

PPP Project “Improvement of Coffee Quality and Sustainability of Coffee Production in Vietnam”

Project Final Report

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List of abbreviations

4C	Common Code for the Coffee Community
BOD	Biological Oxygen Demand
COD	Chemical Oxygen Demand
EDE	Emden, Drishaus & Epping Consulting
EMA	Environmental Management Accounting
FFB	Farmers' Field Book
FFS	Farmers' Field School
FOB	Freight on Board
GAP	Good Agricultural Practice
GATE	German Appropriate Technology and Ecoefficiency Programme
gb	green bean
IPSARD	Institute for Policy and Strategy for Agriculture and Rural Development
ISO	International Standards Organisation
K	Potassium
MARD	Ministry of Agriculture and Rural Development
MMS	Moisture Management System
N	Nitrogen
na	Not Available
NGO	Non-Governmental organisation
NKG	Neumann Kaffee Gruppe
OTA	Ochratoxin A
P	Phosphorus
PO	Producer Organisation
SAI	Sustainable Agricultural Initiative
TCVN	Tieu Chuyen Vietnam (Vietnam's Standards Committee)
US\$	United States Dollar
Vicofa	Vietnam Coffee and Cocoa Association
WHO	World Health Organisation

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1 Key characteristics

Region: Vietnam, Quang Tri Province, Huong Hoa District.
Partner: Tan Lam Agricultural Product Joint Stock Company
Donors: Kraft Foods
Douwe Egberts Foundation (Sara Lee)
German Technical Cooperation
Budget: 1,502,000 Euro
Duration: Phase 1: March 2001 - December 2003
Phase 2: January 2004 - June 2006

2 Project Background

The Vietnamese coffee sector expanded quickly in the last decade in terms of total area planted with coffee as well as volume of coffee exported. The total amount of exportable coffee has doubled within the last 7 years reaching a total amount of over 11 million bags (1 bag = 60 kg) in 2001. This makes Vietnam the second largest coffee producer in the world after Brazil, with an even higher production than the traditional coffee producer Columbia.

The impressive development of the coffee sector was fuelled by good world market prices in the mid 1990s and a very competitive market in the consuming countries - especially Europe - where roasters were looking for lower priced alternatives to replace Arabica coffees in their commercial blends. Due to newly developed technologies, it was possible to upgrade Robusta coffee allowing it to compete against higher priced Arabica coffees of lower grades in terms of cup quality. This gave Robusta coffee a wider use in commercial blends and a greater market share.

Around 95% of the exported coffee from Vietnam is Robusta receiving only around half the price of the higher quality Arabica coffee. However, as the total output per hectare Robusta is higher compared to Arabica, and applied processing techniques are less complicated and less costly. Arabica and Robusta trees require different agro-climatic conditions and suitable Arabica areas are somewhat limited in Vietnam. Development of coffee hence focussed on Robusta and Vietnam boosted its Robusta production in the 90s in order to bring economic development to the rural areas.

In 2000-2001, there was a severe oversupply on the coffee world market which pushed farm gate prices for coffee under production costs in most of the coffee producing countries world wide and even in the low labour cost and partially subsidised coffee sector of Vietnam. Internationally, Vietnam was blamed for the depression of coffee prices as they have flooded the world market with ever growing quantities of low quality coffee leading to the oversupplied situation.

Of course Vietnam itself was also suffering from the present low prices: coffee farmers being involved in the production of Robusta have been making financial losses and are not able to keep up their production under given circumstances. The policy goal of

bringing development to rural areas through mass production of Robusta was failing under the recent price scenario.

Behind the difficult coffee world market background, the new policy of Vietnam to focus more on quality improvement and stabilise production at around 600.000 to 700.000 MT (of which in the future 30% is targeted to be Arabica coffee) has been widely discussed and publicised. However, despite increasing international exposure by Vietnamese coffee officials on conferences outlining the new quality orientated policy, the reputation of Vietnam as the villain in the coffee world remains and needs to be corrected. Presently, prices have improved somewhat and Vietnam's production has stabilised after its peak in 2001. Still, the low prices clearly showed a need for improved sustainability throughout the coffee chain.

3 Goal, results and activities

The overall goal of the project, in line with policy objectives of the Vietnamese government, is to: "improve coffee quality and sustainability of coffee production and post-harvest treatment in the project areas of Khe Sanh and Huong Phung region with regard to the economic, social and environmental dimension."

A number of 5 Results with related indicators and activities were specified at the start of the project to guide implementation and enable monitoring. Result 1 has been financed by the Douwe Egberts Foundation and GTZ, results 2, 3 and 4 have been supported by Kraft Foods and GTZ. Result 5 has been supported by both DEF and Kraft.

Results to be obtained in order to reach the goal are:

3.1 Result 1

Best agricultural techniques for coffee cultivation have been identified for the Tan Lam area considering sustainability of production, environmental and quality aspects. Implementation is supported. In phase 2, besides continuing work from phase 1, a special focus on ethnic minorities was added.

Indicators for Result 1 are:

- Biophysical baseline report of TLPC coffee producing areas is finished.
- Clear recommendation on research strategy is made.
- Comprehensive and agrees research design according to findings in the baseline report is implemented.
- Field trials are identified.
- Bi-annual progress reports are issued.
- Introductory workshop has been held.
- 500 extension manuals are distributed.
- 3 workshops are conducted.
- In phase 2 indicators that were added are:

- Tan Lam farmers apply Good Agricultural Practices (GAP) and comply with the Common Code for the Coffee Community (4C)
- Extension approach for minority farmers has been elaborated and implemented 6/2006
- An quantifiable sustainability measurement tool is in place by 12/2005

Activities for result 1 are:

- Analyse the actual situation of coffee producing area in Tan Lam with the relevant national institutions and organisations.
- Support field trials with TLPC and relevant national institutions on selected issues.
- Elaborate and publish field manual and extension material on cultivation of coffee.
- Offer and conduct workshops on national level on sustainable coffee.

In phase 2 activities added are:

- Follow up field research
- Support district level Farmers' Field Schools (FFS)
- Test 4C code and develop quantitative assessment methodology

3.2 Result 2

Good manufacturing practices for sustainable coffee processing have been identified considering quality and environmental aspects. In phase 2 the German Appropriate Technology (GATE) waste water technology program has been implemented according to outline.

Indicators for Result 2 are:

- Handbook on best practices in coffee processing is elaborated and published (by the end of 2002).
- Relevant environmental indicators for pollution are identified and regularly monitored (by the end of 2002).
- Governmental regulations on the environment are collected (by the end of 2002).
- An environmental management handbook is developed at TLPC.
- In phase 2 indicators added are:
- Final report and an off the shelf technology package for waste water treatment from wet coffee processing has been issued and delivered to national body for distribution.

Activities for result 2 are:

- Elaborate, document and publish processing techniques for quality coffee.
- Develop and apply monitoring system on the environmental effects of coffee processing at the TLPC processing plant.
- Install and apply improved environmental control measures of model character at TLPC.
- Offer and conduct workshops on post harvest techniques on national level.

In phase 2 activities added are:

Carry out waste water treatment workshops according to GATE proposal.
Finalise waste water technology package including national certification of the system (on the basis of Vietnams Standards Committee (TCVN))

3.3 Result 3

Quality standards for Arabica coffee are developed and introduced at TLPC as a model for the coffee sector's quality management on national level. In phase 2 storage facilities at Tan Lam Company have been upgraded to preserve inherent coffee quality before export.

Indicators for result 3 are:

- Clear and widely accepted recommendation on the conduct of standard development are derived (by 11/2001).
- Standard handbook is developed and published (by 02/2003).
- workshops are held (by 12/2003).
- Suitable persons for international quality training are identified (by 01/2002).
- Overseas quality training is conducted (by 03/2002).
- Mould prevention handbook is developed for TLPC (by 12/2002).
- Moisture management system is implemented at TLPC (by 12/2002).

In phase 2 indicators added are:

- Construction plans and cost estimates have been elaborated by 06/05.
- Recommendations on the improvement of storage facilities have been documented before crop season 05/06 and implementation of recommendations has been facilitated.

Activities for result 3 are:

- List and discuss actual coffee quality standards with the relevant institutions.
- Jointly develop and get commitment from the relevant authorities for improved national coffee standards, comparable to international standards.
- Offer and conduct training courses on coffee quality on national level.
- Introduce Moisture Management System (MMS) and mould prevention measures for Ochratoxin A (OTA).

Activities added in phase 2 are:

- In conjunction with EDE and international experts, elaborate storage improvement strategy in line with provided budget.
- Supervise and guide implementation of storage facilities.
- Elaborate storage management handbook and quality guidelines in a hands-on approach with Tan Lam staff and management that also serves as an on the job training.

3.4 Result 4

Living conditions of small farming households in Huong Phung commune is improved. In phase 2 improvements for childrens' living conditions in coffee growing areas of Khe

Sanh and Huong Phung have been facilitated and children needs assessment methodology has been applied in other coffee growing areas of Vietnam.

Indicators for results 4 are:

- Planning workshop is conducted (by 12/2002).
- Recommendations are derived on infrastructure improvement (by 12/2002).
- Decisions have been taken by authorities and construction permission has been granted (by 10/2002).
- New infrastructure facilities are installed (by 03/2002).
- Additional indicators in phase 2 are:
- Construction and trainings have been carried out according to outcome of children needs assessment by 04/05.
- Findings of multiplication of children needs assessment in other coffee growing areas are derived by 10/05.

Activities for result 4 are:

- Analyse social infrastructure and identify possible improvement measurements.
- Construct facilities and assure integration into district planning.
- In phase 2 activities added are:
- Document, supervise, implement and evaluate children improvement measures.
- Apply children needs assessment methodology in other coffee growing areas of Vietnam.

3.5 Result 5

This result only pertains to phase 2 of the project. A project plan will be ready, which describes the activities needed for establishment of a national setup for supporting the rolling out of 4C and sustainability practices, as well as the partners and available funds for achieving this. Experiences from pilot projects are made available for use on this national scale.

Indicators for results 5 are:

- A suitable institution for national anchorage of 4C has been identified and partners (local and international) have agreed on the project plan.
- Information material and events are carried out jointly between the project team, GTZ and the national body.
- A set of well documented sets of documentation for off the shelf technologies are available to a wide public in print and electronic format.

Activities for result 5 are:

- Obtaining commitment from potential national and international partners for roll-out idea
- Together with partners, formulating a plan for developing a national setup and finding funding for this plan
- Hold stakeholder meetings (industry, donor agencies, etc.) to set 4C structure in place.

- Develop a standardised set of recommendations relating to improving sustainable practices in the VN coffee sector.
- Hold workshop and seminars on national and regional level.
- Develop information material in print and software format.

4 Impact

Original indicators and progress have been reported on in the regular progress reports. Both Kraft Foods and the Douwe Egberts Foundation are actively involved in the Sustainable Agriculture Initiative (SAI). To enhance SAI's approach we have chosen to follow the SAI indicators for assessing project impact.

Unless stated otherwise, all farm data is derived from daily farm records kept since 2002 by around 10% of all project farmers and supplemented by outcomes from a large-scale evaluation study carried out in 2004 (Filename: "Impact assessment report"). Data related to Tan Lam Company's financial performance is derived from their sustainability business plan (Filename: "Final sus biz plan consultancy report"). Data related to processing is derived from Tan Lam's Environmental Management Accounting system.

The assessment is structured along the 3 dimensions of sustainability as defined by SAI, i.e. environmental, economical and social issues. The SAI monitoring package came into being long after the project started. While most data is available to quantify SAI indicators, gaps do occur because the original project monitoring was not designed to handle the SAI format. In those cases the designation "not available" (na) is used. In some instances SAI indicators were deemed insufficiently accurate and have been replaced by more tangible indicators. The data set covers multiple years and allows monitoring of impact over time.

4.1 Environmental impact

Table 1 details SAI indicators for water use, conservation and protection.

Table 1: Water use and energy (BOD refers to Biological Oxygen Demand, COD stands for Chemical Oxygen Demand)

	Indicator	Unit	Value in year				
			01	02	03	04	05
Water & energy	Water use in processing	m ³ mt cherry ⁻¹	9.7	7.0	4.0	4.0	4.1
	BOD wastewater	mg l ⁻¹	na	na	na	0.85	1.34
	COD wastewater	mg l ⁻¹	na	na	na	3.63	2.96
	Energy	kWh Mt ⁻¹	1,795	2,276	1,960	1,938	2,568
	Mt green bean ⁻¹						

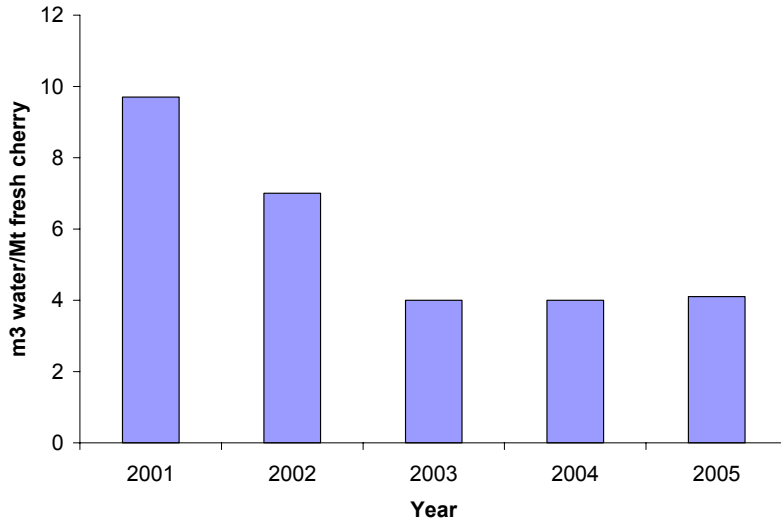


Figure 1: Water use efficiency from 2001 to 2005 in m3 of water used per Mt of fresh cherry processed

Data from Tan Lam's Environmental Management System (EMA) shows significant improvements in water use efficiency (Table 1, Figure 1) and waste water quality. BOD and COD values, two important indicators for organically loaded waste water such as that from coffee factories, are well below the benchmarks of 50 and 100 mg l⁻¹ respectively. The figures speak for them

self and further anecdotal evidence shows that the number of damage claims by farmers living downstream from the factory has reduced to zero after the waste water treatment system was implemented. Energy use varies with the size of the crop and weather conditions during processing. Space for sun drying is limited, so in years with a heavy

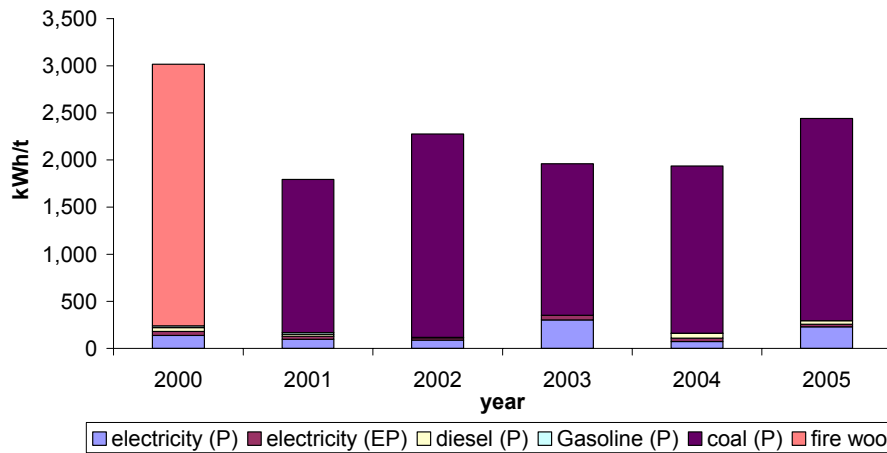


Figure 2: Energy source and use efficiency per Mt of green bean from the year 2000 to 2005. The designations "P" and "EP" stand for processing and administration respectively

crop such as 2005 more energy is consumed for mechanical drying. In a good year Tan Lam is able to sun dry part of the crop, but heavy rains also result in higher energy consumption. While energy consumption as such has

not decreased, the composition of energy sources is more sustainable after replacement of firewood for drying by coal (Figure 2).

Table 2 summarises the state of integrated management for both Tan Lam factory and its contract farmers. With regard to pesticide use, a change has been made from the SAI format. SAI looks at the World Health Organisation (WHO) classification on class 1 and 2 pesticides (1 being the most hazardous), but it is unclear which chemicals belong to what class. Therefore we chose to look if Bad Actors¹, the Dirty Dozen², chemicals banned in the EU³, Tan Lam's largest export market, and those banned under Vietnamese law are used.

Table 2: Integrated management of waste and chemicals

	Indicator	Unit	Value in year				
			01	02	03	04	05
	Coffee pulp recycling	%	0	0	100	100	100
Pesticides	Use of Bad Actors	nr times season ⁻¹	na	8	16	5	12
	Use of Dirty Dozen chemicals	nr times season ⁻¹	na	0	0	0	0
	Use of pesticides banned in the EU	nr times season ⁻¹	na	0	0	0	0
	Use of pesticides banned in Vietnam	nr times season ⁻¹	na	0	0	0	0
	Chemicals properly stored		y	y	y	y	y

Due to its acidity coffee pulp is a hazardous material, especially for ground and surface water. Since 2003 Tan Lam is operating a composting scheme. While management of this is not optimal, the acid fluids draining from the pulp are collected and fed through the waste water treatment system. Pulp drained of fluids is subsequently spread on coffee fields.

Bad Actors are frequently used and may pose a threat to both the user and the environment. The use of Bad Actors seems correlated to disease pressure. In times with a high incidence of aphids, use of insecticides goes up (see 2004) and most insecticides

¹ The Pesticide Info network came up with the definition of a bad actor. A bad actor is a chemical that is at least one of the following attributes: highly acutely toxic, cholinesterase inhibitor, known/probable carcinogen, known groundwater pollutant or known reproductive or developmental toxicant.

² Chemicals that belong to the so-called Dirty Dozen group are the world's most hazardous pesticides and have been banned by over 90 countries already, including Vietnam.

³ Use of chemical banned under EU law is not allowed under Utz Kapeh if the certified unit exports coffee to the EU.

happen to be Bad Actors. This is not completely avoidable and to counter potential negative health effects on workers and farmers intensive training has been given on safety and the use of protective clothing. Still more hazardous than the Bad Actors are the Dirty Dozen, but none of the chemicals belonging to that group have been used. Further indicators on regulatory compliance show that none of the chemicals banned under EU and Vietnamese law are used.

Storage of agro-chemicals has never been a problem in the district. The level of infrastructural development is such that farmers can apply just-in-time logistics for agrochemical procurement. Hence, agro-chemicals are stored at local shops that all have separate and lockable storage.

SAI indicators on soil management entail erosion and nutrient management. Erosion has been left out because the planting densities used in the project area are so high that erosion hardly occurs. Indicators on nutrient management have been made quantitative (Table 3).

Table 3: Soil management

	Indicator	Unit	Value in year				
			01	02	03	04	05
Input	N	kg mt cherry ⁻¹	na	55.8 ± 55.9	16.0 ± 8.8	27.9 ± 18.7	15.3 ± 13.7
	P ₂ O ₅	kg mt cherry ⁻¹	na	11.6 ± 14.2	3.2 ± 2.1	6.0 ± 4.4	3.2 ± 5.0
	K ₂ O	kg mt cherry ⁻¹	na	21.6 ± 20.6	7.1 ± 4.6	12.3 ± 9.3	6.1 ± 3.6
Balance	N balance ⁴	kg mt cherry ⁻¹	na	316 ± 243	152 ± 151	152 ± 158	124 ± 143
	P ₂ O ₅ balance	kg mt cherry ⁻¹	na	73 ± 51	51 ± 35	41 ± 28	41 ± 32
	K ₂ O balance	kg mt cherry ⁻¹	na	55 ± 102	-26 ± 94	26 ± 71	-66 ± 71

⁴ The balance is calculated by subtracting the removal of nutrients during harvest multiplied by an efficiency of application factor from the total application. Note that the efficiency factor is based on a number of assumptions! Data is derived from C. Pinkert, 2002 and Kuit, Jansen and Nguyen, 2006.

Box 1: Comment on fertiliser application techniques



Mr. Le Huu Luc:
“Keeping Fieldbook records and attending FFS has taught me to make better yield estimates to adjust my fertilizer applications.”

Impact of Farmers’ Field Schools is evident from the both increased efficiency of fertiliser applications (Box 1) as well as reduced variability over time. Some farmers however seem to have been over-doing efficiency improvements a bit. In 2003 and 2005, under-application of K_2O occurred (Table 3).

Generally, farmers move closer to the optimum represented by the value 0 in Figure 3.

Farmers do however, still take larger margins to compensate for application losses (eg from leaching). Partly this can be explained by soil types. Several of the farms in Huong Phung commune are more susceptible to leaching losses. Another interesting feature is that variability of the

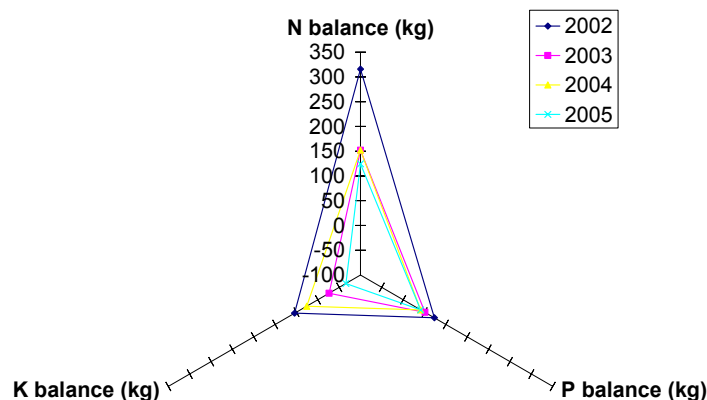


Figure 3: Nutrient balance N

nutrient balance decreases over time. This may indicate that farmers are applying techniques taught and, when seen in conjunction with Figure 3 suggests a closer to optimum application level (Figure 4).

4.2 Social impact

Besides the range of social indicators provided by SAI, the project worked on a number of other interventions in the social field, specifically, interventions centered on child education issues, nutrition and kindergartens. The latter issues did not apply to original project farmers but focused on disadvantaged Van Kieu ethnic minority farmers in the remote commune of Huong Phung (see report: “060628 Final Children Evaluation Report”).

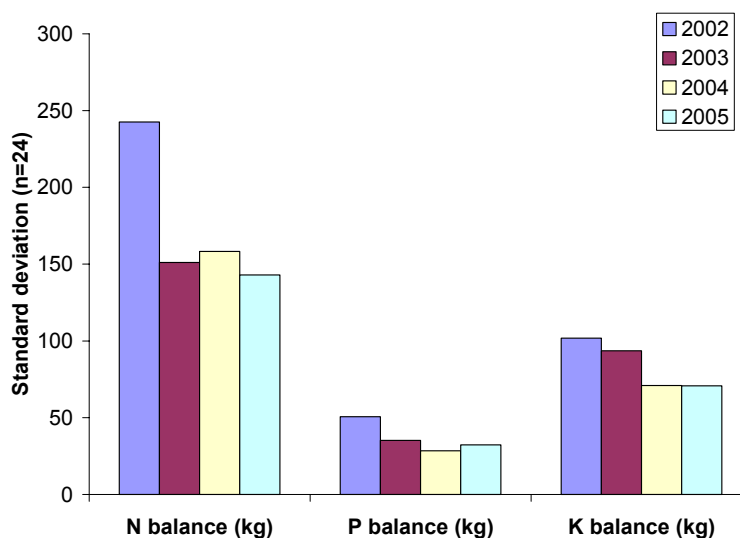


Figure 4: Standard deviation of nutrient balance 2002 to 2005 (n=24)

Table 4 details the child labour and education situation for children of Tan Lam contract farmers.

Table 4: Child labour and education

Indicator	Value in year				
	01	02	03	04	05
Children Child labour only as part of family operations	na	y	y	y	y
Access to education is facilitated	na	y	y	y	y

Child labour and education are not an issue among project farmers. Similarly, health issues among Tan Lam contract farmers are limited. Access to medical care is widely available with health stations in every commune (Table 5).

Table 5: Health

Indicator	Value in year				
	01	02	03	04	05
Health Access to safe water and food	y	y	y	y	y
Access to health services	y	y	y	y	y
Emergency transport	y	y	y	y	y

At the Tan Lam factory and at the farms seasonal workers are employed. Salaries have increased over the years, reflecting both inflation and improved financial performance of

the company (Table 6). At farm level only seasonal workers are employed, fulfilling around 60% of annual farm labour demand.

Table 6: Salaries

	Indicator	Area	Unit	Value in year				
				01	02	03	04	05
Salaries	Wage level	Factory	% of legal minimum	229	240	240	283	314
	seasonal workers	Farm	% of legal minimum	na	89	109	125	147
	Wages are paid in cash			y	y	y	y	y

Payments to seasonal workers at the factory and the farm are well above the legal minimum. Only the most recent minimum wage level for 2005 could be obtained. Against that benchmark the factory performed very well throughout the project duration. On the farms 2002 saw payments below the 2005 benchmark.

Living conditions for workers (Table 7) are more applicable to larger estates such as those found in South and Central America than to smallholder farms in Vietnam. SAI is rather vague by not further specifying what constitutes “adequate” and “hygienic” (first 2 indicators). Our interpretation is that the workers should have similar living conditions as those of their employer for the duration of their employment.

Table 7: Living conditions for workers on the farm

	Indicator	Value in year				
		01	02	03	04	05
Living	Farm provides adequate housing to workers	y	y	y	y	y
	Workers have access to hygienic sanitary facilities	y	y	y	y	y
	No discrimination	y	y	y	y	y

Seasonal workers on the farms in Tan Lam live in the farmer’s house and have access to the same facilities. Therefore, following our interpretation, the farms all comply.

In the case of Tan Lam, the factory acts as a producer organization (PO). Farms are linked to the factory via contract farming arrangements. The contracts clearly specify services to which the farm is enabled. Performance of Tan Lam has generally been good, with only one indicator that needed improvement (Table 8).

Table 8: Producer organisation and training

Indicator	Value in year					
	01	02	03	04	05	
Organisatio n	Farm is member of producer organization	y	y	y	y	y
	PO provides services	y	y	y	y	y
	PO promotes improvement of social and environmental standards	no	no	y	y	y
	PO offers basic training to members	y	y	y	y	y

Services provided by the PO include infrastructure, agronomical training and transport of produce. Agronomical training is facilitated by a coffee handbook. This handbook bundles farmers', trainers' and project staff experience into one comprehensive

Box 2: Comments on service provision



A Huong Hoa district DARD officer stated:
"My impression of this project is its impact on local farmers' cultivation methods. Arabica coffee is a kind of tree that needs very specific management; no knowledge, no income. Before training there were two investment trends: too much or too little. After training, better investment practice brings more effectiveness."

document. The English version is available in soft copy, the Vietnamese version will be printed this year. The PO and its contract farms have been Utz Kapeh certified since 2003, this has helped tremendously to speed up and restructure the types and quality of services provided (Box 2). It also led the PO to promote improvements of social and environmental standards.

Within the province, Tan Lam is a leading company where cooperation with other provincial and district organisations are concerned. They have working arrangements with Extension Service, Plant Protection Office, Women's Union, Farmers' Union and the Agricultural Department. Tan Lam Indicators for diversification are fairly vague and could, for a lack of clarity, not be properly identified. Basic accounting and planning procedures are in place both at farm and factory level.

Table 9: Diversification, planning and monitoring

Indicator	Value in year				
	01	02	03	04	05
The PO cooperates with other organizations to promote sustainability	y	y	y	y	y
Basic accounting procedures in place	no	p	p	p	y
Long term financial planning	no	no	y	y	y

Initially, farm records were not available. Since the introduction of the Farmers' Field Book (FFB) in 2002, 10% of the contract farmers were keeping daily records of farm

activities and associated costs and benefits. In 2003 this increased to 25% and since late-2005 all farmers keep a simplified version of the FFB.

4.3 Economic impact

SAI's economic indicators give a comprehensive view of the project's economic impact at both farm and factory level (Table 10).

Table 10: Farm and factory turnover. Gb stands for green bean, lb for pound, and FOB means Freight on Board

	Indicator	Area	Unit	Value in year				
				01	02	03	04	05
Yield	Quantity harvested		Mt gb ha ⁻¹	na	1.69 ± 1.03	2.84 ± 0.91	1.28 ± 0.71	3.35 ± 1.37
	Type of coffee			fresh cherry	fresh cherry	fresh cherry	fresh cherry	fresh cherry
	Quality classification			na	na	na	na	na
Price received	Sales point			factory	factory	factory	factory	factory
	Price received	Farm	US\$ lb ⁻¹	na	0.40 ± 0.02	0.37 ± 0	0.43 ± 0.06	0.64 ± 0.07
		Factory			0.36	0.43	0.83	0.78
	Premium	Farm	US\$	0	0	0.01	0.02	0.02
		Factory	lb ⁻¹	0	0	0.03	0.05	0.07
	Farm gate price as % of FOB price		%	na	90	86	52	82
Turnover	Turnover from coffee	Farm	US\$ ha ⁻¹	na	1,497 ± 713	2,313 ± 845	1,231 ± 418	4,841 ± 3,396
		Factory	,000 US\$	262	361	570	541	797

The yield indicator in Table 10 shows the bi-annual bearing pattern of Arabica coffee.

Note should be taken that 2004 was an exceptionally dry year with consequently lower than expected yields. Since 2003, premiums started playing a role, after Tan Lam and its contract farmers became Utz Kapeh certified.

Box 3: Comments on markets and prices



Mr. Loi, a coffee farmer from Khe Sanh said:
"The project did very well already. What we need now is some improvement on the market such as improves the quality of processing stage; improve the price of selling to international market for better price here in our market; reduce interest of credit scheme."

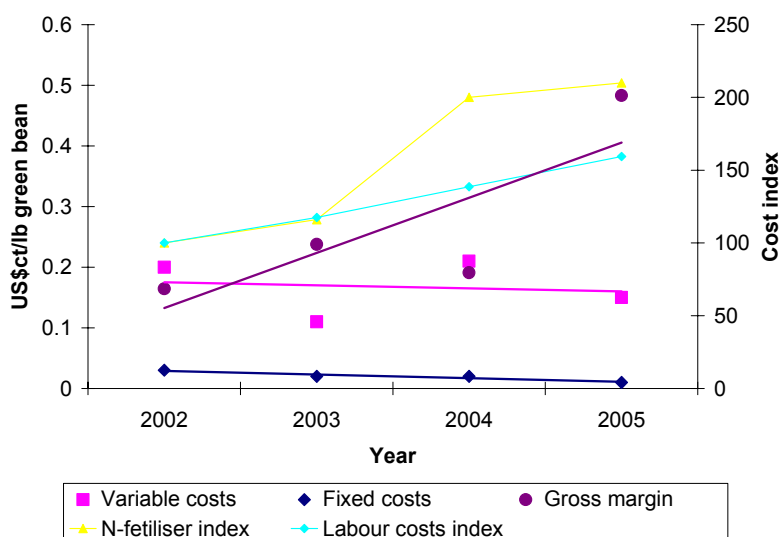
Noteworthy is also the competitiveness of the Vietnamese market which can be gleaned from the indicator on share of the farm gate price relative to the FOB price. In 2002 farm gate prices were 90% of FOB prices! In subsequent years

this decreased to a more sensible and still high share of around 83-86%, with an exception in 2004. Despite high shares of FOB prices some farmers are not entirely satisfied (Box 3).

Table 11 shows key indicators on costs of production.

Table 11: Farm and factory production costs

Indicator	Area	Unit	Value in year					
			01	02	03	04	05	
Production costs	Variable costs	Farm	US\$ lb ⁻¹	na	0.20 ± 0.17	0.11 ± 0.03	0.21 ± 0.10	0.15 ± 0.07
		Factory			0.33	0.41	0.71	na
	Fixed costs	Farm	US\$ lb ⁻¹	na	0.03	0.02	0.02	0.01
		Factory			0.06	0.09	0.10	na
	Change in production costs from year 2002	Farm	%	na	na	-44	0	-31
Factory				na	na	28	107	na
Margin	Gross margin	Farm	US\$ lb ⁻¹	na	0.16 ± 0.17	0.24 ± 0.03	0.20 ± 0.13	0.48 ± 0.11
		Factory			na	-0.04	-0.07	0.02



Costs of inputs have risen tremendously in Vietnam over the last 4 years. Obvious increases are fertilizers, the price of which is closely linked to energy prices. Less obvious but of equal impact has been a price increase for hired labour of over 50%. Given these increases it seems remarkable that

Figure 5: Farm economic performance. The primary y-axis shows fixed and variable production costs and gross margin from 2001 to 2005 in US\$ct per lb green bean. The secondary y-axis shows the price index for N-fertiliser and labour costs where the year 2001 is 100

variable costs for farmers have remained fairly stable within a range of 0.17US\$ lb⁻¹ (Figure

5). At the factory, the situation is less rosy, production costs have increased and losses were incurred in 2002 and 2003. Unfortunately data for 2005 on factory performance

was not available. Farm gross margin increased significantly in 2005. Two reasons are a first a good yield and second, high coffee prices.

5 Discussion

Overall, performance at both farms and the factory has improved over the project duration. Environmental performance in the factory improved on several accounts. Especially water use per Mt exported coffee is a success story. Overall energy use in the factory has not changed much on per volume coffee basis, but the composition of energy sources changed. Pre-project, Tan Lam used large amounts of firewood for drying. Currently, firewood as a source of heat has been substituted by cheaper and cleaner burning coal. On farm level improvements were strong with improved efficiency of nutrient applications and stable production costs per lb of green bean against rising prices for inputs and labour.

5.1 What didn't work

Of the ambitious project plan not all activities were equally successful and some failed. One of the initial ideas was to establish a professional training group in the company which was envisaged to market Tan Lam's skills to other projects and companies in the country. While reasonable turnover was achieved in the first two years of operation (12,000 US\$ in 2004 and 14,000 US\$ in 2005), key personnel running the group left the company after the project in search of better paid private sector jobs. The fact that they succeeded can be considered an indicator of the effectiveness of the project's capacity building activities, but leave Tan Lam in a somewhat difficult situation. Tan Lam is dealing with this in two ways: i) Tan Lam out sources part of their training needs to people from district organisations who were trained by the project in participatory training methodologies, and ii) the DEF committed a small annual fund on which Tan Lam can draw for capacity building of its staff.

Attempts to add further value to Tan Lam's coffee by enabling the company to enter the domestic R&G market failed. Several trainings in roasting and blending were offered and Tan Lam invested in professional roasting equipment. Packages were designed and a business plan written. Actual market entry however did not occur. Tan Lam blames this on insufficient capacity among its staff.

Trading practice is still a major issue in Tan Lam. Presently, Tan Lam still has no possibility to engage in any form of hedging. This is crucial to the economic sustainability of the company. Tan Lam faces severe competition in the local market from 2 other companies, driving up fresh cherry prices. To ensure volume Tan Lam has to go with the other 2 companies but doesn't have any idea at what price it will be able to sell the processed cherries a few months later. This leaves Tan Lam vulnerable to coffee price volatility. Unfortunately, no suitable mechanism whereby the price risk is more evenly spread between Tan Lam and the project partners was implemented.

Utz Kapeh certification is a source of pride among the company and its employees. While premiums are in principle sufficient to cover additional costs for sustainability

improvements, the volume of Utz Kapeh certified coffee sold as such remains limited. In the best year (2004), the company was able to receive Utz Kapeh premiums on only 30% of its exporter volume. While this is clearly a market issue and not so much influenced by project work, it is something to take into account in new projects.

Result nr 5 on Rolling Out is still on-going. Initial estimates by project staff for the duration of this activity were overly optimistic. At field level new and upcoming projects ensure momentum in the provinces, policy changes at a national level take more time. Partly this is because policymakers, while convinced of the impact of our activities, are not yet clear on cost-benefit relations and consequently hesitant. Additional constraints lie in the political system as there is no central authority on coffee. This necessitates consensus among a much wider group of stakeholders (4 ministries) and that takes time. Still, commitment from industry and enthusiasm from a number of stakeholders in Vietnam -most notably the Institute for Policy and Strategy for Agriculture and Rural Development (IPSARD) and the Vietnam Coffee and Cocoa Association (Vicofa)- signify potential success.

5.2 What worked

The project produced some success stories as well. On farm level, the FFS and FFB are good examples. The FFS for coffee model as developed by the project is currently being applied in several other projects in Vietnam. Although the training group of Tan Lam is struggling a bit after two key staff left the company, local district partners from governmental organizations have also been trained by the project. These people are now being hired by Tan Lam Company as freelancers to provide farmer training. Additionally, these people are enthusiastically applying the techniques of participatory training in their other training assignments for local government, projects and NGOs.

The FFB concept of daily crop registration and feedback loops of analysed data to farmers is not only applied in Vietnam, but in South and Central America as well. A follow-up phase that recently started aims to further develop the present software tool into an on-line based system, accessible globally to all interested producers and projects.

Utz Kapeh certification helped to confirm the company's road to sustainability. Since 2003 Tan Lam has been certified each year and to date remains the only certified Arabica producer in Vietnam. On a national level Tan Lam is considered a show-case for best practices and emulation efforts by the Ministry of Agriculture and Rural Development (MARD) are underway through the so-called rolling out process.

Quality improvements in Tan Lam factory have had a large impact (Box 4). At the start of the project Tan Lam's trade contacts were limited. Presently, the company sells to the major trade houses and roasters. Quality improvements in the present sense include sustainability improvements. In the factory the setup of

Box 4: Comments on quality of Tan Lam coffee



The Neumann Kaffee Gruppe (NKG) export company's quality manager was cupping a batch of coffee from Quang Tri province and noticed that their supplier (Vinacafe) had mixed in coffee from Tan Lam company to reach the needed volume. The reason the quality manager noticed was because the quality of Tan Lam's coffee was much better!

fermentation tanks was instrumental in bringing quality standards up to par. Investment in storage facilities allowed Tan Lam to store their coffee without significant quality loss.

6 Budget

Funding for the project came from 3 sources: Kraft Foods, the Douwe Egberts Foundation and GTZ (Table 12) and totalled 1,502,000 Euro over 4.5 years. In addition Tan Lam invested capital in various improvements in the factory (eg fermentation silos, storage installation and roasting facilities).

Table 12: Project budget phase 1 and 2

Phase	Years	Contribution (Euro)			
		Kraft Foods	DEF	GTZ	Tan Lam
1	2001-2003	287,100	348,000	200,100	34,800
2	2004-2006	334,960	297,040	0	
Grand total		622,060	645,040	200,100	34,800

Budget for Rolling Out from Kraft Foods has not been entirely spent with around 20,000 Euro left.

7 Outlook

Generally, Tan Lam Company aims to prolong its Utz Kapeh certified status as an expression of their commitment to sustainability. Maintaining the Utz Kapeh certificate means that important project activities such as the EMA, FFB and FFS will continue to be applied by Tan Lam. Processing improvements are partly expressed in hardware and partly in management practices. Improved processing practices entail a financial benefit for the company and are presently expanded. Of its own initiative Tan Lam proceeds work in this direction by striving for ISO 14001 certification.

Progress on Rolling Out is tangible but slow. An official evaluation of project tools by the Ministry of Agriculture and Rural Development in October 2005, showed their interest to institutionalise the tools and approaches and attempt dissemination to all coffee areas.

To support that process the Douwe Egberts Foundation committed a small fund to setup a working group at national level. The purpose of this group is to align expectations and interests of various stakeholder groups and come to a workable mode of operation for rolling out. We propose that the remaining budget of Kraft is pooled with DEF's resources for this purpose. In addition, various donors have shown a tentative interest in participating in a program type of arrangement. Details will be worked out by the stakeholder group in due course and are expected to result in a program proposal later this year that is a logical extension of past works of Kraft, DEF and GTZ.