0608. Agriculture Policy & Strategy Paper (Nov 1997)

After many years of working with agricultural issues – land and wage struggles, giving crop loans, improving the productivity of Coolie owned lands, introducing new breeds of cattle, etc. – ADATS decided to place all these seemingly ad hoc efforts within a single policy and strategy matrix.
We place the policy in perspective, give an ecological description of the region, and comment on the relationship between gender and agriculture, before actually discerning an agriculture policy.
The strategy lists 17 specific measures, including land and wage struggle, grassroots planning, soil and water conservation works, major land and socio-political struggle, therapeutic measures, repair and maintenance works, silt hauling, allied activities, cropping advice, veto powers for women, off-farm enterprises, non-farm activities, experimentation, linking with urban activists to create a niche market, and dry land horticulture.

SECTION "A" : POLICY OVERVIEW

1. Placing the Policy in Perspective

1.1. Burning bridges with Middle Peasants

The formation of a Coolie Sangha Unit (CSU) in a village is usually preceded by landed and landless agricultural labourers[1] persistently inviting us to begin our intervention cycle. They would have observed the burgeoning of Coolie strength in nearby villages and taken a decision to take the plunge and burn bridges with the middle peasantry – to escape from cruel exploitation and senseless oppression through institutions like bonded labour, child labour, usurious credit, caste segregation, sexual harassment, grabbing of government's anti-poverty benefits, and an ever present and torturous humiliation.

Middle peasants consolidate their stranglehold by creating a crushing dependency whereby the Coolies rely upon *Ryots* for each and every dealing with the outside world of government officers, banks, hospitals, police, et al. Young persons from Coolie ranks come forward to take responsibility for initiating various activities suggested by us. They gradually develop into a committed cadre and replace such dependency with a dignity giving self-reliance.

Coolie Sangha building starts with night classes and cultural activities for adults, following a pedagogic conscientisation approach. Some of the very first problems that the Coolies discuss in their every evening gatherings relate to past cases of cheating whereby they had unfairly lost lands and other precious assets. They go on to formulate strategies to claim them back.

1.2. Coolie Perception of Poverty

It is sad that we are such a divided society that poverty *per se* – i.e. low agricultural yields, bad wages, a lack of alternate employment, the dearth of basic amenities and services, hunger and disease – is usually not the reason for small and poor peasants to come forward and participate in the building of a community. Caste and parochial identities forced onto the poor by religio-economic institutions blur their sense of purpose.
It is ironic that we are such a decadent society that poverty provides the perfect excuse for better off sections to project these very lack of the basics to grab government sponsored anti-poverty programmes and themselves skim off a major chunk. Middle peasants do this with a total lack of apology, as if it were an ordained and rightful subsidy for failing to make it in an

[1] Land owning agricultural labourer = Small Peasant; Landless labourer = Poor Peasant

obsolete peasant economy. *Ryot* arrogance and the value base that supports their inhuman behaviour stems from this candour.

Poverty, in this scheme of things, is therefore an internal condition that the Coolies take note of only after external threats and conditions have been addressed. However debilitating it may be, the poor see a futility in trying to tackle it directly, without first attempting to alter their status and standing in village society.

We recognise this to be a historic and universal reaction, born of their wisdom. It is certainly not the result of any ideological imposition by us development workers who choose to place politics before development.

This is at the heart of our agriculture policy. We are committed to re-creating the community and altering priorities, with a shift in emphasis from the socio-political to the economic. The political community has to be carried, as it were, to re-exist in a lasting manner in a new economic base of their own creation.

1.3. Organisation and Struggle to take precedence over Poverty Alleviation

Community organisation and bottom-up participation cannot be glossed over or taken for granted in an offhand manner. These entail processes which, once unleashed, do not merely constitute a precursor to action. They are elements that continue to dominate every stage of planning, implementation and review. They demand a patient forbearance, broad recognition and intuitive acceptance of actions as well as motivation.

Many development efforts do not appreciate the deep divide in village society, with its subtle and sardonic consequences. They plan material upliftment measures as if poverty were an obnoxious accident that can simply be wiped out with properly planned technical remedies. Community participation, under these circumstances, using modern techniques like PRA and the like, is a joke. It is not an authentic precursor that invites a self-assessment of the situation by the principle actors. It is not an acceptance of the failure of top-down models and theories, which in turn provokes a genuine search for indigenous solutions. It does not confirm the poor as a political community in their own right. At most, it remains an ingredient thrown in for good measure, to create a semblance of pre-defined participation, for faddish reasons that are not fully understood.

There was none of this sham when ADATS first started working with the Coolies of Bagepalli taluk, 20 years back. We went to the people in a spirit of humility and without any pre-packaged solutions. Even today, when we claim to have evolved our intervention strategy into a proven Model, and use it in new taluks to build Coolie capacity, we are constantly aware of the danger of "exporting" an archetype without leaving room for self-identification, adaptation and creative innovation. We are plagued with self-doubt as to whether we too are getting caught in the fashion of reducing a participatory process into an impotent pre-project farce.

1.4. Locale Specificity

Environmental issues can be viewed only from a locale specific position. Solutions have to be zoned down to the particularity of a situation. Blanket recommendations have to be considered with caution. Diversity should be encouraged and there should be room for experimentation.

Fractures in the population (caste, class, gender, disparity and struggle) should never be overlooked when examining the fractured land. It should always be borne in mind that environmental solutions, in the final analysis, demand changes in lifestyle and expectations. The emphasis should be as much on people as on their lands. This is our objection to the much flaunted "watershed approach" even though we have no quarrel with the technicity involved.

Then there are questions of ownership and control, practicability and implementation issues. These have to be sensibly and sensitively addressed if at all any environmental action is to succeed.

1.5. Geopolitical Coverage

Another vital consideration is that environmental actions have to have a large enough coverage and long term presence to eventually make an impact on the micro-climate. This means that ecologically sound practices have to stand the test of market viability and propagate on their own, even if long term investments are initially made.

Growing trees, for example, has to become profitable. The supply of vermicompost must be large enough to meet market demands and edge out the use of chemical fertilisers. Organically produced vegetables must find a niche market that makes their growing viable. Tree cover must be extensive to attract clouds. Soil & Water Conservation works must be vast enough to prevent soil erosion and the silting of tanks.

Our intervention must thus introduce new practices which are eventually diffused by the market, across entire regions that share certain geopolitical and economic characteristics. The Coolie Sangha is now large enough to be able to be a realistic force in this light, provided serious inputs are provided.

2. An Ecological Description of the Region

2.1. Physical Geography

Bagepalli taluk is a semi arid drought prone region situated 100 kms north of Bangalore. The taluk has a population of 133,564 persons (26,171 households) living in 228 villages and covers an area of 93,037 hectares.

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

The 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.

2.2. Agriculture & Livelihood Systems

Only 47,504 hectares of land are cropped in spite of an adverse land:person ratio and strong thirst for cultivable land. This is because less than one-half of the total land is fit for cultivation, with the remaining taken over by hills and rocky fields. Only 1,925 hectares (4.5% of the cropped lands) are irrigated by an age old network of rain-fed tanks (small lakes), each irrigating 2-15 hectares of wet land. The low water table is tapped through bore wells drilled to more than 100 meters depth, irrigating a paltry 648 hectares. Even these dry up in the summer months when temperatures rise to 38° Celsius.

The average rainfall is 560 mm a year and this is, moreover, erratic and spatial. As a result there is only 1 rainfed crop a year, whose stand is from late June till December. Groundnuts are grown on 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 and a coarse variety of paddy are cultivated on the command areas of irrigation tanks. Every sixth year is a drought, followed by near famine conditions.

Daily wages during the 7 cropping months of June to December fluctuates between Rs 12 and Rs 15. During the off season these drop to as low as Rs 5-7 per day. Seasonal migration by agricultural labourers is an annual occurrence during the summer months. They come back

every June, with the onset of the undependable monsoons, to scratch a subsistence cultivation from small patches of scattered holdings, far away from the villages and hugging the hill-sides, totalling to an average of 3.6 acres per Coolie family.

2.3. THE ENVIRONMENT

The danger facing the region is imminent desertification, brought about by deforestation and soil degradation.

Though aware of the hazard, and of evident causes like felling of trees and indiscriminate clearing of common lands, the taluk takes a rather casual and blasé view of the danger. Even Coolie women are no exception. While we cannot find fault with their utterances about the lessening tree cover and depleting firewood, one always gets a lurking feeling that they are not sufficiently moved to take hard decisions.

Soils in most parts of the region, though thin and fragile, are not as severely depleted as in some other parts of the country. Multiple-cropping is still the practice with 5-6 different seeds sown alongside on the same fields. Groundnut fixes nitrogen year after year. Fertiliser usage on dry lands (which constitute 95% of the cultivated area) is very sober and pesticides are not all that common. Nutrient draining mono-crops like eucalyptus and sunflower are not popular.

Slopes in the region are not terraced and rainfall is not retained. This is an even bigger problem than low precipitation and erratic, spatial showers. Soil erosion is a definite problem and the age-old network of small and large irrigation tanks that has always been the pride of Kolar district is getting visibly choked. Fortunately this is an obvious and popularly recognised problem. The entire peasantry is willing to do something concrete to prevent lands being left fallow or badly cultivated and this accounts for our high rate of quantitative and qualitative success with Soil & Water Conservation works.

Yet the danger that emanates from mainstreamisation[2] looms large. Market forces and the capitalisation of agriculture are powerful forces that cannot be simplistically repudiated. Because of a rather thin top soil cover, and also due to a very adverse land:person ratio, there is an imminent threat of the situation soon slithering out of control.

3. Gender and Agriculture

3.1. WOMEN IN AGRICULTURE

It is a well established fact that without the paid and unpaid labour of women, cultivation is well neigh impossible. Yet agriculture is one of the areas from which women's opinions and conscious participation is excluded by the domestic rote role that they have been forced into. Women share the same status as draught animals when it comes to tilling lands and raising crops.

ADATS is totally opposed to this situation for 2 reasons. Firstly because of our unequivocal commitment to Coolie women and a policy of positive discrimination in their favour. Secondly because we believe that the situation is an impediment to technical progress. Human beings are not draught animals and can function properly only when they contribute their labour in a willing and knowledgeable manner. It therefore makes perfect technical sense to involve women as active contributors to decision making in agricultural matters.

[2] We use the term to describe new cultivators copying older ones, as well as all cultivators being drawn into intensive monoculture.

3.2. PRESENT INSTRUMENTS

Our primary intervention has been to protect the land rights of widows and deserted women, and also to defend sisters' shares in family properties. The Coolie Sangha has, from its very inception, been extremely active in this regard. ADATS has been liberal in extending legal aid for divorcees to claim alimony in the form of a share in land.

The second is to further women's role in domestic decision making on land and crop related matters. This is far more difficult and does not receive as ready a support from the Coolie Sangha. ADATS is unilaterally prepared to push the agenda with scant respect for established norms and social sensitivities. We have openly declared that we have sufficient clout and presence in the region to not hide behind excuses like offending popular patriarchal sentiments.

Some activities like the release of substantial CCF Crop Loans and loans for Off-Farm enterprises, for example, are taken up only when the Mahila Meetings are strong enough to genuinely exercise a veto power over male decisions taken in mixed CSU Meetings. Vermicompost pits are given only to the poorest of the poor – single women who work as village sweepers. Only women headed households are supported to set up Nurseries to rear tree saplings. DLDP wages are paid to women whenever the Mahila Meetings so decree. We realise that some of these are largely symbolic gestures and do not constitute serious challenges to the domestic rote role that women have been forced into. But we do believe that they contribute.

3.3. FEMINISATION OF POVERTY

There are larger socio-economic pressures pushing the subsistence peasant economy into the hands of women. Many of these indicate a feminisation of poverty and merely increase the work load of women. They push the not-so-lucrative areas into the ambit of women, while men involve themselves with faster, money-spinning wheeling and dealing in urban centres. Though these are not progressive measures in themselves, it would be futile for us to oppose such trends. Our efforts are to make socio-political and socio-legal changes to reflect the economic ones.

3.4. WOMEN AND THE ENVIRONMENT

We are not sure of the extent to which the introduction of sustainable practices is made more or less easy by our focus on Coolie women. The literature says, "A sustainable agricultural system cannot be judged simply by the ecological soundness of its farming methods. It must also provide a living for all its population, farmers and non farmers alike. It should be flexible and diversified, able to yield not only subsistence but also marketable surpluses, and it should sustain an internal rural exchange of goods and services…"[3] "…systems of polyculture that use land intensely" are proposed by some.

While we as development workers might feel that Coolie women have an intuitive grasp of the benefits of polyculture, this needs to be tested. The ratio of subsistence to marketable produce may also have gender implications, as of course does the choice of crops and crop combinations. In general, our policy is to offer material, socio-political and technical inputs in combination, all with the aim of empowering women. We have a sense that with an appropriate scale and depth of technical and material back-up, this approach may also lead to sustainable outcomes.

[3] Francesca Bray, writing in "Scientific American", July 1994.

4. Discerning an Agriculture Strategy

It is obvious and evident that agriculture occupies a vital place in the lives of the peasantry in a semi-arid drought prone region like north Kolar district. We have strongly argued that agriculture should not be viewed as just a technical matter that deals with land, water, crops and harvests. Relationships that different caste-class groups have with land and cultivation are the over-riding factors that determine just about every aspect of life and living in the villages. Any attempt to alter these relations requires non-material as well as material inputs.

Our overall strategy is a subtle 2 pronged effort. The first accent is to bring a non-cultivating agricultural labour caste-class into the mainstream of peasant cultivation as subsistence farmers. At the same time, we recognise the inherent danger in such mainstreamisation – that it is actually an emulation of environmentally harmful and economically non-lasting solutions. Therefore our second emphasis is to quickly wean the new cultivators away from these patterns and bring them to adopt more sustainable land use practices.

Sustainability is not an alien concept externally imposed on the rural poor. The creation of a lasting solution is a life and death ambition for any small or poor peasant family. This is doubly true for those who dare to burn bridges and chalk a new course through their CSU. They have no choice but to make the new work and last for a long time. If at all some creatures of their making fail to last, it is not for want of intent. It is due to a lack of knowledge as to what is exhaustible and what isn't, material as well as socio-political. This is where we development workers come in. To flounder and find, and share our searches with them.

5. Role of the Development Worker

The development worker has 2 roles to play with regard to Coolies and the environment:

Firstly she should be prepared to almost unilaterally focus attention on the dangerous and uncertain future. With certain additional training all development workers at ADATS can learn to provide clear arguments as to why the mainstream peasant economy of north Kolar district is ill-fated.

In spite of all our romanticisation of the poor, especially women, the primary concern of the population in a semi-arid drought prone area is not with the environment. Present day survival strategies are, by and large, coping mechanisms. They are not the same as indigenous lifestyles that may once have existed. The poor are just as short sighted as the middle classes and do not automatically invest in a sustainable future.
But there is a difference. Once convinced about the validity of arguments, the poor are prepared to struggle and sacrifice. This is because, as we have already stated, sustainability is not an alien concept to them. Though an environment consciousness has to be externally imbibed in the poor, they are a better bet to take affirmative action since they are not quite as set in their ways as the rich. This is especially true of Coolie women. With certain material and non-material inputs, environmentally sustainable practices can make more economic sense to them than others.

The second role of the development worker is to bring in a technicity which is fairly complex and intricate.

Ecological trends are not easy to visualise and predict. Apart from being a science that requires fairly precise measurements, ecology is a concept that is difficult to grasp when in an existentialist frame of mind.

Empowerment and the environment have always been difficult bed fellows. The debate is only now beginning to get resolved. It revolved around arguments of long term *vs.* short term gains. Empowerment, for example, was thought to require hitherto oppressed Coolies to assert a new and healthy individualism, leading to clear headed assertiveness in the market

place. This was at odds with the long-termism required for a change toward a deepened form of polyculture. Only now do we realise that environmentally sound solutions also lead to improved economics, provided long-term investments are made.

6. Invitation for Dialogue

As with all our documentation, this too is written with the express goal of inviting constructive suggestions and criticism from subject matter specialists, social scientists as well as concerned and sensitive persons, friends, partners, and well-wishers.

SECTION "B" : AGRICULTURE STRATEGY

Based on actual experience and the rather impressive results that we have obtained, we have identified several activities/areas of involvement which comprise our Agriculture Strategy.[4]

We have placed these inputs on a time-scale matrix (annexed to this document) which attempts to show the inter-relation of each activity with the other.

It will become immediately apparent that ADATS and the Coolie Sangha take a holistic view of agriculture, embracing socio-political, economic, cultural and gender realities. At the same time we do not in any way compromise on recognising and acting upon the problem of declining yields and carrying capacities.

At first glance the list may appear to be overwhelming. This is not so since our strategy is merely a logical ordering of actual activities already being carried out.

The 3 major steps in this agriculture strategy are:

- positioning a non-cultivating caste-class through the instilling of aspiration,
- consolidating subsistence agriculture practices, and
- moving towards sustainable land use practices..

1. Land & Wage Struggles

Land and wage struggles undertaken by the CSUs to redress past grievances form a vital pre-activity imperative. These struggles not only redress actual problems, but also instil a unity and discipline which is far more than the ganging up of a particular interest group. Such a discipline is needed to make tough choices and embark on the difficult road to real development.

Struggles assert the Coolies' new position as a people who are able to take their lives into their own hands; that they can face problems, analyse and find appropriate solutions on their own, without the unwelcome assistance of the middle peasants, their values and lifestyles. In a word, land and wage struggles counter alienation and the deeply imbibed culture of poverty.

2. Grassroots Planning

2.1. Discussions

Discussions on the DLDP start from the 3rd year of Coolie Sangha building. Coolies visit the older villages and see for themselves how this programme strengthens their position in village society and paves the way for a sound economic development by bringing Coolie lands to a cultivable state, increasing wages, ensuring equal wages for women and men, promoting off-farm ventures and creating food security for the poor.

[4] Many of these have gone under the name of DLDP – Dry Land Development Programme.

Each CSU mentally adapts the DLDP to their own situation and starts envisioning the details of what they would do with the tremendous labour capital that they can unleash. Each individual Coolie landholder sits on her land and conjures dreams and visions of how she would re-shape the fields to prevent soil and water run-off.

2.2. Land Surveys

In the 4th year of Coolie Sangha building, a detailed socio-economic survey is re-conducted to correct the land holding information in our databank. Village wise DLDP Plans are generated, based on these land holding figures.

2.3. DLDP Plans

Labour capital availability is calculated as Membership strength x 25 days x 5 months. This is then divided by the total land holding of the Members in the CSU. Our computer follows an acre-point system which modifies the holding of each Member according to the condition of her land. Bad lands are given more points and good lands less. As a result, allotments of labour capital are higher for denuded lands and lesser (poorer) land owners. Conversely, they are less for Coolies with more land.[5]

The result is then multiplied by each Member's holding and tentative DLDP Plans which detail the labour capital allotment to each land owner are generated. These are distributed to the CSUs for further discussion.

Once accepted, the final DLDP Plans are printed and distributed to everyone. When multiplied by the wage figure, the Plans give a precise budgetary statement of works to be carried out and wage payments to be made. It is totally transparent, accepted and recognised as theirs by the ones who make it. In order to avoid arbitrary actions which can lead to favouritism and infidelity, no changes are allowed under any circumstances.

3. Soil & Water Conservation (DLDP) Works

From the 5th year of Coolie Sangha building, DLDP works are carried out for the 5 summer months of February to June every year, for 3-4 years. Essential tools and implements are distributed, and each CSU divides itself into manageable work gangs of 14-18 members. They then descend upon each Member Coolie family's holding and work according to the DLDP Plan for the allotted number of days.

DLDP works include pebble and boulder clearance, clearing virgin lands of shrubs and boulders, the building of stone contour bunds, ravine and gully check, building retention walls (*kanji*) on foothills, digging of diversion trenches, planting grasses and shrubs on the bunds, protecting rocky patches for the regeneration of native tree species, de-silting old wells, digging farm ponds, and a host of other works that the land owners and our Agriculturists together decide upon. The Agriculturists regularly visit the work sites and give continuous advice to each land owner and work gang to identify contour lines, examine the quality of the stone bunds, and deal with various other technical matters.

Attendance Registers are maintained and special DLDP Meetings are held at the end of each completed work, where the land owner records her satisfaction or otherwise. Special problems and achievements are mentioned and lessons learnt for the next set of works.

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[5] The average Coolie land holding is only 3.6 acres. But because of the multi-ethnic composition of the Coolie Sangha, there are quite a few Member families with considerably bigger holdings. Another problem is the landless. They comprise 11-15% of the Membership and the only benefit they get from S&W Conservation works are daily wages.
These are post-DLDP figures, after Coolie families cleared adjacent government waste lands and increased their holdings, and CSUs got land for many landless families.

DLDP Field Workers regularly visit the work spots. After going through the DLDP Plan, Attendance Register and DLDP Minutes Book, they issue payment vouchers. The land owners produce these vouchers and collect their cheques at the respective taluk headquarters.

Children below the age of 15 are banned from working. It is ensured that each work gang has a balance of men and women. Women and men receive equal wages. On the Mahila Meetings' special recommendations, some drunkard's wages are deliberately paid to their wives. Some CSUs "link" wage payment to compulsory attendance at Adult Literacy Classes. Most have collective saving schemes whereby a part of their wages is ploughed back into the Sangha Fund of the CSU.

4. Major Land and Socio-political Struggles

The commencement of DLDP works usually leaves the middle peasantry a little stunned. But they soon wake up to realise that very powerful forces have been unleashed by this artificial intervention into the labour marker.

Sometimes there are direct confrontations between the Coolies and *Ryot*s. These take an ugly turn with the middle peasantry attacking them for daring to attempt an independent economic existence. Intimidation soon leads to physical violence, often with the connivance of local officials.

The BAGEPALLI COOLIE SANGHA uses its considerable clout to handle these situations with extreme dexterity.

Often times the attacks are indirect, with petty problems blown out of proportion. It could be a few pigs wandering into a *Ryot's* fields, a silly fight at a drinking water well, a temple entry dispute, or even a simple tussle between village youth.

But the most common *Ryot* tactic is to prop up a non-CSU Member Coolie family to create problems for the organised Members. These could be border disputes with the trouble maker claiming that the work gang has encroached upon a few feet of an adjacent plot, or even a problem quite unrelated to land and farming. *Ryot*-Coolie contradictions come into evident play when the non Members suddenly receive disproportionate support from the village leadership and petty officials.

Once again, the overall taluk level clout and presence of the Coolie Sangha comes into play to solve these problems. Serious efforts are made to make everyone realise that the middle peasantry find it much easier to cajole and "cultivate" a small section of the Coolie population in each village when freed of feudal obligations with the break-down of Patron-Client relationships.

The net result of these latter-day struggles[6] is that most CSUs are able to consolidate an invincible village level presence by the end of the DLDP works, in the mid-Coolie Sangha Consolidation phase of ADATS' intervention. Power equations at the village level take an immutable turn for the better. Coolies are able to purchase a dignified peace without which everyday events like cultivating land, grazing cattle and raising a family can never get done. This has to be understood as a far more basic and fundamental re-positioning of Coolie status than the functional unity that is needed to undertake development efforts.

On the other hand, a few CSUs succumb to *Ryot* pressure during this phase and never quite recover. Even if they continue, their existence always borders on the perfunctory. The reasons for this failure are internal weakness and time serving opportunism.

Our failure to offer constant support comes as a close second. Sometimes we are simply too tired to offer a particular type of assurance or assistance. We justify this by claiming that we

[6] Different from the pre-DLDP land and wage struggles.

cannot "parent" a people forever. But the truth is that with vertical and horizontal growth, we too are tempted to offer a homogenised NGO response to problems that we tend to see in a standardised and uniform manner.

Ironically, a lack of strength which comes from debilitating poverty, as is often the case with large and isolated Harijana and Tribal settlements, has never even been a reason for CSUs floundering.

5. Therapeutic Measures

Severely degraded lands which have not fully benefited from the S&W Conservation works are individually studied to devise suitable remedies.

Some of these are fairly radical and thereby unpopular measures. Fodder, fuel or even an entire crop may have to be given up. Lands may have to be left barren to "recover". There is an understandable resistance. But most CSUs have proven themselves to be strong enough to force an individual to comply.

Leaving lands fallow.

Fortunately we have not come across too many fields that need this extreme measure. But in the event of this recommendation being made, the land owner needs to be partly compensated for her loss.

Vertical Mulching is a system by which curved trenches are dug along the contour of the land and crop residues (stem, leaves and roots) are filled into these underground pits and then covered with soil. They form underground bunds to retain moisture, and also contribute to improving the texture and biological content of the soil.
The main problems are the labour cost involved in digging the contour trenches, and the fodder/fuel loss that the land owner will have to suffer.

Green Manuring by growing crops like cow pea and horse gram, and ploughing the entire standing crop into the soil.

Erratic rainfall is the main problem with this measure. It way not always be possible to let the green manure crop grow to the optimum stage since then it may be too late to sow the main crop. However, since groundnut itself is a good nitrogen fixer, this measure is not recommended on most lands.

Adding Gypsum to alkaline patches.

Cost is the major problem.

Hauling Sand to improve the texture of the soil.

The above is not an exhaustive list. It is only indicative. Our Agriculturists realise that they have to be in constant touch with outside expertise and the current literature to solve particular problems with unique solutions that have been tried out in different parts of the country.

6. S&W Conservation – Repair and Maintenance Works

After a gap of 2-3 years, natural filling would have taken place with loose soil from the upper slopes accumulating next to the contour bunds, on the lower slopes of fields. But in the meantime, new contours would have got etched onto the bunded and reclaimed lands. These need to be addressed before a gradual terracing can take place.

During the 10th year of Coolie Sangha building, 1-2 years after the completion of initial S&W Conservation works, the Agriculturists conduct detailed surveys of each and every acre of Member holdings where DLDP works were carried out. They record their findings on bunding quality and gradient, and note any special observations.

CSUs form themselves into work gangs and do similar Soil & Water Conservation works as carried out during the first 3-4 year phase. The only difference from the previous effort is that acre-points are not automatically calculated according to land holdings and land type. Instead the Agriculturists' advice is mandatory when deciding what works have to be carried out and for how long.

7. Silt Hauling

Silt hauling can only be taken up after very good contour bunds are in place and natural filling has levelled the lands. Otherwise the fine alluvial soil will be washed back to the irrigation lakes from where it was hauled. This has been the fallacy with various tank de-silting programmes taken up by the government – they show a commitment to the tanks without bothering to look at the catchments.

In the 12th and 13th years of Coolie Sangha building, after completion of Soil & Water Conservation works, each CSU will engage 1-2 tractors, dig up silt from the dry tank beds and haul it onto their lands. 1 person from each Member Coolie family works without wages for 3-4 months to dig up the silt, load it onto the tractors, and unload onto their fields. Each family themselves spread the silt onto their fields and plough it into the soil, with the first tilling, just before the cropping season.

8. Allied Activities

The DLDP does not comprise only the undertaking of Soil & Water Conservation works. A whole lot of allied activities are taken up by the Agriculturists and DLDP Field Workers. In the 5th and 6th years of Coolie Sangha building, after the completion of 5 months of Soil & Water Conservation works, the Agriculturists and DLDP Field Workers use the remaining non-summer months to encourage various ancillary activities. These include:

The growing of horse gram as a green manure crop and ploughing it into the fields before planting millets.

Building Vermicompost units.

Recommending vertical mulching as a therapeutic measure.

Compost making.

Planting *Seema jali* (*Prosopis juliflora*) as a fuel tree.

Training women masons to build smokeless *Chullas* (fuel efficient wood stoves).

Raising Nurseries, etc.

9. Cropping Advice

In the 7th year of Coolie Sangha building, 2 years after the initiation of DLDP Soil & Water Conservation Works, Coolie landholders are ready to properly cultivate their lands for the very first time. But extension advice cannot be given in a boorish manner.

It must be borne in mind that Coolies already know a lot about crops and farming by virtue of having worked for generations under the *Ryots*. But at the same time, they would have absolutely no managerial experience in actually overseeing various activities and making resource allocations. Without in any way ridiculing their rich and accumulated knowledge base, and at the same time realising that these first-time cultivators do have serious handicaps, our Agriculturists gently guide them through various planning and implementation activities involved in raising dry land crops.

It is to the credit of the DLDP Staff that they are able to do this rather dextrous job without stepping on anyone's toes. The ADATS policy to appoint women as Agriculturists does seem to help in this regard.

10. Crop Loans

Crop and related[7] loans are given out at the rate of about Rs 1,000 per acre. But each CSU, depending on their collective lending confidence and individual borrower confidence, is given the freedom to decide if they want to give out such heavy amounts. The volume of CCF crop loans tends to be fairly high in the initial years. They then sober down when the Member families have some reserves in the form of seed kept back from the previous harvest, draught animals of their own, etc. It then rises once again when the Agriculturists giving more intrinsic advice like deep ploughing, seed treatment, crop rotation, etc.[8]

Repayment of crop loans is close to 100% unless there is deliberate default by an entire CSU. Even these are in the form of short lived protests against the Coolie Sangha. In the event of crop failure, the CSU gives the borrower time for another year so that she can borrow once again and then repay both the loans with the 2nd year's harvest.

11. Veto Powers to Mahila Meetings

The strengthening of the position of women in a community is the most vital determinant for the level of cultivation that the particular caste-class can attain, within the limitations of a geophysical region. It takes a thoroughly unbiased and deep understanding of gender to realise this intrinsic and imperative link between women and cultivation. In fact, this is as vital a preponderant as the macro-connection between democracy and development.

The instrument used by the Coolie Sangha to strengthen the position of women are the Mahila Meetings. Unless these exclusive weekly fora begin to function in a genuinely authentic manner, Coolie women will not have that clout and position within their respective families, which is necessary for them to contribute as equals in the field of cultivation. Until such contribution is forthcoming, Coolie families cannot improve their cropping.

One of the greatest strengths of the Coolie Sangha is that this truism is genuinely internalised by the organisation and it's functionaries – they recognise macho behaviour as an impediment to progress.[9]

By the 4th year of Coolie Sangha building, in the Formalisation phase, the Mahila Meetings would have reached a level of maturity and effectiveness with which they earn a special position in village society. Their collective decisions should have become the final say. Coolie women would have obtained a veto power in money matters taken by the mixed CSU Meetings, especially with regard to interest-free loans given by the Coolie Credit Funds.

This is an important precursor to taking up DLDP works and, more importantly, for using the decentralised village level credit structures to promote off-farm ventures.

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[7] Draught animals, implements, etc.

[8] Of the total CCF lending of Rs 58.16 million through 31,300 loans, 36% of the moneys and 57% of the loans has been given as crop loans.
The comparative figures for cattle rearing (the chief off-farm activity in the region) are 33% of the moneys and 23% of the loans.

[9] *"Bharya, Bhartha, Bidda…"* (wife, husband and child…) is a protest slogan of the Coolie Sangha which speaks volumes through it's exquisite understatement…

12. Off-Farm Enterprises

By the 7th year of Coolie Sangha building, in the Consolidation phase, when DLDP Soil & Water Conservation works are well under way, Coolies would have gained an economic sense and purpose. Socio-political gains would have become a matter of course, and platforms of strength should have been obtained by the organised small and poor peasants.

ADATS will have raised the capital available in their decentralised village level CCFs to serious levels, and the Coolies would be prepared to make an earnest investments in ventures like cattle rearing, dairy farming, and various other small businesses. Their aim would be to increase family income and create lasting assets.

This will be a long term goal that the Coolies get committed to. A socio-economic ambition that demands not just the making of economic adjustments, but also the re-shaping of the very milieu in which they live. They would strive for a status that is substantially different from the one suffered by agricultural labourers who subsist on a constantly changing and uncertain day to day survival plan.

13. Non-Farm Activities - Skill Training & Placement Services

There is a definite ceiling to off-farm ventures that can be taken up in biomass poor regions like Bagepalli. The population pressure on land (land:person ratio) is constantly growing. Both these factors demand that Coolie families should be prepared to invest in non-farm activities that do not have any basis in cropping and cultivation. This has to be a part of any sensible agriculture strategy. With this in mind, ADATS encourages young Coolies to learn new skills and move away from cultivation.

14. Experimentation & the Organic Farm

Large NGOs who are committed to search for sustainable land use practices for the rural poor have a responsibility to experiment and find new practices that are suited for the specificity of the region. However, this must be understood as different from the scientific community running research stations. Our thrust should be on *applying* the research findings, identifying concrete problems and finding practical ways by which small and poor peasants can overcome them.

In agriculture, however, the problem is that these field trials tend to be long drawn out and expensive. Dry land cultivation goes by annual seasons and off-farm activities by gestations. They require patience, wherewithal and an intuitive sense as to what is worth investing in. The practices are not always economically viable in the short term. Surrounding farmers frown and ridicule practices that go against the grain. Therefore, such experiments cannot be viewed as “demonstrations” in the traditional sense.

We have to be very prudent and cautious when making investments.

From 1980 to 1986, ADATS did some groundbreaking work on stall raising cross-bred cows. We demonstrated that hybrid milking animals, with a very high percentage of exotic Holstein, Red Dane and Jersey bloodlines, can perform very well on a dry fodder diet (i.e. without green grass) in a semi arid drought prone region. Our milk yields and reproduction figures compared favourably with international standards. As a result of painstaking work for more than 7 years, the authorities finally accepted our proposition and today there are more than 10,000 cross-bred cows in the 228 villages of the taluk, and the government has set up an extensive network of milk collection societies and veterinary services.

Fortunately for us, this was not a loss making venture and senior staff of ADATS were actually supported by dairy incomes!

Then again, from 1986 to 1988, ADATS collaborated with the University of Agricultural Sciences to breed and propagate a synthetically derived breed of chicken which merged the positive qualities of exotic and indigenous breeds. Today the *Giriraja* chicken (popularly referred to as the ADATS chicken) in a common sight throughout Kolar district.

The moment that the synthetic breed was propagated and private farms got their incubators and hatcheries, we abandoned the activity and converted our poultry into a training centre.

In a similar vein, in 1988, ADATS invested on a 43 acre farm, 6 kms from the taluk headquarters, and began experimenting various tree growing, alternate cropping, and off-farm activities. Over the years, the practical lessons learnt on this farm have been applied to the benefit of Coolie families in the villages.

We give blow some illustrative examples of lessons learnt at the organic farm, and their field application:

We now know that coconuts are not suited for the region. Even if the trees are grown with drip irrigation, they will never yield properly. Moreover, even a mature coconut tree is susceptible to total destruction in just 1 single year of drought.

*The government's earlier recommendation for the region, to grow coconut and sweet lime (*moosambi*) with drip irrigation is now withdrawn.*

Eucalyptus is harmful even when planted on avenues. It was always known that the species depletes groundwater at an unbelievable rate. But it was widely not known that the leaf droppings of eucalyptus releases a toxicity that makes the soil totally barren.

Mango and tamarind are ideally suited for the specificity of this region. Not only can they resist drought, but actually fruit better when left to dry for a couple of months before the onset of monsoons.

This learning has been used to design a Dry Land Horticulture Project which we will describe at some length in this document.

Drip irrigation is useful only in the initial years to stabilise an orchard. After some years, it is necessary to thoroughly drench the root system once in a while, even when regular and continuous irrigation is not possible. Pouring a little water for a fruiting plant is actually harmful in the summer months.

The best way to control pests in an orchard is to <u>not</u> de-weed the fields. Bugs and insects find the weeds far more tasty than the actual plants that we grow.

Natural regeneration is the quickest way to afforest a patch of land. Most species which naturally regenerate are not harmful for multiple cropping – i.e. there are practical ways to handle problems like shade and root competition.

Power tillers are not a realistic substitute for draught animals. Though these small machines can reach far off fields where tractors cannot go, their maintenance is not viable in a dry land farming region.

The poor have no option but to clear boulders and make temporary roads if they want to deep plough their fields once every few years.

Vermicompost is an excellent substitute for chemical fertilisers in spite of the fact that the droppings of earthworms is not a fertiliser at all. All that it does is to rejuvenate the soil and encourage the growth and action of micro-organisms.

The direct use of farm yard manure and half composted wastes is dangerous in a dry region since it encourages the growth of root eating grubs.

As a result of lessons learnt on our organic farm, 22 sweeper women have a good and running business in as many villages, decomposing village sweepings and feeding them to specially bred earthworms.

Goats can be stall reared in this region, but the risk is not worth taking. A small herd, when it accidentally strays loose, can irrevocably destroy an orchard in a matter of minutes.
Sheep are a better option and cross-bred rams can improve a stock's blood-line in a matter of just 3-4 years.

The Coolie Sangha now refuses to give out CCF loans for rearing goats. Instead, the emphasis is on sheep and cross-bred rams.

Though a very heavy investment has been made on this organic farm over the past 9 years, we always have one ear to the market. We consider the venture as an *asset creating investment* rather than as an *income generating* one. The idea is that when the 43 acres are sold, our entire investment will be recovered. But in the meantime, maintenance costs are difficult to cover.

15. Moving towards Non-Chemical Farming

As mentioned in the first section of this document, fertiliser usage by the small and poor peasantry is nominal, and pesticides are rare. Moreover, the taluk as a whole does not favour chemical bombardment.

A sardonic interpretation is, of course, the soaring cost of fertilisers in a non-viable dry land farming region. But we believe that there is reason to take a slightly more positive view of the matter. Grape growing, for example, has been all but abandoned by the middle peasants, in spite of stupendous results. One of the reasons for this is the steady spraying of chemicals, that most villagers object to.

These are ideal circumstances to try and wean the cultivators away from chemical farming. If alternate practices can be offered, even the *Ryots* are willing to try them out. This is one of the reasons why, for example, the sale of vermicompost has not been a problem.

16. Linking with Urban Activists to find a Niche Market

But, at the same time, we should not belittle market forces and the general trend towards capitalistic, high input mono farming.

This is the reason why we believe that a solid and sustained campaign style action needs to be initiated if we are serious about moving towards non-chemical farming.[10] To do this, we need to involve external expertise, environmental groups, and others to carve out a niche market for fruit, vegetables, grain and pulses produced under these circumstances.

Such a niche market would not only provide economic support, with select consumers willing to pay more for better quality food, but also serve as a vital political solidarity statement that such pursuits are not mere flights of fancy.

17. Dry Land Horticulture

17.1. Overview

Dry Land Horticulture is the ultimate step in our present agriculture strategy. It is an activity which is taken up after a solid functional unity is attained by the Coolies and their lands are cleared, levelled and developed. 20-25 Member families per village CSU are encouraged to set up common watering arrangements. They share this water to grow tamarind and mango trees.

[10] Actually, we mean a Low External Input Sustainable Agriculture (LEISA) practice rather than a No Input situation.

Each participating family puts aside 1 acre of dry land. These are contour bunded and levelled fields on which extensive DLDP works were carried out in the 5th to 8th years of Coolie Sangha building, and repair and maintenance works in the 11th and 12th years.

Member families declare their willingness and put aside 1 acre of land for raising trees. They clearly state that they are prepared to make economic sacrifices like the daily labour of 1 person the whole year round for 4-5 years, give up cropping the fields for 2-3 years (in the 3rd and 4th years after planting), and maintain the orchards even when there are no returns.

17.2. REASONS

The 3 reasons for taking up this activity are to change the cropping pattern, judiciously use ground water which is a scarce resource, as well as a wider environmental consideration.

Scanty and erratic rainfall contribute to making every 6th year a drought in this region. This is followed by famine, when there is starvation and untold miseries.
But a study of the rainfall pattern reveals that droughts do not always occur due to LESS rainfall. Rather, they are a result of ERRATIC (untimely) and SPATIAL (badly distributed) precipitation. The annual average of 560 mm does not alter too much.
Erratic rainfall is disastrous for field crops. But it does not effect tree growth too much. On the other hand, mango plants need a dry spell of 2 months IN ORDER TO FRUIT WELL. And tamarind trees fruit bumper crops during drought.

When compared to all other traditional forms of groundwater use, this is an extremely judicious employment of a truly scarce resource in the region. Even when we grow irrigated dry crops like mulberry and hybrid *Jowar* or *Ragi*, a single borewell can only benefit 1 farmer to cultivate 2-3 acres. Whereas a common well can be used by 20 families to grow trees on as many acres of land.
This is possible, of course, only because of the tremendous unity and sense of the collective that has developed in the Coolie Sangha. Other models of community irrigation have failed due to many practical difficulties.

We have been able to interest the Climate Change Convention on the Carbon sequestration potential in dry land horticulture.

With technical assistance from the Indian Institute of Science, we have theoretically demonstrated that this is an extremely efficient way to mop up CO_2 emissions from the atmosphere, and also store C in the newly created biomass of stems, roots and grasslands.

United States Initiative for Joint Implementation (USIJI), a bureau in the Department of Energy, has studied the scheme and given their technical clearance.
The commercial sector is being approached by environmental NGOs and Climate Change activists, to convince them that they must participate. Friends and well-wishers of the Coolie Sangha are trying to "sell" Carbon (sequestration) Credit to polluting industries.

17.3. ACTIVITIES

Pitting

The benefiting families clear the plots and make field bunds. DLDP Field Workers mark 40 pits per acre, each measuring 1 cubic metre and 10 metres apart. Once dug, the pits are aired for 1 month and then fired with shrubs and leaves.

Field Tanks

Over-ground water tanks measuring 2 metres x 1 metre x 1 metre high, are built at convenient spots on each plot. Field Workers ensure the timely supply of bricks, sand, cement and waterproofing powder, and supervise the quality of work done by local masons.

Sand, Red Earth & Farm Yard Manure

Sand, red earth, and farm yard manure is hauled onto the lands to fill each pit and get ready for planting.

Supply of Saplings

Depending on the benefiting family's ability to care for the plants (the Member's age, physical disabilities, and financial wherewithal), 40 year-old saplings of Mango or Tamarind are distributed with the onset on the first rains in the month of August.

With proper staking, mulching and pot drip irrigation, we expect a survival rate of over 60% after 1 year. This means that another 16 saplings will be supplied in the 2nd year and yet another 6 saplings in the 3rd year.

17.4. WATERING ARRANGEMENTS

Wells and Bullock Carts

Bullocks and carts fitted with water tankers are bought, one for each CSU. Each CSU selects a Member Coolie family to look after these – i.e. haul water for the 5-6 summer months, and use the bullock carts to earn a family income during the remaining months.
Borewells are drilled on plots of land registered in the name of the Coolie Sangha, pumpsets fitted and energised. In some villages, existing borewells of Member families are taken over, free of cost, by the respective CSUs. Some other CSUs try to get Gram Panchayat and government permission to dig open wells in the tank beds since this can benefit the entire village and their cattle during the dry summer months.

Field Tanks to be filled twice a week

Making 2 trips per day and working for 5 days a week, the bullock carts are able to fill the individual Field Tanks on each benefiting family's orchard twice a week. The benefiting family immediately hand pours this water at the rate of 32 litres (2 pots) per plant.

Bi-weekly watering for 5 months every year, for 3 years

This ensures 8 watering a month. It has been confirmed, at our organic farm in Bagepalli, that 40 such watering during the 5 summer months of February to June every year, for the first 3 years, are enough to firmly establish Mango and Tamarind saplings.

17.5. ECONOMICS

Expenses

The total expenditure for each benefiting family, over a 3 year period, works out to Rs 5,050. Their own contribution, which includes labour to water the plants and care for the orchards (carry water from the Field Tanks to each individual plant, clear weeds, watch and ward, etc.), is extra. It is a full time job for 1 person from each family, the whole year long, for 3-5 years.

Returns

For the 1st and 2nd years the families will be able to plough between the pits and grow groundnut, which will fix nitrogen. But from the 3rd year, branches will obstruct tilling and shade will effect crop growth. So there will be absolutely no income for the next 2 years. The plants should establish themselves in the 4th year and require no more summer watering.

Fruiting at the rate of about 10 kgs per plant should commence from the 5th year onward and steadily increase from then onward. 400 kgs of Tamarind, at the lowest possible rate of Rs 5 per kg, should give an annual income of Rs 2,000 in the 5th year. We expect that yields will

increase at a rate of 10 kgs per tree from then onward to stabilise at about 100 kgs per tree per year. Mango will give even better returns, but runs the risk of market fluctuation.

17.6. TECHNICAL SUPPORT

Our Agriculturist and DLDP Field Workers have developed a set of simple practices for caring for Mango and Tamarind orchards. They disseminate this information through various training sessions and continuous field visits. The Agriculturist will also experiment and demonstrate related practices.

The Assistant Horticultural Officer, Government of Karnataka, has agreed to be fully involved in the project. Experts from Bangalore are willing to visit on a regular basis to give specialist advice on diseases, variety, etc. Professors from the University of Agricultural Sciences, Bangalore, want to be involved in order to assess the viability of the scheme and propagate it's effectiveness.

The Centre for Ecological Studies, Indian Institute of Science, Bangalore, will continually monitor the Carbon sequestration capacity of this activity and link it to the global Climate Change Convention.