP and local species.
- The aim is to establish long rotation farm forests, and not engage in short rotation cash crop plantations.
- There will be greater biodiversity benefits from the Project activity as bund planting and mixed species will contribute to creating small protected habitats for flora and fauna.

Also there is no evidence that non-CO₂ greenhouse gas (GHG) emissions such as CH₄ or N₂O are more than 15% of the baseline GHG fluxes at the Project site (in terms of CO₂ equivalents). In fact methane gas emissions are not in evidence at all, and nitrous oxide would be associated with fertilised use, and this is also not at all expected, as farmers are too poor to buy it in any quantity.

Land use map of Kolar district



Land use in the taluks of Project area based on satellite imagery (%)

Taluk	Built-up	Agriculture	Plantation	Forest	Wasteland	Water body
Bagepalli	8.33	32.21	0.18	0.96	57.60	0.72
Chickballapur	2.82	49.16	2.42	4.78	39.47	1.36
Chintamani	5.65	47.74	0.56	0.12	45.60	0.33
Gudibanda	3.07	44.30	3.28	2.82	45.74	0.79
Siddalaghata	5.05	47.64	5.23	0.70	41.08	0.31

G2.2 A PROJECTION OF FUTURE CARBON STOCK CHANGES IN THE ABSENCE OF THE PROJECT, BASED ON THE LAND-USE SCENARIO DESCRIBED ABOVE. THE TIMEFRAME FOR THIS ANALYSIS CAN BE EITHER THE PROJECT LIFETIME (SEE G3) OR THE PROJECT ACCOUNTING PERIOD, WHICHEVER IS MORE APPROPRIATE.¹⁴ IF THERE IS EVIDENCE THAT NON-CO₂ GREENHOUSE GAS (GHG) EMISSIONS SUCH AS CH₄ OR N₂O ARE MORE THAN 15% OF THE BASELINE GHG FLUXES AT THE PROJECT SITE (IN TERMS OF CO₂ EQUIVALENTS), THEY MUST BE ESTIMATED

The projection of future carbon stock changes in the absence of the Project, based on the land-use scenario described above is thus:

Year	Estimation of baseline net GHG removals by sinks (tonnes of CO ₂ e)
2008	276
2009	276
2010	276
2011	276
2012	276
2013	276
2014	276
2015	276
2016	276
2017	276
2018	276
2019	276
2020	276
2021	276
2022	276
2023	276
2024	276
2025	276
2026	276
2027	276
Total	5,520 tonnes of CO₂ e

G2.3. DESCRIPTION OF HOW THE “WITHOUT-PROJECT” SCENARIO WOULD AFFECT LOCAL COMMUNITIES IN THE PROJECT AREA

Present trends indicate that a general pauperisation will take place, resulting in large tracts of small and poor peasant holdings left barren and uncultivated. Several factors will contribute to such a state of affairs. Failing monsoons will certainly be the chief contributor. Over-exploitation of groundwater by a few who drill deeper and deeper will be another. Disillu-

¹⁴ In some cases, the project lifetime and the project accounting period may be different.

sionment of schooled youth who fail to see any meaning in continuing with dry land farming will be yet another. Lack of State subsidies to keep the poor afloat will be a clincher.

After that, it is anybody's guess as to whether the laws of the land will be altered to permit these scattered patches to be bought up by capitalistic investors who will turn them into large mechanised farms. Whether science and technology will match up to provide crop choice solutions suited for financially viable arid farming. Whether the same institutional finance that presently shuns small farmers will provide generous capital to such mono-cropping ventures using, perhaps, genetically modified strains. Whether the produce of such large farms will provide sufficient ancillary employment in processing and value addition.

But the intervening gap, before any such capitalisation of agriculture takes place, will spell misery for the general population. There will be forced migration¹⁵ and this may not be limited to just the poorest of the poor. Better off Coolies will follow and soon it will be the turn of *Ryots* too, since no one lives on an island.

It is a well established fact that rural families obtain food security only when they grow their own food. State largesse like the Public Distribution System can go so far and no farther.

In short, one shudders to fully visualise a “without Project” scenario.

G2.4. DESCRIPTION OF HOW THE “WITHOUT-PROJECT” LAND-USE SCENARIO WOULD AFFECT BIODIVERSITY IN THE PROJECT AREA

Once again, we have to apply wild imagination. One of two things may happen in such an eventuality. Perhaps both, in a stagical manner.

The first is, as just described, desertification and the abandonment of dry land cultivation. This could, in the short run, result in a regeneration of arid species with fields running wild. Such a prospect may cause some excitement to a certain type of environmentalists who could see mother earth as healing herself.

However, in reality, weedy species are likely to predominate, and no biodiversity of value would result – only misery and hardship. *Parthenium* grass, and other inedible and exotic invasive species would predominate as the soil would remain depleted and no ecosystem integrity could return. Also, this phase of abandonment would be very short lived. With the capitalisation of agriculture we envisage, the “bio-diverse” fields will be bulldozed and mechanically flattened to create large tracts for mono-cropping. Any hint of biodiversity will vanish with single crops, genetically engineered, and the antiseptic wiping out of all living species.

Thus *Hipposideros hypophyllus* (Kolar leaf-nosed bat), *Latidens salimalii* (Salim Ali fruit bat), *Cuon alpinus* (the wild dog), and hundreds of other endemic animal and plant species will go extinct for ever. So too vitally important Jamun species *Syzygium beddomei*... They can be conserved only with holistic and loving care for and by the people for the planet. Nothing else will do.

The “without Project scenario” is the continuation of all the complex local and national and global impacts which are already having severe effects on humans and on biodiversity. It may be that some of the impacts on biodiversity being felt today are already due to climate change. Maybe the huge increase in mosquitoes and the outbreak of Chikungunea fever as a result is linked in some way to changing weather patterns. Maybe the temperatures during the

¹⁵ Forced migration occurs when the poor go out to earn the same wage that they normally would have got within the village. Choice migration is when Coolies go out to “better their prospects”. The former is viewed as a demeaning abandonment that would severely erode their self-respect and citizenry in village society.

monsoon seasons are higher nowadays, leading to more mosquitoes during the wet season. Studies are not available.

On the other hand, current rates and magnitude of species extinction, related to human activities are already very high and are mainly due to the indirect human drivers such as demography, economic, sociopolitical, scientific, technological, cultural and religious factors. The main direct human drivers include changes in local land use and land cover (the major historical change in land use has been the increase in lands dedicated to agriculture and grazing); species introductions/removals, external inputs like fertilizers and pesticides by the *Ryots*, bad harvesting practices, air and water pollution, and definitely also climate change.

It is difficult to know to what extent climate change is causing this loss of diversity, along with all the other reasons, but it is certainly true that loss of biodiversity is one major impact of climate change. The frightening truth is that the rate and magnitude of climate change induced by increased greenhouse gases emissions affects on biodiversity might outweigh direct and indirect human drivers in the future.

In our Project region the ecosystem is already more or less destroyed, and there is no functionally diverse ecological community. The impoverished ecosystem is not likely to adapt to climate change and climate variability without major interventions and investments, which we do not see any real chance of happening.

Our Project is an attempt to make such interventions and investments.

The genetic diversity within species has become very low. The ability of the local ecosystem to either resist or return to its former state following massive disturbances which have been escalating over the last decades is difficult to assess. It may depend on the local level of functional diversity, which we know this to be very low.

One of the activities designed to mitigate and adapt to climate change would include planting a much broader range of endemic plant types, but demand for such products in the market is limited and such a strategy will affect the income of the people. Improving livelihoods and income security is in fact a very important adaptation strategy.

Whether the Project can make a substantial impact on livelihoods remains to be seen, but is one of its primary aims. Whether in addition we can plant more endemic species of plants, including the endangered and vulnerable species, will depend on our ability to deal with the hard reality of desertification and drought which we already confront. But clearly without the Project, the present impoverishment will simply continue.

Observed local changes already include the changes in timing of reproduction of animals and plants, migration of animals, shortening of the length of the growing season, changes in species distributions and population sizes, and increase in the frequency of pest and disease outbreaks. Changes in climate combined with land use change and exotic and alien species spread is limiting both the capability of species to migrate and the ability of species to persist in fragmented habitats.

Studies suggest that species in an ecosystem are unlikely to all migrate at the same rates; long-lived species will persist longer in their original habitats leading to new plant and animal assemblages. The local ecosystem is already dominated by opportunistic, 'weedy' species, i.e., species well adapted to dispersal and rapid establishment, because it is quite clear that the frequency and intensity of disturbance is high.

So far we have not observed any increase in the net primary productivity of any species including crop species. On the contrary there are losses in net ecosystem and biome productivity due to various factors.

G.2.5. DESCRIPTION OF HOW THE "WITHOUT-PROJECT" LAND-USE SCENARIO WOULD AFFECT WATER AND SOIL RESOURCES. (SEE ALSO B5)

20-25 years back, open wells dug to about 30 feet depth had plenty of water. They started drying up with the drilling of 6" bore wells. Today, one has to drill till about 1,000 feet and still take a chance.

Hydro-geological survey results are about as accurate as optimistic predictions made by village soothsayers and their witchcraft. Less than 10% of these costly holes in the ground yield even 2,000 gallons of water per hour. Even they are not permanent and farmers are lucky if a bore well yields for more than 3-4 years.

In short, bore wells are atrociously expensive, a big gamble, and certainly not the preferred solution. Ground water levels do not justify even the growing of even Irrigated Dry (ID) Crops in this region.

The water situation in the 500 villages covered by this Project is highly precarious. The water table has dropped to more than 1,000 feet in many villages. Bore wells dry up within one or two years as the aquifers do not get recharged by rains – the rain runs off, no water harvesting is practiced, no careful water management is done by the larger landlord-types who simply install a large diesel generator set and pump water for 24 hours to water their tomatoes, whilst the other small marginal farmers must wait for 3 hours water at the village pump just 10 feet away, and even when electricity does come through the grid after the blackout, the water comes in a trickle thanks to the excessive pumping by the powerful just those few feet away. Without this Project, this kind of water hijacking by the powerful will continue, with this class of person showing little interest in water management on behalf of their poor neighbours. During the summer season the poor will be forced to buy water either from that same irresponsible landlord, or perhaps from some other bore well owners further away. Bullocks must be sold as there is no water or fodder for them, and marginal farmer families themselves must manage with 5 -15 litres of water a day, and forget about any kind of cultivation.

As far as soil is concerned, the soil is today in such a precarious state that crop cultivation cannot be considered a serious option anymore; the millet system of sorghum system which has been perfected over the years to optimise production on these dry lands cannot be said to provide anything like even subsistence yields.

There is a total and utter unnoticed catastrophe going on in the Project area which will continue until big money moves in and buys up all the land. Every year 5 tonnes of organic matter is lost per hectare from the cultivable lands, due to lack of rain management systems, whilst more and more marginal land sinks into degradation.

The dry land development efforts of the marginal dry land farmers cannot be considered farming in the sense one might wish to understand it as involving the management of land for productive use. It is more an eking of living on land which has been somehow carefully removed from the vast expanse of rocky, stony, pebbly wasteland and of which the soil surface has been vaguely scratched to plant some groundnuts and millet, with some beans and maybe castor.

Overall the soil does not gain from such cultivation, except perhaps the nitrogen fixed by groundnuts. Even that cannot make up for the lack of organic matter in the surface "soil" which, in any case, is in actual reality more a type of fine or even coarse rocky rubble. Organic matter is totally depleted or was never there, as land which is not suitable for cultivation is considered for "cropping".

Without the Project, no finances will be available to those who care most about nature. Marginal small farmers would like to make their land productive, even if they themselves must

earn a living in the cities. At least one member of the family can look after a mixed horticulture plantation which provides a break for water run off with water captured by the tree root systems and retained on the land. Where small moist patches of water accumulate and provide damp area for other grasses and insects, snakes and voles.

The soil and water situation without the Project consists of total breakdown of the social and ecological systems to support life.

It is only thanks to the incredible resilience of the local culture that there has not been an all-out collapse of dignity. The social ecology is utterly fragile and may not withstand further battering.

As mentioned in Section G2.2. on alternative scenarios, there may be lip service paid by the Government to commitment to 4.5% growth in the agricultural sector, but that has to be seen in the light of lack of investment in the basic ecological services required to sustain life. As shown in the table, wastelands constitute nearly half of the land area in the Project region. If we take just Bagepalli Forest Range area of 90,000 ha, and an investment for water and soil conservation of Rs 50,000 per ha, it is clear that no one is planning to make these investments. No one is willing to pay for the vital ecosystems services of the region.

Today, even CDM for forestry, with its ancillary benefits of soil, water and biodiversity conservation, is looking very neglected as a sector. The international capitalists system is incapable still of paying for the systems and services on which our survival depends.

Project withdrawn before CCB Standards Validation, May 21st, 2010

G3. PROJECT DESIGN & GOALS

CONCEPT

The project must be described in sufficient detail so that a third-party can adequately evaluate it. Projects that operate in a transparent manner enable stakeholders and outside parties to contribute more effectively to the project.

INDICATORS

The project proponents must:

- 1) Provide a description of the scope of the project and a summary of the major climate, community and biodiversity goals.
- 2) Describe each major project activity (if more than one) and its relevance to achieving the project's goals.
- 3) Provide a map identifying the project location, where the major project activities will occur, and geo-referenced boundaries of the project site(s).
- 4) Provide a timeframe for the project's duration and the rationale used for determining the project lifetime. If the accounting period for carbon credits differs from the project lifetime, explain.
- 5) Identify likely risks to climate, community and biodiversity benefits during the project lifetime. Outline measures that the project plans to undertake to mitigate these risks.
- 6) Document and defend how local stakeholders have been or will be defined.
- 7) Demonstrate transparency by: making all project documentation publicly accessible at, or near, the project site; only withholding information when the need for confidentiality is clearly justified; informing local stakeholders how they can access the project documentation; and by making key project documents available in local or regional languages, where applicable.

G3.1. PROVIDE A DESCRIPTION OF THE SCOPE OF THE PROJECT AND A SUMMARY OF THE MAJOR CLIMATE, COMMUNITY AND BIODIVERSITY GOALS.

After more than 12 years of grassroots discussions and bottom-up planning in each and every village, we undertook a 3 month long Strategic Planning.

- We stated our Vision and Mission, made a Situation Analysis, Stakeholder Analysis, Importance/Influence Matrix and SWOT Analysis.
- We then listed the Core Strategies and Strategic Priorities for implementing this Project.
- As a final step, we made a Problem Tree, reversed it into an Objectives Tree and then made a 4 x 4 LFA Matrix with Goal, Purpose, Objectives, Indicators, Means of Verification and Assumptions.

Please see <http://www.adats.com/documents/book6/0632/>

VISION

We envision that only when the severe damage done to the natural environment is set right, and the same equity is established between people and nature as the Coolie Sangha has, over the years, established between people and people (*vis-à-vis* caste, religion and sex); when those forced to live “sustainable lifestyles” due to poverty, ignorance and lack of resources

are recognised and rewarded; can our people be assured a future with dignity, humanity and self-respect.

MISSION

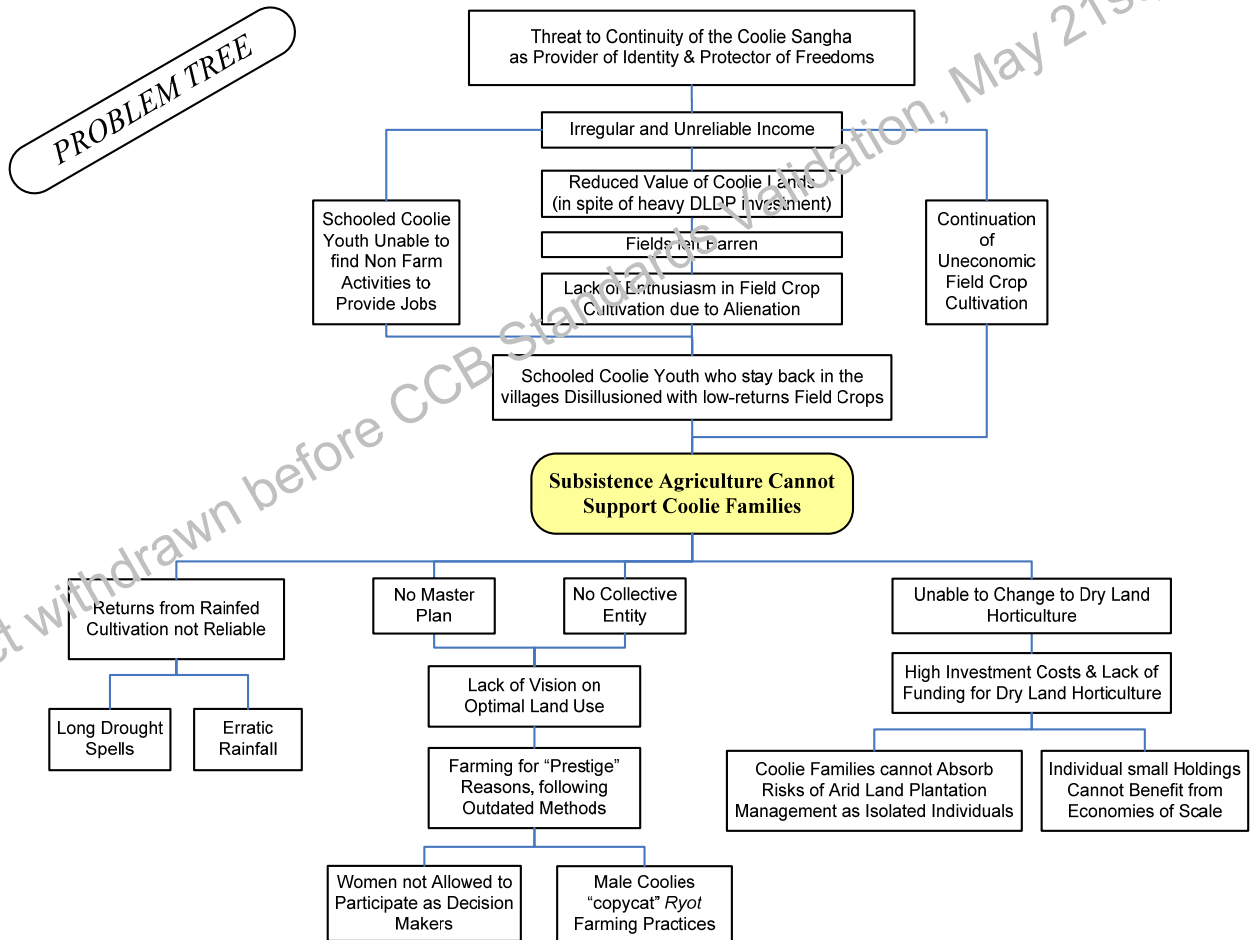
Our Project is designed to change land use practices and result in profitable incomes, for a very long time to come, from dry lands belonging to Coolie Sangha member families in 5 taluks of North Kolar district by planting trees and generating certified emission reductions (CERs) using Coolie unity, its enforcement and staying power¹⁶, with women as the central decision makers, in a culture of openness, accountability and results orientation.

GOAL

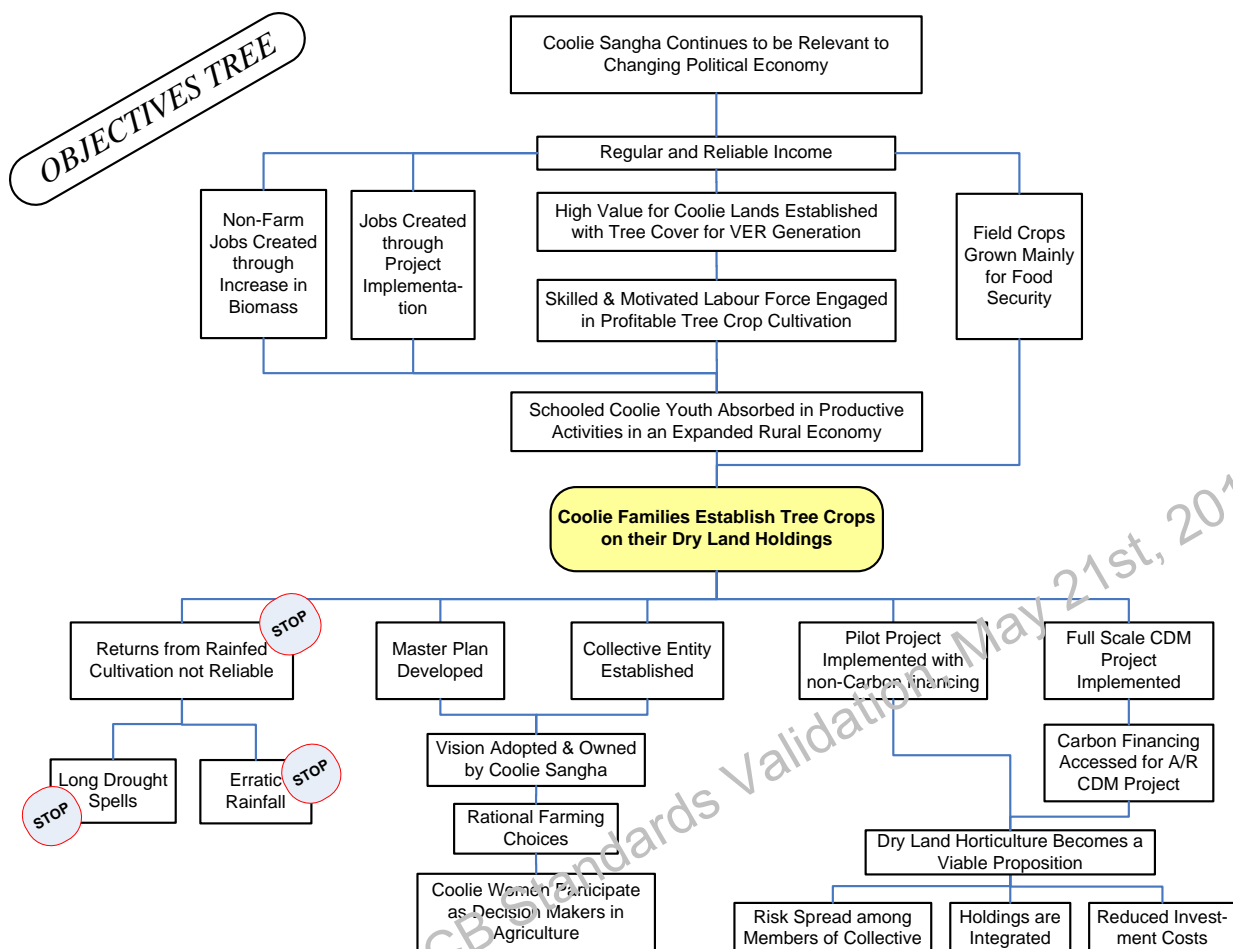
Coolie Sangha Continues to be Relevant to Changing Political Economy

PURPOSE

15,000 Coolie Families Establish Tree Crops on their Dry Land Holdings



¹⁶ These in an environment where the individual draws her identity from the community, whilst at the same time accepting the control that community exercises over her



G3.2. DESCRIBE EACH MAJOR PROJECT ACTIVITY (IF MORE THAN ONE) AND ITS RELEVANCE TO ACHIEVING THE PROJECT'S GOALS.

A. MASTER PLAN DEVELOPED (PROJECT PROCESSES FOR COLLECTIVE PLANTING, WATERING, REPLACING AND MAINTENANCE IN PLACE)

In early 2006, we capped 11 years of grassroots discussions and made a formal Strategic Plan. We brought in a Management Consultant who had a long and intimate association with ADATS and the Coolie Sangha, and conducted a 4 month long participatory exercise involving ADATS Staff and key Coolie Sangha functionaries.

We developed a module to monitor the then 11 year old self-effort experience of Member Coolie families to switch over from Field Crops to Tree Crops. Based on the strength concrete Results that we could demonstrate, and also the Strategic Plan we had developed, we decided to source non-carbon financing and undertake a Pilot Project¹⁷ in order to demonstrate that the plan was feasible.

We selected 13 contiguous villages in Bagepalli taluk where the CSUs negotiated with bore well owning *Ryots* and made watering arrangements. 148 Member Coolie families dug 260

¹⁷ In Section G4.1. we will describe the self-effort of 820 Member Coolie families, with hardly any support from ADATS, to grow Tree Crops on 1,424 acres of dry land as a "pilot project" of sorts. This is not the same.

pits per hectare and got ready to plant on a total of 303 acres (122 hectares). Village CSUs held many meetings to decide how they would prevent their cattle from straying onto these fields and set up a “social fence” plan. We negotiated with a reliable nursery in the region to supply 31,720 mango and tamarind saplings. By mid 2006, non-carbon moneys were sourced and we were all set to begin. Unfortunately the monsoons completely failed and we decided to postpone by one year.

In this manner, through a practical hands-on exercise, we developed a Master Plan to switch over from Field Crops to Tree Crops.

B. COLLECTIVE ENTITY ESTABLISHED

Drought and postponement did not deter us. If anything, the drought and our failure to initiate the Pilot Project acted as an incentive. It reinforced the Coolies’ conviction that the region was not suited for Field Crops. A sense of urgency set it, and we went ahead with making preparations for the larger Project.

We chose a methodology, and the A/R CDM PDD was rewritten and we obtained host country approval from the Ministry for Environment & Forests, New Delhi, in September 2006. In 2007, we scouted for a suitable Validator. By June 2007 we decided on TÜV SÜD, München, to validate the project. On 20 July 2007, we started to prepare this documentation for certification under the CCBA.

As soon as validation, registration, and obtaining CCBA certification is completed, we will start serious negotiations with carbon investors and voluntary participants for the sale/issue of tCERs and VERs, respectively. Just as with the Bagepalli Biogas CDM Project that we have implemented, we hope to receive advance funding through the sale of tCERs/VERs.

The village Coolie Sangha Units will negotiate with bore well owning *Ryots* and negotiate individual water purchase agreements. These agreements will be drafted by our legal advisor and notarised. Village CSUs will also negotiate terms with tractor-trailer owners to haul the water to their fields for 5 summer months each year, for 3 years.

And finally, depending upon the ERPA we enter into, we will draft End User Agreements with the participating families.

C. PILOT CDM PROJECT IMPLEMENTED WITH NON-CARBON FINANCING

In the meanwhile, we are going ahead with the Pilot Project. We have now secured non-carbon finances to immediately take up 225 Family Hectare Plots in 25 village CSUs.

In the summer of 2007, 225 Coolie families dug 260 pits per hectare and refilled with red earth, sand and farm yard manure.

Many of them have also excavated to build underground field tanks for tractor-trailers to fill up twice a week. The rest will build their field tanks and water proof them by December 2007. Many different designs will be tried out. These being brick-masonry-cement-plastered, stone-masonry-cement-plastered, stone-slabs-cement-pointed, and clay-plastered-polythene-sheet-lined.

In August 2007, at the time of preparing this documentation, we are in the process of procuring and supplying 65,000 two-year old mango and tamarind saplings.

Later this year, before the cropping season is over and free grazing restarts, the participating families will plant Agave or some other fencing on the boundaries of their plots to protect the saplings. “Social fencing” arrangements are also being discussed in these 25 village CSUs.

Survival and growth rate will be monitored by ADATS Field Staff once every 3 months and the data entered into our computerised monitoring system.

From February to June 2008, we will pay each participating family a maximum of Rs 8,000 per annum to subsidise their water hauling costs. This will continue for another 2 years, in 2009 and 2010 also. Participating families will use this subsidy to pay the tractor-trailer owner/driver and also their share of water cost to the bore well owning *Ryot*.

Just before the 2008 monsoons set in, up to a maximum of 52 saplings will be supplied to replace those that have died. Infilling will be repeated in 2009 also. It has been agreed that the Project will not tolerate a mortality of more than 20% per annum, for the 2 years. In case of a higher rate of mortality, the village CSU will immediately reimburse the full cost of investments on that particular Member Coolie family's landholding, from their Sangha Funds, as a sort of penalty for having selected a non-serious participant.

A nominal labour compensation for watch and ward will be paid at the rate of Rs 1,000 per annum, for 3 years, to each participating family.

Project cost per Family Hectare Plot

		2007	2008	2009	3 Year Total
1	Cost of pitting, burning, red earth and sand for 260 pits per hectare family plot @ Rs 20	5,200			5,200
2	Cost of 260 saplings of tamarind, mango, teak, neem, etc. per hectare family plot @ Rs 35	9,100			9,100
3	Cost of replacing 52 saplings per hectare in the 2nd year @ Rs 35		1,820		1,820
4	Cost of replacing 52 saplings per hectare in the 3rd year @ Rs 35			1,820	1,820
5	Cost of building a 13,000 litre capacity field tank on family plot	15,000			15,000
6	Labour compensation for @ Rs 1,000 per annum x 3 years	1,000	1,000	1,000	3,000
7	Planting agave on the boundaries of each hectare family plot	500			500
8	Fixed reimbursement of Tractor Hire for hauling water to fill the tanks during 5 summer months x 3 years	8,000	8,000	8,000	24,000
COST PER HECTARE FAMILY PLOT		Rs 38,800	Rs 10,820	Rs 10,820	Rs 60,440
		€700	€195	€195	€1,090

The total project cost for 250 Family Hectare Plots works out to Rs 15.1 million (€ 272,407). Existing ADATS Staff and Coolie Sangha Functionaries will implement and monitor this Pilot Project, as part of their regular duties. Nothing will be charged by way of staff costs, overheads and administration. We intend that every Rupee of philanthropic resources mobilised to kick-start this Bagepalli CDM Reforestation Project should go directly to Member Coolie Families.

D. FULL SCALE CDM PROJECT IMPLEMENTED WITH CARBON FUNDING

When carbon financing is in place, possibly by mid 2008, these same above described measures will be implemented on 15,000 hectares in 500 villages, over a 3-4 year period.

The 500 village CSUs will themselves select participating families, make watering arrangements, etc.

At that time, the Project Staff described in Section G4.3. will be appointed.

The Horticulture Project Staff will conduct regular training sessions, especially on biodiversity issues. To start with, training will be given to secondary stakeholders of the Project, in order to create a cadre of 500 CSU selected Village Level Workers. After that, every single Staff member of ADATS, whatever be their line responsibility within the organisation, will get involved.

Biodiversity efforts will be encouraged, facilitated and monitored.

Our IT Professionals will accompany the Project and keep improving our digitized monitoring system to meet specialised management needs that will arise. ADATS Accounts Staff will devise procedures to make direct payments, in the field, for watering, watch and ward, etc.

The Core Staff of ADATS will themselves directly deal with Validators, the EB/UNFCCC, CCBA and Carbon Investors.

G3.3. PROVIDE A MAP IDENTIFYING THE PROJECT LOCATION, WHERE THE MAJOR PROJECT ACTIVITIES WILL OCCUR, AND GEO-REFERENCED BOUNDARIES OF THE PROJECT SITE(S)

We have taken the Latitude and Longitude reading of each and every parcel of land where the Bagepalli CDM Reforestation Project will be implemented. These are plot centre GPS readings for small holdings, and all 4 corners for larger holdings. Where a participating family owns more than a single plot of land, multiple records are maintained. This will irrefutably establish the exact pieces of earth where the Project will be implemented.

Using these GPS readings, our online monitoring software generates 500 Village maps, 17 Area maps, 5 Taluk maps, and an overall map showing the entire area of operation. These are online maps, colour-coded to show real-time progress on each plot of land – i.e. Selected, Planted, Survived and Established.

Please see the overall map at <http://www.adats.com/documents/book6/0633/>

G3.4. PROVIDE A TIMEFRAME FOR THE PROJECT'S DURATION AND THE RATIONALE USED FOR DETERMINING THE PROJECT LIFETIME. IF THE ACCOUNTING PERIOD FOR CARBON CREDITS DIFFERS FROM THE PROJECT LIFETIME, EXPLAIN

The aim is to see that the trees planted under the Bagepalli CDM Reforestation Programme last a hundred years. The crediting period has been chosen as 3 x 20 years. The reason for choosing 3 x 20 years is that this long crediting period provides for the possibility that marginal farmers, whether they remain on the land as marginal subsistence farmers or not, receive the income from the sale of CERs for as long as possible, and this will act as an incentive to keep the land under trees for as long as possible. The expected gross accumulation over the first 20 years crediting period is given here:

Year	tCO ₂ Accumulation per hectare	Hectares planted	Cumulative Total	tCO ₂
2009	8.78	5,000	5,000	43,918.06
2010	8.78	5,000	10,000	87,836.12

2011	8.78	8,181	18,181	159,694.85
2012	8.78		18,181	159,694.85
2013	8.78		18,181	159,694.85
2014	10.92		18,181	170,361.96
2015	10.92		18,181	181,029.08
2016	10.92		18,181	198,482.61
2017	10.92		18,181	198,482.61
2018	10.92		18,181	198,482.61
2019	8.53		18,181	186,555.27
2020	8.53		18,181	174,627.92
2021	8.53		18,181	155,112.40
2022	8.53		18,181	155,112.40
2023	8.53		18,181	155,112.40
2024	8.99		18,181	157,392.23
2025	8.99		18,181	159,672.05
2026	8.99		18,181	163,402.31
2027	8.99		18,181	163,402.31
2028	8.99		18,181	163,402.31
				3,191,469.19

G3.5. IDENTIFY LIKELY RISKS TO CLIMATE, COMMUNITY AND BIODIVERSITY BENEFITS DURING THE PROJECT LIFETIME. OUTLINE MEASURES THAT THE PROJECT PLANS TO UNDERTAKE TO MITIGATE THESE RISKS

CLIMATE RISKS & MITIGATION

Climate benefits are the carbon sequestration mentioned above, in tonnes CO₂ removed from the atmosphere. Some additional sequestration in soils and dead wood and leaf litter is not accounted for in the A/R CDM Project but will be monitored separately to show the holistic benefits of the Bagepalli CDM Reforestation Project.

COMMUNITY RISKS & MITIGATION

The community benefits are the continuation of a relationship by marginal poor farmer families with the land and with each other through a common regional socio-ecological goal.

We do not foresee any particular risks except those that realistically crop up in the implementation of any project or programme, in the form of glitches and hiccups.

These could start with a delay in sourcing carbon financing since investors are reluctant to fund A/R projects due to their long gestation period, absence of linking directives *vis-à-vis* tCERs and ICERs.

The VER route may be more promising, but even that is not in the bag till the agreement is signed.

We may have to go in for multiple ERPAs with several investors due to the volume of this Project.

Continued project participation is definitely a risk in a membership based people's organisation. There is always the risk that some participating families, for whatever reason, do not declare their annual income and pay Sangha Tax to renew membership, somewhere mid-way during Project implementation. This would be unlikely during the first 3-4 years of project life because then they would lose out on village CSU support to water their plants.

Past experience has shown that there will be no "permanent loss" of membership and these families will return to the fold. However, we are not leaving anything to chance and are nevertheless drafting the legal End User Agreements in a legally binding manner.

BIODIVERSITY RISKS & MITIGATION

The biodiversity benefit is the opportunity for participating families to nurture soil and water resources and provide space for other living organisms, be they plants or animals.

The risks to these benefits are mainly from the mainstream market economy, which may well value land for an airport or special economic zone or a car factory over land for fruit, food, fodder, biodiversity or eco-restoration. This is mitigated by the fact that capitalisation of agriculture seems to come last to semi-arid regions and poor land – they have a natural preference for more developed regions and richer lands.¹⁸

Strong and politicised conscientisation has proved effective in countering these mainstream economic trends. But, on the economic side, it is pennies pitted against billions. No financial value, other than the meagre carbon credit price for tCERs and ICERs, is currently available to marginal farmers for eco-services they will provide.

The value of biodiversity conservation or restoration in the long run is not quantified or paid for. Ecotourism is not something that we can envisage for the Project area though, who knows, it may be a future trend. In this condition, the main threat to the Project, and to the benefits that are expected to result from the Project, is that we cannot show enough economic value from the activities. Land could get sold off to the highest bidder, with trees cut and land bulldozed.

We envisage the following trends that would contribute to mitigating risks, though hard nosed economists will scoff at the idealism they entail:

- Coolie families manage to earn enough in Bangalore to make their ownership of the lands which are under the Project as a kind of "luxury". In other words the families themselves ascribe greater value to their horticulture plots than the value of the land or its produce alone. They prefer to keep the land rather than sell it, because they have created a small Garden of Eden for themselves on their plots. This plot is also an important asset for times of trouble. Thus the ecological and the psychological value of the horticulture plot will be cherished, and climate, biodiversity and community benefits protected.
- Coolie families value each other's community and friendship to the extent of putting the health of the whole Project and the spirit of community and joint endeavour which comes with it, above individual short term aspiration in a given case. Thus they will encourage each other to value the overall ecological restoration which happens when large contiguous tracts of degraded land are developed. They prefer to see the ecological benefits as something worth more than money in the case where money would bring the destruction of the ecosystem goods and services which they value, including the use value and the simple existence value of reforested lands.
- Even if participating families are offered money for their land, we may decide to find ways in which children should make use of the opportunities afforded by the national economy themselves, rather than selling the family silver and be left with nothing. Thus, for example, we

¹⁸ See, for instance, the violent controversy raging West Bengal. Now why on earth does TATA need rich and alluvial agricultural land to set up a car factory when arid tracts are available just a few kilometers away is anyone's guess!

might envisage an “Special Ecological Zone” where the economic activity is in harmony with nature rather than over-exploiting soil and water resources. We may think in terms of ecotourism, medicinal plant gardens, sandalwood trees and, of course, the Mango and Tamarind trees themselves as long terms asset creation through nature.

- All this given due recognition by the Government in the form of increased and continuous subsidies for the soil, water and biodiversity conservation work being done through the Project; all this financed through massive national carbon taxes linked to international climate change mitigation goals under a post-Kyoto climate regime.

These are not mitigation plans that can be carried out by Project Staff as the sole secondary stakeholders. They would, in some manner, require the active involvement of the entire environmentalist, climate change and feminist spectrum with an enlarged sense of Project ownership that goes way beyond a narrow definition of the term. We believe that ADATS and the Coolie Sangha have some experience and success in such broader encompassing.

Thus the measures will be:

- Continued sharing of values, goals and aspirations in the context of a radical community based eco-restoration project.
- Vigilance with respect to threat that may come from market forces, with the innovative and imaginative implementation of alternatives.
- Continued campaigning to integrate our Project into the mainstream of the international and national debate.
- Meticulous documentation of all efforts in order to be able to demonstrate the value of our work to ourselves and others.

G3.6. DOCUMENT AND DEFEND HOW LOCAL STAKEHOLDERS HAVE BEEN OR WILL BE DEFINED

As already mentioned, the need to shift from Field Crops to Tree Crops has been thoroughly discussed, over and over again, bottom-up in all the village CSUs, for the past 12 years. The Bagepalli CDM Reforestation Project is conceived as the strategy to make this major shift from unsustainable subsistence farming to a more eco-balanced practice possible. All Coolie Sangha Members, including stalwarts, women, youth, landless families, and even children participated in these discussions.

There is a natural enthusiasm that has resulted in a voluntary “Pilot Project” of sorts by 820 Coolie families, with hardly any material support from ADATS, on 1,424 acres of dry lands, close to water sources.

And it is this sense of total involvement and ownership that explains their 12 year long patience in trusting us to find resources for a huge effort to establish Tree Crops on ALL Coolie landholding.

In mid 2006, we undertook a former 3 month long Strategic Planning exercise. The 4 most important Primary Stakeholders we identified as having a high importance as well as influence in the Project were:

- Member Coolie families (Landholders), who are excited by the prospect of switching over to a totally different type of land-use. They also see that they can use their hard earned functional unity to efficiently and effectively implement the Project. Older folk look forward to natural regeneration of medicinal species.
- Coolie Women who have been empowered to become decision makers in matters related to their family cultivation. They do not want to copy obsolete practices followed by the mainstream peasant cultivation since they see a threat to food security.

- Coolie Children who see their interest in the CDM Project insofar that it offers the next generation an opportunity to move away from semi-feudal subjugated cultivation in a failing peasant economy.
It would be sheer folly to underestimate the grasp and role of children in making family ventures succeed!
- Schooled Coolie Youth who finish their schooling and stay back in the villages are disillusioned with low returns from Field Crops. They see Tree Cropping as a new and exciting venture that they are adept in.
Youth also realise that increased biomass will generate employment.

Please see Section CM1.2. for a more detailed write-up, including the Importance-Influence Matrix.

G3.7. DEMONSTRATE TRANSPARENCY BY: MAKING ALL PROJECT DOCUMENTATION PUBLICLY ACCESSIBLE AT, OR NEAR, THE PROJECT SITE; ONLY WITHHOLDING INFORMATION WHEN THE NEED FOR CONFIDENTIALITY IS CLEARLY JUSTIFIED; INFORMING LOCAL STAKEHOLDERS HOW THEY CAN ACCESS THE PROJECT DOCUMENTATION; AND BY MAKING KEY PROJECT DOCUMENTS AVAILABLE IN LOCAL OR REGIONAL LANGUAGES, WHERE APPLICABLE.

ADATS is situated in the *Moffusil* town of Bagepalli, which is right in the middle of our area of operation. For the past 29 years, we have been truly enmeshed into the socio-cultural fabric of this region and her people.

ADATS and the Coolie Sangha believe in total and exception-less transparency in all matters, including personal finances. ADATS does not take up any project or programme on its own, unless and until it has come from the bottom-up, through extensive grassroots discussions. We never respond with glee to the “availability of resources”.

The Bagepalli CDM Reforestation Project is no exception. There were times, during the past 12 years, when we did feel that we were placing ourselves on a limb, making detailed plans for a project that just didn't seem to come unstuck. But even that did not tempt us to deviate from our core principles of decentralisation, participation, honesty, openness and transparency.

The long and drawn out strategic planning exercise we conducted in 2006 was attended by Coolie Sangha representatives from all levels – Village, Cluster and Taluk. After that, the draft plan was translated and communicated to each and every village CSU. Feedback from grassroots discussions was used to finalise the document.

In spite of this Project genuinely earning the “grassroots planned” label, we still believe that much more has to be done in a painstaking and systematic manner. Without a consciously planned and exhausting effort, good knowledge on ecology, environment and biodiversity cannot be disseminated. Holding discussions with an uninformed people will turn out to be token and perfunctory exercises. That is not what we want. What we want is the total and committed involvement of ALL stakeholders in order to achieve ambitions that go way beyond the PDD and UNFCCC.

Horticulture Staff will conduct regular training sessions, especially on biodiversity issues. Training will first be given to secondary stakeholders of the Project in order to create a cadre of 500 Village Level Workers.

After that, every single Field Staff of ADATS, whatever be their line responsibility, will be trained. Then it will be the turn of key Coolie Sangha Functionaries. After that will be village Staff of the Coolie Sangha Units, CSU Representatives and eventually individual Member Coolie families.

Financial matters regarding the Bagepalli CDM Reforestation Project, including the ERPA we enter into with Carbon Investor(s) will be totally open and known to all. Operational budgets and budget realisation statements will be shared in simple and understandable formats. In short, EVERYTHING will be open and transparent.

Project withdrawn before CCB Standards Validation, May 21st, 2010

G4. MANAGEMENT CAPACITY

CONCEPT

The success of a project depends upon the competence of the implementing management team.

INDICATORS

The project proponents must:

1. Document the management team's experience implementing land management projects. If relevant experience is lacking, the proponents must demonstrate how other organizations will be partnered with to support the project.
2. Demonstrate that management capacity is appropriate to the scale of the project.
3. Document key technical skills that will be required to successfully implement the project and identify members of the management team or project partners who possess the appropriate skills.
4. Document the financial health of the implementing organization(s).

G4. 1. DOCUMENT THE MANAGEMENT TEAM'S EXPERIENCE IMPLEMENTING LAND MANAGEMENT PROJECTS. IF RELEVANT EXPERIENCE IS LACKING, THE PROPONENTS MUST DEMONSTRATE HOW OTHER ORGANIZATIONS WILL BE PARTNERED WITH TO SUPPORT THE PROJECT.

DRY LAND DEVELOPMENT PROJECT

ADATS has a proven implementation capacity. Over the past 22 years, a large scale Dry Land Development Programme has been implemented on 71,551 acres (28,955 hectares) belonging to 38,344 small and poor peasant families from 913 villages.

The DLDP is a pluralistic programme comprising a whole range of indigenously conceived Soil & Water Conservation (S&WC) measures. Each individual land owner decides on the type of labour input needed on each separate field. One cannot visit just a couple of villages and claim to have seen it all. The variance and variety never fail to invite awe and surprise. They are invariably huger than what we normally visualise human labour as capable of. The collective output of the labour of 20-25 determined persons in a work gang is never a simple arithmetic of their individual muscle power. They literally move mountains, magically converting marginal lands into productive fields.

Under such circumstances it is difficult to describe DLDP works, undertaken in the past 5 years from 2002 to 2006, under the 13 broad categories that we give below.

Year	2002	2003	2004	2005	2006	Total
Cleared Shrubs & Boulders	2,032	2,948	3,743	2,053	2,733	13,509 acres
Built New Contour Bunds	196,853	327,550	235,969	249,953	148,225	1,158,551 metres
Strengthened Existing Bunds	19,952	26,850	34,894	38,478	34,432	154,606 metres
Built Field Bunds	32,750	68,773	51,703	27,538	48,408	229,172 metres
Checked Ravine & Gully	234	1,323	435	410	348	2,750 number
Dug Diversion Channel	24,784	13,122	10,879	13,512	6,815	69,112 metres
Built Retention Wall	17,236	34,958	38,805	38,775	15,235	145,009 metres
Deepened Open Well	13	47	31	29	8	128 number
Dug Farm Pond	17	10	36	12		75 number

Dug Pits for Trees			4	84	100	188 acres
Built Cattle Wall	1,291	5,268	9,254	7,822	14,821	38,456 metres
Built Path/Road	548	520	280	849	906	3,103 metres
Wasted Work	191	21	12	4	124	352 acres

DRY LAND HORTICULTURE

As already mentioned, ADATS and the village Coolie Sangha Units have been discussing the need to switch over from risky and timely-rain dependent Field Crops to hardy Tree Crops. For the past 12 years, from 1996 onward, they have tried to do so with their own limited resources. ADATS could only supply them with tested saplings, and an odd bullock cart to haul water. No financial assistance was provided for watering the saplings. Each family had to fend for themselves to find sources, haul and hand pour with pots and buckets.

820 Coolie families who owned a total of 4,038 acres participated in these “pilot efforts” (219 of them women headed households). They planted 76,723 saplings on 1,424 acres, with an aim to convert a third of their holdings to Tree Crops. Results have been mixed.

- Survival Rate of the planted saplings is 63%. This is acceptable for this region, considering that there was no infilling support to replace any plants.
- Though they planted on 35% of their total holdings, these families have been able to establish¹⁹ Tree Crops on only 5% of their total landholding.
- Survival Rate depended on the year of planting – a good indication of the cycle of drought.
- We found that mango and tamarind survive better in these semi arid drought prone regions, though we did not try experiment with all possible species.

This “pilot project” of sorts had a demonstration effect. It not just showed that growing trees was possible on arid dry lands, but convinced sceptics that they too could do it, provided they possessed a positive audacity. They had to stop whining about the drought and break out of a defeatist mindset.

Please see a Progress Report at <http://www.adats.com/documents/book6/0633/>

CROP LOANS

Coolie Credit Funds are alternate credit arrangements that ADATS helps each CSU make at the village level. Member Coolie families borrow from their CCFs for petty productive, productive and consumption purposes, and repay on dates that they agree to at the time of taking the loans.

These village CCFs are active for the past 22-23 years and the Repayment Rate is 88.44%. Of the Rs 160.34 million borrowed through 59,241 loans, Crop Loans account for 38% of the moneys and 61% of the number of loans.

Without these crop loans, it will not be possible for Member Coolie families to cultivate the lands they developed under the DLDP.

Please read more at <http://www.adats.com/home/ccf.php>

G4.2. DEMONSTRATE THAT MANAGEMENT CAPACITY IS APPROPRIATE TO THE SCALE OF THE PROJECT

ADATS is a large NGO with a proven track record for 30 years. Together with the grassroots organisation, the Coolie Sangha, we undertake very many large activities, projects and pro-

¹⁹ Over 50% Survival Rate, for more than 2 years, on each person’s holding

grammes. These include non material campaigns like the unification of the poor, capture of local bodies, stopping child marriage, protecting the girl child, transfer of properties to women, as well as material projects like adult education, children's schooling, alternate credit, dry land development, etc.

We have recently implemented, in these very same villages, a large CDM Project to build 5,500 domestic biogas units with carbon finances.

Please see a paper on Management in ADATS at <http://www.adats.com/documents/book5/0513/>

G4.3. DOCUMENT KEY TECHNICAL SKILLS THAT WILL BE REQUIRED TO SUCCESSFULLY IMPLEMENT THE PROJECT AND IDENTIFY MEMBERS OF THE MANAGEMENT TEAM OR PROJECT PARTNERS WHO POSSESS THE APPROPRIATE SKILLS

ADATS

ADATS is staffed by 17 Area teams, each comprising 3 staff members who are longstanding workers, many of them with a 15-20 year tenure in the organisation. Together, they have an intimate knowledge of each and every Member Coolie family and her landholding. They will maintain the congenial sociopolitical milieu that is so vital for the implementation of the Project.

During the 22 year long implementation of the DLDP, S&WC works were implemented largely based on the native wisdom of the landholders themselves. Yet, we realised the need to complement such an arrangement with experts. We appointed women Agriculturists and specialised Extension Workers to accompany the Coolies throughout these 2 decades.

We also partner with many specialist organisations as well as individuals. Among others, these include the Indian Institute of Science, Bangalore, University of Agricultural Sciences, etc. Of late, we have entered into a working relationship with TNO, the Netherlands, to assist us in water conservation and some other technical aspects of dry land planting.

COOLIE SANGHA

The people's organisation is run by elected Functionaries. At the village Coolie Sangha Unit level there are elected Representatives and village Staff. At the Cluster level (comprising 5-6 village CSUs) is an elected Cluster Secretary and a Women's Committee Member. These functionaries will be closely involved in implementation.

We intend to build a fresh cadre of schooled Coolie Youth, from their respective villages, exclusively to implement the Bagepalli CDM Reforestation Project.

We realise that the 2 most important requirements for the success of the Project are:

- The ability of each participating family to care for their planted saplings – i.e. watering them regularly and protecting the fields.
- The ability of the village Coolie Sangha Units to ensure that watering arrangements are in place.

It will be the responsibility of this exclusive cadre to ensure that these happen.

PROJECT STAFF

For the Bagepalli CDM Reforestation Project, we will recruit and orient specialist staff.

These will include, at a minimum:

- Coordinator who is well versed in horticulture and/or CDM Projects
- 5 Horticulturists and 5 Extension workers, paired at each Taluk

- 500 Village Level Workers

They will visit the villages on a fixed routine, record progress using our digitized monitoring system, impart skills needed for planting, infilling, watering, caring and protecting the saplings, etc. They will liaise with specialists and introduce state of the art techniques. The Project Coordinator will also take care of other monitoring requirements of CDM Projects.

The Horticulture Project Staff will conduct regular training sessions, especially on biodiversity issues. To start with, training will be given to secondary stakeholders of the Project, in order to create a cadre of 500 Village Level Workers. After that, every single Staff member of ADATS, whatever be their line responsibility within the organisation, will get involved.

Our IT Professionals will accompany the Project and keep improving our digitized monitoring system to meet specialised management needs that will arise. ADATS Accounts Staff will devise systems to make direct payments, in the field, for watering, watch & ward, etc.

The Core Staff of ADATS will themselves directly deal with Validators, the EB/UNFCCC, CCBA and Carbon Investors.

G4. 4. DOCUMENT THE FINANCIAL HEALTH OF THE IMPLEMENTING ORGANIZATION(S)

ADATS

ADATS is supported by Funding Agencies in the Netherlands, Germany, UK and New Zealand, with grants-in-aid given for specific, time-bound projects and programmes that we implement. From December 1977 to 25 July 2007 we have received, in this manner, a total of Rs 592,093,412.

The European Union is a back-funder of ADATS through a Consortium of European funders. The New Zealand Government is also a back-funder, through VASS and SCNZ.

Please see a write-up on our finances at <http://www.adats.com/finances/>

Please download the complete Financial Reports of ADATS for the past 12 years at <http://www.adats.com/finances/finance.php>

COOLIE SANGHA

The Coolie Sangha is totally self-financed through voluntary contributions made by its Members. Member Coolie families are encouraged to plan for their posterity from day one of ADATS' involvement. The instrument to achieve this objective is the Sangha Funds.

This corpus presently stands at Rs 52,962,417 for 913 village CSUs. Interest from each village FD accrues as current year earnings for the respective village CSU, and is used for running the Coolie Sangha Unit.

Another Rs 9,086,860 is the current year's gross income, in 913 SB accounts of as many village CSUs. This takes the total Sangha Fund (FDs plus current balances) to Rs 62,049,277 as on 28 July 2007.

Please download Financial Reports of the Coolie Sangha, for the past 12 years, at <http://www.adats.com/cs/finances.php>

G5. LAND TENURE

CONCEPT

There should be no significant land tenure disputes in the project area, or the project should fundamentally help to resolve these tenure issues.

INDICATORS

Based on information about current land tenure provided in **G3**, the project proponents must:

1. Guarantee that the project will not encroach uninvited on private property, community property, or government property.
2. Guarantee that the project does not require the relocation of people, or any relocation is 100% voluntary and fundamentally helps resolve land tenure problems in the area.
3. Describe potential “in-migration” of people from surrounding areas, if relevant, and explain how the project will respond.

G5.1. GUARANTEE THAT THE PROJECT WILL NOT ENCROACH UNINVITED ON PRIVATE PROPERTY, COMMUNITY PROPERTY, OR GOVERNMENT PROPERTY

20-30 years back, before the advent of the Coolie Sangha, land tenure was a real problem. Most of the cultivable lands of the poor had been grabbed by middle and rich peasant *Ryots*. These have been completely solved through a long history of struggle. Please see our Progress Reports on those early days of Coolie Sangha formation at <http://www.adats.com/documents/book1/>

In spite of all this, boundary disputes are bound to arise among siblings and cousins, especially when fields are partitioned by parents and grandparents. These issues, like everything else in the village Coolie Sangha Units, will be resolved in weekly CSU and Mahila Meetings.

Participation in the Project is not just voluntary but also enthusiastic. This is because the village CSUs have, for 12 long years, awaited the intervention. Every single patch of land is identified by the following:

- A unique 6 digit code for the participating family
- Name of the head of the household
- Revenue Survey Number (given by the government)
- *Khathadar* (i.e. the name of the family member in whose name the legal title to the land vests)
- Extent of the holding in Acres
- Land Type (i.e. dry land, open well irrigated, bore well irrigated, tank irrigated, etc.)
- Land Gradient & Quality of Contour Bunds
- Latitude & Longitude (plot centre reading for small holdings, and all 4 corners for larger holdings)

Where a participating family owns more than a single plot of land, multiple records are maintained. We believe that this will irrefutably establish the exact pieces of earth where the Bagepalli CDM Reforestation Project will be implemented.

End User Agreements will be signed with each participating family.

G5.2. GUARANTEE THAT THE PROJECT DOES NOT REQUIRE THE RELOCATION OF PEOPLE, OR ANY RELOCATION IS 100% VOLUNTARY AND FUNDAMENTALLY HELPS RESOLVE LAND TENURE PROBLEMS IN THE AREA

This CDM Project will not result in any relocation of people. On the contrary, it is designed to prevent forced/distress migration from the villages to the cities.

G5.3. DESCRIBE POTENTIAL "IN-MIGRATION" OF PEOPLE FROM SURROUNDING AREAS, IF RELEVANT, AND EXPLAIN HOW THE PROJECT WILL RESPOND

No in-migration is expected since Project activities are on individual plots of land belonging to small and poor peasants, with their own family labour.

The few technical jobs that will be created, like driving/maintaining tractors, repairing bore well pumps, etc. will be carried out by local youth from their respective villages.

In the long term, employment opportunities will be created in fruit processing, marketing, etc. These will also be taken up by local youth from the Project villages.

Project withdrawn before CCB Standards Validation, May 21st, 2010

G6. LEGAL STATUS

CONCEPT

The project must be based on a solid legal framework (e.g., appropriate contracts are likely to be in place) and the project must seek to satisfy applicable planning and regulatory requirements. During the project design phase, the project proponents should communicate early on with relevant local, regional and national authorities and allow adequate time to earn necessary approvals. The project design should be flexible to accommodate potential modifications that may arise to secure regulatory approval.

INDICATORS

The project proponents must:

1. Guarantee that no laws will be broken by the project.
2. Document that the project has, or expects to secure, approval from the appropriate authorities.

G6.1. GUARANTEE THAT NO LAWS WILL BE BROKEN BY THE PROJECT

There are no laws governing the implementation of a Dry Land Horticulture Project on private lands belonging to individual peasant families, with or without carbon financing.

G6.2. DOCUMENT THAT THE PROJECT HAS, OR EXPECTS TO SECURE, APPROVAL FROM THE APPROPRIATE AUTHORITIES

In September 2006, we have already obtained Host Country Approval from the Ministry of Environment & Forests, Government of India, New Delhi, for this A/R CDM Project.

G7. ADAPTIVE MANAGEMENT FOR SUSTAINABILITY

CONCEPT

Adaptive management is a formal, systematic, and rigorous approach to learning from the outcomes of management actions, accommodating change and improving management. It involves synthesizing existing knowledge, exploring alternative actions and making forecasts about their outcomes.²⁰

Adaptive management is based upon the premise that ecosystems and social systems are complex and inherently unpredictable. Adaptive management views land management actions as learning opportunities and as potential experiments for systematically testing assumptions and identifying adjustments that could benefit the project. It enables a project to evolve to meet changing or unanticipated needs, and can help ensure that the project realizes its goals over the long term.

INDICATORS

The project proponents must:

- 1) Demonstrate how management actions and monitoring programs are designed to generate reliable feedback that is used to improve project outcomes.
- 2) Have a management plan for documenting decisions, actions and outcomes and sharing this information with others within the project team, so experience is passed on rather than being lost when individuals leave the project.
- 3) Demonstrate how the project design is sufficiently flexible to accommodate potential changes and that the project has a defined process in place to adjust project activities as needed.
- 4) Demonstrate an early commitment to the long-term sustainability of project benefits once initial project funding expires. Potential activities may include: designing a new project that builds on initial project outcomes; securing payments for ecosystem services; promoting micro-enterprise; and establishing alliances with organizations or companies to continue sustainable land management.

G7.1 DEMONSTRATE HOW MANAGEMENT ACTIONS AND MONITORING PROGRAMS ARE DESIGNED TO GENERATE RELIABLE FEEDBACK THAT IS USED TO IMPROVE PROJECT OUTCOMES

EMPOWERED STAFF & FUNCTIONARIES

ADATS has made serious organisational efforts, for the past 8 years, to transform Supervised Staff into Empowered Staff and Functionaries. This has been an extremely rewarding task since the majority of secondary stakeholders in the 2 organisations are, in any case, ideologically motivated and naturally infused with a sense of purpose. Nevertheless, it did involve serious time and money investment in training and facilitation to consciously introduce a Results oriented management culture.

²⁰ The definition of Adaptive Management and several of the indicators were based on Nyberg (1999). An Introductory Guide to Adaptive Management.

SITUATION MEETINGS

All ADATS Staff meet every Monday in what we call the Situation Meetings. These are not to report on progress or review achievements.²¹ Instead this getting together is to contextualise what we are doing in the wider political economy of the region and the country – examine relevance and correct direction. Concrete field experiences of the week are examined in this larger light.

DIGITIZED MONITORING

ADATS and the Coolie Sangha maintain an extensive database. To begin with, we have exhaustive demographic data, going back 30 years,²² on every single village and each family we work with. To this is added primary data generated by various activity processes we undertake.

For the past 23 years, these are digitized by InfoNeeds[®], our in-house Intranet which we use to record all programme activities, including the expenditure of moneys on various tasks, jobs and activity processes. Staff and Functionaries enter information pertinent to their respective villages/families. Online reports, without a single exception, are available for everyone to see. Even the design and development of InfoNeeds[®] has been bottom-up. For the past 23 years, our IT Professionals keep “looking over our shoulders” to see what we do and how we do it. They quickly digitize what they understand and offer it as an easier and more accurate way of doing the same, without tedious repetition. These process pages are improved to perfection through constant use.

Data, like software programmes that manipulate them, is never perfect. It is corrected through constant usage. The strength of our intranet is that is used to record every conceivable action performed by ADATS Staff and Coolie Sangha Functionaries. This makes the recording of primary data “doable” but not necessarily “easier”.

E.g. Every year, we record the main crops grown on each landholding of every single Member Coolie family. This still means that Field Staff have to annually sit with each and every family to ask them, write down their answers on a sheet of paper, and enter it into InfoNeeds[®]. So too with children’s promotion lists, annual incomes declared by Coolie families, etc.

In the early days, online Reports were just Progress Reports. Over the years, complex algorithms have been developed to digitally assess the performance of various projects and programmes. Colour coded digital maps, using GPS readings, are rendered at the touch of a button, giving a visual impression of where we are strong and where we need to pay more attention. Trends are analysed and projections made on the functioning of various programme activities. These are presented in simple tables as well as charts.

Some examples of the practical application of our digitized monitoring system:

- Annual membership drives through the declaration of family incomes and paying of Sangha Tax are recorded and analysed.
- Village CSUs record specific problems of Member Coolie families during their bi-annual Customer Demands & Satisfaction (CD&S) surveys and monitor actions taken to solve these problems.
- Electoral strength of a group of village CSUs and their chances in a local body election is fairly accurately predicted by InfoNeeds[®].

²¹ That task is performed through our digitized monitoring system when implementation data is captured as and when activity processes are carried out, management information reports are automatically generated.

²² In the early days, before the advent of computers and DBMS, it was Cardex and manual registers

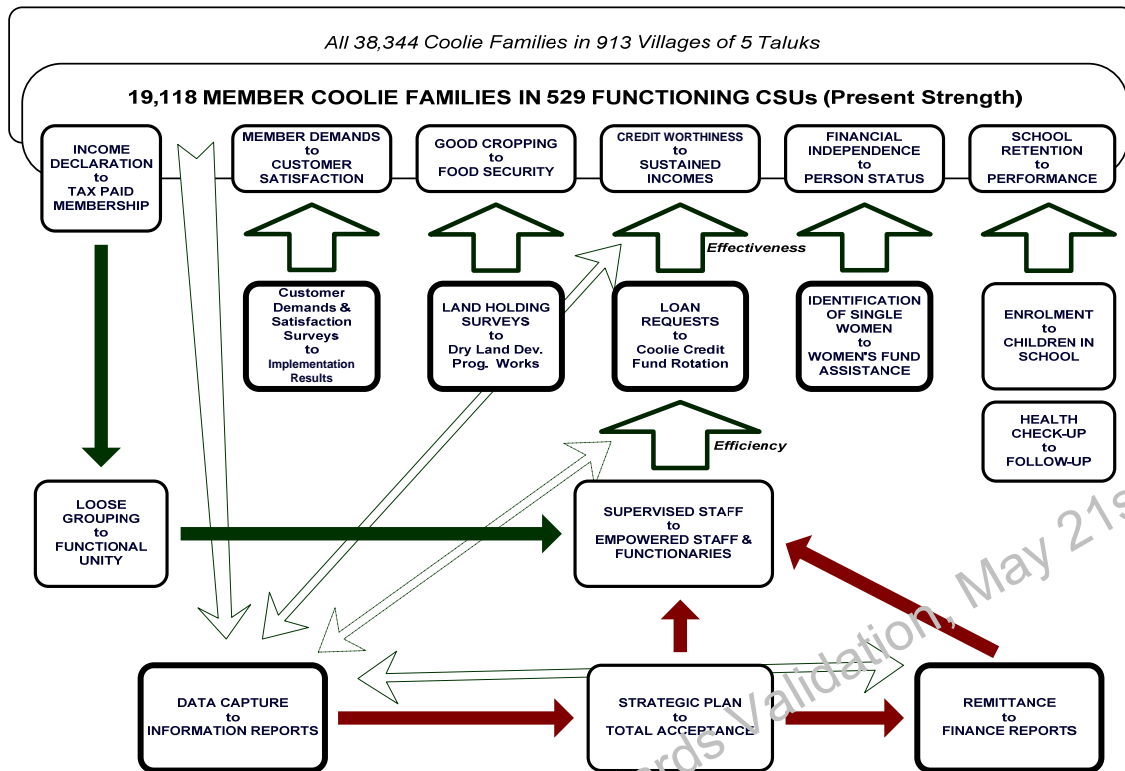
- Credit worthiness of prospective CCF borrowers is calculated and loan amounts suggested. Even commercial Banks accept InfoNeeds® Reports as accurate statements on the financial health of the community credit scheme.
- The physical status of Coolie lands can be seen, real time, at any moment. We have been able to implement such a huge and pluralistic land development programme that varies from field to field and village to village, in so many villages, year after year for the past 22 years, only because of our digitised monitoring system.
 - E.g. The established practice in Coolie Sangha building is that as soon as a Coolie family joins the village CSU, all their landholdings are immediately surveyed and entered into the data-base. This data includes the extent of each plot, title in whose name the land stands, source of irrigation, gradient, quality of contour bunds, number of years of S&WC works already carried out, and an estimate of the number of years of further work needed.
 - As and when DLDP works are implemented on particular land holdings, the number of years of work done is increased by 1, and the number of years needed correspondingly reduced. Once every few years, when the crops are on the fields, the re-worked data is taken to the village where all the Members together visit each field to verify that the information is correct.
- An optimal usage of available Sangha Funds in various village Coolie Sangha Units is suggested. This enables the Mahila Meetings to give out health benefits, children's scholarship, pay the village Staff, etc.
- A Domestic Biogas CDM Project is being monitored using InfoNeeds®. First during the 1½ year long construction phase when 5,500 units were being built. Now during the monitoring phase when daily usage is monitored for CER generation to be recorded and verified for the remaining crediting period.
- Annual Effects Monitoring exercises record primary data on Member Coolie opinion on the status of implementing our 10 year LogFrame.
- The “pilot efforts” of so many Coolie families to plant Tree Crops on their dry lands is monitored using InfoNeeds®. This module will be further developed to digitally monitor the proposed Bagepalli CDM Reforestation Project.

Today, InfoNeeds® Reports are analytical tools designed to help take decisions in the field, factoring considerations that would otherwise be impossible to remember/uniformly apply.

The stand-alone version of the financial management package is an integral part of InfoNeeds® and is today an industry standard for the NGO sector's not-for-profit accounting.

ADATS/COOLIE SANGHA PROCESS MAP

updated 3 August 2007



G7.2. HAVE A MANAGEMENT PLAN FOR DOCUMENTING DECISIONS, ACTIONS AND OUTCOMES AND SHARING THIS INFORMATION WITH OTHERS WITHIN THE PROJECT TEAM, SO EXPERIENCE IS PASSED ON RATHER THAN BEING LOST WHEN INDIVIDUALS LEAVE THE PROJECT

ANNUAL EFFECTS MONITORING

Annual Effects Monitoring exercises are carried out to record Outcomes and Results of various projects and programmes.

Monitoring the Mother LogFrame

The main “mother log” of ADATS and the Coolie Sangha is reviewed, in this manner, in the months of April and May every year. ADATS and the Coolie Sangha conducted a grassroots and bottom-up Effects Monitoring exercise and produce a Report which gives a subaltern opinion on the Results of our work. More specifically, it focuses on the previous year.

Primary Data is obtained through 3-4 full day sessions, held at weekly intervals throughout the months of March and April, in each of the 85 Clusters. Elected Coolie Sangha functionaries and ADATS Staff sit together for 6 hours per session (total: 250-350 session days) to ponder on each Sub Effects Indicator. More often than not, they insist on recording historic data on how the situation was three decades back, before the advent of the Coolie Sangha – these are severely truncated when editing.

We have 4 ready sources for Secondary Data.

- The first are Online Reports that the ADATS/Coolie Sangha Intranet prepares for Staff and functionaries to use on a day to day basis to manage/monitor programmes.

- The second is our 6 monthly Reports, written with a rigid regularity, where accurate figures have been recorded for the past quarter century.
- Thirdly, we pore through more than 20 exhaustive studies and evaluations conducted over the years.
- Finally, our IT Professionals datamine our extensive database to give time series data.

Thousands of Coolie Sangha functionaries sit with ADATS Staff in the Cluster Review Meets to produce fascinating Reports that answer the “*So What?*” questions that emanate from each activity output, in order to arrive at Effects. Not all answers are comfortable or even flattering.

Please read them at <http://www.adats.com/documents/book3/0324/> and <http://www.adats.com/documents/book3/0325/>

Monitoring Individual Programmes

Other individual programmes like the Children’s Programme and DLDP are also monitored in a similar fashion. But these Reports will provide a holistic picture only when *read with* the main Effects Monitoring Reports.

Please see examples at <http://www.adats.com/documents/book8/0804/> , <http://www.adats.com/documents/book8/0807/> and <http://www.adats.com/documents/book8/0808/>

THE ADATS WEBSITE

Implementation data is captured by our digitized monitoring system, as and when activity processes are carried out. Management information reports are automatically generated. Extracts from these are updated in our website at from time to time.

INSTITUTIONAL KNOWLEDGE

Every Monday, all ADATS Staff and elected Taluk Secretaries sit together for 3-4 hours and review happenings of the week. These are not “monitoring meetings” in the normal sense of the term. We do not discuss progress or the pace of implementation. Instead we contextualise our work in the wider milieu. Sometimes, discussions are on the economy, on recent government laws and policies that effect our people. We speak of management, efficiency, effectiveness and organisational culture. We explore emerging opportunities that the Coolie caste-class may have in the sociopolitical arena...

These Situation Meetings reinforce the sense of purpose in our work and sets the stage for shared working. Ideologies are discussed and core values strengthened.

In such a situation, information, and techniques are not exclusively vested in contracted Project Staff. Even subtle details like tricks of the trade and knowing what works where, in which situation, is collectively embodied in all the Project delivery personnel.

Yet, in spite of such a formal and systematic effort to not just share information but also elicit opinions that *create* knowledge and information, some institutional knowledge is certainly vested in a body of people. This is a “tip-of-the-fingers” sensitivity that can never be captured in normal participatory documentation. Fortunately this body is the longstanding Staff and key Functionaries of ADATS and the Coolie Sangha.

Our IT Personnel are actively exploring the possibility of developing a comprehensive Knowledge Information System for ADATS and the Coolie Sangha. They have started work on child related activities and will gradually extend it to all our areas of work and involvement.

G7.3. DEMONSTRATE HOW THE PROJECT DESIGN IS SUFFICIENTLY FLEXIBLE TO ACCOMMODATE POTENTIAL CHANGES AND THAT THE PROJECT HAS A DEFINED PROCESS IN PLACE TO ADJUST PROJECT ACTIVITIES AS NEEDED

Pluralism is a value we are committed to. But plurality tends to get compromised when we go in for large scale implementation. Standard and uniform practices are easier to implement. The Efficiency argument is powerful.

ADATS & THE COOLIE SANGHA

Recognising this danger which stems from an organisational lethargy, we give a lot of importance to meetings, especially the weekly Cluster Meets. CSU Representatives and village Staff from 5-6 Coolie Sangha Units sit with our Field Staff for 3-4 hours in the central village, on a fixed day every single week. Village reports are discussed and concrete decisions taken. Minutes are recorded and results of the previous week's decisions are reviewed.

Cluster Meets are often attended by ordinary Coolie Sangha Members who have a grievance to redress or something special to report.

These meetings have, over the years, been converted into "points of working contact" between the 2 organisations – ADATS and the Coolie Sangha. So much so that ADATS Staff are discouraged from direct "interfering" in the day to day functioning of the village Coolie Sangha Units.

The 2 days and 1 night Taluk Coolie Sangha Meetings that are held every month at each Taluk headquarters are attended by 300-400 elected Representatives and village Staff. Programmes and policies are thoroughly discussed in these large assemblies, and standard operational procedures (SOPs) get suitably modified to meet changing needs.

It is the structure and functioning of these meetings that ensure that organisational responses remain relevant to the diverse requirements of different situations.

THE PROJECT

Now let us consider the physical aspects of the Project itself. We need to bear in mind that, in spite of the huge size of the total Bagepalli CDM Reforestation Project, it actually comprises thousands of small and privately owned individual plots, averaging 3 acres (1.21 hectares), which will receive the personal care and attention of the landowner family. Cleared fields will get further levelled to become small patches of flat terraces, all adjacent to each other, but clearly bearing a stamp of individual preference as some sort of a waiflike and invisible boundary.

The Project, *per se*, provides only the basic framework or skeleton for realising hundreds and thousands of dreams and aspirations on creative land use. How then can it NOT be sufficiently flexible to accommodate potential changes?

Vegetables will be grown in between the trees which are spaced 20 feet (6 metres) apart. Perennial legume bushes will be planted on one plot. A patch of native long stemmed maize for fodder on another. Flowers for the nearby temple market on yet another. It could be medicinal shrubs that are cared for on someone else's, and regeneration of wild plants on rocky clumps that stud the topography of the region. It could well be a combination of all these and many more. The application of caring labour will shape each plot depending upon how green those fingers are...

Under such a situation, variety and diversity will be the prevailing order.

G7.4. DEMONSTRATE AN EARLY COMMITMENT TO THE LONG-TERM SUSTAINABILITY OF PROJECT BENEFITS ONCE INITIAL PROJECT FUNDING EXPIRES. POTENTIAL ACTIVITIES MAY INCLUDE: DESIGNING A NEW PROJECT THAT BUILDS ON INITIAL PROJECT OUTCOMES; SECURING PAYMENTS FOR ECOSYSTEM SERVICES; PROMOTING MICRO-ENTERPRISE; AND ESTABLISHING ALLIANCES WITH ORGANIZATIONS OR COMPANIES TO CONTINUE SUSTAINABLE LAND MANAGEMENT

This CDM Project aims to change the cropping pattern of thousands of small and poor peasants through a 3-4 year intervention. It is not the construction of a building or establishment of a service activity that has to be maintained, but a cropping pattern, nay a transformed agrarian lifestyle, that needs to continue. This will definitely happen due to the play of several factors.

SOCIOPOLITICAL CONSIDERATIONS

The Goal and Objectives of this CDM Project ride piggy back on the 3 decade long effort of Coolie families to gain dignity, humanity and self-respect. A struggle to permanently and irreversibly alter their position in village society, obtain an identity and, in that manner, improve their everyday living.

A unique feature of this CDM Project which will guarantee sustained continuity is Ownership. In spite of the humungous volume of money involved, it is not a *largesse* that will deflect from or dilute the core purpose of the Coolies' getting together. It will not corrupt or divert their overriding agenda. It is not an interruption of their self-empowerment effort. It is a strategic response, with their own grassroots plans, born of a deep aspiration to be profitably engaged in the emerging village economy of tomorrow.

TECHNICAL CONSIDERATIONS

Trees planted on dry lands will establish after 3-4 years. After that, they will no longer need summer-month watering. They will survive and grow with the 560 mm of spatial and erratic annual rainfall that the region usually receives even in a drought year.

The effort and energy spent on watering arrangements (which, to a very large extent, is what this CDM Project proposes to support) will thenceforth be spent on emerging needs to prepare, process, add value and market tree produce on the one hand, and promote biodiversity on the other.

ECONOMIC CONSIDERATION

By the end of 3-4 years of Project support, the trees would be close to fruiting. Participating families will be ever so eager to protect and nurture their dry land orchards, in anticipation of mango and tamarind crops.

We are wary of making too many long term plans to build on the CDM project activity interventions described in this report. Much experience already exists on the opportunities and also limitations of dry land horticulture; albeit with protective irrigation. New experiences, especially in cultivated and uncultivated biodiversity, will create new opportunities

Depending on the type of ERPA we enter into, Coolie families would also look forward to cash in on ICERs and VERs that they generate, giving credence to their slogan:

"In addition to Mangos and Tamarind, we will also grow CER!"

G8. KNOWLEDGE DISSEMINATION

CONCEPT

Field-based knowledge can be of value to other projects. If actively disseminated, this information can accelerate the adoption of innovative practices that bring benefits both globally and locally.

INDICATORS

The project proponents must:

- 1) Describe how they will document the relevant or applicable lessons learned.
- 2) Describe how they will disseminate this information in order to encourage replication of successful practices. Examples include: undertaking and disseminating research that has wide reaching applications; holding training workshops for community members from other locales; promoting “farmer to farmer” knowledge-transfer activities; linking to regional databases; and working with interested academic, corporate, governmental or non-governmental organizations to replicate successful project activities.

G8.1. DESCRIBE HOW THEY WILL DOCUMENT THE RELEVANT OR APPLICABLE LESSONS LEARNED

From the very inception of our work, ADATS has meticulously documented experiences and analysis. Process documentation is taken very seriously at ADATS and Progress Reports and Position Papers are not necessarily meant for funding partners or to meet statutory requirements alone.

Please see our Progress Reports at <http://www.adats.com/documents/>

As already mentioned in Section G7.2, our IT Personnel are actively exploring the possibility of developing a comprehensive Knowledge Information System for ADATS and the Coolie Sangha.

G8.2. DESCRIBE HOW THEY WILL DISSEMINATE THIS INFORMATION IN ORDER TO ENCOURAGE REPLICATION OF SUCCESSFUL PRACTICES. EXAMPLES INCLUDE: UNDERTAKING AND DISSEMINATING RESEARCH THAT HAS WIDE REACHING APPLICATIONS; HOLDING TRAINING WORKSHOPS FOR COMMUNITY MEMBERS FROM OTHER LOCALES; PROMOTING “FARMER TO FARMER” KNOWLEDGE-TRANSFER ACTIVITIES; LINKING TO REGIONAL DATABASES; AND WORKING WITH INTERESTED ACADEMIC, CORPORATE, GOVERNMENTAL OR NON-GOVERNMENTAL ORGANIZATIONS TO REPLICATE SUCCESSFUL PROJECT ACTIVITIES

NETWORKING

ADATS and the Coolie Sangha are not formal or accredited members of any networks or federations. However, we actively collaborate with various development workers and activists in order to gain technical knowledge, exchange experiences, jointly lobby, etc.

- Drought and environment issues with like minded NGOs in South India
- Local Market Development initiative in the south Deccan Plateau
- Developing an Effect Monitoring System in Land and Water Management Programmes, along with 5 other Indian NGOs, coordinated by Icco, the Netherlands
- Environment issues with Climate Change Activists

- Social Forestry and Carbon sequestration issues with the Indian Institute of Science, Bangalore
- Sourcing and applying innovative technology with TNO, the Netherlands
- Child Rights issues with the Save the Children Alliance
- Documentation needs, accessing resource material, etc. with Centre for Education & Documentation, Bangalore
- Management and IT issues with leading software industries, including Integra Microsystems Ltd., Bangalore.

LEARNING EXCHANGES

ADATS is fairly well known in the Indian NGO circle. We have a constant flow of visitors who come to learn from our experiences in community organisation, unification of the poor across caste lines, local governance, self-finance, alternate credit, women's empowerment, dry land development, financial management and organisational culture.

We actively assist Indian NGOs in their attempt to access carbon resources for pro-people, pro-rural development projects. Due to our 12 year long association with the Climate Change movement, we have some knowledge on the matter. Furthermore, we are one of the few NGOs who have managed to implement a CDM Project to build 5,500 domestic biogas units.

Due to this longstanding tradition that we have deliberately fostered, and the reputation that we hold in the development sector, experiences gained while implementing the Bagepalli CDM Reforestation Project are bound to be copy-free and "everybody's knowledge".

CL1. NET POSITIVE CLIMATE IMPACTS

CONCEPT

The project must generate net positive impacts on atmospheric concentrations of greenhouse gases (GHGs) within the project boundaries and over the project lifetime.

INDICATORS

The project proponents must:

8. Use the methodologies of the Intergovernmental Panel on Climate Change's Good Practice Guidance (IPCC GPG) to estimate the net change in carbon stocks due to the project activities. The net change is equal to carbon stock changes with the project minus carbon stock changes without the project (the latter having been estimated in G2). Alternatively, any methodology approved by the CDM Executive Board may be used. This estimate must be based on clearly defined and defensible assumptions about how project activities will alter carbon stocks and non-CO₂ GHG emissions over the duration of the project or the project accounting period.
9. Factor in the non- CO₂ gases CH₄ and N₂O to the net change calculations (above) if they are likely to account for more than 15% (in terms of CO₂ equivalents) of the project's overall GHG impact.
10. Demonstrate that the net climate impact of the project (including changes in carbon stocks, and non- CO₂ gases where appropriate) will give a positive result in terms of overall GHG benefits delivered.

CL1.1. USE THE METHODOLOGIES OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE'S GOOD PRACTICE GUIDANCE (IPCC GPG) TO ESTIMATE THE NET CHANGE IN CARBON STOCKS DUE TO THE PROJECT ACTIVITIES. THE NET CHANGE IS EQUAL TO CARBON STOCK CHANGES WITH THE PROJECT MINUS CARBON STOCK CHANGES WITHOUT THE PROJECT (THE LATTER HAVING BEEN ESTIMATED IN G2). ALTERNATIVELY, ANY METHODOLOGY APPROVED BY THE CDM EXECUTIVE BOARD MAY BE USED. THIS ESTIMATE MUST BE BASED ON CLEARLY DEFINED AND DEFENDABLE ASSUMPTIONS ABOUT HOW PROJECT ACTIVITIES WILL ALTER CARBON STOCKS AND NON-CO₂ GHG EMISSIONS OVER THE DURATION OF THE PROJECT OR THE PROJECT ACCOUNTING PERIOD.

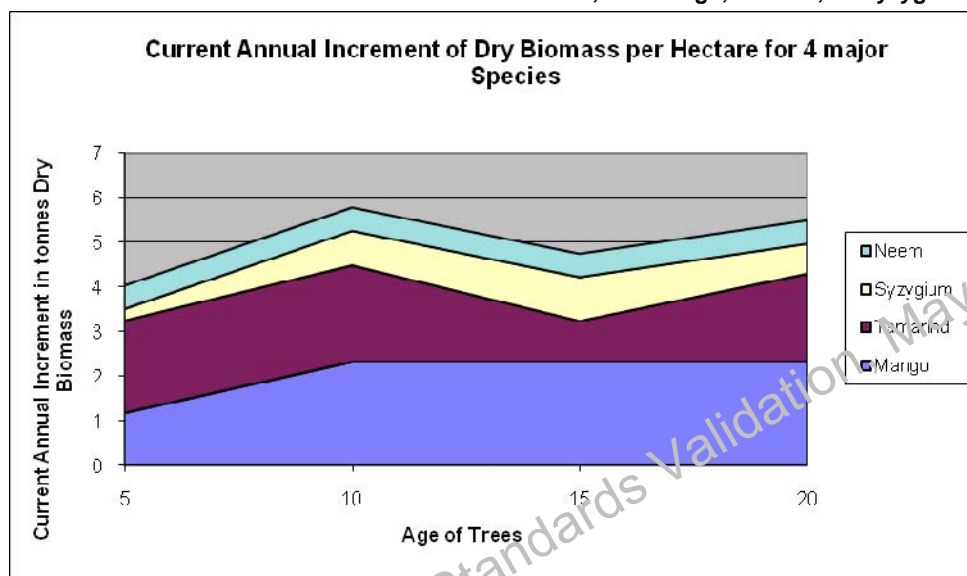
The estimate of actual net GHG removals by sinks includes the carbon stock change in aboveground biomass and belowground biomass. The carbon stock changes in pools of soil organic matter, dead wood and litter are excluded. The increment in aboveground biomass that would be achieved by the proposed A/R CDM Project was estimated based on growth curves derived from literature and field studies. Growth curves for *Syzygium* was obtained from Rai, (1980) and for Teak from studies conducted by Forest Research Institute, Dehra Dun²³. Growth curves for Tamarind and Mango was not available in the literature. Field studies were conducted in the study area to deduce the growth curves. The following allometric equations was used for calculating the above ground biomass which is based on height measurements. $Y = -128.8 + 4.14H$; where H=Height (Dugar *et al.*, 1993)²⁴

²³ FRI. Growth and yield statistics of common Indian timber species, Forest Research Institute, Dehra Dun, India.

²⁴ Dagar, J.C., Gurbachan Singh. and Singh, N.T. Evaluation of crops in Agro forestry with Teak (*Tectona grandis*), Maharu (*Ailanthus excelsa*) and Tamarind (*Tamarindus indica*) on reclaimed salt affected soils, 1993.

Using the biomass growth rates, the estimated biomass increment in aboveground biomass was calculated for each of the species separately. Tamarind and Mango will be planted as block plantations, while Teak and Syzygium will be planted on the bunds. Thus the CAI is calculated for the specific number of trees per hectare. There will be 260 trees Tamarind and Mango per hectare at a spacing of 7x7 m, and 55 Teak and Syzygium trees on the bunds at 8 m spacing. Harvest is not considered as Teak will be harvested by after 60 years and Tamarind and Mango will not be harvested.

Current annual biomass increment / hectare: 130 Tamarind, 130 Mango, 25 Teak, 25 Syzygium trees



Below ground biomass was calculated using the formula given for tropical trees in the Annex 4.A.4 in IPCC LULUCF GPG, 2004 and described in Section C of the PDD. Planting will be done in a span of 4 years at the rate of 3181 hectare during year 1, followed by 5000 hectare in the subsequent 3 years, totalling 18,181 hectare. The carbon sequestration potential for each year based on the area that will be planted and the CAI was calculated separately and summed to estimate the cumulative carbon sequestration potential for the Project area..

An estimate of the GHG emissions by sources was calculated from i. decrease in living biomass of existing non-tree vegetation and ii. Nitrous oxide emissions from nitrogen fertilization practices using organic manure. A sample survey was done to estimate the area under shrubs in each of the 5 taluks. The shrubs were harvested on 14 hectare from 20 plots. The biomass of shrubs was estimated based on the methodology given in Section C of the PDD.

During the year of planting, farmyard manure will be applied to each of the pit at a proportion of 5 kg of organic manure (dung + vegetable waste + crop residue) :15 kg of red loam: 15 kg of sand. The N content of organic manure is 0.5%²⁵. The CO₂e of N₂O induced by N input was calculated according to the procedure given in the approved methodology and discussed in Section C of the PDD.

The actual net GHG removals by sinks is carbon stock change in aboveground biomass and below ground biomass minus the increase in CO₂e of N₂O emissions due to organic fertilizer application and decrease in living biomass of existing non-tree vegetation.

²⁵ Mukherjee, H.N., Daji, J.A. and Raychaudhari, S.P. Manure and Fertilizer. Chapter 3 of Hand book of Agriculture. Indian Council Of Agricultural Research, New Delhi, 1961.

CL1.2. FACTOR IN THE NON-CO₂ GASES CH₄ AND N₂O TO THE NET CHANGE CALCULATIONS (ABOVE) IF THEY ARE LIKELY TO ACCOUNT FOR MORE THAN 15% (IN TERMS OF CO₂ EQUIVALENTS) OF THE PROJECT'S OVERALL GHG IMPACT.

Not Applicable.

CL1.3. DEMONSTRATE THAT THE NET CLIMATE IMPACT OF THE PROJECT (INCLUDING CHANGES IN CARBON STOCKS, AND NON-CO₂ GASES WHERE APPROPRIATE) WILL GIVE A POSITIVE RESULT IN TERMS OF OVERALL GHG BENEFITS DELIVERED.

Estimation of actual net GHG removals by sinks

Year	Annual carbon stock change	Cumulative carbon stock change	Annual GHG emission	Cumulative GHG emission (tCO ₂ -e)	Annual actual net GHG removals	Cumulative actual net GHG removals
	(tCO ₂ yr ⁻¹)	(tCO ₂)	(tCO ₂ -e yr ⁻¹)		(tCO ₂ -e yr ⁻¹)	(tCO ₂ -e)
2009	43,918	43,918	-231	-231	43,456	43,456
2010	87,836	131,754	-376	-607	86,853	130,309
2011	159,695	291,449	-376	-983	153,336	288,645
2012	159,695	451,144	-376	-1,358	157,961	446,606
2013	159,695	610,839	0	-1,358	158,337	604,943
2014	170,362	781,201	0	-1,358	169,004	773,947
2015	181,029	962,230	0	-1,358	179,671	953,618
2016	198,483	1,160,712	0	-1,358	197,125	1,150,742
2017	198,483	1,359,195	0	-1,358	197,125	1,347,867
2018	198,483	1,557,678	0	-1,358	197,125	1,544,992
2019	186,555	1,744,233	0	-1,358	185,197	1,730,189
2020	174,626	1,918,861	0	-1,358	173,270	1,903,459
2021	155,112	2,073,973	0	-1,358	153,754	2,057,213
2022	155,112	2,229,086	0	-1,358	153,754	2,210,968
2023	155,112	2,384,198	0	-1,358	153,754	2,364,722
2024	157,392	2,541,590	0	-1,358	156,034	2,520,756
2025	159,672	2,701,262	0	-1,358	158,314	2,679,070
2026	163,402	2,864,665	0	-1,358	162,044	2,841,115
2027	163,402	3,028,067	0	-1,358	162,044	3,003,159
2028	163,402	3,191,469	0	-1,358	162,044	3,165,203

The resulting net anthropogenic GHG removals by sinks is summarized in the table below:

Year	Estimation of base-line net GHG removals by sinks (tonnes of CO ₂ e)	Estimation of actual net GHG removals by sinks (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of net anthropogenic GHG removals by sinks (tonnes of CO ₂ e)
2009	276	43,456	8	43,172
2010	276	86,853	17	86,560
2011	276	158,336	22	158,038
2012	276	157,961	21	157,664
2013	276	158,337	10	158,051
2014	276	169,004	5	168,723
2015	276	179,671	1,554	177,841
2016	276	197,125	1,709	195,140
2017	276	197,125	1,880	194,969
2018	276	197,125	2,068	194,781
2019	276	185,197	2,275	182,646
2020	276	173,270	2,502	170,492
2021	276	153,754	2,753	150,725
2022	276	153,754	3,028	150,450
2023	276	153,754	3,331	150,147
2024	276	156,034	3,664	152,094
2025	276	158,314	4,030	154,008
2026	276	162,044	4,433	157,335
2027	276	162,044	4,661	157,107
2028	276	162,044	4,661	157,107
Total (tonnes of CO ₂ e)	5,520	3,165,203	42,632	3,117,051

CL2. OFFSITE CLIMATE IMPACTS (“LEAKAGE”)

CONCEPT

The project proponents must quantify and mitigate likely negative offsite climate impacts; namely, decreased carbon stocks or increased emissions of non-CO₂ GHGs outside the project boundary, resulting from project activities (referred to as “leakage” in climate change policy).

INDICATORS

The project proponents must:

1. Estimate potential offsite decreases in carbon stocks (increases in emissions or decreases in sequestration) due to project activities.
2. Document how negative offsite impacts resulting from project activities will be mitigated, and estimate the extent to which such impacts will be reduced.
3. Subtract any likely project-related unmitigated negative offsite climate impacts from the climate benefits being claimed by the project. The total net effect, equal to the net increase in onsite carbon stocks (calculated in the third indicator in CL1) minus negative offsite climate impacts, must be positive.

CL2.1. ESTIMATE POTENTIAL OFFSITE DECREASES IN CARBON STOCKS (INCREASES IN EMISSIONS OR DECREASES IN SEQUESTRATION) DUE TO PROJECT ACTIVITIES.

There will be no increases in emissions offsite, as no new activity which involves large scale consumption of energy will take place. There will also not be any offsite decreases in carbon stocks. This is because no practices are being introduced in the project area which would limit access to biomass in the project area, for example through fencing of common fuel plots, if there were such a thing. Thus no one is being forced outside the project boundary to look for goods and services of which they are being deprived.

Basically we know that most of the decrease in carbon stocks in the area has already taken place. We have seen that the baseline carbon is so low that practically no additional removal can take place. This applies equally to the Project area and to the area outside the Project boundary.

It is true that there are some small patches of forest here and there outside the Project boundary. But this is on the whole not used for activities which decrease carbon stocks, as we know that the main use of biomass is for fuel, food and fodder, and that this is obtained predominantly from scanty on-farm agro-residues. The continued expansion of wasteland due to harsh climatic conditions and water scarcity, the continuation of existing degraded conditions, and overall ecosystem impoverishment has affected the residual patches of forests in the same way as all the other lands. Overall the biomass is already non-renewable, and no additional decreases of carbon stocks can or will take place due to the Project.

Of course, one of the main purposes of the Project is the opposite: to create enough of a ecological restoration in the Project area to inspire emulation in off-site areas.

CL2.2. DOCUMENT HOW NEGATIVE OFFSITE IMPACTS RESULTING FROM PROJECT ACTIVITIES WILL BE MITIGATED, AND ESTIMATE THE EXTENT TO WHICH SUCH IMPACTS WILL BE REDUCED.

Having said that no additional loss of carbon stocks can possibly take place, our Project should rather be seen as nothing but one huge attempt to mitigate current negative impacts both within and outside the Project boundary.

For example the proposed Project area is to a large extent already covered by soil and water conservation. This will be intensified through the Project, thus reducing pressure outside the Project boundary too. Land used for reforestation is currently degraded and uncultivable private farm land unfit for productive cultivation. This economically unattractive land currently does not support agriculture. Grazing is done on these tracts and, to some extent, they provide fuel wood thanks to certain fast growing species like *Prosopis*. This degraded forest, common and private agricultural land thus provides some fuel wood energy for cooking, though overall there is utter energy poverty as there is not enough wood and no other energy sources are available. This is true within and outside the Project boundary. To deal with the ecological catastrophe of land degradation and consequent lack of cooking energy in the absence of decent government programmes to supply everyone with decent living conditions, the Project will have to reduce fuel wood requirement by supporting fodder for cows and through cows, biogas. This is happening through the just completed 5,500 Bagepalli Biogas CDM, and another 12,000 units Kolar District CDM currently under validation.

It is also expected that the Project will contribute substantial amounts of wood without compromising the growth of trees established under the proposed Project activity. The community will manage the wood judiciously, and will restrict wood collection to dead wood, twigs and branches.

Under the Project we must also establish community woodlots for timber and fuel. This will be done once the horticulture plots are established and conservation and protection activities pick up in the region.

Thus, as the result of the proposed Project activity, local farmers will in fact have more fallen twigs and branches as fuel wood, and when more biogas units are built, they can use wood for other things too; and they will certainly not collect fuel wood on lands outside the Project boundary as anyway there is none.

Thus there will be absolutely no negative off-site impacts in this Project from shifting of fuel wood collection outside the Project boundary, and no need to mitigate such impacts.

CL2.3. SUBTRACT ANY LIKELY PROJECT-RELATED UNMITIGATED NEGATIVE OFFSITE CLIMATE IMPACTS FROM THE CLIMATE BENEFITS BEING CLAIMED BY THE PROJECT. THE TOTAL NET EFFECT, EQUAL TO THE NET INCREASE IN ONSITE CARBON STOCKS (CALCULATED IN THE THIRD INDICATOR IN CL1) MINUS NEGATIVE OFFSITE CLIMATE IMPACTS, MUST BE POSITIVE.

However, there will be fossil fuel combustion from vehicles used to transport sapling, haul water, and NTFP products, to and/or from Project sites, as a result of the proposed Project activity, and these emit greenhouse gases.

This will be monitored and estimated using the IPCC approach. This may be minimal as most products will be consumed on site.

So to summarise:

Primary leakage is the situation where the baseline activity is shifted to other areas due to project implementation. In this Project there is no primary leakage as currently the communities are anyway not getting any benefit from the degraded lands. Secondary leakage is a situa-

tion where the market effects result in higher emissions outside the Project boundary. This cannot be expected to occur as we cannot expect any increased economic activity of the type that results in GHG emissions outside the Project boundary, as a consequence of this Project. The net value of the leakage expected from fossil fuel use during planting is given in the climate benefit table in Section CL1.3..

Project withdrawn before CCB Standards Validation, May 21st, 2010

CL3. CLIMATE IMPACT MONITORING

CONCEPT

Before a project begins, the project proponents must have an initial monitoring plan in place to quantify and document changes in project-related carbon pools, and non-CO₂ GHG emissions if appropriate, (within and outside the project boundaries). The monitoring plan should state which measurements will be taken and which sampling strategy will be used. Since developing a full carbon-monitoring plan can be costly, it is accepted that some of the plan details may not be fully defined at the design stage, when projects are being evaluated by the CCB Standards. This will be especially true for small-scale projects.

INDICATORS

The project proponents must:

1. Have an initial plan for how they will select carbon pools and non-CO₂ GHGs to be monitored, and the frequency of monitoring. Potential pools include aboveground biomass, litter, dead wood, belowground biomass and soil carbon. Pools to monitor must include any pools expected to decrease as a result of project activities. Relevant non-CO₂ gases must be monitored if they account for more than 15% of the project's net climate impact expressed in terms of CO₂ equivalents.

CL3.1. HAVE AN INITIAL PLAN FOR HOW THEY WILL SELECT CARBON POOLS AND NON-CO₂ GHGS TO BE MONITORED, AND THE FREQUENCY OF MONITORING. POTENTIAL POOLS INCLUDE ABOVEGROUND BIOMASS, LITTER, DEAD WOOD, BELOWGROUND BIOMASS AND SOIL CARBON. POOLS TO MONITOR MUST INCLUDE ANY POOLS EXPECTED TO DECREASE AS A RESULT OF PROJECT ACTIVITIES. RELEVANT NON-CO₂ GASES MUST BE MONITORED IF THEY ACCOUNT FOR MORE THAN 15% OF THE PROJECT'S NET CLIMATE IMPACT EXPRESSED IN TERMS OF CO₂ EQUIVALENTS.

The monitoring plan follows the guidance in the methodology chosen for the CDM Project.

The first parameter concerns the monitoring of the Project boundary:

Field surveys on the actual boundary of each parcel of land where the reforestation CDM project activity will be occurring will be undertaken. The geographical positions (latitude and longitude of each land parcel) will be marked on the GIS platform.

The measured geographical positions will be input into the GIS system and the eligible area of each stratum and sub-stratum will be re-calculated as necessary. The Project boundary will be monitored periodically through the crediting period. If the boundary is changed during the crediting period, for instance, deforestation occurs on the Project area, the specific location and area of the deforested land will be identified, the boundary will be modified and reported to DOE for subsequent verifications, the deforested area will be excluded from the Project, and the ICERs resulting from that will subsequently be retired. Similarly, if the planting on certain lands within the Project boundary fails, and other land uses take the place, these lands will be documented.

Next forest establishment will be monitored.

To ensure the planting quality and confirm the practice described in Section A of the PDD is well-implemented, the following monitoring activity will be conducted every year after planting:

- Confirm site and soil preparation are implemented based on practice documented in Section A.

- Survival checking: the initial survival rate of planted trees will be counted within three months after the planting, and immediate infilling will be carried out.
- 3 monthly check of establishment will be done by Project Staff. Replanting will be done in the subsequent year if the plants have not established during the first year. These quarterly exercises will be 100% checks, and will be digitally monitored as described in Section G7.1.
- Survey and check the area of planted species and planting year for each stratum and sub-stratum.

Next, forest management practices will be monitored as follows:

- Harvesting: harvested location, area, tree species, biomass removed
- Fertilization: tree species, location, amount and type of fertilizer applied, etc.

The next type concerns the monitoring to increase the accuracy and precision of measuring and monitoring in a cost-effective manner. This is done by stratification of the Project area into relatively homogeneous units, and is done as follows. This is in accordance of the chosen methodology AR-AM0001 Version 2.

STEP 1:

Assessing the key factors influencing carbon stocks in the above- and below-biomass pools, the Project area will be stratified according to land capability classes. This will increase the accuracy of measuring and monitoring in a cost-effective manner.

STEP 2:

Local information of key factors identified in Step 1 were collected, e.g.:

- local site classification maps and/or tables;
- the most updated land use/cover maps and/or satellite images / aerial photography;
- soil types, parent rocks and soil maps;
- landform information;
- soil erosion intensity;

Data sources such as archives, records, statistics, study reports and publications of national, regional or local governments, institutes and/or agencies, and literature will be collected.

STEP 3:

Preliminary stratification: The preliminary stratification based on land capability class was conducted using the GIS platform by overlaying information/maps collected, and hence in this case the hierarchical order is not necessary.

STEP 4:

A supplementary sampling survey on site specifications for each preliminary stratum, e.g.:

- Existing trees if any: species, age class, number of trees, mean diameter at breast height (DBH) and height by measuring randomly selected plots with an area of 400 m² will be conducted with at least 3 plots for each preliminary stratum;
- Non-tree vegetation: crown cover and mean height for herbaceous vegetation and shrubs by measuring randomly selected plots with an area of 4 m² (at least 10 plots for each preliminary stratum). For stratum with growing trees, the plots will be sub-plots of plots for measuring trees;
- Conducting variation analysis for key factors investigated above. If the variation is large within each preliminary stratum, more intense field investigation will be conducted and further stratification shall be considered in step 5.

STEP 5:

A further stratification was done based on supplementary information collected from step 4 above, by checking whether or not each preliminary stratum is sufficiently homogenous or the difference among preliminary strata is significant. The degree of homogeneity was assessed based on stratum size, the degree of natural variability and significance of the variability to the Project and baseline scenarios. A stratum within which there is a significant variation in any of vegetation type, soils and human intervention was divided into two or more strata. On the other hand, strata with similar features shall be merged into one stratum. Distinct strata should differ significantly from each other in terms of their baseline and/or Project carbon calculation.

STEP 6:

Sub-stratification: Sub-strata will be created, after inception of the Project, for each stratum based on tree species to be planted and/or on planting year described in CDM-AR-PDD.

STEP 7:

Stratification map will be created by using a Geographical Information System (GIS). The GIS will be useful for integrating the data from different sources which can then be used to identify and stratify the Project area. In addition, post stratification will be considered after the first monitoring event, because there are possible changes of Project boundaries, tree species arrangement and planting year in comparison to the CDM-AR-PDD. The following factors will be considered in the post-stratification:

- Data from monitoring of forest establishment and Project boundary, e.g. actual Project boundary, site and soil preparation, tree species and planting year;
- Data from monitoring of forest management, e.g. actual thinning (if any), and fertilization;
- Variation in carbon stock changes for each stratum and substratum after the first monitoring event.
- Strata or substrata will be grouped into one strata or substrata if they have similar carbon stock, carbon stock change and spatial variation.

SAMPLING

Permanent sampling plots will be used for sampling over time to measure and monitor changes in carbon stocks of above- and below-ground biomass. Permanent sample plots are generally regarded as statistically efficient in estimating changes in forest carbon stocks because there is typically a high covariance between observations at successive sampling events. Plots will be treated in the same way as other lands within the Project boundary, e.g. during site and soil preparation, weeding, fertilization, irrigation, thinning (if any), etc., will not be destroyed over the monitoring interval. The staff involved in management activities will not be informed of the location of monitoring plots.

(i) Determining sample size

The number of plots depends on species variation, accuracy and monitoring interval. In this methodology the total sum of samples (n) will be estimated as per a criterion of Neyman of fixed levels of accuracy and costs, according to Wenger (1984) and given in the approved methodology.

$$n = \left(\frac{t}{E} \right)^2 \left(\sum_{h=1}^L W_h S_h \sqrt{C_h} \right) \left(\sum_{h=1}^L W_h S_h / \sqrt{C_h} \right)$$

$$n_h = n \cdot \frac{W_h \cdot S_h / \sqrt{C_h}}{\sum_{h=1}^L W_h S_h / \sqrt{C_h}}$$

Where:

L total number of strata

t t value for a confidence level (95%)

E allowable error ($\pm 10\%$ of the mean)

S_h standard deviation of stratum h

n_h number of samples per stratum that is allocated proportional to $W_h \cdot S_h / \sqrt{C_h}$

W_h N_h/N

N number of total sample units (all stratum), $N = \sum N_h$

N_h number of sample units for stratum h, calculated by dividing the area of stratum h by area of each plot

C_h cost to select a plot of the stratum h

The allowable error on per-plot basis ($\pm 10\%$) of the expected mean biomass carbon stock per plot in living trees at the end of a rotation, which will be estimated as part of the ex-ante estimation of the actual net GHG removals by sinks described in the baseline methodology. It is possible to reasonably modify the sample size after the first monitoring event based on the actual variation of the carbon stock changes determined from taking the n samples.

(ii) Randomly locating sampling plots

To avoid subjective choice of plot locations (plot centres, plot reference points, movement of plot centres to more “convenient” positions), the permanent sample plots will be located systematically with a random start, which is considered good practice in GPG-LULUCF. This will be accomplished with the help of a GPS in the field. The geographical position (GPS coordinate), administrative location, stratum and sub-stratum series number of each plots will be recorded and archived. The size of plots will depend on the density of trees. Also, it will be ensured that the sampling plots are distributed as evenly spread as possible.

Next we will monitor the actual GHG removals by sinks by monitoring the following data:

ID number ²⁶	Data variable	Source of data	Data unit	Measured (m), calculated (c) estimated (e) or default (d) ²⁷	Recording frequency	Number of sample plots at which the data will be monitored	How will the data be archived? (electronic/ paper)	Comment
4.1.1.01	Stratum ID	Stratification map	Alpha numeric		Before the start of the project	100%	Electronic and paper	Based on land capability class as each stratum has a particular combination of

²⁶ Please provide ID number for cross-referencing in the PDD.

²⁷ Please provide full reference to data source.

								soil type and landform
4.1.1.02	Sub- stratum ID	Stratification map	Alpha numeric		Before the start of the project	100%	Electronic and paper	Each sub-stratum will be a particular year to be planted under each stratum
4.1.1.03	Confidence level		%		Before the start of the project	100%	Electronic and paper	For the purpose of QA/QC and measuring and monitoring precision control
4.1.1.04	Precision level		%		Before the start of the project	100%	Electronic and paper	For the purpose of QA/QC and measuring and monitoring precision control
4.1.1.05	Sample plot ID	Project and plot map	Alpha numeric		Before the start of the project	100%	Electronic and paper	Numeric series ID will be assigned to each permanent sample plot
4.1.1.06	Plot location	Project and plot map and GPS locating		m	5 years	100%	Electronic and paper	Using GPS to locate before start of the project and at time of each field measurement
4.1.1.07	Tree species	Project design map			5 years	100%	Electronic and paper	As in PDD
4.1.1.08	Age of plantation	Plot measurement	Year	m	5 years	100 % sampling plot	Electronic and paper	Counted since the planted year
4.1.1.09	Number of trees	All project area and also Plot measurement	Number	m	Yearly & 5 years	100 %	Electronic and paper	- All trees based on PRA by cluster leader with the farmers - Counted in plot measurement at 5 years interval
4.1.1.10	Diameter at breast height (DBH)	Plot measurement	cm	m	5 years	100 % trees in plot	Electronic and paper	Measuring at each monitoring time per sampling method
4.1.1.11	Mean DBH	Calculated via 4.1.1.10	cm	c	5 years	100 % sampling plot	Electronic and paper	Calculated via 4.1.1.09 and 4.1.1.10
4.1.1.12	Tree height	Plot measurement	m	m	5 years	100 % trees in plot	Electronic and paper	Measuring at each monitoring time per sampling method
4.1.1.13	Mean tree height	Calculated via 4.1.1.12	m	c	5 years	100 % sampling plot	Electronic and paper	Calculated via 4.1.1.09 and 4.1.1.12
4.1.1.14	Allometric equations	Calculated using equation (11)-(12)	M ³ hectare ⁻¹	c/m	5 years	100 % sampling plot	Electronic and paper	Calculated using equations (11)-(12)

								via 4.1.1.11 and 4.1.1.12
4.1.1.15	Wood density	National inventory for LULUCF	t d.m.m ⁻³	e	5 years	100 % sampling plot	Electronic and paper	Species specific
4.1.1.16	Biomass expansion factor (BEF)	National inventory for LULUCF	dimensionless	e	5 years	100 % sampling plot	Electronic and paper	Species specific
4.1.1.17	Carbon fraction	IPCC	t C. (t.d.m) ⁻¹	e	5 years	100 % sampling plot	Electronic and paper	IPCC default value
4.1.1.18	Root- shoot ratio	GPG, LULUCF, 2003	dimensionless	e	5 years	100 % sampling plot	Electronic and paper	Based on IPCC equation for tropical forests
4.1.1.19	Carbon stock in above ground biomass of plots	Calculated from equation	t C hectare ⁻¹	c	5 years	100 % sampling plot	Electronic and paper	Calculated using equation (14) via 4.1.1.14 and 4.1.1.17
4.1.1.20	Carbon stock in below ground biomass of plots	Calculated from equation	t C hectare ⁻¹	c	5 years	100 % sampling plot	Electronic and paper	Calculated using equation (15) via 4.1.1.18 and 4.1.1.19
4.1.1.21	Mean carbon stock in above ground biomass per unit area per stratum per species	Calculated from plot data	t C hectare ⁻¹	c	5 years	100 % strata and sub-strata	Electronic and paper	Calculated from 4.1.1.09 and 4.1.1.19
4.1.1.22	Mean carbon stock in below ground biomass per unit area per stratum per species	Calculated from plot data	t C hectare ⁻¹	c	5 years	100 % strata and sub-strata	Electronic and paper	Calculated from 4.1.1.09 and 4.1.1.20
4.1.1.23	Area of stratum and sub-stratum	Stratification map and data	hectare	m	5 years	100 % strata and sub-strata	Electronic and paper	Actual area of each stratum and sub-stratum
4.1.1.24	Carbon stock in above ground biomass of stratum per species	Calculated using equation (8)	t C	c	5 years	100 % sampling plot	Electronic and paper	Calculated using equation (8) via 4.1.1.21 and 4.1.1.23
4.1.1.25	Carbon stock in below ground biomass of stratum per species ²⁸	Calculated using equation (9)	t C	c	5 years	100 % sampling plot	Electronic and paper	Calculated using equation (9) via 4.1.1.22 and 4.1.1.23
4.1.1.26	Carbon stock in above ground biomass of stratum per species	Calculated using equation (6)	t C yr ⁻¹	c	5 years	100 % strata and sub-strata	Electronic and paper	Calculated using equation (6) via 4.1.1.24
4.1.1.27	Carbon stock in above below biomass of stratum per	Calculated using equation (7)	t C yr ⁻¹	c	5 years	100 % strata and sub-strata	Electronic and paper	Calculated using equation (7) via 4.1.1.25

²⁸ Insert See <http://www.cbd.int>; especially <http://www.cbd.int/programmes/cross-cutting/climate/interlinkages.asp>

	species							
4.1.1.30	Total carbon stock change	Calculated using equation (5)	t CO ₂ -e yr ⁻¹	c	5 years	100 % project area	Electronic and paper	Summing up carbon stock change 4.1.1.26 and 4.1.1.27 for all strata, substrata and tree species

ADDITIONAL MONITORING

Next we have monitored the GHG emissions by sources. An estimate of the GHG emissions by sources was calculated from:

- i.) decrease in living biomass of existing non-tree vegetation, and
- ii.) Nitrous oxide emissions from nitrogen fertilization practices using organic manure.

A sample survey was done to estimate the area under shrubs in each of the 5 taluks. The shrubs were harvested in 14 hectare in 20 plots. The biomass of shrubs was estimated based on the methodology given in Section C of the PDD.

During the year of planting, farmyard manure will be applied to each of the pit at a proportion of kg of organic manure (dung + vegetable waste + crop residue) :15 kg of red loam: 15 kg of sand. The N content of organic manure is 0.5%²⁹. The CO₂e of N₂O induced by N input was calculated according to the procedure given in the approved methodology and discussed in Section C of the PDD.

This has been monitored.

Leakage due to fossil fuel use association with transportation was also monitored.

Finally we have described in Section CL5.1, how at least 10% of the carbon benefits of the Project will NOT be sold through the CDM.

Those additional sequestration elements will also be part of a more holistic Project approach which also covers biodiversity conservation and allows for experimentation and monitoring of effects which are not required to be monitored under the CDM. These Effects relate to biodiversity benefits, community benefits, and carbon uptake in soils and other carbon pools are not considered under the chosen CDM methodology.

²⁹ Mukherjee, H.N., Daji, J.A. and Raychaudhari, S.P. Manure and Fertilizer. Chapter 3 of Hand book of Agriculture. Indian Council Of Agricultural Research, New Delhi, 1961.

CL4. ADAPTING TO CLIMATE CHANGE AND CLIMATE VARIABILITY

CONCEPT

Projects designed to anticipate and adapt to probable impacts of climate change and climate variability are more likely to sustain the benefits generated by the project over the long term.

INDICATORS

The project proponents must:

1. Identify likely regional climate change and climate variability impacts, using available studies.
2. Demonstrate that the project has anticipated such potential impacts and that appropriate measures will be taken to minimize these negative impacts.

CL4.1. IDENTIFY LIKELY REGIONAL CLIMATE CHANGE AND CLIMATE VARIABILITY IMPACTS, USING AVAILABLE STUDIES.

It is very difficult to know what is already happening due to climate change, what is likely to happen, and when.

Climatic changes in the region will certainly include more frequent extreme weather patterns especially drought.

The main impact may well be the impact on biodiversity. There will be the loss of ability of endemic plant and animal species to adapt, thus leading to total collapse of local ecosystems insofar as we can expect the presently impoverished systems to collapse any further. And there will be more unpredictable outbreaks of disease affecting humans and animals.

At this stage we should be aware that poverty is the main limiting factor in adapting to climate change. A community of people will not be able to deal with unforeseen events if both its financial and ecological base is weak or non-existent. Community strength is obviously a key asset, but despite its utterly irreplaceable value, it is not enough.

Rather than to speculate on all the hundred disasters which are already happening or may be happening due to climate change, and which may happen with increased severity in the future, we would rather build on the already very deep and historic understanding of the community on how to deal with ecological and financial adversity to create long term security.

CL4.2. DEMONSTRATE THAT THE PROJECT HAS ANTICIPATED SUCH POTENTIAL IMPACTS AND THAT APPROPRIATE MEASURES WILL BE TAKEN TO MINIMIZE THESE NEGATIVE IMPACTS.

What follows in this Section is an elaboration of our Vision. It would be presumptuous to claim that all this can and will be implemented in the next couple of years, though we will make a huge and unsparing effort. The following is a pointer into the direction that this Project will evolve, provided appropriate human and financial resources are harnessed...

The present Project is a mitigation project but it includes a long term attempt to build awareness of the need for adaptation options that take into account environmental, including biodiversity, social and economic considerations.

The aim, within the tough reality of a destroyed subsistence economy, on degraded wasteland, with very poor farmers doing marginal cultivation with absolutely no money, is to try

and build up the wherewithall of the members of the community. This may involve evolving a long term ecosystem approach through which the community becomes more resilient. This will build a holistic framework and considers multiple temporal and spatial scales. But we must remember that this project itself is already evidence that we have anticipated the various potential impacts of climate change and that we have planned, over the last ten years at least, what the appropriate measures could be to minimize negative impacts. Changing from annual rain-fed crops to dry land horticulture is the most important such measure.

With more resources, and more wherewithal to manage existing resources, there may be an improved ability to survive in adverse conditions, whether climate change induced or human-made. We believe we have shown evidence of our ability to use “Adaptive Management” strategies in this report. We believe we are capable of reevaluating results through time and altering management strategies to achieve goals. This will be done by all the participating members in the manner described in this document in many places.

Planting endemic Mango and Tamarind trees, as well as the other chosen species such as Neem, Syzygium, and others, will conserve soil, moisture, lead to long term improvement of the soil, and provide income in the form of various non-timber products and commercially valuable fruit.

This in itself is an adaptation strategy as one cannot imagine any annual crop based land management system being able to survive the vagaries of weather, erratic rainfall patterns which are getting more erratic every year, the drought and desertification which is proceeding at such a rapid pace, loss of soil and water availability, and impoverishment of ecosystem species diversity. Ideally we will conserve genotypes, species and functional types, and reduce habitat loss, fragmentation and degradation. Women are the main practitioners of these strategies. Through their innovative strategies for using cultivated and uncultivated plants they created connectivity between various parts of the landscape, and conserve bio-diverse agriculture and food systems. We will try and build on these strategies and reinforce them.

But to achieve this we will have to make this Project our sole and only focus. It will require our wholehearted and unwavering commitment, as we will be swimming against the current and struggling against massive and hugely wealthy and powerful destructive forces with overwhelming physical and moral control of land, government, people and ideology.

But why not? We are working in partnership with a people who have dared to defy the push and pull of mainstream forces to etch a place of pride for themselves. Patriarchy is a mainstream ordering that has been seriously challenged by women to empower themselves. Usury is mainstream economics that has been turned on it's head by the successful functioning of an alternate credit system in the village CSUs. Corruption is a mainstream phenomenon that has been replaced by participatory democracy in local bodies. *Laissez-faire* is the most powerful of all mainstream forces that has been countered with the creation of genuine and functioning communities.

Whether we can make these efforts in the Project depends to a huge extent on the Carbon price we are able to achieve. Nothing is possible without money.

Pest and disease outbreaks are known to occur more as the climate changes. It is difficult to know how to respond to this threat, other than to continue to try and make the local agri-horti-silvi systems as adaptable and resilient as possible, and conserving water.

Our reforestation project will have positive impacts on biodiversity as the impoverished ecosystem is being enhanced by our efforts to rediscover, recover, and remind ourselves of the plants and insects on which ecosystem stability depends.

Women will have better income levels from horticulture crops, and as they take control of the project, they may be able to try and reintroduce traditional crops and give value to unculti-

vated crops. These include practicing biological pest control through local species such as *Azadirachta indica* (Neem), Marigold, and Aloe.

The value of the new planted agro-forestry to biodiversity will depend to a large degree on the fact that though there may not seem to be anything previously on the site, women themselves know that there are endemic species, including vulnerable and endangered species, just waiting to find a niche again if they are judiciously reintroduced, whether for use value or existence value.

The planned long rotation plantations of Mango and Tamarind, Neem, Pongamia and Teak and *Syzygium* in which vegetation and soil carbon is allowed to accumulate will sequester and maintain carbon. Loss of soil carbon which occurs following harvesting and replanting of annual crops, due to the exposure of soil, increased leaching and runoff and reduced inputs from litter, will be avoided as there will be no harvesting.

Our long rotation agro-forestry will foster species richness. Some products from short rotation trees on the bunds will alleviate the pressure to harvest longer-lived trees and also key stone species like ficus and the traditional village tree combination of Neem and Ficus will be continued.

Our tree plantations will be designed to allow for the colonization and establishment of diverse under-storey plant communities by providing shade and by ameliorating microclimates. Specific sites will be chosen for implementing nurseries of endemic medicinal plants in village gardens, based on past and present uses.

We will try and build on local importance of certain known pockets of biodiversity for example in those locations which are near patches of forests across our landscape. Though the Project is not happening in a threatened/ vulnerable forest, there are some patches of species-rich forest for example in Pathapalya and Nandi Hills. We believe that our dry land horticulture plantations will contribute to the dispersal capability of some species among habitat patches on a formerly fragmented landscape. The plantations will confer benefits to local biodiversity, as they incorporate features such as canopy gaps, retaining dead wood components, and providing landscape connectivity, as well as more opportunity for Coolie families, particularly women, to collect uncultivated plants from newly watered verges along the dry land horticulture fields. Coolies will continue to defend their right to cultivated and uncultivated diversity and in this way preserve diversity..

The whole idea behind this Project is that

“Agro-forestry systems have substantial potential to sequester carbon and can reduce soil erosion, moderate climate extremes on crops, improve water quality, and provide goods and services to local people. Agro-forestry incorporates trees and shrubs into agricultural lands to achieve conservation and economic goals, while keeping the land in production agriculture. The potential to sequester carbon globally is very high due to the extensive agricultural land base in many countries. Agro-forestry can greatly increase biodiversity, especially in landscapes dominated by annual crops or on lands that have been degraded. Agro-forestry plantings can be used to functionally link forest fragments and other critical habitat as part of a broad landscape management strategy.”

The agricultural management activities will include:

- conservation tillage between the trees;
- erosion control practices through contour bunding
- protective irrigation.

This will sequester carbon in soils, have positive effects on biodiversity, and provide beneficial conditions for soil fauna. The use of erosion control practices, which include water con-

ervation structures, and agro-forestry shelterbelts for wind erosion control can reduce the displacement of soil organic carbon and provide opportunities to increase biodiversity. The use of protective irrigation will increase crop production.

The whole Project is conceived as a farmer-centred participatory one, using local knowledge and technologies, promoting cycling and use of organic materials in low-input farming systems, and using a diverse array of locally adapted crop varieties.

Grazing will of course be controlled, whilst at the same time we will attempt to introduce measures to improve grass productivity, including preventing fires. We will look for suitable species to introduce more diverse range of native nitrogen-fixing legumes and high-productivity grasses to increase biomass production and soil carbon pools.

We will most importantly engage in re-vegetation activities that increase plant cover on our severely eroded, and severely degraded and disturbed land. The re-vegetation method will be taken into account when we select the plants, and we will carefully analyse the soil characteristics and engage in diligent site preparation to maximise successful rates of establishment and growth. Soils of eroded or degraded sites generally have low carbon levels and therefore a high potential to accumulate carbon; however, re-vegetation of these types of sites poses huge technical challenges. We will have to match the plant species to the site conditions and to consider which key ecological functions need to be restored.

Our aim is to aid recruitment of native species over time or prevent further degradation and protect neighbouring ecosystems.

We may encourage bio-energy plantations on bunds or common spaces between the dry land horticulture plots to provide the potential to substitute fossil fuel energy with biomass fuels.

Conservation of biodiversity and maintenance of ecosystem structure and function are important climate change adaptation strategies because genetically-diverse populations and species-rich ecosystems have a greater potential to adapt to climate change. Many natural pest-control, pollination, soil-stabilization, flood-control, water purification and seed-dispersal services can simply not be replaced when damaged or destroyed by climate change. We have seen how technical alternatives which may be available to the capitalist farming conglomerates are much too costly and therefore not feasible to apply in our situation.

Therefore, conserving or in our case re-establishing biodiversity (e.g. genetic diversity of food crops, trees, and livestock races) means that options are kept open to adapt human societies better to climate change.

We will do our best to understand how to engage in the conservation of ecotones, which is also an important adaptation measure. Ecotones serve as repositories of genetic diversity that may be drawn upon to rehabilitate adjacent eco-climatic regions. As an insurance measure such approaches can be completed by ex situ conservation. We will try and do conventional collection and storage of seeds in gene banks and we will also try and understand how to do dynamic management of populations, allowing continued adaptation through evolution to changing conditions.

We will try and promote on-farm conservation of crop diversity on the new dry land horticulture plots and on community lands in the Project villages.

Thus we are making all out efforts to minimize the negative impacts of climate change.

CL5. CARBON BENEFITS WITHHELD FROM REGULATORY MARKETS

CONCEPT

When some carbon benefits generated by a project are not sold to satisfy regulatory requirements, additional mitigation action will be required elsewhere to meet these requirements. Therefore, withholding a portion of the project's carbon benefits from being used in capped markets will result in greater overall climate change mitigation.

Moreover, projects that do not sell all their carbon benefits in regulated regimes have the opportunity to experiment with climate change mitigation activities other than the ones eligible under these regimes (such as avoided deforestation, which is not currently creditable under the Clean Development Mechanism). Such experimentation may generate new knowledge that is of value to carbon rule makers and other project developers.

INDICATORS

The project proponents must:

1. Not sell at least 10% of the total carbon benefits generated by the project⁴ into regulated GHG markets (e.g. CDM, New South Wales GHG Abatement Scheme, Oregon Standard). Projects can sell these carbon benefits in a voluntary market or retire them.³⁰

CL5.1. NOT SELL AT LEAST 10% OF THE TOTAL CARBON BENEFITS GENERATED BY THE PROJECT INTO REGULATED GHG MARKETS (E.G. CDM, NEW SOUTH WALES GHG ABATEMENT SCHEME, OREGON STANDARD). PROJECTS CAN SELL THESE CARBON BENEFITS IN A VOLUNTARY MARKET OR RETIRE THEM.

The aim in this Project will be to sell 10% at least of the carbon benefits of this Project into the voluntary market where the carbon credits are retired.

As there are no forests in the Project area we probably will not quantify the carbon benefits from avoided deforestation. If we do come across patches of forest in the Project region which can be protected, and where the community makes efforts, we will do so.

It is true however that we have not quantified the carbon uptake in the other three carbon pools – leaf litter, dead wood, and soil carbon.

We will monitor soil carbon once a year using established laboratory techniques.

Leaf litter and dead wood will also be weighed in strategic sample plots once a year.

It will form part of a holistic monitoring exercise that includes experimenting with additional climate change mitigation activities and the biodiversity conservation activities other than the ones eligible for CERs under the registered Bagepalli CDM Reforestation Programme. We will pay special attention to the current practice of collecting cultivated and uncultivated species in an age-old bio-diverse and ecological agricultural practice. As the project will be making more water available for cultivation, many uncultivated plants will also come back in greater abundance.

All these additional activities will be aiming at improving the Project in terms of adaptation to climate change, including conserving and/or re-establishing biodiversity. Our aim is very

³⁰ Total carbon benefits generated by the project can include those coming from activities that are currently not eligible for crediting under existing regulatory regimes (e.g. avoided deforestation).

much to build on existing knowledge and generate new knowledge that is of value to the community as well as to carbon rule makers and other project developers. Our Project is already very important to researchers in this respect.

Project withdrawn before CCB Standards Validation, May 21st, 2010

CM1. NET POSITIVE COMMUNITY IMPACTS

CONCEPT

The project must generate net positive impacts on the social and economic wellbeing of communities within the project boundaries and within the project lifetime. In addition, local communities and other stakeholders should be engaged early on so that the project design can be revised based on their input. Finally, projects should ensure that stakeholders can express concerns and grievances to project proponents and that these concerns are responded to in a timely manner.

INDICATORS

The project proponents must:

1. Use appropriate methodologies (e.g. the livelihoods framework) to estimate the net benefits to communities resulting from planned project activities. A credible estimate of net benefits must include changes in community wellbeing given project activities. This estimate must be based on clearly defined and defensible assumptions about how project activities will alter social and economic wellbeing over the duration of the project. The “with project” scenario must then be compared with the baseline scenario of social and economic wellbeing in the absence of the project (completed in G2). The difference (i.e., the net community benefit) must be positive.
2. Document local stakeholder participation in the project’s planning. If the project occurs in an area with significant local stakeholders, the project must engage a diversity of stakeholders, including appropriate sub-groups, underrepresented groups and women living in the project vicinity. Stakeholders in the project’s area of influence must have an opportunity before the project design is finalized, to raise concerns about potential negative impacts, express desired outcomes and provide input on the project design. Project developers must document stakeholder dialogues and indicate if and how the project proposal was revised based on such input.³¹
3. Formalize a clear process for handling unresolved conflicts and grievances that arise during project planning and implementation. The project design must include a process for hearing, responding to and resolving community grievances within a reasonable time period. This grievance process must be publicized to local stakeholders. Project management must attempt to resolve all reasonable grievances raised, and provide a written response to grievances within 30 days. Grievances and project responses must be documented.

CM1.1. USE APPROPRIATE METHODOLOGIES (E.G. THE LIVELIHOODS FRAMEWORK) TO ESTIMATE THE NET BENEFITS TO COMMUNITIES RESULTING FROM PLANNED PROJECT ACTIVITIES. A CREDIBLE ESTIMATE OF NET BENEFITS MUST INCLUDE CHANGES IN COMMUNITY WELLBEING GIVEN PROJECT ACTIVITIES. THIS ESTIMATE MUST BE BASED ON CLEARLY DEFINED AND DEFENDABLE ASSUMPTIONS ABOUT HOW PROJECT ACTIVITIES WILL ALTER SOCIAL AND ECONOMIC WELLBEING OVER THE DURATION OF THE PROJECT. THE “WITH PROJECT” SCENARIO MUST THEN BE COMPARED WITH THE BASELINE SCENARIO

³¹ In cases where it is unclear whether a project will be implemented or not, it is acceptable to start with a preliminary community consultation, provided there are plans for a full engagement once the project is funded. (Such a cautious approach is warranted when there is evidence that raising community expectations prematurely could lead to frustration).

OF SOCIAL AND ECONOMIC WELLBEING IN THE ABSENCE OF THE PROJECT (COMPLETED IN G2). THE DIFFERENCE (I.E., THE NET COMMUNITY BENEFIT) MUST BE POSITIVE.

Switching over to Tree Crops will fundamentally alter the countryside and people living in it. To begin with, fields will receive year-round attention, as opposed to the present subsistence farming practice of scratching the soil, sowing the seed and visiting just 2-3 times during the 4-5 month long stand of dry land crops. Year-long work will also provide year-long productive employment. In due course, when trees start fruiting, there will be substantial income from the sale of fruit and/or carbon. We have made a small allowance in the Project plan to kick-start this process.

The rational use of scarce groundwater is another major change that will take place. Bore well and tractor-trailer owning *Ryots* and Coolies will learn to cooperate with each other as equals, without any trace of the feudal Patron-Client relationship that earlier prevailed. In due course, everyone will realise that business-like dealings are more profitable than maintaining caste hierarchy and false social prestige. The sense of oneness and equality that comes from rubbing shoulders and performing their respective tasks in the same venture encourages a bonhomie camaraderie that gradually ushers equality.³²

There still will be differences and squabbles with accusations and counter-accusations of breach of agreement floating around. But these will be “business disputes” arising from broken tort, and will be better settled in street brawls and *Arrack* shops, rather than contribute to permanent divisions that semi-feudal society creates between castes and classes. Genuine democracy and corruption free practice will also, in this manner, tend to reduce the gap within the peasantry.

A refreshing individuality will be fostered with personal skills, talents and aptitudes spontaneously surfacing. This will cause much surprise in a caste ascribed society where everyone was supposed to know their place and excel only in their own caste ascription, rather than venture into others’ roles and occupations. The discovery of such hidden capacities in oneself and in others will greatly enhance feelings of self-esteem and self-worth.

Active membership in the village Coolie Sangha Units is bound to increase with silly-serious fights set aside. Many factors will contribute. Quite naturally, the temptation to obtain material benefits by regaining CSU membership and participating in this CDM Project will be the chief contributor. The general atmosphere of peace and cooperation that we have just described will be another. The sheer pull of clear logic wherein no one wants to be left out of the biggest party in town will compel disgruntled Coolies to let bygones be bygones...

Peace is also achieved when bellies are full. Increased family income, especially year-long income, will blunt feelings of rage and deprivation. For the first few “kick-off” years, Project investments are substantial in terms of material investment as well as work. Work translates into income, especially in semi-arid drought prone regions where seasonal labour provides hardly 75-100 days of work each year. After that, there will be an annual increase in income from fruit and carbon sales.

Hand watering the fields during the dry summer months and retaining rainwater due to the sheer presence of established trees on the fields will result in a huge increase in biomass. Increased biomass creates diverse and dispersed economic opportunities, small and big. Soon there will be family income, the whole year long, through a wide range of off-farm ventures. Enthusiastic Coolie Youth will be profitably engaged in Tree Crop cultivation. They already feel that this is something they are more adept in. It needs a different type of labour and an-

³² We have observed this phenomenon, over and over again, when implementing the massive DLDP works. The unification of the poor, across caste lines, quite literally happened on the sweaty fields of Coolie landholding.

other kind of input, compared to the rote and beast like actions that are needed for subsistence field crop cultivation. Subsistence cultivation is an area where they are constantly stupid – it is elders who know it all. By the time they have mastered all the traditions and rituals associated with sowing and harvesting, it will be their turn to call the next generation stupid.

Tree Crops are new and exciting. There is a rational logic to their planting, caring and harvesting – one that is not subaltern, shrouded in myths, mystery and the working of the gods. In today's world, there are people who are willing to explain that science to them. Or else, they can work it out by themselves.³³

The latent spirit of scientific enquiry in schooled Coolie Youth who stay back in the village is very strong and powerful. It will be channelled, through Project training and accompaniment to imbibe a strong sense of ecology and environmental consciousness.

Feelings of frustration and alienation will slowly recede. They will begin to see a meaning in it all. After that, the continuation of field crop production by the next generation of young Coolies will chiefly be for holistic food security, and not dictated by market fluctuations. Coolie women will wholeheartedly support this move towards sensible field crop cultivation for food security.

Though only 1 Coolie Youth per participating village will get direct employment as a Village Level Worker, this will kindle the aspirations of all her/his friends. Because it will not be a traditional “job”. She or he will be a part of a larger cadre. A few others will drive tractors or fix leaks in the water trailers. Some others will learn how to pull out and repair a submersible pump. Others will deal with erratic power supply, faulty lines and pole transformers. Some will start vulcanising shops to fix punctures.

From these varied and miniscule entrepreneurial experiments will be born genuine Non-Farm activities by way of business ventures undertaken by Coolie Youth. Not income generating projects (IGPs) initiated by well meaning NGOs, with absolutely no core competence, and in the absence of a wider socio-cultural milieu that is congenial for this economic transition from Off-Farm to Non-Farm. Institutional finance will be viewed as authentic finance capital, and not as fat cows to milk off subsidies.

There will be choice migration with people free to go where they can earn more money or live a different lifestyle. This will be very different from present forms of, often disguised, forced migration.

Increased biomass, in the form of leaf litter, etc. will actually create soil from the powdered rock that the fields presently are. The value of land will shoot up. Yet the temptation to sell it off and make a quick buck will be resisted. The Coolie Sangha has a long record of preventing distress sale and helping Member families get back mortgaged lands.

Groundwater will get recharged and there will be more water for drinking and domestic use.

Wages will go up and *Ryots* will start making similar investments on their lands. Many Coolie families will become “experts” in dry land horticulture and negotiate contract terms with the *Ryots* who wish to switch over to Tree Crops.³⁴

CDM will provide money from carbon sale. ADATS is committed that these credits will go directly to the participating families, with nothing held back by us. Should they feel the need to financially strengthen their communities, they will do so by declaring these additional incomes and paying Sangha Tax to their respective village CSUs. This has been our clear and

³³ It is these feelings of novelty and excitement, whether real or pretended, whether justified or not, that has contributed to the “success” of Operation Flood in India – the introduction of crossbred cows to boost milk production in the countryside

³⁴ This was one of the Results of the massive DLDP works – *Ryots* who wanted to make similar investments on contour bunds, ravine and gully checks, etc. gave out contracts to CSU work gangs.

stated policy on carbon finance. It is already practiced in the current Bagepalli Biogas CDM Project where all CER earnings will go to Coolie women, the owners of the biogas plants, once our commitment to the Carbon Investor is fulfilled.

In a word, the rural poor will live with more certainty and security in a transformed agrarian occupation.

CM1.2. DOCUMENT LOCAL STAKEHOLDER PARTICIPATION IN THE PROJECT'S PLANNING. IF THE PROJECT OCCURS IN AN AREA WITH SIGNIFICANT LOCAL STAKEHOLDERS, THE PROJECT MUST ENGAGE A DIVERSITY OF STAKEHOLDERS, INCLUDING APPROPRIATE SUB-GROUPS, UNDERREPRESENTED GROUPS AND WOMEN LIVING IN THE PROJECT VICINITY. STAKEHOLDERS IN THE PROJECT'S AREA OF INFLUENCE MUST HAVE AN OPPORTUNITY BEFORE THE PROJECT DESIGN IS FINALIZED, TO RAISE CONCERNS ABOUT POTENTIAL NEGATIVE IMPACTS, EXPRESS DESIRED OUTCOMES AND PROVIDE INPUT ON THE PROJECT DESIGN. PROJECT DEVELOPERS MUST DOCUMENT STAKEHOLDER DIALOGUES AND INDICATE IF AND HOW THE PROJECT PROPOSAL WAS REVISED BASED ON SUCH INPUT.

As already mentioned, the need to shift from Field Crops to Tree Crops has been thoroughly discussed, over and over again, bottom-up in all the village CSUs, for the past 12 years. The Bagepalli CDM Reforestation Project has been conceived as the strategy to make this major shift from unsustainable subsistence farming to a more eco-balanced practice possible.

A segmented understanding of Primary Stakeholders is a vital prerequisite for the planning of any successful intervention. Uninterested, or even worse, disaffected stakeholders can hamper and even obstruct implementation. ADATS Staff members and key Coolie Sangha functionaries have spent considerable time and thought in properly identifying the stakeholders, analysing their different interests, and making an Importance/Influence Matrix.

MEMBER COOLIE FAMILIES (LANDHOLDERS)

In spite of all our efforts at empowering women the term "Landholder" is, to some extent, still a euphemism for senior patriarchs comprising male heads of Coolie households. Nevertheless we ought to critically analyse their interests in this CDM Project.

The Coolie Sangha is now 30 years old. It was built through the heroic struggle of young and enthusiastic Coolies who were determined to create a new social order where they could live with dignity. Though formal CSU membership may have been transferred into the names of sons and daughters, the fact of the matter is that those who built the people's organisation with their sweat and blood are now 30 years older... and they still have influence in their respective households.

Many are tired and frail. Subsistence cultivation of dry lands is fraught with economic risk and uncertainty. Everyday life and living is adjusted to this mainstay occupation. Sociologists call it survival strategy. It is demanding, and has taken its toll.

Fatigue is also due to having achieved alterations in the village power balance which they believe are now irreversible. The kind of tiredness that washes over one, after the party is over, when nervous energy is spent and the event is done. Switching to a totally different type of land-use excites them.

They are also excited by the prospect of using their hard earned functional unity to implement the Bagepalli CDM Reforestation Project. The creation of a collective entity to together prepare the fields, procure saplings, jointly make watering arrangements with bore well and tractor owners, arrange social fencing to prevent grazing, all offer a new avenue for channelling their unity, discipline and proven ability to get the job done.

Still older folk relish the boundless possibilities for natural regeneration of many shrubs, plants and trees – something they are sure will happen on protected fields, especially when water reaches the parched lands the whole year round. This will provide them with the necessary herbs and roots to treat common ailments of their cattle and, who knows, perhaps even humans!

During all these years of grassroots planning in more than 500 weekly CSU Meetings, younger Coolies have made nostalgic plans for a future where they can collectively study the market, protect their interests *vis-à-vis* canny fruit merchants who may be tempted to view them as easy picking...

Pooling the CERs that they generate³⁵ and collectively selling them in the Carbon Market, with ADATS acting as an honest broker, is something “but natural” to them.³⁶

It is this natural enthusiasm that has resulted in a voluntary “Pilot Project” of sorts by 820 Coolie families, with hardly any material support from ADATS, on 1,424 acres of dry lands. And it is this sense of total involvement and ownership that explains their 12 year long patience in trusting us to find resources for a huge effort to establish Tree Crops on ALL Coolie landholding.

COOLIE WOMEN

Mahila Meetings are the *in-camera* fora of one woman from each Member Coolie household that meets on a fixed day every week, once a week, in each and every village CSU.

Coolie women have struggled long to become decision makers within their families, especially when it comes to decisions related to family cultivation. To this end, over the years, their Mahila Meetings have developed many instruments. Achievements are enviable.

- The post of Cheque Signatory in every single village CSU is now reserved for a woman elected by the Mahila Meeting. This gives Coolie women effective control over the Sangha Funds.
- Mahila Meetings enjoy Veto Power over all loans taken from the Coolie Credit Funds by men and women, especially CCF Crop Loans.
- The “single woman” without male support (a euphemism for widows and the deserted) is supported, protected and encouraged to engage in occupations that were hitherto male prerogatives – petty business, cultivation, etc.
- The campaign to either outright transfer all family properties (house, land, *et al*) into the names of wives, or else in the joint names of husbands and wives, is a resounding success. This may be the only region in India where such a campaign has been wholeheartedly accepted by men folk and achieved measurable Results.

Coolie women believe that copying obsolete practices followed by *Ryots* and farming for “prestige reasons” is outright stupid. It pauperises families and encourages the growing of cash crops that severely erode into food security. Many Mahila Meetings feel that recurring drought is a blessing in disguise. Our annual Effects Monitoring exercises have actually proved that there is a rise in food crop production, using native seeds and varieties, when the rains fail. Here are some authentic statements:

“We used to hide the seeds for ‘Navadhanya’³⁷ and sow them secretly without knowledge of men. Men only want to plant cash crops. Men don’t bring food as required from market and

³⁵ A now popular slogan says, “*In addition to Mangos and Tamarind, we will also grow CER!*”

³⁶ Each and every Member Coolie family has a thorough understanding of how CERs are generated and sold. This is partly because they have all been involved in our 12 year long relationship with Climate Change activists and largely due to the fact that we have implemented a Domestic Biogas CDM Project with forward funding from a Carbon Investor in France. But they have no experience whatsoever with VERs and voluntary markets.

we have to manage with whatever we grow. If we say 1 kg, they bring ½ kg. Now we have enough food to cook if relatives visit.”

“We have gone back to ‘Navadhanya’ because mono cropping with groundnut may fetch cash incomes but will cause us to starve.”

Their interest in this CDM Project is food security. They intuitively know that the establishment of permanent trees on dry lands will increase biomass and permit a whole range of ancillary economic activities that will directly contribute to food security.

Please read more at <http://www.adats.com/home/women.php>

COOLIE CHILDREN

Largely due to the grit and determination of the village CSUs and Mahila Meetings, an astounding 92% of school-age children (i.e. 5-16 year age group) are in government schools. Even more impressive is the fact that 49% of those attending High School are Girls – something that is possible only when each and every single Girl Child is nurtured and protected for 7 long years through Primary and Middle School classes. Average age at marriage for Coolie Girls is 22 years, which is 4 years above the legally prescribed minimum.

As a result of severely altered and self-evolved child rearing practices in the Coolie Sangha, the child socialisation of these children is completely different from that of their parents. A child centric thinking is obvious and apparent in the Coolie Sangha. Today’s children are born in freedom and do experience a childhood – something that their parents were denied. So much so that a common refrain of both, fathers as well as mothers is:

“We do not want our children to grow up in our spitting image!”

Please read more at <http://www.adats.com/home/children.php>

Children cannot go back to being subjugated agricultural labourers, supplementing sub-human wage incomes with subsistence farming. Their interest in the CDM Project is that it offers the next generation an opportunity to move away from semi-feudal subjugated cultivation in a failing peasant economy.

It would be sheer folly to underestimate the grasp and role of children in making family ventures succeed!

SCHOOLED COOLIE YOUTH WHO STAY BACK IN THE VILLAGES

Coolie Youth fall under 2 categories – those who finish their schooling and go for city jobs, and those who stay back in the villages.

The former know that while they can earn more in the city, it is a time bound endeavour with no guarantee of permanence. If anything should go wrong, they would be forced to return to their respective villages. This is an aspect of “food security” which has not been fully gleaned and recorded in current literature.

Coolie Youth who stay back in the villages are disillusioned with low returns from Field Crops. They lack the enthusiasm to engage in field crop cultivation due to feelings of frustration and alienation. As a result, many fields are left barren, sometimes wrongly citing failed monsoons as the reason. This, in turn, reduces the value of Coolie lands, in spite of heavy labour investments through the two-decade long DLDP.

Schooled youth from among them are unable to find Non-Farm activities that provide jobs. Irregular and unreliable family income simply spirals the problem. At this rate, the continua-

³⁷ “Navadhanya” is an ancient Indian concept which literally translates as “Nine Seeds”. This region still follows multiple cropping on the same field. Even when cash crops like groundnut are sown, they still intersperse with other seeds like pulses, lentils, corn, etc. ADATS and the Coolie Sangha encourage this practice, much to the chagrin of government Extension Officers!

tion of the Coolie Sangha as “Provider of Identity & Protector of Freedoms” is itself under threat. The Coolie Sangha could very well stop being relevant to the needs of the next generation of Coolies. Relevance is the only factor that prevents an institution from perishing.

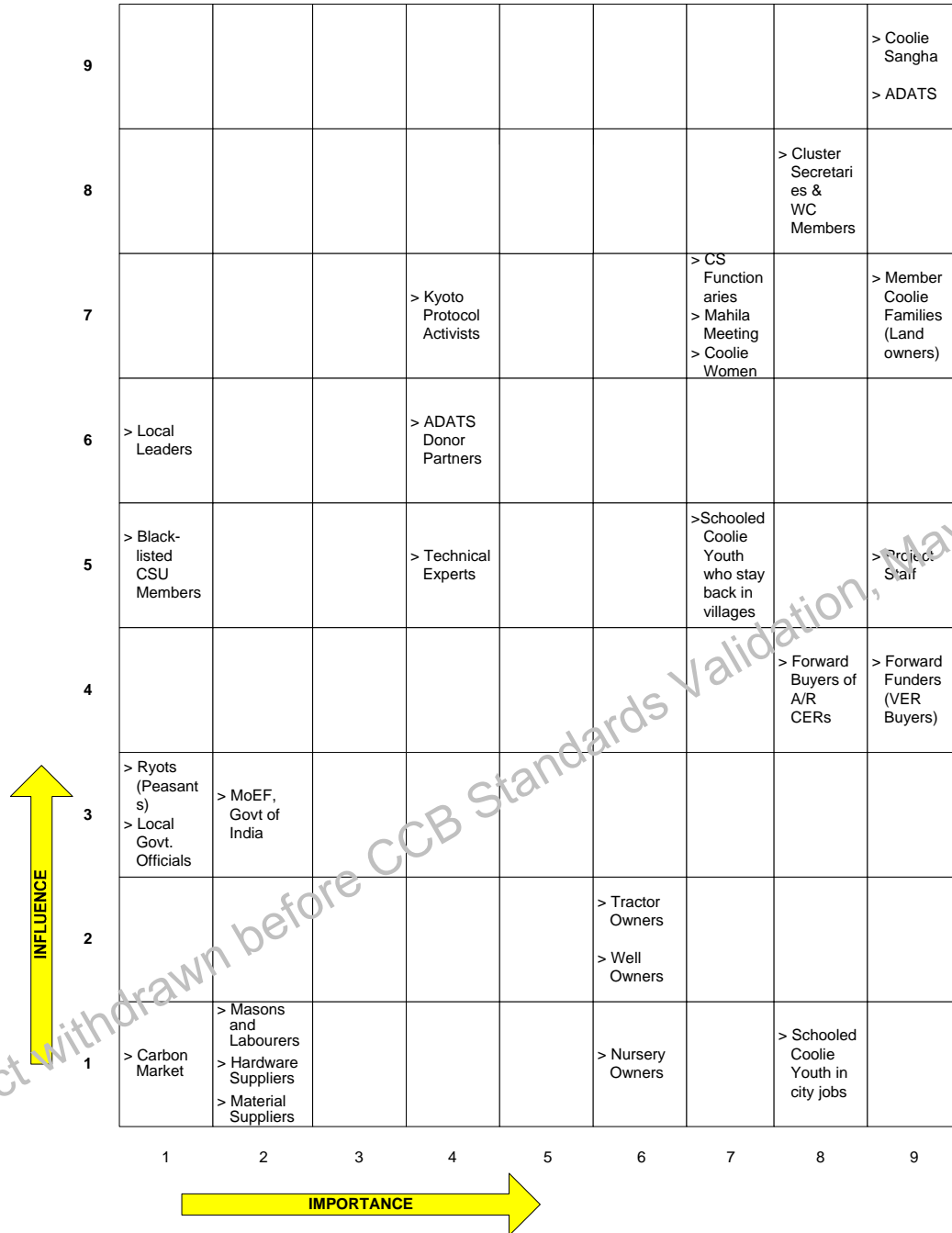
Coolie Youth see Tree Cropping as a new and exciting venture that will require more than the application of mere muscle and brawn. They realise that literacy, management, organisation, innovative adaptation and new skills that they feel they are more adept in, will come in useful in their work arena. Markets have to be studied, and the prospect of travelling and meeting people excites them.

Subsistence cultivation, on the other hand, is a rote and repetitious lifestyle that hardly varies from what their parents and grandparents did for many generations.

Youth also realise that increased biomass will generate employment. First in the preparation, processing and marketing of fruit and tree produce. Later in a whole range of spin-off ventures.

Project withdrawn before CCB Standards Validation, May 21st, 2010

IMPORTANCE/INFLUENCE MATRIX



CM1.3. FORMALIZE A CLEAR PROCESS FOR HANDLING UNRESOLVED CONFLICTS AND GRIEVANCES THAT ARISE DURING PROJECT PLANNING AND IMPLEMENTATION. THE PROJECT DESIGN MUST INCLUDE A PROCESS FOR HEARING, RESPONDING TO AND RESOLVING COMMUNITY GRIEVANCES WITHIN A REASONABLE TIME PERIOD. THIS GRIEVANCE PROCESS MUST BE PUBLICIZED TO LOCAL STAKEHOLDERS. PROJECT MANAGEMENT MUST ATTEMPT TO RESOLVE ALL REASONABLE GRIEVANCES RAISED, AND PROVIDE A WRITTEN RESPONSE TO GRIEVANCES WITHIN 30 DAYS. GRIEVANCES AND PROJECT RESPONSES MUST BE DOCUMENTED.

INTER-COOLIE DISPUTES

The fact of the matter is that conflict is a reality, and grievances do exist within the village Coolie Sangha Units. We do not pretend that the Coolie Sangha is built by some supreme individuals who place such a great value on unity and organisation that every other facet of human emotion is subsumed. The Coolie Sangha is not a club. Sociologists see it as a social institution that is very much part of everyday village life and living.

The 85 weekly Cluster Meets are the forum where grievances are resolved. CSU Representatives and village Staff from 5-6 Coolie Sangha Units sit with our Field Staff for 3-4 hours in the central village, on a fixed day every single week. These meetings have, over the years, been converted into “points of working contact” between the 2 organisations – ADATS and the Coolie Sangha.

Cluster Meets are often attended by ordinary Coolie Sangha Members who have a grievance to redress or something special to report.

When a problem is “too close to home” and the Cluster Meet cannot give a fair, objective and acceptable solution, the issue is raised at the monthly Taluk Coolie Sangha Meetings. These 2 days and 1 night meetings that are held every month at each Taluk headquarters, and attended by 250-350 elected Representatives and village Staff.

These happen well within 30 days, and are exhaustively recorded in the Cluster and Taluk Minutes Books.

In spite of that, all conflicts cannot be resolved to everyone’s satisfaction, especially when extremely parochial and individual self interests are at stake. Instead the Coolie Sangha insists that justice must not just be done but also perceived to have been meted out. Due to this working principle, ADATS and the Coolie Sangha have a meticulous reputation of being clean and honest, even with our adversary *Ryots* and their lackeys.

More often than not, genuine issues are quite easily resolved through this procedure. It is the silly-serious problems of misunderstandings and offended pride that tend to blow out of proportion. That is why we have a fluctuating membership in the Coolie Sangha with only a percentage of the 38,344 small and poor peasant families active in any particular year. Those who do not renew their current year membership are not bad *per se* – they are not all credit fund defaulters or wife beaters or daughter haters or overtly influenced by caste feelings. They walk out, only to walk back in the next year...

DISPUTES WITH RYOTS

The caste-class conflicts that arise between Coolies and the middle peasantry is an entirely different matter. These are resolved through just and legal struggle. The Coolie Sangha has a 30 year old history of such struggle and it is the cumulative effect of these that has altered the power balance in village society in favour of the small and poor peasants.

In a vast majority of the villages the *Ryots* will simply surrender in the face of such a humungous development plan as is the Bagepalli CDM Reforestation Project. But it is possible that there will be residual feelings of matters unsettled.

They would definitely try and interfere in the process of negotiating watering arrangements, first by trying to hike up the price of water from the scarce bore wells in the village, and then by trying to physically prevent new alliances between those who they would term turncoat for agreeing to sell their water.

These issues will be dealt with deftly. It is not in the Project's interest to turn such frictions into prestige contests. Far too much is at stake since the saplings do need 4-5 months of summer time watering for the first 3-4 years after planting.

We believe that the village Coolie Sangha Units have the maturity and internal resources to solve such problems. They have pondered on them deep and thorough in our elaborate Strategic Planning exercise. However, it is important for ADATS to be aware of such danger and keep alternate solutions in reserve – e.g. hauling water from a neighbouring village for a few days.

SCARCE STATE RESOURCES

The third area of conflict arises from a cut-throat competition among *Ryots* for scarce State resources. A competition in which everyone is somehow roped in.

In semi-arid drought prone regions such as ours, anti-poverty programmes of the government (free housing, free electricity for homes, soft loans, etc.) are seen as an indirect subsidy to the failing peasant economy. Everyone knows that *Ryots* siphon off these funds to keep themselves afloat. Bureaucrats are aware and so are planners, bankers and the entire chain that comprises the government's public works and service delivery network.

Right at the top, village-level corruption is tolerated as a strategy to keep the countryside placated, even if not content. Lower down the political ladder, it is a system by which village touts and agents are rewarded for services rendered during elections.

Problems arise because all the *Ryots*, even within a single village, are not a united lot when it comes to meeting their avarice. Just as caste splits society horizontally, *Ryots* themselves are split vertically, based on which political party's patronage they seek to cut into their competitor's share of spoils.

In the Coolie's satiric understanding, this is what national political parties degenerate into in their grassroots *avatar* – not holders of separate ideologies or programmes. It is this that prevents the village CSUs from blindly allying themselves with any political party, irrespective of which garb they wear – progressive or conservative.

CM2. OFFSITE COMMUNITY IMPACTS

CONCEPT

The project proponents must quantify and mitigate likely negative social and economic off-site impacts; namely, the decreased social and economic wellbeing of communities or people living outside the project boundary, resulting from project activities.

INDICATORS

The project proponents must:

1. Identify potential negative offsite community impacts that the project is likely to cause.
2. Describe how the project plans to mitigate these negative offsite social and economic impacts.
3. Evaluate likely unmitigated negative offsite social and economic impacts against the social and economic benefits of the project within the project boundaries. Justify and demonstrate that the net social and economic effect of the project is positive.

CM2.1. IDENTIFY POTENTIAL NEGATIVE OFFSITE COMMUNITY IMPACTS THAT THE PROJECT IS LIKELY TO CAUSE.

Our first reaction could be indignation and to flatly claim that there will be absolutely no negative off-site community impacts *caused* by the Project. And this would be largely justified. We have, after all, made a clear choice in favour of the weak and underprivileged. So what if the other side suffers some “off-site” negative impacts?

But that would be a parochial and unproductive reaction. When we ponder on off-site community consequences, without immediately labelling them as positive or negative, we begin to see a chain of consequences.

SOCIAL

On the sociopolitical side, the Bagepalli CDM Reforestation Project is bound to invite envy. It is a huge resource mobilisation that completely alters the Who's Who list in village society. Middle and big peasant *Ryots* have just about come to terms with the fact that they have lost an obedient servitude from the poor. Now this Project rubs salt into fresh wounds. Jealousy will lead to many an act of sabotage, some successful some not. We have already described the kind of disputes that will arise in Section CM1.3. of this documentation.

But all that will be short lived. We are sure that the village Coolie Sangha Units have the resilience to face these problems. They have faced far more serious and life threatening challenges in the not so distant past.

Ryots too will quickly come to terms with altered realities. Especially when the Project is designed to shamelessly corrupt a few from their ranks by offering them irresistible incentives for groundwater!

ECONOMIC

Off-site economic consequences of this Project need to be thought through, mainly because some exciting possibilities suggest themselves.

Already the DLDP has, for 22 long years, altered the free availability of labour and raised wages. Village CSUs have defended fair wages and working conditions. In spite of that, we admit that wages are still only a fraction of the legally prescribed minimum. But this is because of definite ceilings imposed by the non-viable cultivation of the *Ryots* themselves.

But that is not all. Under Section G2.1. we have described how the seasonal calendar forges and perpetuates Patron-Client relationships. We explained that, with the advent of the first rains in the month of May, if a Coolie family does not obsequiously “attach” itself to a *Ryot* and his fields, manifestly demonstrating their allegiance as loyal Clients, they are unlikely to be guaranteed a continuing source of employment the whole season long.

Making Crop Loans available immediately after DLDP works has violated this most sacrosanct of all feudal relationships. It is the clever and strategic combination of these 2 instruments, DLDP works and timely Crop Loans, that the Coolies have actualised to break away from feudal ties and alter the power balance in village society.

In an already divided society, this has increased tensions between Coolies and *Ryots*. With a classic “kick the dog” mentality, *Ryots* blame Coolies for everything that goes wrong with their failing peasant cultivation. Now this Bagepalli CDM Reforestation Project, over which they have no control whatsoever, comes as a steamroller.

The failing peasant economy has to face reality. It can no longer stay afloat with its 2 sources of hitherto unchallenged inputs – cheap labour, and the siphoning of government anti-poverty resources as some sort of an indirect State subsidy (please see Section CM1.3.).

We cannot accurately foresee what will happen. Perhaps they will fold up. Maybe this will be the push and pull that will consolidate *Ryot* holdings and introduce mechanised farming. Or they may emulate Coolie Sangha practices and themselves opt for better cooperation and sustainable land use practices.

CM2.2. DESCRIBE HOW THE PROJECT PLANS TO MITIGATE THESE NEGATIVE OFFSITE SOCIAL AND ECONOMIC IMPACTS.

The just described scenario is not one that needs any mitigation. But let us further explore the third alternative – that *Ryots* too want to go in for sustainable land use practices.

The Coolie Sangha needs to be open to the possibility that the political economy of the region could fundamentally change in the coming years, catalysed to some extent by this CDM Project. If and when a levelling of the population does take place, the *raison d'être* of feudal exploitation and contradictions with the *Ryots* would no longer hold true. Instead, it may well be a unified peasantry that has to face mainstream challenges ushered by market forces.

If and when a realistic unification of the peasantry at large takes place, the Coolie Sangha may not be the best platform for undertaking joint actions by *Ryots* and Coolies. Instead, we would have to involve the 3-tier Panchayat Raj Institutions (PRI). These are local bodies that are an integral part of the body politic in India. They enjoy constitutional sanction and a mandate to deliver decentralised governance.

The Coolie Sangha has had remarkable success in contesting local body elections and “capturing” Gram Panchayats and Taluk Panchayats. The Coolie Sangha has a presence at the district level, in the Zilla Panchayat also. Many Coolie Sangha controlled Gram Panchayats function efficiently, free of corruption, with elected GP Members continuing to remain accountable to the Voters and, at the same time, being able to control GP officials. In others, they have not been quite so successful.

The social harmony required to engage in wider environmental actions, encompassing the village population as a whole, has to involve the Panchayat Raj Institutions, especially the

Gram Panchayats. Even if Project finances are controlled in a transparent and decentralised manner by village communities, it will still be necessary to establish Gram Panchayat sub-committees or some such forum to involve all the villagers in biodiversity conservation activities on, for example, common lands.

An opinionated view would be that ADATS is not best qualified to take a lead role in such a venture because we are not “politically neutral” and have a 3 decade long history of pig-headed support to a particular caste-class. Especially so in a region that is strongly politicised.

We disagree. It is precisely because we have made clear choices in a fractured and polarised polity, and the fact that we have been largely successful and can demonstrate concrete Results, that ADATS and the Coolie Sangha are best suited to take the lead. It is a very dated, narrow and mechanistic thinking to believe that socioeconomic interventions are solely technical and uni-faceted. The reality is that life, love and economics are clubbed together in what we refer to as political economy.

The strength of this strategic thinking is that it is decentralised. It need not await a uniform and utopian transformation of the countryside as a whole.

Instead, it is conceivable that such unification of the total peasantry will take place in particular tracts of villages. It will start with a trickle, village by village. Soon, an entire Gram Panchayat will be covered when Coolies and *Ryots* both together see the writing on the wall. They will decide that there is no alternative, other than to succumb to a mainstream capitalisation of agriculture which may or may not take place. Gradually, such cooperation will attain a critical mass.

CM2.3. EVALUATE LIKELY UNMITIGATED NEGATIVE OFFSITE SOCIAL AND ECONOMIC IMPACTS AGAINST THE SOCIAL AND ECONOMIC BENEFITS OF THE PROJECT WITHIN THE PROJECT BOUNDARIES. JUSTIFY AND DEMONSTRATE THAT THE NET SOCIAL AND ECONOMIC EFFECT OF THE PROJECT IS POSITIVE.

Let us suppose the scenario does not unfold in the above described manner. Let us imagine that the Bagepalli CDM Reforestation Project only touches Member Coolie families in 500 villages and no one else. This is still okay. The net social and economic effect of the Project will still be positive.

Because the negative off-site social and economic consequences we foresee are not *because* of the Project. They are caused by modernisation and wider socioeconomic factors, exacerbated by climate change. Desertification, drought, soil loss and depleting groundwater are not caused *because* of the Project. The peasant economy has been tottering for some time now. As already mentioned, it has been on artificial life support with cheap labour and indirect State subsidies.

Therefore the initial reaction of indignation and denial cannot be dismissed offhand. One cannot ascribe any negative off-site effects to this Project, but rather to the overall negative national economy where agricultural families are totally ignored in a mad rush for industrial development.

CM3. COMMUNITY IMPACT MONITORING

CONCEPT

The project proponents must have an initial monitoring plan to quantify and document changes in social and economic wellbeing resulting from the project activities (within and outside the project boundaries). The monitoring plan should indicate which measurements will likely be taken and which sampling strategy will be used to determine how the project affects social and economic wellbeing.

Since developing a full community-monitoring plan can be costly, it is accepted that some of the plan details may not be fully defined at the design stage, when projects are being evaluated by the CCB Standards. This will especially be true for small-scale projects.

INDICATORS

The project proponents must:

1. Have an initial plan for how they will select community variables to be monitored, and the frequency of monitoring. Potential variables include income, health, roads, schools, food security, education and inequality. Community variables at risk of being negatively impacted by project activities should be monitored.

CM3.1. HAVE AN INITIAL PLAN FOR HOW THEY WILL SELECT COMMUNITY VARIABLES TO BE MONITORED, AND THE FREQUENCY OF MONITORING. POTENTIAL VARIABLES INCLUDE INCOME, HEALTH, ROADS, SCHOOLS, FOOD SECURITY, EDUCATION AND INEQUALITY. COMMUNITY VARIABLES AT RISK OF BEING NEGATIVELY IMPACTED BY PROJECT ACTIVITIES SHOULD BE MONITORED.

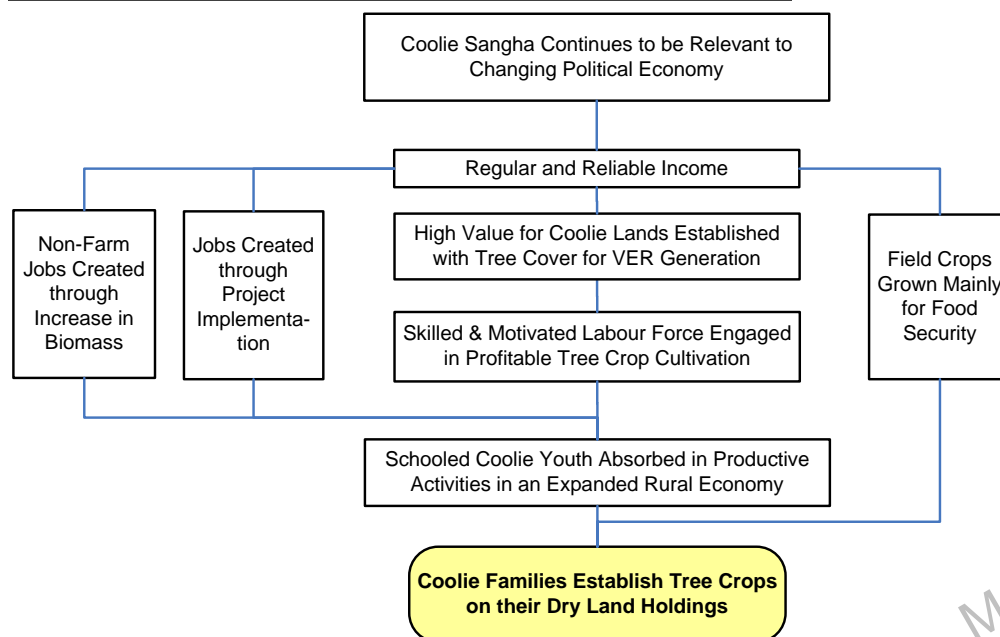
Every year, ADATS facilitates the village Coolie Sangha Units to undertake an Effects Monitoring exercise in order to record primary data on Member Coolie opinion on the status of implementing our 10 year Coolie Sangha building LogFrame. Objectives are holistic and encompass just about every facet of Coolie living.

- Experience of Upper Caste Manipulation Ended
- State Welfare Resources Accessed
- Family and Social Development Delivered by Coolie Women
- Social Change Actively Introduced by Coolie Youth
- Diversified Income Flows Established
- Coolie Lands Systematically Conserved and Cultivated
- Coolie United Across All Divides
- Staff and Functionaries Empowered to Deliver Results

Indicators are sharp, SMART and probing. Effects Monitoring is explained in some detail in Section G7.2. of this document.

In addition to this annual exercise, individual programmes like the Coolie Sangha's efforts with children's education, the DLDP, etc. are also monitored once a year. But since they are "child logs" they tend to be more technical in nature.

The LogFrame for the Bagepalli CDM Reforestation Project will also be monitored in an identical manner. Read together with the main Effects Monitoring Reports, these annual exercises will give a good indication of Project Impacts and Effects.

IMPACTS & EFFECTS THAT STEM FROM THE PROJECT PURPOSEGOAL

Coolie Sangha Continues to be Relevant to Changing Political Economy

GOAL INDICATORS

- Time Series Increase of Coolie Sangha Membership
- Decreasing Trend in Average Age of Coolie Sangha Members
- Number of Schooled Coolie Youth Gainfully Employed in the Village
- Number and Types of New Off-Farm Jobs Created
- Number and Types of New Non-Farm Jobs Created
- Average Salaries & Earnings (gender disaggregated)
- Number of Months of Food Stocks in Coolie Homes at the End of Each Harvest
- Increase in Sangha Funds through ICER/VER Revenues
- Absence of Financial Impediments to run Socio-economic Programmes

PURPOSE

15,000 Coolie Families Establish Tree Crops on their Dry Land Holdings

PURPOSE INDICATORS

- Extent of Tree Crops Cover with a Survival Rate of more than 85% over 3 years
- Percent of Coolie Holdings Covered with Tree Crops (gender & land holding disaggregated)
- Increased Family Income Attributable to Dry Land Horticulture Project (Income)
- Increasing Trend in Average Value of Coolie Lands with Tree Cover (Wealth)

Please see <http://www.adats.com/documents/book6/0632/> for the complete Project Log-Frame.

CM4. CAPACITY BUILDING

CONCEPT

Projects that include a significant capacity-building (training, skill building, etc.) components are more likely to sustain the positive outcomes generated by the project and have them replicated elsewhere. The project proponents must include a plan to provide orientation and training for the project's employees and relevant community members with an eye to building locally relevant skills and knowledge over time.

INDICATORS

The project proponents must show that capacity building is:

1. Structured to accommodate the needs of communities, not only of the project,
2. Targeted to a wide range of groups, not just elites
3. Targeted to women to increase their participation, and
4. Aimed to increase community participation in project implementation

CM4.1. STRUCTURED TO ACCOMMODATE THE NEEDS OF COMMUNITIES, NOT ONLY OF THE PROJECT,

Were this to be a pure CDM Project registered with the EB of the UNFCCC, our sole interest may have been to set up a "CER Factory" of sorts in order to earn money in the carbon market.

It is precisely because we believe that our efforts need to be people centric that we are trying for Gold Standard certification under the CCBA.

CM4.2. TARGETED TO A WIDE RANGE OF GROUPS, NOT JUST ELITES

As with all development projects and programmes implemented by ADATS, we do not select "beneficiaries". Participating families are selected by 500 village Coolie Sangha Units. It is not a *largesse* doled out by us. Participating villages have been selected by their respective Cluster Meets and Taluk Coolie Sangha Meetings based on the availability of groundwater, the village CSU's sociopolitical presence and ability to negotiate with bore well owning *Ryots*, and overall level of maturity.

Membership in these village CSUs is exclusively for those who do not employ wage labour. Section G1.4. gives a detailed break-up of the participating families, and it is irrefutably shown that they are the poorest of the poor, who own an average of less than 3 acres of rain-fed dry land. They belong to all castes and roughly correspond to the demographic break-up of the total village population, with a positive lean towards Harijans, Tribals and middle castes.

The bulk of them have a family income between Rs 3,000 and Rs 10,000 per annum. But 17% of them are desperately poor with incomes of less than Rs 3,000. Only 1% of the CSU Members have an income of more than Rs 10,000 per annum.

However, better off *Ryots* are involved in the Project since we will be buying water from them and also hiring their tractors to haul this water to Coolie fields.

CM4.3. TARGETED TO WOMEN TO INCREASE THEIR PARTICIPATION

Coolie women, especially, are excited by further inroads their Mahila Meetings can make. They desperately need every single Result that they can notch up. They realise that in a patriarchal society, hard earned achievements of women can just as easily vanish with the slightest let or lenience. The danger of slip-up and slithering back to *status quo* is far greater for women than for men.

A fundamental social difference between Coolie men and women lies in their respective route to empowerment, with inverse locus of control³⁸ reserved for the two sexes.

Whereas Coolie men are strongest in their homes (“*My house is my castle*”), weaker in village communities and weakest in society at large, the converse is true for women.

Coolie women enjoy the greatest pseudo respect and recognition in society at large, where it really doesn’t count (“*We Indians revere our women folk*”, “*We have so many women Goddesses*” and “*Oh, they are the queens in our houses*”). Women are weaker in village communities (“*It has to be her fault if something like that happened*” and “*She must have begged for it*”). In their respective homes, they enjoy absolutely no status at all other than that of chattel slavery, with even sons and brothers following the male role model (*Bedroom violence, Mental torture, etc.*).

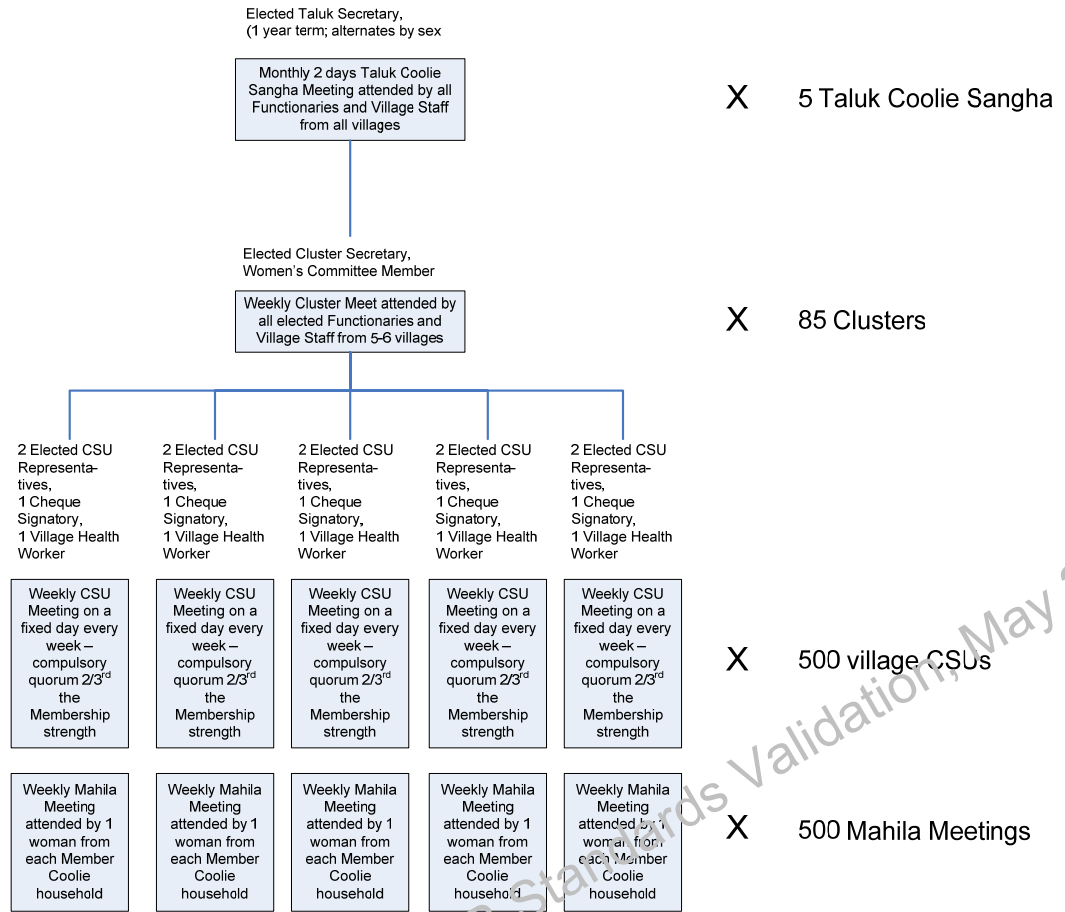
Coolie women realise that taking control of family cultivation is the most effective way of making a fundamental change in their status.

CM4.4. AIMED TO INCREASE COMMUNITY PARTICIPATION IN PROJECT IMPLEMENTATION

The Bagepalli CDM Reforestation Project does not merely aim to increase community participation, but is actually *built upon* it.

As explained in Section CM1.2. participating families are excited by the prospect of using their hard earned functional unity to implement the Project. The creation of a collective entity enthral them. They know that natural regeneration and increase of biodiversity can be achieved only through community action. In the a not-so-distant future, they can collectively deal with the market, pool CERs and collectively sell in the Carbon Market.

³⁸ Locus of Control refers to the extent to which individuals believe that they can control events that affect them. Individuals with a high internal locus of control believe that events result primarily from their own behaviour and actions. Those with a high external locus of control believe that powerful others, fate, or chance primarily determine events.



Project withdrawn before CCB Standards Validation, May 21st, 2010

CM5. BEST PRACTICES IN COMMUNITY INVOLVEMENT

CONCEPT

Projects that use best practices for community involvement are more likely to benefit communities. Best practices include: respect for local customs, local stakeholder employment, worker rights and worker safety.

INDICATORS

The project proponents must:

1. Demonstrate that the project was developed with a strong knowledge of local customs and that, where relevant, project activities are compatible with local customs.
2. Show that local stakeholders will fill all employment positions (including management) if the job requirements are met. Project proponents must explain how stakeholders will be selected for positions and where relevant, must indicate how traditionally underrepresented stakeholders and women, will be given a fair chance to fill positions for which they can be trained.
3. Show that the project will inform workers about their rights, and that the project complies with international rules on worker rights.
4. Comprehensively assess situations and occupations that pose a substantial risk to worker safety. A plan must be in place to inform workers of risks and to explain how to minimize such risks. Where worker safety cannot be guaranteed, project proponents must show how the risks will be minimized using best work practices.

CM5.1. DEMONSTRATE THAT THE PROJECT WAS DEVELOPED WITH A STRONG KNOWLEDGE OF LOCAL CUSTOMS AND THAT, WHERE RELEVANT, PROJECT ACTIVITIES ARE COMPATIBLE WITH LOCAL CUSTOMS.

As just mentioned in Section CM1.3. the Coolie Sangha is an integral part of village society in the region. Sociologists term it a self-propelled people's movement, a serious contender to identity giving primary social institutions like caste and family.³⁹ Please see <http://www.adats.com/studies/14/>

The Bagepalli CDM Reforestation Project is deeply rooted in the Coolie Sangha, one of the chief providers of social and individual Identity to small and poor peasant families in the region, *irrespective of whether they are current and active Members of functioning village CSUs or not*. It was conceived in village CSU Meetings, translating dreams and aspirations of thousands of Coolie families into a realisable strategy for economic sustainability. It envisages the use of Coolie Sangha platforms, structures and discipline for its implementation and monitoring.

While traditional ideologies *explain* the status quo and *maintain* a lifestyle, the ideology of the Coolie Sangha is to *change* society. Lifestyle patterns that arise from these ideologies are what we term as customs.

The Bagepalli CDM Reforestation Project certainly does not subscribe to local customs of caste ascription and putting everyone in their place. Neither does it approve of any subjugated

³⁹ Secondary social institutions serve single purposes and fulfill single needs. They do not define the very existence of it's members. E.g. sports clubs, farmer cooperatives, etc.

role of second-rate citizenry for Coolie women. Those belong to the upper caste, elite school of thought.

Madiga-thanam, the traditional ideology of Harijans, roots a community in the land and in a universal ethos. This is a caste-group that constantly attempts to link with all the poor to mobilise for ecological restoration on their own land and on community land to the extent that they see it as uplifting. Those who do not own any land will not be able to plant on their non-existent fields. Yet, they too form an integral part of this traditional and uplifting community exercise. This explains the enthusiastic participation of the landless in planning this Project, something that cannot be otherwise understood as a rational choice.⁴⁰

These values, practices and customs are not very far removed from our own internalised concepts of citizenry, gender justice, good governance, participatory democracy, *et al*, provided we retain an ability to critique the emerging market economy.

CM5.2. SHOW THAT LOCAL STAKEHOLDERS WILL FILL ALL EMPLOYMENT POSITIONS (INCLUDING MANAGEMENT) IF THE JOB REQUIREMENTS ARE MET. PROJECT PROPONENTS MUST EXPLAIN HOW STAKEHOLDERS WILL BE SELECTED FOR POSITIONS AND WHERE RELEVANT, MUST INDICATE HOW TRADITIONALLY UNDERREPRESENTED STAKEHOLDERS AND WOMEN, WILL BE GIVEN A FAIR CHANCE TO FILL POSITIONS FOR WHICH THEY CAN BE TRAINED.

As explained in Section G4.3. we will recruit and orient specialist staff for the Project. These will include, at a minimum:

- Project Coordinator who is well versed in horticulture and/or CDM Projects
- 5 Horticulturists and 5 Extension workers, paired at each Taluk
- 500 Village Level Workers

The Project Coordinator may be an “outsider” with a background in forestry, horticulture, climate change and biodiversity. But all the remaining Staff will be from this region. While we may not be able to find qualified Horticulturists from the Coolie caste-class itself, there are dozens of qualified, job seeking youth from slightly better off families in the region. Extension Workers will compulsorily be from Member Coolie families.

The participating village CSUs will themselves select the 500 Village Level Workers who will form yet another cadre in the Coolie Sangha.

CM5.3. SHOW THAT THE PROJECT WILL INFORM WORKERS ABOUT THEIR RIGHTS, AND THAT THE PROJECT COMPLIES WITH INTERNATIONAL RULES ON WORKER RIGHTS.

The Coolie Sangha is essentially a mass organisation of landed and landless agricultural labourers. Though it performs a trade union type of function, it is much more than that.

Though it owes its existence to ADATS, it is not our “beneficiary organisation”. It is not “functional groups” or “self-help groups” that our NGO has set up. Its role and function is not to merely implement projects. On the contrary, projects, programmes and activities taken up by ADATS (i.e. supported with material and non-material resources mobilised by us) are enabling in character. They add on to grassroots efforts of Member Coolie families themselves and introduce elements that we bring in as our unique contribution.

⁴⁰ Please see Amartya Sen in “Rationality & Choice” and M.C. Raj in “Dalitology”

Thereby the Coolie Sangha does not have a fixed programme or agenda. Its reach is unrestricted and holistically encompasses all aspects of Coolie life and living. Due to its ideology, democratic functioning, and also the remarkable achievements it has made, other non-exploiting people like self-employed artisans, those in trades and services, join up.

A striking feature of the Coolie Sangha is that it is the *only* organisation in village society that functions on an everyday basis. It is not “unity at times of need” that drives Member Coolies to meet on a fixed day every week, and women folk from their homes on yet another fixed day every week. This regularity of meetings and activities acts as a magnet to the neutral population.

Village Coolie Sangha Units are a source of information for the entire village. The structure of meetings from the village up, to the Cluster and Taluk levels, coupled with ADATS’ every Monday Situation Meetings, encouraged a two-way flow of information and analysis on just about everything.

In its trade union function, the Coolie Sangha has taken issues of bonded labour, struggled for equal wages for women and men (NOT equal wage for equal work), paying minimum wages, and against the unnecessary use of machinery while executing government contract works. It has been instrumental in getting Kolar District notified under the National Rural Employment Guarantee Act (NREGA) to provide 100 days of work every year.

This watchdog role will be performed during the implementation of the Bagepalli CDM Reforestation Project also.

CM5.4. COMPREHENSIVELY ASSESS SITUATIONS AND OCCUPATIONS THAT POSE A SUBSTANTIAL RISK TO WORKER SAFETY. A PLAN MUST BE IN PLACE TO INFORM WORKERS OF RISKS AND TO EXPLAIN HOW TO MINIMIZE SUCH RISKS. WHERE WORKER SAFETY CANNOT BE GUARANTEED, PROJECT PROPONENTS MUST SHOW HOW THE RISKS WILL BE MINIMIZED USING BEST WORK PRACTICES.

We are not aware of any specific work-place related risks associated with the dry land horticulture activity. This is because there is no work-place as such. It is an activity taken up by small and poor peasants on their own patches of land, with family labour.

However, we are open to any warning/advice and will also proactive. As and when a particular hazard occurs, we will take immediate action to not just redress the problem, but also prevent future occurrences.

B1. NET POSITIVE BIODIVERSITY IMPACTS

CONCEPT

The project must generate net positive impacts on biodiversity within the project boundaries and within the project lifetime, measured against the baseline conditions.

Projects should have no negative effects on species included in the IUCN Red List of threatened species (which encompasses endangered and vulnerable species) or species on a nationally recognized list (where applicable). Invasive species must not be planted by the project.

Genetically Modified Organisms (GMOs), as a relatively new form of technology, raise a host of ethical, scientific and socio-economic issues. Some GMO attributes may result in invasive genes or species. In the future, certain GMOs may be proven safe. However, given the currently unresolved issues surrounding GMOs, projects cannot use genetically modified organisms to generate carbon credits.

INDICATORS

The project proponents must:

1. Use appropriate methodologies (e.g. key species habitat analysis, connectivity analysis) to estimate changes in biodiversity as a result of the project. This estimate must be based on clearly defined and defensible assumptions. The “with project” scenario should then be compared with the baseline “without project” biodiversity scenario completed in G2. The difference (i.e., the net biodiversity benefit) must be positive.
2. Describe possible adverse effects of non-native species on the area’s environment, including impacts on native species and disease introduction or facilitation. If these impacts have a substantial bearing on biodiversity or other environmental outcomes, the project proponents must justify the necessity of using non-native species over native species.
3. Identify all IUCN Red List threatened species and species deemed threatened on nationally recognized lists that may be found within the project boundary. Project proponents must document how project activities will not be detrimental in any way to these species.
4. Identify all species to be used by the project and show that no known invasive species will be used.
5. Guarantee that no genetically modified organisms will be used to generate carbon credits.

B.1.1. USE APPROPRIATE METHODOLOGIES (E.G. KEY SPECIES HABITAT ANALYSIS, CONNECTIVITY ANALYSIS) TO ESTIMATE CHANGES IN BIODIVERSITY AS A RESULT OF THE PROJECT. THIS ESTIMATE MUST BE BASED ON CLEARLY DEFINED AND DEFENDABLE ASSUMPTIONS. THE “WITH PROJECT” SCENARIO SHOULD THEN BE COMPARED WITH THE BASELINE “WITHOUT PROJECT” BIODIVERSITY SCENARIO COMPLETED IN G2. THE DIFFERENCE (I.E., THE NET BIODIVERSITY BENEFIT) MUST BE POSITIVE.

As this project is being established on small dispersed patches of private lands, the few key-stone tree species will be established individually, and we cannot aim at this stage to go in for a far-reaching key-species habitat analysis. On the other hand, we understand connectivity to mean connectivity not only between classic forest areas, but connectivity between areas of uncultivated and cultivated plants, created especially by poor families, particularly women.

Thus our assumption which we believe is definable, and defined here, and defensible, is that especially women also in the baseline scenario, are already collecting, and therefore conserving, through the very fact of *living with*, cultivated and uncultivated biodiversity. They are thus the key to the biodiversity scenario. It is because of their current and future efforts that the existing cultivated and uncultivated biodiversity will be strengthened, and a net positive biodiversity benefit be created.

DIVERSITY IN CROP SPECIES

The diversity of still existing native crop species, and associated knowledge on how to cultivate them, can be preserved and brought to the fore as a modern strategy for ecological and bio-diverse living. This knowledge is vital for food security and constitutes part of a rich heritage of ethno-botany.

Phoenix sylvestris, the wild date palm, grows as soon as there is a furrow with water in otherwise rocky conditions. Nellikai or Indian gooseberry, will be a part of any woman's biodiversity balance sheet on hillsides behind her house as well as in a garden or field. On the walks from home to field, field to school, market to hill side, cultivated and uncultivated biodiversity accounts for a very large part of a poor woman's diet, without which she and the family would be hungry, and would lack vital variety and nutritional value.

The project can bring positive reinforcement to these practices of collecting a wide variety of greens and wild fruit to eat on the way home. Giving value to such practices and plants will have long term positive impacts on biodiversity and for the people, especially women members of the community.

All who associate with the Bagepalli CDM Reforestation Project will be encouraged to think laterally about continuing to plant and collect a diverse range of annual and perennial crops. This could be say on half an acre of land in a kind of kitchen garden profusion, as well as on any and every small and narrow available patch of common or private land wherever there is water.

As far as cultivated species go, women will enjoy collecting the wide range of existing varieties of minor millets, pigeon pea, cow pea, horse gram, dry land oil seeds like niger, sesame, castor, varieties of gourds, winged beans, pulses and root vegetables, as well as varieties of paddy which manage with little water, and growing these varieties with least loss to pests.

Local knowledge of which plant leaves to use to extract juice to control pests can also be collected and preserved, along with the plants. The kind of agri-horti-silvi system already observed in some traditional system can be diversified by introducing old varieties of groundnut, henna, guava, simarouba between the larger dry land horticulture trees during the early phase of establishment.

These same adapted systems can be planted on small patches of available land on bunds or rocky corridors where there may be a furrow of water, or where one can remember to pour some water as one passes.

Controlling certain weeds which have emerged due to application of fertiliser, or other long term disturbance of the soil, can be done by revitalising the soil, softening it, and planting pearl millet or fodder grass varieties or legumes which will increase soil carbon and nitrogen over time as well as suppressing the hard woody inedible plants. Over time, a wider variety of soft and delicate plants will be seen which will meet multiple purposes of biodiversity conservation, food security, fodder needs of animals and medicinal needs.

These local species will also be very important as unpredictable weather may continue to pose threats to food security. Seeds from wild grasses which look like foxtail millet are often

collected during emergencies, and the seeds should be systematically strewn in the rocky outcrops around the project area.

These kinds of products from the commons also form part of a kind of private barter system through which hundreds of small ways are established of doing neighbourly favours. These resources need to be actively nurtured.

For example, beggars are given their entitlement from free food from the commons as well as from private harvests. After a harvest cattle eat the residues and ensure there are no termites which hit the field. In the new dry land horticulture model, there will be more opportunity for judicious mixing of services and products from the land, as there is all year round work and biomass. Every time a group of women do weeding on another's land they have a right to keep the weeds. These are often a wide variety of edible greens. As the soil is moist for longer all the year round more planning can be done to increase the types and availability of such greens.

Many productive activities not mediated by the market do exist on the basis of the existing crop diversity, and this can be nurtured. There is a critical relation between survival strategies and ecologically and biodiversity rich production systems especially also in dry lands like in our project area, and these customary rights and practices will have to be enhanced through the project and brought out as a mainstream practice. This will strengthen the community and women.

Cultivated and uncultivated biodiversity today itself provides a very large part of the survival strategy of Coolie families. Many collect free leafy greens for exchange for other products. Many more and new such uncultivated and cultivated bio-diverse products will be identified. Amaranthus is one such useful uncultivated plant used both for its grain and its leaves.

But it should be remembered that these practices and the intention to promote such practices in the future will be at risk if others outside the Project area are allowed to continue to use strong pesticides and fertilisers, and for that matter pollute or ruin the common and private landscape in general. Just because a patch or strip of land forms the boundary of a private space does not mean it cannot harm those using it on its edges.

Women are very careful in checking the purity of uncultivated flowers or leaves on the roadside or on the edge of *Ryot* fields. More generally, fertilisers make the soil hard, and hard inedible plants emerge.

Naya-krisi women (women practicing new agriculture) on the other hand see themselves as cultivating *ananda*, or happiness. Their soil is soft and the seeds are tiny, and the plants are delicate, and edible. The local people call some of these post monsoon crops "*Sathyam Pantalu*" or "Crops of Truth", a metaphor for crops that are hardy enough to grow on the available soil moisture and limited soil fertility.

DIVERSITY IN MULTI-PURPOSE SPECIES:

In our Project area we will try and find the right way to create soft soil. Bushy grasses in the rocky outcrops can be encouraged and conserved. These include bamboos, long grasses for making brushes, mats, and fences. Hibiscus flowers can be put in the hair and the same flower is useful for washing the hair, whilst the bush will create much leaf litter though it grows without much need for organic matter.

DIVERSITY IN ANIMAL SPECIES:

This may be difficult as there are not too many native animals still around either in a wild or domesticated stage. The *Giriraja* chicken experiment has already been done, and this native variety of chicken is now a common sight again. There may not be too much to be gained for farmers spending too much time on reintroducing old varieties of sheep, goats, etc; the effort

should be to increase biomass for small animals like rabbits which may attract some larger birds and which can also be eaten; and locally useful animals like moles may be seen more. Grasses like *gliricidia*, *leucaena*, *stylosanthes*, *cenchrus*, *munj* grass and so on will provide food for insects, and it is hoped that this build up of fauna on the land will also attract more birds. It is also hoped that there will be more snakes, as snakes prefer thicker undergrowth or thick hedges of *Agave* or other shrubs, and the snakes in turn will control, mice and rats which otherwise threaten to destroy crops and roots.

In fact very generally, there can and will thus be continued and increased interaction of wild and domesticated animals which has to be brought out into the public and given value. Public and private verges and common spaces used predominantly by women must not be destroyed or polluted so that various small animals can also survive. Flowering trees will increase and more bees and honey will be found in the wild, on cultivated or uncultivated trees. The tree system which is being introduced through the project may well create more fodder for animals, and the dung in turn will create better soil. It will be important to allow droppings from animals to promote natural regeneration.

DIVERSITY IN UNCULTIVATED PLANTS:

The aim for the keystone species will be to have a large native Mango here, entire plots or perhaps a common *Taup* of native Tamarind there, maybe a plot with a large *Ficus* in a corner, a pair of strategically placed Neem and *Ficus* in harmony symbolising male and female unity in a central common place, and the slow re-establishment of local endemic dry land species on the bunds.

It is expected that a greater variety of plants will be introduced and may come up naturally along new moist areas along the edges of fields or along the side of field ponds, benefiting from the run-off or seepage of the protective irrigation to the fruit trees. Women will continue to carry these cultivated and uncultivated plants between different habitat areas, and from home to field and back.

The changes in plant biodiversity that will come about as a result of this Project will be felt in different time scales, with the large key stonetree species establishing most slowly. In the first instance, the biggest positive impact on biodiversity will be felt in the increase in diverse endemic species on the boundaries of each plot.

For example *Abrus precatorius*, a small climbing vine known as Gurusvenda in Telugu, is quick to establish if there is some moisture. The seeds are bright red with a black blotch around the hilum. They have an important role in local ethno-botany. Another such tree is *Adenantha pavonina*, also known as coral wood, which has long edible seed pods and seeds with a scarlet red seed coat, much prized. A common local medicinal plant called Adasaramu, *Adhatoda vasica*, which is an important cure for coughs, is also a part of a famous multi plant formulation for general weakness. The other ingredients of this medicinal formulation will also grow very easily once reintroduced on bunds or watered conservation patches. One of these is *Eclipta alba*, an annual, with its delicate white long-petalled flowers, also known as false daisy, which will grow as soon as a tiniest area of moist land is available. It is thought that the extract of the leaf cures jaundice in a week. The oil is also prized as a hair oil. Many other dry land creepers or plants with medicinal and food value will establish in the hedges, and on verges, such as *Aloe Vera*, various varieties of *Tulasi*, *Withania sominifera* and *Vitex nergundi*.

Thanks to the fact that there will be more water for irrigating trees and plants, and thanks to the traditional practices of women which will be given wholehearted value during the course of the project, there will be a positive net biodiversity benefit through the project.

B1.2. DESCRIBE POSSIBLE ADVERSE EFFECTS OF NON-NATIVE SPECIES ON THE AREA'S ENVIRONMENT, INCLUDING IMPACTS ON NATIVE SPECIES AND DISEASE INTRODUCTION OR FACILITATION. IF THESE IMPACTS HAVE A SUBSTANTIAL BEARING ON BIODIVERSITY OR OTHER ENVIRONMENTAL OUTCOMES, THE PROJECT PROPONENTS MUST JUSTIFY THE NECESSITY OF USING NON-NATIVE SPECIES OVER NATIVE SPECIES.

No non-native species will be used in the Project.

B1.3. IDENTIFY ALL IUCN RED LIST THREATENED SPECIES AND SPECIES DEEMED THREATENED ON NATIONALLY RECOGNIZED LISTS THAT MAY BE FOUND WITHIN THE PROJECT BOUNDARY. PROJECT PROPONENTS MUST DOCUMENT HOW PROJECT ACTIVITIES WILL NOT BE DETRIMENTAL IN ANY WAY TO THESE SPECIES.

When we find any of the species listed above in Section G1.7. we will make all out efforts to conserve them. We will also be making all out efforts to reintroduce these plants. The exact plan can only be made once we know what our resources are and we commissioned the detailed report.

B1.4. IDENTIFY ALL SPECIES TO BE USED BY THE PROJECT AND SHOW THAT NO KNOWN INVASIVE SPECIES WILL BE USED.

The main tree species being planted are

- Mangifera Indica - Mango
- Tamarindus Indica - Tamarind
- Azadirachta Indica – Neem
- Pongamia Pinnata – Pongamia
- Ficus Bengalensis – Banyan
- Ficus religiosa - Peepal
- Syzygium Jambolana - Jamun
- Tectona Grandis -Teak

We will also be identifying many more medicinal and valuable trees and under storey medicinal plants and shrubs from the master list for the region.

The main exotic and to some extent invasive tree species in this Project area which will be avoided are Acacia Auriculiformis, Eucalypts, Silver Oak, and Casuarina. Prosopis will be avoided except possibly as fencing material during establishment. This is yet to be decided and depends on whether other thorny medicinal plants can be established with watering (e.g. Sigerkai).

B1.5. GUARANTEE THAT NO GENETICALLY MODIFIED ORGANISMS WILL BE USED TO GENERATE CARBON CREDITS.

We guarantee that no genetically modified organisms will be used to generate carbon credits.

B2. OFFSITE BIODIVERSITY IMPACTS

CONCEPT

The project proponents must quantify and mitigate likely negative offsite biodiversity impacts; namely, decreased biodiversity outside the project boundary resulting from project activities.

INDICATORS

The project proponents must:

1. Identify potential negative offsite biodiversity impacts that the project is likely to cause.
2. Describe how the project plans to mitigate these negative offsite biodiversity impacts.
3. Evaluate likely unmitigated negative offsite biodiversity impacts against the biodiversity benefits of the project within the project boundaries. Justify and demonstrate that the net effect of the project on biodiversity is positive.

B2.1. IDENTIFY POTENTIAL NEGATIVE OFFSITE BIODIVERSITY IMPACTS THAT THE PROJECT IS LIKELY TO CAUSE.

There will be absolutely no decreased biodiversity outside the Project boundary as a result of this Project. It is simply not possible that this could happen or in any way be attributed to the Project. Quite the opposite is likely to result.

B2.2. DESCRIBE HOW THE PROJECT PLANS TO MITIGATE THESE NEGATIVE OFFSITE BIODIVERSITY IMPACTS.

Not applicable.

B2.3. EVALUATE LIKELY UNMITIGATED NEGATIVE OFFSITE BIODIVERSITY IMPACTS AGAINST THE BIODIVERSITY BENEFITS OF THE PROJECT WITHIN THE PROJECT BOUNDARIES. JUSTIFY AND DEMONSTRATE THAT THE NET EFFECT OF THE PROJECT ON BIODIVERSITY IS POSITIVE.

Not applicable.

B3. BIODIVERSITY IMPACT MONITORING

CONCEPT

The project proponents must have an initial monitoring plan to quantify and document the changes in biodiversity resulting from the project activities (within and outside the project boundaries). The monitoring plan should state which measurements will likely be taken and which sampling strategy used. Since developing a full biodiversity-monitoring plan can be costly, it is accepted that some of the plan details may not be fully defined at the design stage, when projects are being evaluated by the CCB Standards. This will especially be true for small-scale projects.

INDICATORS

The project proponents must:

1. Have an initial plan for how they will select biodiversity variables to be monitored, and the frequency of monitoring. Potential variables include species abundance and diversity, landscape connectivity, forest fragmentation, habitat area and diversity, etc. Biodiversity variables at risk of being negatively impacted by project activities should be monitored.

B3.1. HAVE AN INITIAL PLAN FOR HOW THEY WILL SELECT BIODIVERSITY VARIABLES TO BE MONITORED, AND THE FREQUENCY OF MONITORING. POTENTIAL VARIABLES INCLUDE SPECIES ABUNDANCE AND DIVERSITY, LANDSCAPE CONNECTIVITY, FOREST FRAGMENTATION, HABITAT AREA AND DIVERSITY, ETC. BIODIVERSITY VARIABLES AT RISK OF BEING NEGATIVELY IMPACTED BY PROJECT ACTIVITIES SHOULD BE MONITORED.

The following table describes the data variables to be monitored. The frequency will be twice a year – once before the rains and once after the rains/during or after planting.

We will also maintain a biodiversity log book with each Village Level Worker and encourage CSU Members to keep track of what they see when. In addition there is a long term plan to reintroduce certain species.

Groups will be encouraged to think about how to increase the abundance of rare plants, and how to create a use value and an existence value.

Name of Species	Species abundance (specimens in given location or per hectare or per m ²)	Species diversity – which types found	landscape connectivity – describe qualitatively and quantitatively the extent of the ecotone if any, provide map	Forest fragmentation – if the species is in a forest describe the extent of the forest and its location with respect to other forest patches.	Extent of observed habitat area, qualitative description of the diversity of the habitat.	Is the species under the threat by the project?	Is the species being reintroduced or in some other way positively supported by the project? Provide qualitative and quantitative description of activities and analysis.	Name of person who collects and conserves the plant and the knowledge associated

B4. NATIVE SPECIES USE

CONCEPT

In most cases, species that are native to a region will have a higher biodiversity benefit than non-native species. In other cases, non-native species can be more effective than native species for rehabilitating degraded areas or providing fast growing biomass, timber, fruits and other beneficial products. For instance a project may need to use non-native species on severely degraded land to achieve ecological restoration before native species can be reintroduced.

INDICATORS

The project proponents must:

- Show that the project will only use species that are native to the region.

Or

- Justify that any non-native species used by the project are superior to native species for generating concrete biodiversity benefits (e.g. for rehabilitating degraded areas unlikely to support natives, or for producing fuel wood that reduces logging pressure on intact ecosystems).

Our chosen species are all native. No non-native species are being used.

Mangifera Indica - Mango

Tamarindus Indica - Tamarind

Syzygium Jambolana - Jamun

Tectona Grandis -Teak

Azadirachta Indica – Neem

Pongamia Pinnata – Pongamia

Aloe Vera

Cinnamon

Lawsonia – Curry Leaf

Etc.

B5. WATER AND SOIL RESOURCE ENHANCEMENT

CONCEPT

Climate change and other factors may stress and degrade water and soil resources at the project site over time. Projects should enhance the quality and quantity of water and soil resources.

INDICATORS

The project proponents must:

1. Identify project activities that are likely to enhance water and soil resources
2. Credibly demonstrate that these activities are likely to improve water and soil resource compared to the baseline, using justifiable assumptions about cause and effect, and relevant studies.

B5.1. IDENTIFY PROJECT ACTIVITIES THAT ARE LIKELY TO ENHANCE WATER AND SOIL RESOURCES

We already explained in Section G2.1. that an additional wage investment of Rs. 46.5 million will be made in the next few years on 35,052 acres of Coolie lands in order to implement Soil & Water Conservation works. These will include clearing shrubs and boulders, building new contour bunds, strengthening existing bunds, building field bunds, checking ravines and gullies, digging diversion channels, building retention works, deepening open wells, digging farm ponds, etc.

However, these will not be undertaken using Project resources. Labour capital, which is available in the form of 100 days of guaranteed work for 1 person from every rural household under the Employment Guarantee Act, will be used to make these investments.

The rich and alluvial soil that has silted up irrigation tanks will be hauled on to the contour banded fields (in order to prevent wash off) is another activity that will be taken up in all the villages.

And finally, there are some water and soil enhancement activities that will be taken up on each planted plot. These will include trenching around each tree to prevent water run off, mulching to retain moisture, high field bunds to catch rainwater, etc.

B5.2. CREDIBLY DEMONSTRATE THAT THESE ACTIVITIES ARE LIKELY TO IMPROVE WATER AND SOIL RESOURCE COMPARED TO THE BASELINE, USING JUSTIFIABLE ASSUMPTIONS ABOUT CAUSE AND EFFECT, AND RELEVANT STUDIES.

The above described activities are exactly what we have implemented, for the past 22 years, at Bagepalli. Please see a detailed description of the Dry Land Development Project <http://www.adats.com/home/dldp.php>

Please also read a truly fascinating description of changes brought about by the DLDP in the Participatory Evaluation Report at <http://www.adats.com/studies/24/> (September 2003)