Investing in Coffee Farmer Livelihoods: Intervention Methodology

Our investments in support of farmers focus on one key practical and measurable goal: that of *sustainably increasing annual coffee cherry yield from 0.5 kg per tree year to 2.5 kg /tree*. For the average Timorese coffee farmer who has one hectare of coffee land supporting 2,000 coffee trees, this result can lead to up to a five times increase in family income.

Our approach to increasing coffee yield is to implement regenerative agriculture practices that increase soil and plant health through repair / restoration of nutrient, water and soil carbon cycles. By doing this we can help farmers establish a *low-input system that is maintained by sound management and doesn't require high cost and often unaffordable inputs.*

Five Steps for Regeneration Of Coffee Farmer Livelihoods

1. Increase Soil Ph to 6

Typically soils are about 5.0 pH which causes nutrient imbalances which restricts optimal growth of the coffee tree. On a typical 1 ha farm, some 4 tonne of agricultural lime is needed to be incorporated into the top 10 cm of soil to achieve a minimum pH of 6.0. The most affordable solution to accessing this lime is to grind locally occurring limestone to a fine particle size and delivering it to the farmer.

INVESTMENT : 4 tonnes / ha of agricultural lime at $70/tonne including delivery: $280/Ha

2. Hard Prune Coffee Trees

Typically, coffee trees are aged and 4 metres or more trees with a lot of old wood and sparse new growth. To bring the trees back into high production can be achieved by stumping (cutting) the trees. Coffee Regeneration Team of 4 people equipped with chainsaws working alongside the farmer assist the farmer for 1 day to stump 800 trees (~1/3 ha). This assistance enables the farmer to quickly impact on a huge job using modern tools that they wouldn't otherwise have access to.

INVESTMENT: 4 people plus chainsaw / safety equipment, site transport and food for 1 day : $100/ha

3. Replacement Planting of Coffee Seedlings & Nitrogen fixing Shade Trees.

Maintaining a diverse cover of nitrogen fixing shade trees such as *Leucaena*, *Grevillea* (silky oak), *Albizia* and others provides a sheltered canopy under which coffee trees thrive. The shade trees can also support livelihoods through timber production as well as production of fodder for small stall fed cattle enterprises which further supplement family income.

Following pruning, there are also spaces where old coffee trees have died and needs ot be replaced in order to maintain a target of 2,000 productive coffee trees per ha. Often up to 500 new coffee seedlings (25% of trees) are needed per ha.

INVESTMENT: Supply 240 mixed species shade trees (@25c/tree) and 500 coffee seedlings (@80c/seedling) for planting by farmers. $460/ha.

4. Supply Chicken Manure to Trees.

The stumped coffee trees will only quickly respond to high production if increased nutrition is provided. Approximately 4 kg per trees is applied at two split applications (November and March). For 800 trees some 3.2 tonne of chicken manure is needed in year 1. For the balance of 1200 trees a further 2.4 tonnes is needed at year 2 and year 3. trees . is needed. 40 kg bags of chicken manure are sourced and transported to the farmer at a cost of $1/bag plus transport of $100 for 3 tonnes.

INVESTMENT : 8 tonne of chicken manure over 3 years at $80/tonne delivered: $640 over 3 years (Year 1)

5. Establish Nitrogen Fixing Cover Crops

Establish legume rich cover crops under the coffee trees to protect the soil surface from erosion, maximise the capture of energy from the sun (through photosynthesis), increase biological activity in soils and fix atmospheric nitrogen in the soil.

INVESTMENT: 60 kg of cover crop seed / pinto peanut cuttings @ $60/ha

Capital Investment Required Per Ha

To implement the five steps for regenerating coffee productivity requires approximately USD$1440 for the typical one ha family coffee farm in Timor-Leste.

Five Steps for Regenerating Coffee Farmer Livelihoods	Cost per 1 ha Family Farm (USD)
1. Increase Soil pH to 6	$280
2. Hard Prune coffee trees	$100
3. Plant new coffee & shade tree seedlings	$460
4. Chicken manure natural fertiliser	$640
5. Nitrogen fixing cover crops	$60
TOTAL	**$1,440**

Initial Trials

If you are interested in discussing, collaborating in, or contributing to financing of initial trials of this work please contact me at peter@timormountain.com

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