

## **HAGEN – RILKE JOINT COFFEE VENTURE (CFP2/34)**

### **Environmental and Social Management Plan (ESMP)**

#### **Project Description**

Smallholder coffee farming has the potential to produce 700 to 800kg of green bean per hectare. Despite this potential the average production from smallholder coffee farmers is only around 350kg per ha. In addition, the quality of parchment produced is variable which raises serious issues with marketing.

Despite these problems coffee constitutes the main source of cash income for most smallholder farmers, with coffee fitting in with the farming system and the cultural obligations of the people, such as marriage ceremonies, funerals, etc.

Rilke has been assisting grower groups and individuals with advice and marketing for the past 8 to 10 years on an informal basis. This project provides an opportunity to enter into more formalized arrangements and additional support.

All of our activities address mainly three concepts. Sustainability – Smallholder farmers hold the key to the success of PNG coffee into the future. Education – Many smallholder farmers we will work with, attended a low level of elementary education. Teaching, Advising, and Mentoring are all built into our plan utilizing several facets such as workshops, extension officers, collateral availability, and one on one mentoring. Environmentally sound practices not only being taught but direct implementation through vermin culture and Organic Nursery Stock.

The purpose of the project is to increase the cash income of the smallholder farmers in the partnerships and to engender a responsible approach to the utilisation of the total household income for the betterment of the whole family. Improved financial literacy for the family will be the means of achieving this objective.

The Lead Partner will operate out of its head office in Mt. Hagen, Western Highlands Province. The farmers identified are based within the vicinity of Hagen town and the surrounding district. Specifically: Umbra, Ulya, Paglum, Baisu, Nabilyer, Muglum, Warap, Ogelbang.

#### **A. Potentially adverse environmental impacts and mitigation measures**

As stated in the Project description under 'Social and Environmental Impacts' the inputs proposed are small volumes and most of them are environmentally friendly. However, steps will be taken to deal with potentially adverse impacts, though minor in nature. The following identifies and describes potential impacts:

1. The use of small amounts of chemicals is intended during the initial phase of project implementation.
  - (i) Spot spraying of Glyphosate is intended to be used for weed control in farms where sufficient shade cover is lacking and during establishment of new shade.
  - (ii) Fungicides will be used to inhibit the spread of 'Coffee Leaf Rust' during the initial major pruning phase and thereafter only where serious infestations are identified.

##### *Description of Mitigation Measures for Chemical Use:*

- (a) Storage: Rilke has a shed for storage of chemicals. The shed is well aerated and secured for storage of all chemicals. It will be further modified on the project and will have associated

washing facilities for spray handlers. Washing water will be channelled into a soak pit with no danger of contaminating creeks and water ways.

- (b) Transport: Movement of chemicals from the store to the farmers field will be undertaken by the Coordinator and Extension Officers who will also maintain the store records and supervise application.
  - (c) Training: Field staff will be fully trained in the handling and use of all chemicals, a service generally provided by the authorized dealers. Spray teams will then be fully trained and supervised by Rilke's Field Officers.
  - (d) Application: Spray Teams will be fully trained and equipped for all spraying activities. Each operator will be trained in maintenance of the sprayer to ensure correct application rates and droplets size. Each will be provided with all necessary safety clothing (overalls, hat, gum boots, etc) and accessories (gloves, face masks, goggles, etc). All spray clothing will be washed in detergent and kept at the storage area.
  - (e) Spills, Leaks & Disposal of Containers: A supply of sawdust and coffee husks will be maintained at the site where chemicals are being stored and/or transferred between containers and/or sprayers. The use of water for cleaning spills will be strictly forbidden. All used containers will be decontaminated using detergents, rendered unusable, including cardboard boxes, will be buried in a suitable location free from leaching.
2. Nursery: The nursery will be located on the Lead Partners land, at a safe distance from any river or stream. No chemicals will be used on the nursery.
  3. Drainage: Farmers will be required to ensure that existing drains are maintained / de-silted. Material taken from the bottom of drains will be spread over the inter-rows of the coffee plot. Material extracted from any new drain will be similarly spread in the inter rows.
  4. Shade management: Larger branches cut from shade trees will be used for fence maintenance while smaller wood is traditionally used for firewood (home cooking). Leaves and small branches are spread on the ground amongst the coffee.
  5. Pulping: Rilke's central factory complies with all CIC requirements for waste water and coffee skin treatment and disposal. Coffee skins are composted using worm to break down the material.

### **Monitoring program**

- Staff of the PMU will routinely undertake field inspection of the activities of the Lead Partner and the smallholder farmers included in Co-Partnership agreement to verify the Quarterly reports provided by the Lead Partner.
- The Lead Partners will maintain records of the use of chemicals, the application of rehabilitation activities (drainage & shade management) and coffee processing.

### **B. Potentially adverse Social impacts and mitigation measures**

The social impact is a positive one of increased income to the household. However, it requires more time to be spent in the coffee gardens than in the past, thereby reducing the time for social activities. The improved income from these farming activities will assist in the reduction of HIV/AIDS and other anti-social behaviours by the farming population.

Following are descriptions of possible adverse social impacts identified and mitigation measures;

1. Indigenous peoples policy: The partnership has been established based on the co-partners' need to improve the productivity of their existing coffee gardens and improve the quality of the

produce leading to certification under Rainforest Alliance in order to target niche markets that pay premium prices. The Rilke / Hagen partnership has resulted from intensive consultation and awareness. There is broad community support for the project.

2. Involuntary resettlement policy: All the lands to be utilized for the partnership activities are owned by the beneficiaries themselves. There will be no land donated to the project by members of the community.
3. Negative social impacts: To avoid misuse of income from coffee sales, members of participating households will be trained in planning expenses / budgeting and record keeping. Awareness and information sessions will also be provided to reduce alcohol abuse and HIV/ AIDS prevention. Women will participate fully in all activities and parents of school aged children will be discouraged from involving school children in farm activities during school hours. The availability of a grievance mechanism has been made known to the beneficiaries including the locations of the grievance boxes.

#### **Monitoring program and responsibilities**

- Staff of the PMU will routinely undertake field inspection of the activities of the Lead Partner and the smallholder farmers included in Co-Partnership agreement to verify the Quarterly reports provided by the Lead Partner.
- The Lead Partners will maintain records of training provided and awareness/information sessions.

#### **Cost Estimates and Source of Funds**

Funds to implement the ESMP will be part of the Partnership budget. These are specified for the initial sub project investment.

Project Stage	Project Activity	Impacts	When Impact Occurs	Mitigation Plan			Monitoring Plan			Costs
				Mitigation Measure	Who	When to be applied	Indicator	Who	When	
<b>A. ENVIRONMENTAL MANAGEMENT PLAN (EMP)</b>										
<b>1. Nursery Establishment</b>	Site Preparation	Grass Cutting and shrub removal and clearing	During Site Preparation	Clearing only within the area to be utilized within existing smallholder garden	Farmers	During Site Preparation	Nursery Site cleared	Extension Officer	During nursery establishment	As per activity budget
	Shade/Shelter Construction	Collecting materials such as posts, bush twines and kunai grass	During Shade/shelter construction	Only collect materials that will be required for this purpose	Farmers	During Shade/shelter construction	Shelter constructed	Extension Officer		As per activity plan/budget
	Soil mixture / Seed bed / poly bag preparation	Taking top soil and sand for potting mixture	Soil mixture preparation	Only collect top soil and sand that will be required	Farmers	During soil mixture preparation	Poly bags / or seed bed prepared	Extension Officer		As per project budget
	Seedling development	Water supply	During seedling development	Minimal water to be utilized	Farmers	During Seedling Development	Healthy seedlings	Extension Officer		As per project budget
	Seedling planting in field	In-filling missing spaces or replacing old unproductive trees with new seedlings	Seedling Planting in field	Making a hole in the garden and planting the seedlings	Farmers	During Seedling Planting in the field / coffee gardens	Fully planted coffee garden with no empty spaces	Extension Officer		During farm Visits
<b>2. Rehabilitation</b>	Fencing	Post preparation	During coffee rehabilitation	Prepare fencing posts	Farmers	Coffee rehabilitation	Fence completed	Extension	Farm visit during	As per project

Project Stage	Project Activity	Impacts	When Impact Occurs	Mitigation Plan			Monitoring Plan			Costs
				Mitigation Measure	Who	When to be applied	Indicator	Who	When	
				/ sticks		n period		Officer	rehabilitati on period	budget
		Post Planting		Making holes and planting posts / sticks						
	Weed Control	Slashing / hand weeding		Slashing and uprooting weeds	Farmer s		Weeds under control			
		Herbicide (Glyphosate) Spraying	Initial shade establishment stage	Safe transportation, storage and application practices including training of sprayers	Special Spray team and Co-Partners	During Coffee rehabilitation and shade establishment period	Weeds under control, chemical storage shed and spray equipment and safety gear usage / availability	Lead Partner, PMU	Quarterly Reports and	
	Shade Management	Thinning	Rehabilitation period (after weed control and drain maintenance )	Some shade trees are cut-down	Farmer	Rehabilitation period	Adequate shade cover	Extension Officer	Farm Visit during rehabilitation period	As per project budget
		Shade Lifting		Lower branches are removed	Farmer		At least 5 – 6m space between top of coffee trees’ canopy and lower branches / leaves of shade trees			
		Pruning	Recycle Pruning	First pruning during project implementation if pruning is over-due or after harvesting every season	Old/mature stems of unproductive coffee removed	Farmer	After main harvesting period	Only healthy bearing heads and young suckers	Extension Officer	Farm Visit during rehabilitation period
		Maintenance Pruning	After harvesting	Sucker selection, de-	Farmer	Every 2 – 4 months	2 – 4 stems of coffee per stump / main stem	Extension	Farm Visit during	As per project

Project Stage	Project Activity	Impacts	When Impact Occurs	Mitigation Plan			Monitoring Plan			Costs
				Mitigation Measure	Who	When to be applied	Indicator	Who	When	
			and every 2 to 4 months thereafter	suckering, and skirting				Officer	rehabilitation period	budget
	Drainage	Removal of debris and soil in drains	After harvesting and	Cleaning drains of debris and spreading this under the coffee	Farmer	Rehabilitation period	Clean drains and removed matter spread under coffee	Extension Officer		As per project budget
<b>3. Maintenance</b>	Weed Control	Manual	As necessary on a regular basis	Slashing and uprooting weeds	Farmer	When weeds grow and before seeding	Weed under control	Extension Officer	Farm visit	As per project budget
		Chemical Control - Glyphosate	First 1 – 2 years	Chemical storage, handling, applying and waste disposal will be done under environmentally safe conditions including the use of safety gear for workers. Training of workers / farmers in the safe handling and usage of chemicals at the correct	Lead Partner, Co-partners	During the shade establishment period	Weeds under control, Specifically constructed chemical and safety gear storage shed, availability and utilization of safety gear, evidence of training in safe handling and use of chemicals	Lead Partner / PMU	Quarterly Reports, farm visits by EOs and random verification visits by the PMU	As per project budget

Project Stage	Project Activity	Impacts	When Impact Occurs	Mitigation Plan			Monitoring Plan			Costs
				Mitigation Measure	Who	When to be applied	Indicator	Who	When	
				dosage						
	Shade Management	Removal of new shoots and lower branches	As required	Lower twigs and leaves are removed	Farmer	When required	Adequate shade	Extension Officer	Farm visit	As per project budget
	Pruning	Recycle Pruning	Annually and immediately after harvesting	Removal of old unproductive stems	Farmer	Immediately after harvesting	2 – 4 stems of coffee per stump / main stem	Extension Officer	Farm visit	As per project budget
		Maintenance Pruning	After harvesting and 2 to 4 month intervals	Handling and de-suckering	Farmer	Every 2 – 4 months	2 – 4 stems of coffee per stump / main stem and selected suckers only	Extension Officer	Farm Visit	AS per project budget
	Pest Control	Spraying of copper based fungicides against Coffee Leaf Rust (CLR)	After recycle pruning when new suckers are selected	Chemical storage, handling, applying and waste disposal will be done under environmentally safe conditions including the use of safety gear for workers. Training of workers / farmers in the safe handling and usage of chemicals at	Lead Partner , Co-Partners,	After recycle pruning after sucker selection and where CLR infestation is serious	CLR under control,  Specific chemical and safety gear storage shed, availability and utilization of safety gear, evidence of training in safe handling and use of chemicals	Lead Partner / PMU	Quarterly Reports, farm visits by EOs and random verification visits by the PMU	AS per project budget

Project Stage	Project Activity	Impacts	When Impact Occurs	Mitigation Plan			Monitoring Plan			Costs
				Mitigation Measure	Who	When to be applied	Indicator	Who	When	
				the correct dosage						
	Drainage	Removal of debris and soil in drains	As required	Cutting but not removal of grass along the sides and bottom of the channel together with the removal of accumulated silt and grass cuttings and clean base of drain to maintain original gradient and depth and spread debris under coffee in garden	Farmer	As and when required normally after harvesting	Well maintained drains	Extension Officer	Farm visit	As per project budget
	Manuring	Organic	When organic matter is applied & spread	Spread under coffee bushes	Farmer	After pulp decomposition and availability of organic matter	Healthy coffee trees	Village Extension Officer	Farm visit	Negligible
<b>4. Processing</b>	Pulping	Water and coffee skins discharged to water course	At all times coffee pulping takes place	Waste water & pulp channelled to a series of ponds. Liquid evaporates and/or seeps into soil	Lead Partner	During coffee season	Ponds containing pulp and liquid and water courses not polluted	Lead Partner / PMU	During regular inspections and Quarterly Report	NIL

Project Stage	Project Activity	Impacts	When Impact Occurs	Mitigation Plan			Monitoring Plan			Costs
				Mitigation Measure	Who	When to be applied	Indicator	Who	When	
				Decomposed pulp removed annually or as required and spread under coffee	Lead Partner	During and after coffee season	Coffee pulp under coffee trees	Lead Partner / PMU	During regular inspections and Quarterly reports	NIL
<b>B. SOCIAL IMPACT / ISSUES : SOCIAL MANAGEMENT PLAN (SMP)</b>										
<b>1. Indigenous Peoples Policy</b>	<i>All Co-Partners have signed up voluntarily following free, prior and informed consultations</i>									
<b>2. Involuntary Resettlement Policy</b>	<i>All land used are existing coffee gardens owned by beneficiaries and no land will be used collectively by Co-Partner Groups</i>									
<b>3. Negative Social Impacts</b>	Coffee Sales	Increase in disposable income and spent on unnecessary things such as alcohol	Cash is received in payment for coffee	Training on expenses planning and budgeting for both husbands and wives.  Farmer Group adopts a policy of income expenditure record keeping	Lead Partner	During Farm Management Training for households & Capacity Building Training for farmer groups	List of Training materials offered include training on budgeting	Lead Partner, (PMU)	Quarterly (review reports & random verification inspections )	In line with budget
	All Activities	If partnership caters only for men's interest	When project is implemented	Ensure that women are involved and share all benefits from	Lead Partner	When capacity building trainings are provided,	List of proposed activities include the participation of women	Lead Partner, (PMU)	Quarterly (review reports & random verification	In line with budget

Project Stage	Project Activity	Impacts	When Impact Occurs	Mitigation Plan			Monitoring Plan			Costs
				Mitigation Measure	Who	When to be applied	Indicator	Who	When	
		resulting in further marginalization of women		the project		when tools and farm implements are distributed, and encourage both men and women to be involved equally			inspections )	
				Gender balance among extension workers, i.e., some female extension officers to be engaged	Lead Partner	Project Implementation	Women Extension Officers on RILKE staff	Lead Partner / PMU	Quarterly (review reports & random verification inspections )	Budgeted in Project
	During Training sessions	Incremental income <b>could</b> worsen existing problems of alcohol abuse and domestic violence	When income potential increases as a result of more income for the household	<b>If</b> alcohol abuse is rampant, ensure that partnership activities include awareness and counselling	Lead Partner	During training sessions	List of proposed training materials <b>should</b> include alcohol abuse prevention, counselling etc.,	Lead Partner (PMU)	Quarterly (review reports & random verification inspections )	In Line with Project Budget
	HIV / AIDS Training	Possible increase incidence of HIV/AIDS	When income potential increases as a result of more income	If HIV / AIDS is prevalent, ensure partnership activities include HIV /	Lead Partner	HIV / AIDS awareness and prevention training	List of proposed activities include HIV / AIDS awareness and prevention campaigns	Lead Partner (PMU)	Quarterly (review reports & random verification inspections	In Line with Project Budget

Project Stage	Project Activity	Impacts	When Impact Occurs	Mitigation Plan			Monitoring Plan			Costs
				Mitigation Measure	Who	When to be applied	Indicator	Who	When	
			for the household	AIDS awareness and prevention seminars					)	
	During training sessions / awareness sessions	Possible exploitation of children in the farms, preventing them from going to school	Project Implementation	Ensure farmers / groups adopt policy restricting employment of children during school days	Group Leaders, Lead Partner	During training sessions	Resolution from farmer group adopting a policy on employment of children in the coffee farms (ensuring child schooling is not disrupted)	Lead Partner (PMU)	Quarterly (review reports & random verification inspections )	In Line with Project Budget
	During training / awareness sessions	Absence of grievance mechanism	Project Implementation	Ensure that grievance mechanism is in place and the people are aware of it	Lead Partner , (PMU)	During project implementation	(a) Information materials (b) Grievance boxes installed	Lead Partner (PMU)	Quarterly (review reports & random verification inspections )	Negligible